IMPACT OF CLIMATE CHANGE ON PRODUCTION AND PRODUCTIVITY OF RICE (*Oryza sativa L.*) AND MAIZE (*Zea mays L.*) CROPS IN ARUNACHAL PRADESH.

Thesis

submitted to

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of

Doctor of Philosophy

in

Agricultural Economics

by

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CERTIFICATE – I

This is to certify that the thesis entitled "**Impact of climate change on production and productivity of rice (*Oryza sativa L.*) and maize (*Zea mays L.*) crops in Arunachal Pradesh."** submitted to Nagaland University in partial fulfillment of the requirements for the award of degree of Doctor of Philosophy (Agriculture) in Agricultural Economics is the record of research work carried out by Ms. Avicha Tangjang Registration No. PHD/AEC/00046 under my personal supervision and guidance.

The result of the investigation reported in the thesis has not been submitted for any other degree or diploma. The assistance of all kinds received by the student has been duly acknowledged.

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CERTIFICATE – II

VIVA VOCE ON THESIS OF DOCTOR OF PHILOSOPHY IN AGRICULTURAL ECONOMICS

This is to certify that the thesis entitled "**Impact of climate change on production and productivity of rice (*Oryza sativa L.*) and maize (*Zea mays L.*) crops in Arunachal Pradesh."** submitted by Avicha Tangjang Admission No. Ph- 207/16 Registration No. PHD/AEC/00046 to NAGALAND UNIVERSITY in partial fulfillment of the requirements for the award of degree of Doctor of Philosophy in Agricultural Economics, has been examined by the Advisory Board and External examiner on 9th December 2021.

The performance of the student has been found **Satisfactory/Unsatisfactory.**

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DECLARATION

I, Miss. Avicha Tangjang, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form the basis of the award of any previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other university/institute.

This is being submitted to Nagaland University for the degree of Doctor of Philosophy in Agricultural Economics.

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LIST OF ABBREVIATIONS

et al.	Et alia / and others
A.D.	Anno Domini
ABC	Atmospheric Brown Cloud
APSIM	Agricultural Production System Mulator
CO_2	Carbon dioxide
CV	Coefficient of Variation
DSSAT	Decision Support System for Agrotechnology Transfer
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GHG	Green House Gases
Go AR	Government of Arunachal Pradesh
GSDP	Gross State Domestic Product
Ha	Hectare
INFOCROP	Information on Crop
IPCC	Intergovernmental Panel on Climate Change
ISM	Indian Summer Monsoon
IST	India Standard Time
mm	Millimetre
NEI	North East India
OECD	Organization for Co-operation and Development
R & D	Research and Development
RCM	Regional Climate Models
RCP	Remote Control Panel Remote Copy
RMC	Regional Meteorological Center
SSA	Sub-Saharan Africa
STINER	Science and Technological Intervention for North East India
WFP	World Food Programme
WRC	Wet Rice Cultivation
WRI	World Resources Institute

ABSTRACT

A study was conducted in the state of Arunachal Pradesh in order to study the impact of climate change on production and productivity of rice (*Oryza sativa L.*) and maize (*Zea mays L.*) crops in the state. The study was carried out in East Siang and Lohit districts of Arunachal Pradesh; each being the highest producing district of rice and maize in the state respectively. The study showed the monthly and seasonal rainfall pattern to exhibit an erratic pattern with a non uniform linear trend for different months and different seasons. The districts of East Siang as well as Lohit received a minimum monthly rainfall of 0.00 mm while the highest monthly rainfall was recorded to be 2363 mm in the month of August for East Siang and 786.70 mm in the month of April for Lohit district. Both the districts received maximum seasonal rainfall during the monsoon months of April to September with 5992.90 mm and 2831.10 mm of rainfall received in East Siang and Lohit districts respectively. The monthly rainfall pattern for Lohit exhibited significant and decreasing trend value during the months of February, July and December with trend values -0.42, -4.28 and -15.31 respectively. The trend was significantly increasing during the month of August with a trend value of 5.67. The study showed that the annual seasonal rainfall for East Siang exhibited decreasing linear trend for all the three seasons. The trend value was found significant during the monsoon period with a trend value of -895.52. The annual rainfall also showed significant decreasing linear trend with a trend value of -0.10. The maximum temperature observed in East Siang exhibited an increasing trend during the study period of 2000-2018 with a significant trend coefficient of 0.06. The average annual Relative Humidity for East Siang during 2006-2018 was 76.72 and 77.04 at 0830 hrs and 1730 hrs IST respectively. Relative Humidity showed a significant increasing trend for the month of April and a decreasing trend for the months of September and October**.** The productivity of rice and maize crops showed a gradual decrease throughout the study period. It was also found that total annual rainfall had a significant effect on the yield of paddy in the state. The respondents claimed to have perceived climate change and reported to have observed a change in the timing and duration of rainfall received along with changes in temperature. Of the various problems faced by the farmers, decreasing yield was ranked as the most important, followed by pest and disease infestation and weed infestation in the fields. The farmers also adopted various means in order to counter the problems by adopting changes in the cropping time and pattern, introducing climate resilient varieties and switching to more economically profitable crops. In view of the observations made during the study, some policies and future course of actions that could be applied can include involvement of Government in encouraging cooperative and self help groups to reduce price risk while employing prominent and authoritative figures to influence the decision of the farmers positively. The state is facing an immediate need for development of crop monitoring, climate forecasting and mapping of the climate susceptible areas to minimize the risk caused by unpredictability of weather prevalent in the region.

Keywords: *Climate change, rice, paddy, maize, rainfall trend, temperature, relative humidity, adaptive measures, mitigation, policies.*

CONTENTS

INTRODUCTION

Climate is often described as the 'average weather' and expressed in terms of the mean and variability of temperature, precipitation and wind, over a time period that can range from months to millions of years. The climate system is a complex interactive system and evolves with time under the influence of its own internal dynamics and due to changes in external factors that affect climate (called 'forcings'). External forcings include natural phenomena such as volcanic eruptions and solar variations, as well as human-induced changes in atmospheric composition. (Le Treut *et al.* 2007)

Climate change is any significant long term change in the statistical distribution of weather patterns of a region or the whole earth and those change lasts for an extended period of time. It often refers to a change in average weather conditions, or in the time variation of weather around longer-term average conditions (i.e, more or fewer extreme weather events) and is caused by factors such as biotic processes, variations in solar radiation received by Earth, plate tectonics, and volcanic eruptions. Certain human activities have also been identified as significant causes of recent climate change, often referred to as global warming (Arndt *et al.* 2012).

Climate change is usually a slow and gradual process, and unlike year-to-year variability, is quite difficult to perceive without scientific records. Scientists detect climate change by looking for long-term continuous changes (trends) in climatological averages and normals and the variations around these averages. Climate change is about the non-normal variations to the climate, and the effects of these variations on other parts of the earth and these changes may take tens, hundreds or even millions of years. (Mahato, 2014) It is important to understand that there is nothing inherently wrong with climate change. It has happened in the past and will happen again. However, the current concern stems from the rate at which the changes are happening. The rapid increased in anthropogenic activities such as industrialization, urbanization, deforestation, agriculture, change in land use pattern etc. leads to emission of Green House Gases (GHG) due to which the rate of climate change is accelerating at an alarming rate. It is due to these anthropogenic activities that the average temperature has risen by 0.9 °C since nineteenth century, mainly due to the release of greenhouse gases in the atmosphere and is estimated to rise by 1.5 °C or even more by 2050. The unprecedented hike in the atmospheric temperature has resulted in increased events of droughts, floods, irregular patterns of precipitation, heat waves and other extreme happenings throughout the globe causing large scale economic as well as uneconomic losses. (Arora, 2019). Scientists have found that the current rate of temperature increase is higher than any, previously seen in the last 800,000 years (Anon. 2001).

Climate isn’t defined by any particular timeframe, however scientists typically use average weather conditions over 30 year time intervals to track climate. These 30-year averages are called climatological normal and are used to determine, monitor or represent the climate - or a specific slice of climate - at a particular location. Thirty years of data is long enough to calculate an average that is not influenced by year-to-year variability. Normal can be calculated for a variety of weather variables, such as temperature or precipitation based on data from weather stations in the region of interest. There is significant year-to-year variability around these 30-year averages. This year-to-year fluctuation around the normal is climate variability (Arndt *et al.* 2012).

Climate Change and its Impact on Agriculture*:*

Climate is a direct determinant of agricultural productivity wherein the climate of a region has a direct or indirect impact on the quality and the quantity of agricultural produce of the said region. Global climate change is a change in the long-term weather patterns that characterizes the regions of the world and in the long run is expected to influence crop and livestock production, quantity and quality of crops in terms of productivity, growth rates, photosynthesis and transpiration rates, moisture availability etc. across the globe. It can also have a significant impact on input supplies and other components of agricultural systems. (Adams *et al*. 1998). The world agriculture scenario is faced with a serious decline within this century due to global warming with an overall, agricultural productivity for the entire world projected to decline between 3 and 16 % by 2080 (Mahato, 2014).

Even though climatic changes could affect agriculture in several ways, the nature of its biophysical effects and the human responses to them are complex and uncertain. For example, crop and livestock yields are directly affected by changes in climatic factors such as temperature and precipitation and the frequency and severity of extreme events like droughts, floods, and wind storms. An increase in the mean seasonal temperature can lead to reduced crop duration and hence reduce the yield. A more immediate impact of increased temperature on yield is expected to be witnessed in the areas where temperatures are already close to the physiological maxima for crops. (IPCC, 2007) In the other hand, carbon dioxide is fundamental for plant production; rising concentrations have the potential to enhance the productivity of agroecosystems. Climate change may also change the types, frequencies, and intensities of various crop and livestock pests; the availability and timing of irrigation water supplies; and the severity of soil erosion. (Adams *et al.* 1998)

Climate change is expected to cause changes in the climatic scenarios of the world and manifest primarily in terms of higher temperatures, changes in precipitation, and higher atmospheric CO_2 concentrations. The plausible changes can have both positive and negative impact on agriculture. For example, an increased temperature has been found to reduce yields and quality of many crops, most importantly cereal and food grains due to higher respiration rates and shorter seed formation and grain filling period. On the other hand, an increase in precipitation may benefit semi-arid and other areas with shortage of water by increasing soil moisture. The same can however aggravate problems in regions with excess water, while a reduction in rainfall in some places can cause drought like scenario. An atmosphere with higher CO_2 concentration would result in higher net photosynthetic rates (Cure and Acock, 1986; Allen *et al.* 1987). Higher concentrations may also reduce transpiration as plants reduce their stomatal apertures with a reduction of about 30% reported in some crop plants (Kimball, 1983). The net change in crop yields is determined by the balance between these negative and positive direct effects on plant growth and development, as well as the indirect effects that can affect production. These indirect effects have been largely ignored in the assessment of climate change effects except for changes in water supplies (Adams, 1998). Indirect effects may arise from changes in the incidence and distribution of pests and pathogens (Sutherst et al. 1995), increased rates of soil erosion and degradation, and increased tropospheric ozone levels due to rising temperatures (Adams, 1986).

Climate change is also likely to affect the livestock sector in many ways, for example, there may be a change in the quantity and quality of feed in both open grazing condition as well as cultivated fodder. A rise in summer temperatures can cause suppressed appetite in livestock and hence lead to lowered weight gain (Adams *et al.* 1998). However, some studies of mid to high latitude grasslands found that climate change has led to higher productivity (IPCC 1996). Climate change also affects livestock by affecting the frequency and severity of extreme climate events (Hoffmann, 2013).

Climate change and food security

The world population is expected to reach 9.7 billion by 2050 which would only increase the pressure on agricultural lands to meet the growing food demands. Agriculture is the spinal-cord of world economy and the impact that climate change has on it will inevitably affect every human on earth. Altogether, the impact of climate change is very comprehensive. However, its effect is undeniable. Climate change and agriculture have inextricable links which means that any sudden and rapid changes in climatic conditions can threaten the food security at global scale. World Food Programme (WFP) report of 2018 revealed that the rate of increase in crop yield per hectare is significantly slower compared to the rate of rising population. The Food and Agriculture Organization (FAO) reported that if the current situation of GHG emissions and climate change continue then the world would witness a decline in the production of major cereal crops (20–45% in maize yields, 5–50% in wheat and 20–30% in rice) by the year 2100.

Food security is both directly and indirectly linked with climate change. The net impact of food security will depend on the exposure to global environmental change and the capacity to cope with and recover from global environmental change (Mahato, 2014). On a global level, increasingly unpredictable weather patterns can lead to fall in agricultural production which will inevitably lead to a spike in food prices. This accompanied with the rising demand of the ever-growing world population would ultimately lead to food insecurity (Arora, 2019).

The already increasing demand for food due to ever growing population is causing the farming community to engage in intensive agricultural practices including unprecedented use of agro-chemicals, and exploitation of natural resources which has resulted in the pollution of natural resources and release of GHG due to farm activities. The consequences of agriculture's contribution to climate change, and of climate change's negative impact on agriculture, are severe which is projected to have a great impact on food production and may threaten the food security and hence, require special agricultural measures to combat with (Mahato, 2014).

Climate change and its impact on Indian agriculture

India's agriculture is mostly monsoon dependent and changes in monsoon trend have a drastic effect on agriculture. According to IPCC 2007, pre-monsoon temperature change will primarily affect the wheat crop in the Indo-Gangetic Plain, (>0.50 ^{o}C increase in time slice 2010 to 2039 (IPCC, 2007). According to Lal *et al.* 1998, a 1.00^{o}C increase in temperature may cause a 3.00 to 7.00 per cent reduction in the yields of wheat, soybean, mustard, groundnut, and potato. According to the study, it will be the rain fed or un-irrigated crops, cultivated in nearly 60.00 per cent of cropland that would be adversely affected by the drastic climate change with about 10.00 to 40.00 per cent reduction in yield by 2100 due to increases in temperature, rainfall variability, and decreases in irrigation water (Lal *et al.* 1998).

The warming may be more pronounced in the northern parts of India. The extremes in maximum and minimum temperatures are expected to increase under changing climate, few places are expected to get more rain while some may remain dry (Mahato, 2014).

Agriculture typically plays a great role in the economies of a nation, more so in developing countries than in the developed world. Agriculture in India accounted for 23% of GDP, and employed 59% of the country's total workforce in 2016, with the majority of agricultural workers drawn from poorer segments of the population (FAO 2021). Furthermore, it is reasonable to expect that farmers in developing countries may be less able to adapt to climate change due to credit constraints or less access to adaptation technology (Guiteras, 2009). Being a developing country, India already faces chronic food problems and while overall world food production may not be threatened by climate change, those least able to cope will likely bear additional adverse impacts (WRI, 2005) Coping with the impact of climate change on agriculture will therefore require careful management of resources like soil, water and biodiversity. To cope with the impact of climate change on agriculture and food production, India will need to act at the global, regional, national and local levels (Mahato, 2014).

Importance of rice and maize in Arunachal Pradesh.

Rice and maize are two of the three leading food crops in the world along with wheat; together they directly supply more than 50% of all calories consumed by the entire human population. Rice provides 21% of global human per capita energy and 15% of per capita protein. Rice is the most important human food crop in the world, directly feeding more people than any other crop. In 2012, nearly half of world's population – more than 3 billion people – relied on rice every day.

Rice is one of the most important food crops and feeds more than 60 per cent population of India. In our country, rice is grown in 43.86 million ha, the production level is 104.80 million tones and the productivity is about 2390 kg/ha (National Food Security Mission, 2016).

Maize is known as queen of cereals because it has the highest genetic yield potential among the cereals. It is cultivated on nearly 150 m ha in about 160 countries having wider diversity of soil, climate, biodiversity and management practices that contributes 36 % (782 m t) in the global grain production. In India, maize is the third most important food crops after rice and wheat. The maize is cultivated throughout the year in all states of the country for various purposes including grain, fodder, green cobs, sweet corn, baby corn, pop corn in peri-urban areas (Parihar *et al.* 2011).

Arunachal Pradesh is basically an agricultural economy. Over 60% of the population is dependent on agriculture. Jhum cultivation is the main occupation of the farmers in Arunachal Pradesh and it has been practiced since times immemorial. Rice and maize are two of the major crops grown in Arunachal Pradesh along with millet, potato, ginger, mustard, off season vegetables, large cardamom etc. (STINER). Both the crops play an important role in the diet of the people of the state. The people of the state have cultivated rice and maize since generations and the region has a rich diversity in the local varieties for both the crops. Some varieties like the Khamti Lahi rice is known for its uniqueness in taste, aroma, size, shape, colour and cooking method.

Hypothesis:

H_o1: There was no change in climate pattern in the Arunachal Pradesh.

H_o2: Climatic parameters did not have any impact on rice and maize production.

Justification and scope of the study:

The agricultural scenario of a region are strongly influenced by the average climatic condition prevalent in the region and the experience and infrastructure of local farming communities are generally attuned to particular types of farming practices and to a particular group of crops which are known to be productive under the climatic norm. A significant change in the mean climate away from the norm would require the farming community to make necessary adjustments in the current practices in order to maintain productivity. These changes in some cases can lead to drastic changes in the optimum type of farming (Gornall *et al.* 2010).

Agricultural systems are managed ecosystems and in order to estimate the effect of climate change on the production and supply of farm produce requires a thorough understanding of the human response to critical conditions. The producers and consumers in an agricultural system are in a dynamic relationship and are continuously responding to changes in crop and livestock yields, food prices, input prices, resource availability, and technological change. Keeping an account of these adaptations and adjustments is difficult but necessary in order to measure the impact of climate change impacts (Adams *et al.*1998).

About 35 percent of the total population of Arunachal Pradesh is engaged in agriculture as their main occupation. Jhum cultivation (Shifting Cultivation) and Terrace farming (Wetland Rice Cultivation (WRC)) are the two major patterns that farmers employ. Jhum cultivation contributes only about 14% as compared to Terrace farming contribution of 86% of total grain production in the state. The agriculture in this part of the eastern Himalayas is mostly rainfed and the farmers are extensively dependent on the seasonal rainfall with only 17% of total cultivated area under irrigation (Arunachal Pradesh State Action Plan on

Climate Change -2011). The cropping practices in most of the farmlands are traditional and have been duly adjusted according to the region's climatic condition, a drastic change in which can cause either a favorable or an unfavorable change in the production, productivity or the quality of the agricultural products besides the change in the region's biodiversity. For example, The Times of India (February 24, 2013) reported that the apples from Arunachal Pradesh are losing their taste and are turning sour due to climate change wherein erratic and excessive rainfall are causing dilution of the crop's sugar content. In today's world where the earth is facing climate change at an alarming rate, it is therefore highly required that one studies the impact of climate change in the production and productivity of agricultural crops in order to understand the various problems, their intensity and means to overcome them in order to ensure food security in the future.

In awareness of the rising need to understand the impact of climate change on agriculture, its scope and prospects, which is essential in order to address the rising demand for food for the ever growing world population, the concerned study is undertaken under the following objectives:

OBJECTIVES

1. To study the climate change pattern in the study area.
2. To study the effect of climatic parameters on crop production.
3. To study the various mitigation and adaptation measures followed by the farmers in view of climate change.
4. To examine the constraints faced by the farmers and to suggest suitable policy framework, if any.

LIMITATIONS OF THE STUDY

The study was conducted based on both, primary and secondary data. The primary data was collected through field survey by interviewing the farmers wherein the precision of the data greatly depended on factors like the ability of the farmers to recall the correct information, their readiness to share correct data, their emotional status at the time of interview etc., which was a major hindrance while obtaining the correct data. The secondary data was obtained through reliable sources. However, the period of study being quiet large observed a lot of data gaps which made analyzing of the data quiet challenging.

LITERATURE REVIEW

2.1. Climate change trends and patterns:

Malhi *et al*. (2021); in their paper titled, Impact of Climate Change on Agriculture and Its Mitigation Strategies: A Review discuss how the rapid raise the global temperature due to greenhouse effect has witnessed a higher increase in temperature in the landmasses as compared to the oceans. The paper concluded on the keynote that global precipitation scenario has changed and more weather extremes are projected to be observed in the near future. Climate change was projected to have a negative impact on agricultural productivity wherein the raised temperature and altered precipitation are most likely to offset the positive impact of increased CO_2 on plants. The paper also discussed how warmer and humid climate is creating more horizons for pest infestations.

Karn (2014); in the paper titled The Impact of Climate Change on Rice Production in Nepal, South Asian Network for Development and Environmental projected that by the end of the 21st century, rainfall over India will increase by 10-12% and the mean annual temperature by 3- 5°C. The warming would be more pronounced over land areas with a maximum increase over northern India.

Oza and Kishtawal (2014); examined the long-term changes and short-term fluctuations in Indian Summer Monsoon (ISM) rainfall and temperature over North East India (NEI) in Eastern Himalayan region. Rainfall data for period 1871 to 2012 and temperature data for the period 1901 to 2007 were used in their study. Long-term behavior was assessed using parametric linear trend model as well as with the non-parametric Mann-Kendall rank statistic. The short-term fluctuations were studied by applying Cramer's t-test for the 11year running means. The striking features are the varied epochs of above- and below normal ISM rainfall at different spatial scales and temperature in various seasons in this region. The detailed analysis of data over North East India indicated that there is a decreasing trend in Indian summer monsoon rainfall at all India level as well as in NEI wherein the rate of decrease is steeper as one goes towards east even in NEI. Maximum temperature in NEI was observed to be increasing during all the four seasons at a rate of between 0.50 to 1.60 ^{o}C / 100 years, the increase being highest in winter months and lowest in pre-monsoon season. No consistent direction of change emerged in the analysis of minimum temperature data and the decade of 1960 to 1970 came out as a critical time point from where the reversal of trend in climatic variables was noticeable.

Loo *et al*. (2013); I n their paper, Effect of climate change on seasonal monsoon in Asia and its impact on the variability of monsoon rainfall in Southeast Asia state that floods are said to be most frequent in Asian countries, especially Southeast Asian countries, namely the Philippines, Indonesia, Bangladesh, Thailand, Vietnam, and Cambodia. Most of the floods being associated with the EASM down pour. The paper highlights the issue wherein the flooding events, previously accepted by the agriculture-based communities as a positive contribution, had been intensifying rapidly by the 20th century global warming. The frequency of floods has not seized to increase since the 1970s.These flooding events in Southeast Asia can thus be used as evidence that monsoon rainfall is changing.

Turner (2013); in his study on The Indian Monsoon in a Changing Climate, found that monsoon rainfall in India is likely to increase in the future and the activebreak cycles are expected to intensify with the increase of carbon dioxide (CO2) in the atmosphere.

Jain and Kumar (2012); in their article reviewed studies pertaining to trends in rainfall, rainy days and temperature over India wherein Sen's non-parametric estimator of slope was used to estimate the magnitude of trend, whose statistical significance was assessed by the Mann-Kendall test. It was seen that on basin-wise trend analysis, 15 basins had decreasing trend in annual rainfall and only one basin showed a significant decreasing trend at 95.00 per cent confidence level. Among six basins showing increasing trend, one basin showed significant positive trend. Most of the basins had the same direction of trend in rainfall and rainy days at the annual and seasonal scale. Regarding trends in temperature, the mean maximum temperature series showed a rising trend at most of the stations; it showed a falling trend at some stations. The mean minimum temperature showed a rising as well as a falling trend. At most of the stations in the south, central and western parts of India a rising trend was found. Some stations located in the north and northeastern India showed a falling trend in annual mean temperature.

Kumar *et al.* (2010); in their paper on Analysis of long-term rainfall trends in India, monthly, seasonal and annual trends of rainfall were studied using monthly data series of 135years (1871 to 2005) for 30 sub-divisions(sub-regions) in India. The study found that half of the sub-divisions showed an increasing trend in annual rainfall, with the trend being statistically significant for three (Haryana, Punjab and Coastal Karnataka). Similarly, only one sub-division (Chhattisgarh) indicated a significant decreasing trend out of the 15 sub-divisions showing decreasing trend in annual rainfall. In India, the monsoon months of June to September account for more than 80.00 per cent of the annual rainfall. During

June and July, the number of sub-divisions showing increasing rainfall was found to be almost equal to those showing decreasing rainfall. In August, the number of sub-divisions showing an increasing trend exceeds those showing a decreasing trend, whereas in September, the situation was found to be the opposite. The majority of sub-divisions showed very little change in rainfall in non-monsoon months.For the whole of India, no significant trend was detected for annual, seasonal, or monthly rainfall. Annual and monsoon rainfall decreased, while pre-monsoon, post-monsoon and winter rainfall increased at the national scale. Rainfall in June, July and September decreased, whereas in August it increased, at the national scale.

Billa *et al.* (2004); in their paper titled, Spatial information technology in flood early warning system: an overview of theory, application and latest development in Malaysia state that there is no doubt that precipitation patterns have changed globally in recent years. It was also observed that In Malaysia and some Southeast Asian countries, increasing intensities of rainfall during the monsoons have not only become a source of major flood but also have become the triggering cause of major landslide events causing great economic and social losses.

Intergovernmental Panel on Climate Change (IPCC) (2001); reported that worldwide temperatures have increased by more than 0.6°C in the past century and estimated that by 2100, average temperatures will increase by between 1.4° and 5.8°C. They also reported that the sea levels have risen by between 10 and 20 cm and snow and ice covers have fallen almost worldwide, while the precipitation patterns characterizing land areas of the Northern Hemisphere have progressively changed. The same report, estimated that the sea levels would rise by an average 0.09 to 0.88 m between 1990 and 2100.

Hulme *et al*. (1994); in their paper titled, Recent and future climate change in East Asia, attempted to study the climate change in the East Asian region, both over the last 100 years and also for the next 100 years using instrumental data and the results from climate model experiments. The study suggests that by 2050, the *mean* conditions are expected to be warmer than the extremely warm seasonal anomalies that occurred during the most recent decade in East Asia. It was also suggested that the precipitation is estimated to rise over most of the region in all seasons, although the uncertainty range attached to this estimate is much wider than for temperature.

2.2. **The impact of climatic parameters on crop production**:

Chhogyel *et al*. (2020); in their paper titled, perception of farmers on climate change and its impacts on agriculture across various altitudinal zones of Bhutan Himalayas, conducted a study in six districts of Bhutan, representing low, mid and high-altitude regions of the country from March to May, 2019 in order to authenticate the claim that climate change is real and is considered to be impacting agricultural development in Bhutan. The study found that the farmers were well aware of climate change, although perceptions varied among the respondents. For most of the farmers, climate change meant unpredictable weather (79%), less or no rain (70%) and drying of irrigation sources (55%). Some farmers referred to climate change as the emergence of diseases and pests (45%), high-intensity rains (30%), less or no snow (24%) and shorter winter (11%). These climate change impacts were assessed to be responsible for 10–20% crop damages, resulting in crop losses to the tune of 8079–16,159 t and 7202–14,405 t for rice and maize, respectively. This is likely to affect the already low domestic food production of the country. Additionally, the study has successfully captured information on climate change adaptation strategies applied by the farmers. The most commonly observed ones were: the use of plant protection chemicals, improved varieties, increasing frequency of irrigation, land fallowing, off-farm works and improved management practices. Findings such as these are important towards the identification and formulation of an integrated sustainable and climate-proof farming support system.

Ray (2019); in his article, Climate change is affecting crop yields and reducing global food supplies discussed how a research led by his team from the University of Minnesota's Institute on the Environment found that climate change has affected yields in many places with not all of the changes being negative. Climate change was reported to have caused some crop yields have increased in some locations. Overall, however, climate change was reported to have reducing global production of staples such as rice and wheat. The data showed how the translation of crop yields into consumable calories resulted in the observation that climate change is already shrinking food supplies, particularly in food-insecure developing countries. The study had estimated that climate change was reducing global rice yields by 0.3% and wheat yields by 0.9% on average each year. However it was also observed that some more drought-tolerant crops like sorghum had benefited from climate change with Yields increasing by 0.7% in sub-Saharan Africa and 0.9% yearly in western, southern and southeastern Asia due to climate shifts since the 1970s.

Vyankatrao (2017); in the paper, Impact of climate change on agricultural production in India: effect on rice productivity concluded that a change in temperature, radiation, rainfall and carbon dioxide levels can affect the yields of rice through their direct effect as well as indirect effects. The study discussed how a majority of studies on impact of climate change on rice production reveals negative effect on overall yield. Temperature increase may shorten the length of the growing period and thus reduce yield if management practice is not changed. It can thus be concluded that high increase in CO2 and low increase in temperature may increase rice yields while high increase in temperature and low increase in CO2 may result into decrease in rice yield due to adverse effects on crop growth.

Araya *et al.* (2016); reported that wheat is an important crop in the highlands of Northern Ethiopia and climate change is expected to be a major threat to wheat productivity. They reported about the wheat field experiments that were carried out during the 2011 to 2013 cropping seasons in Northern Ethiopia in order tocalibrate and evaluate Agricultural Production Systems Mulator (APSIM) ,to explore the response of wheat cultivar/s to possible change in climate and carbon dioxide (CO_2) under optimal and sub-optimal fertilizer application and to assess the impact of climate change and adaptation practices on wheat yield based on integration of surveyed field data with climate simulations using multi-global climate models (GCMs; for short-and mid-term periods) for the Hintalo-Wajrat areas of Northern Ethiopia. The treatments were two levels of fertilizer (optimal and zero fertilization); treatments were replicated three times and arranged in a randomized complete block design. All required information for model calibration and evaluation were gathered from experimental studies. In addition, a household survey was conducted in 2012 in Northern Ethiopia. Following model calibration and performance testing, response of wheat to various nitrogen (N) fertilizer rates, planting date, temperature and combinations of other climate variables and CO_2 were assessed. Crop simulations were conducted with future climate scenarios using 20 different GCMs and compared with a baseline. In addition, simulations were carried out using climate data from five different GCM with and without climate change adaptation practices. The simulated yield showed clear responses to changes in temperature, N fertilizer and CO_2. Regardless of choice of cultivar, increasing temperatures alone (by up to 5°C compared with the baseline) resulted in reduced yield while the addition of other factors (optimal fertilizer with elevated CO_2) resulted in increased yield. Considering optimal fertilizer (64 kg/ha N) as an adaptation practice, wheat yield in the short-term (2010 to 2039) and mid-term (2040 to 2069) may increase at least by 40.00 per cent, compared with sub-optimal N levels. Assuming CO_2 and present wheat management is unchanged, simulation results based on 20 GCMs showed that median wheat yields will reduce by 10.00 per cent in the short term and by 11.00 per cent in the mid-term relative to the baseline data, whereas under changed CO_2 with present management, wheat yield will increase slightly, by up to 8.00 per cent in the short term and by up to 11.00 per cent in the mid-term period, respectively. Wheat yield will substantially increase, by more than 100.00 per cent, when simulated based on combined use of optimal planting date and fertilizer applications. Increased temperature in future scenarios will cause yield to decline, whereas CO_2 is expected to have positive impacts on wheat yield.

Kumar *et al*. (2016); in their study on assessing the Impacts of Climate Change on Land Productivity in Indian Crop Agriculture: An Evidence from Panel Data Analysis, pointed out that land productivity declines with increase in annual average maximum temperature. By using simulations, the study predicted that climate change would cause a decrease in land productivity by 48.63 % by 2100 and loss of income in farmers of India.

Yohannes (2016); review on relationship between Climate Change and Agriculture reviewed various articles and documents on relationship between climate change and agriculture. The paper discussed the two-way relationship of climate change and agriculture and its significance in particular to developing countries due to their large dependence on agricultural practice for livelihoods and their lack of infrastructure for adaptation when compared to developed countries. The study states that agricultural activities are affected by climate change affects due to their direct dependence on climatic factors. In high latitude areas with low temperature, increased temperature due to climate change could allow for longer growing season. Agriculture affects climate through emissions of greenhouse gases (GHGs) such as carbon dioxide, methane and nitrous oxide. These emissions come directly from use of fossil fuels, tillage practices, fertilized agricultural soils and livestock manure in large proportion. The study also suggests that conversely, agriculture could be a solution for climate change by the widespread adoption of mitigation and adaptation actions which can happen with the help of best management practices such as organic farming, agro-forestry practice and manure management etc.

Iqbal and Siddique (2014); in their paper on the impact of climate change on agricultural productivity: evidence from panel data of Bangladesh, studied the impact of climate change on agricultural productivity in Bangladesh for the period 1975 to 2008 for 23 regions. The study used descriptive statistics and maps to explore the long term changes in climatic variables such as temperature, rainfall, humidity and sunshine and used regression models to estimate the impact of climate change on agricultural productivity. The results show that long term changes in means and standard deviations of the climatic variables have differential impacts on the productivity of rice and thus the overall impact of climate change on agriculture is not unambiguous.

Mahato (2014); in his paper on Climate Change and its Impact on Agriculture elaborated that Climate change, as a result of "Global Warming" has now started showing its impacts worldwide. Describing climate as the primary determinant of agricultural productivity which directly impact on food production across the globe, the paper further concludes that agriculture sector is the most sensitive sector to the climate changes because the climate of a region/country determines the nature and characteristics of vegetation and crops. Increase in the mean seasonal temperature can reduce the duration of many crops and hence reduce final yield. Food production systems are extremely sensitive to climate changes like changes in temperature and precipitation, which may lead to outbreaks of pests and diseases thereby reducing harvest ultimately affecting the food security of the country. The net impact of food security will depend on the exposure to global environmental change and the capacity to cope with and recover from global environmental change. Coping with the impact of climate change on agriculture will require careful management of resources like soil, water and biodiversity. To cope with the impact of climate change on agriculture and food production, India will need to act at the global, regional, national and local levels.

Arndt *et al.* (2012); study on Climate Change, Agriculture and Food Security in Tanzania, expressed a serious concern regarding the consequences of climate change for agriculture and food security in developing countries due to their dependence on rain-fed agriculture, both as a source of income and consumption, causing many low-income countries to be considered most vulnerable to climate change. In their study, they estimated the impact of climate change on food security in Tanzania by using representative climate projections in calibrated crop models to predict crop yield changes for 110 districts in the country. The results ware then imposed on a highly-disaggregated, recursive dynamic economy-wide model of Tanzania. The study found that, relative to a no-climate-change baseline and considering domestic agricultural production as the principal channel of impact, food security in Tanzania appears likely to deteriorate as a consequence of climate change. The analysis pointed towards a high degree of diversity of outcomes (including some favorable outcomes) across climate scenarios, sectors, and regions. Noteworthy differences in impacts across households were also present both by region and by income category.

Latha *et al.* (2012); revealed that the climatic variation such as occurrence of drought have high level of impact on the yield of rainfed crops. The farmers perceive the impact of climate change on the crops grown in rainfed condition, such as yield reduction and reduction in net revenue and act to the changes in the climatic changes positively by adopting the technological coping mechanisms and negatively through shifting to other professions. The study concluded that the small and medium rainfed farmers were highly vulnerable to climate change and to a larger extent the small and medium rainfed farmers adopted coping mechanisms for climate change compared to large farmers. The study also suggested that as the impact of climate change is intensifying day by day it should be addressed through policy perspective at the earliest to avoid short term effect such as yield and income loss and long-term effects such as quitting agricultural profession by the rainfed farmers.

Ninan and Bedamatta (2012); study the notes that the impact of climate change will vary across crops, regions and climate change scenarios. The evidences indicate a decrease in production of crops in different parts of India with an increase in temperature. A number of studies indicate a probability of 10.00 to 40.00 per cent loss in crop production in India with increases in temperature by 2080 to 2100.In areas located above 27° N latitude yields of irrigated and rainfed wheat are projected to rise in response to climate change whereas in all other locations yields are projected to decline by -2.30 to -23.90 per cent. Temperature rises of between 2.00 °C to 3.50 °C is projected to lead to a loss of 3.00 to 26.00 per cent in net agricultural revenues. Increasing climate sensitivity of Indian agriculture will lead to greater instability of India's food production which will also impact on poverty and livelihoods. How quickly Indian farmers are able to adjust their farming practices to adapt to climate change, and what policies or technologies will enable rapid adaptation to climate change are issues that merit attention.

Callway *et al.* (2011); according to their study, climate change is expected to reduce the yields of most crops. The Second National Communication to the UNFCCC estimates annual losses of ~29 million by 2025 due to reductions on yields for winter wheat, grapes, and alfalfa if there is no irrigation. This study analyses a number of crops in the Strezevo area and shows that significant drops in crop yields can be expected without adaptation. These losses are projected to increase over time. It was found that the losses for irrigated crops there are likely to be less than the non-irrigated crops.

Vaghefi *et al.* (2011); in their study on The economic impacts of climate change on rice production in Malaysia used the crop model ORYZA 2000 to simulate rice yield of MR 219. The model predicted a reduction of rice yield by 0.36 t per ha with an increase in temperature by 2^{O} C and at the current level of CO_2 level of 383 ppm. They also predicted that under the scenario of increase in CO_2 concentration from 383 to 574 ppm with a 2^{O}C rise in temperature, there would be a decline in rice yield by 0.69 t ha^{-1}leading to massive economic losses.

Guiteras (2009); in the paper The Impact of Climate Change on Indian Agriculture attempted to estimates the impact of climate change on Indian agriculture and found that the projected climate change over the period of 2010-2039 would witness a reduction in the major crop yields by 4.5 to 9 percent, the impact being more dramatic in the absence of long-run adaptation which would lead to reduction in yields by 25 percent or more. The paper suggests that climate change would most likely impose significant costs on the Indian economy unless farmers can quickly recognize and adapt to increasing temperatures.

Wassmann and Dobermann (2007); in their paper on Climate Change Adaptation through Rice Production in Regions with High Poverty Levels reported that Climate change will severely set back agricultural development in tropical countries, where majority of the poorest and most vulnerable population resides. With the inherent problems in the agricultural sector that include lack of finances, poor irrigation infrastructure, etc., the production levels in South Asia and Sub-Saharan Africa where the study was conducted, was estimated to will be more likely affected by climate variability and change than in most other parts of the world.

Auffhammer *et al*. (2006); in their Integrated Model Show that Atmospheric Brown Cloud and GHGs have Reduced Rice Harvests in India with an impact of 3.94 per cent during 1966 to 1984 and 10.60 per cent during 1985 to 1998. The study revealed that a reduction of ABC and GHG can lead to an increase in rice by 6.18 per cent and 14.40 per cent, respectively.

Sheehy *et al.* (2006); in their paper titled, “Decline in rice grain yields with temperature: Models and correlations can give different estimates” talk about how increasing CO2 concentration in the atmosphere has a positive effect on crop biomass production, but its net effect on rice yield depends on possible yield reductions associated with increasing temperature. For every 75 ppm increase in CO2 concentration rice yields will increase by 0.5 t ha-1, but yield will decrease by 0.6 t ha-1 for every 1 °C increase in temperature.

Darwin *et al.* (2005); in their World agriculture and climate change: economic adaptation. USDA Agricultural Economic Report, estimated that the amount of land classified as "land class 6" – i.e. the primary land class for rice, tropical maize, sugarcane and rubber in tropical areas – would decline by between 18.4 and 51 percent during the next century due to global warming whereas they speculated that on the other hand, it was possible that the land and water resources for rice production in areas outside the tropical region would observe an increase with global climate changes.

FAO (2005); The FAO Committee on Food Security in their report of 31st Session, 2005 said that 11 percent of arable land in developing countries could be affected by climate change, including a reduction of cereal production in up to 65 countries, about 16 percent of agricultural GDP.

Aggarwal and Mall (2002); in their study on the topic, "Climate Change and Rice Yields in Diverse Agro-environments of India II." Effect of uncertainties in scenarios and crop models on impact assessment found that without increase in CO_2 and Rise in temperature of 1.00 to 2.00 ^{0}C, showed a decrease of 3.00 to 17.00 per cent in rice production in different regions though the extent of effect of temp rise on Rice production varied for the Eastern, Western, Northern and Southern regions of India. An increase in production in all regions was seen with increase in $CO_{2.}$ A 12.00 to 21.00 per cent increase in production in different regions was noted with doubling of CO_2. The beneficial effect of 450 ppm CO_2

was found to be nullified by an increase of 1.90 to 2.00 ^{0}C per cent in Northern and eastern regions and by 0.90 to 1.00 ^{0}C in Southern and Western regions. An increase of 1.00 to 4.00 ^{0}C temperature without increase in CO_2 was found to result a 5.00 to 30.00 per cent decrease in grain yield in different regions. A 28.00 to 35.00 per cent increase in yields of rice was recorded as CO_2 doubled. The study also found that the beneficial effect of 450 ppm CO_2 was nullified by an increase of 1.20 to 1.70 ^{0}C in Northern and Eastern regions and by 0.90 to 1.00 ^{0}C in Southern and Western regions.

Rathore *et al*. (2001); study of Modelling the Impact of Climate Change on Rice Production in India, predicted that by the middle of the 21st Century in central and south India, rice production will increase. According to them, under climate change, Northwest rice production would decrease significantly under irrigated condition as a result of decrease in rainfall during monsoon season and reduction in crop duration may occur at all location in India due to increase in temp.

Saseenddran *et al.* (2000); study on Effects of Climate Change on Rice Production in the Tropical Humid Climate of Kerala, found that a rise in CO2 leads to increase in rice production in Kerala due to fertilization effect and also enhances water use efficiency. They also observed a continuous decline in rice yield with an increase in temperature when tested up to 5.00 ^{0}C temperature. For 1.00 ^{0}C temp increase there was a decline in production of about 6.00 per cent. In another experiment it was noticed that the physiological effect of ambient CO_2 at 425 ppm compensated for the yield losses due to increase in temperature up to 2.00 ^{0} C.

Lal *et al*. (1999); study on Growth and Yield Response of Soybean in Madhya Pradesh, India to Climate Variability and Change found that doubling of CO_2

would lead to 50.00 per cent increase in Soybean yield in central India while 3.00 ^{0}C temp almost wipes out the positive effect of doubling of CO_2 by reducing the duration of crop and inducing early flowering and shortening the grain fill period.

Adams *et al.* (1998); in their paper on Effects of global climate change on agriculture: an interpretative review concluded that the regional fluctuations associated with climate change are not expected to result in large changes in food production over the next century on a global scale. However, impacts on regional and local food supplies in some low latitude regions could amount to large percentage changes in production therefore imposing significant costs on these areas.

2.3. The various mitigation and adaptation measures followed in view of climate change.

Malhi *et al*. (2021); in their paper titled, Impact of Climate Change on Agriculture and Its Mitigation Strategies: A Review concluded that the rapid population explosion is putting a lot of pressure on agriculture in order to ensure the food and nutritional security of the world, which is further worsening with climate change. They discuss the various studies that have reported that climate change will decrease agricultural productivity in the coming years. The paper explores a number of mitigation and adaptation strategies that have been developed to offset the deleterious impact of climate change on agricultural sustainability and include practices like water-smart practices, nutrient-smart practices, weather-smart activities, carbon-smart activities and knowledge-smart activities. It is emphasized that though economic losses at both the micro and macro levels that can be mitigated through these interventions, these interventions must be organized at the regional or local level to improve their efficacy. Mitigation and adaptation strategies are expected to increase farmers' income without compromising agricultural production sustainability. The authors discuss how, the highly unpredictable future of climate change and its associated impacts makes planning for mitigation and adaptation a bit complex leading to the need to formulate climate-resilient technologies involving an interdisciplinary approach according to the region for example, development of suitable varieties that could adapt to climatic variations, along with planned agronomic management and crop pest control and education and training of farmers regarding various climate-smart technologies.

Ahmed and Suphachalasai (2014); in their study on, Assessing the Costs of Climate Change and Adaptation in South Asia in their sector-specific adaptation measures state that on the face of constraints caused due to changing climate, in autonomous adaptation, farmers adjust the planting and harvesting season with changes in precipitation patterns so that the crop season coincides with the precipitation periods. They point out that the planned adaptation is on a large scale (structural changes) and includes strategy changes that can include introduction of new crop genotypes with resistance to water stress, excess water conditions, and high temperature.

Akinnagbe and Irohibe (2014); in their paper 'Agricultural adaptation strategies to climate change impacts in Africa: A review;' reviewed agricultural adaptation strategies that were put into practice by farmers in various countries in Africa in order to cushion the effects of climate change. According to them, adaptation to climate change involves changes in agricultural management practices in response to changes in climate conditions. They also found that the common agricultural adaptation strategies used by farmers included practices like use of drought resistant varieties of crops, crop diversification, changes in cropping pattern and calendar of planting, conserving soil moisture through appropriate tillage methods, improving irrigation efficiency, and afforestation and agro-forestry. In their paper, they emphasized improving and strengthening human capital through education, outreach programmes, extension services at all levels in order to improve capacity to adapt to climate change impact.

FAO (2012); in their reports on the proceedings of a Joint FAO/OECD Workshop on building resilience for adaptation to climate change in the agriculture sector, stressed the fact that on the face of climate change, various biophysical risks that include weather, animal diseases, plant pests are going to change mostly in an uncertain way, in terms of their nature, frequency and location. This would therefore lead to the need for tools and means to monitor risks even more necessary. It was also greatly emphasized on the fact that it is difficult to predict the impacts of climate change on ecosystems as each component of the system is bound to react differently, and hence changing relationships within the system. This is thus crucially important for forestry and fisheries as well as agro-ecosystems. Moreover, it was stressed that building resilience to climate change starts by building resilience through sustainable management of natural resources and ecosystem restoration. Interventions on both plant pests and animal diseases emphasized the importance of early action to prevent the spread of the risk. This requires having the proper tools, policies and institutions in place. A typical example was given as that of seeds – an essential tool for farmers to adapt to change. It requires preserving genetic resources and then making them accessible: multiplying and diffusing them where they are needed. As regards farm risk management policies such as different types of insurance and ex-post payments, it was shown that the possibility of extreme climatic events significantly changes the decision environment and that government's best response to this ambiguity is the implementation of "robust" policies, which may not be optimal under any given scenario, but which allow avoiding negative outcomes.

Weinberg (2012); in his paper on Agricultural response to a changing climate: the role of economics and policy in the United States of America discuss how a changing climate will create new challenges for farmers and policy-makers and how farmers will face changes in productivity, pest outbreaks and extreme weather events. He points out that farmers are resilient and throughout history they have adjusted to regional differences in climates, soils and agronomic conditions, as well as changes in demand for crops, new technological developments, and changing policy environments. Hence, they are likely to adapt to new conditions as well. Adjusting to new climates will however not be costless, and may have distributional and policy implications. The paper proposes that farmers can adapt by diversifying crop and livestock types and varieties, adopting new technologies, using alternative tillage practices, implementing irrigation practices and changing the timing of farm operations, among other choices.

FAO. (2008); the report on the linkage between climate change and agriculture is addressed directly in Article 2 of Kyoto protocol which states: promotion of sustainable forms of agriculture in light of climate change considerations. In Article 3.4 of Kyoto protocol also mentioned about the carbon sink partly be accomplished efficiently by organic agriculture. Article 10 of Kyoto protocol also stated how to mitigate climate change and measures to facilitate adequate adaptation to climate change by concerning different sectors including agriculture.

FAO.(2007); In their publication, 'Adaptation to climate change in agriculture, forestry and fisheries: Perspective, framework and priorities' wrote that the efforts required to prepare for climate-related impacts and the time required for agriculture, forestry and fishery production systems to adapt is extremely crucial and the success is dependent on factors relating to biology, ecology, technology and management regimes. According to the report, it would be the countries with limited economic resources and insufficient access to technology that would be least able to keep up with the changes in the climate, agriculture and the economy. In their publication, Trees and shrubs in farming systems are suggested to be able to play a significant role in mitigating the impacts of extreme events which inevitably cause a threat to food security.

Howden *et al.*(2007); in their paper, Adapting agriculture to climate change conclude the paper saying that a comprehensive study for cropping systems indicate that the potential benefits of adaptation in temperate and tropical wheat-growing systems are similar and substantial averaging to 18%. Also, most of the benefits of marginal adaptations within existing systems accrue with moderate climate change, and there are limits to their effectiveness under more severe climate changes. Hence, more systemic changes in resource allocation, including livelihood diversification, need to be considered. They argue that increased adaptation action will require integration of climate change risk with a more inclusive risk management framework, taking into account climate variability, market dynamics, and specific policy domains.

Intergovernmental Panel on Climate Change (IPCC) (2007); in their report on Climate change impacts, adaptation and vulnerability - Summary for policymakers defined adaptation as adjustments in natural or human systems in response to actual or expected climatic stimuli or effects, that moderates harm or exploits beneficial opportunities and also to actions that people, countries, and societies take to adjust to climate change that has occurred.

Easterling (1996); In the study on Adapting North American Agriculture to Climate Change in Review, Agricultural and Forest Meteorology talked about deliberate crops selection and distribution strategies across different agro-climatic zones, substitution of new crops for old ones and resource substitution induced by scarcity as planned adaptation measures which could be some conscious policy options or response strategies, which are often multisectoral in nature, aimed at altering the adaptive capacity of the agricultural system or facilitating specific adaptations.

Hulme *et al*. (1994); in their paper titled, Recent and future climate change in east Asia, attempts to study the climate change in the East Asian region, both over the last 100 years and also for the next 100 years using instrumental data and the results from climate model experiments. Their study suggested that in the face of raising concern of climate change, the responsibilities that the nations have are the drawing up of inventories of greenhouse gas sources and sinks and the formulation of national strategies to respond to climate change through adaptive and or preventive measures. One of the requirements for identification of appropriate response strategies is the undertaking of regional assessments of climate change and its associated impacts.

2.4. **Constraints faced by the major rice and maize growers, and measures to overcome them**:

Foguesatto and Machado (2020); in their paper titled, “What shapes farmers’ perception of climate change? A case study of southern Brazil,” discusses how climate change poses several challenges worldwide resulting in projected environmental, economic and social impacts in several sectors, including agriculture. They state that the extent of climatic impacts depends on farmers’ awareness and their capacity for adaptation in response to changes in the climate. This study analyzes the factors that influence farmers' perception of climate change and identified that farm size, support of extension workers, number of conservation practices adopted, and ecocentrism value influenced positively on perception. It was also found that farm size relied on government actions, subsidies, and anthropocentric value was affected negatively. These findings showed that socioeconomic and psychological factors shape farmers' perception of climate change. Extension workers and policymakers should therefore increase farmers' awareness on climate change improving the communication on the nature importance for the ecosystem as a whole (ecocentrism) and/or explaining the importance of nature for human welfare (anthropocentrism).

Amondo and Simtowe (2018); in their paper on technology innovations, Productivity and production risk effects of adopting drought tolerant maize varieties in rural Zambia, Vancouver, impress on how being a highly susceptible crop to droughts, about 70–80% of maize losses in SSA are attributed to droughts and floods.

Korres *et al.* (2017); in their paper titled, Climate change effects on rice, weeds and weed management in Asian-Pacific region, discussed how future rice production and weed management issues will be affected by the changing environmental conditions affecting the distribution of weed species along with their competitive ability. Subsequently, the use of adaptation practices and crop management alterations will be required to deal with the situation, which in turn will affect weed growth or proliferation. The magnitude of the effects will largely depend on the extent by which environmental conditions change at local and regional level. Climate change will affect both rice and related weeds.

Notwithstanding, the abundance and appearance of weeds varies according to regions and management systems, which complicates weed management approaches further. Therefore, a holistic approach is required in order to evaluate the effects of weed competition on crops in an environment of mixed weeds and crops. Some of the important methods to counter the impact could include the use of early maturing, drought and/or temperature tolerant rice cultivars exhibiting competitive traits in combination with appropriate husbandry systems such as alterations in planting dates or water conservation techniques can counteract the effects of climate and weed competition.

OECD (2016); in their article, Agriculture and Climate Change: Towards sustainable, productive and climate-friendly agricultural systems, a background note for OECD Meeting of Agricultural Ministers highlighted the uncertain impacts of climate change that will further increase the production risks faced by the agricultural sector. They discussed how agriculture also contributes a significant share of the greenhouse gas emissions that cause climate change that is, 17% directly through agricultural activities and an additional 7-14% through land use changes. Therefore being a part of the problem and potentially an important part of the solution. The article points out how in order to support the objectives of sustainable, climate-friendly and productive agriculture, reforms are needed at the international, national and sector levels to correct misaligned incentives and redirect policy efforts to specific investments in pursuit of these explicit objectives. Some steps suggested include, Implementation of the Paris Agreement reached at the 2015 United Nations climate change conference – COP21 at international level. Consistent support for sustainable productivity growth, in combination with adaptation and mitigation efforts via wider social, economic and environmental policy settings – such as trade, investment, infrastructure, and education policies at national level. And sector level steps like the need to reform misaligned and distortive agricultural policies that encourage unsustainable intensification and the overuse of natural resources and potentially damaging inputs. Investment in research and development (R&D) is needed to spur innovation that can improve sustainable productivity growth. Implementation of policies that aim to address climate change should emphasise outcome-based farmer incentives and knowledge transfer systems. Governments should ensure the provision and dissemination of relevant and up-to-date information on resource use efficiency and risk management.

Ahmed and Suphachalasai (2014); in their study on, Assessing the costs of climate change and adaptation in South Asia in their sector-specific adaptation measures discuss how their study, climate models project increased precipitation by the end of the 21st century and how in such situations diverting small amounts of irrigation to dryland crops would help in overcoming water stress. They extend suggestion that maximizing water-use efficiency can be done by retaining crop residue, reducing soil erosion, increasing soil water holding capacity with improved technology, and increasing infiltration with reduced surface runoff. Useful adaptation technologies could include promotion of rice cultivation systems with better water- and nutrient-use efficiencies, rescheduling irrigation and fertilizer application to suit changing conditions, training on interpretation of weather forecasts for effective farm decision making, promotion of biofertilizers and mineral solubilizers for nutrient supplementation, highlighting the importance of blue-green algae in minimizing methane emission from paddy fields, and use of thermophilic bio-inoculants to sustain nutrient flow dynamics in warmer soils.

Akinnagbe and Irohibe (2014); in their paper, agricultural adaptation strategies to climate change impacts in Africa: A Review found that the major constraints to applying agricultural adaptation strategies in Africa had been a general lack of knowledge, expertise and data on climate change issues; a lack of specific climate change institutions to take on climate change work and the need for a better institutional framework in which to implement adaptation. they also recommended training programmes for local government officials, dedicated research activities and post-graduate courses; and the initiation of specific institutional frameworks for climate change as actions to address the shortcomings. Other suggestions include, proactive adaptation to improve capacities to cope with climate change by taking climate change into account in long term decision-making, removing disincentives for changing behaviour in response to climate change (removing subsidies for maladaptive activities), and introducing incentives to modify behaviour in response to climate change (use of market-based mechanisms to promote adaptive responses). Furthermore, they concluded that improving and strengthening human capital, through education, outreach, and extension services, could improve decision-making capacity at every level and increase the collective capacity to adapt.

Banerjee (2014); in his paper titled, "Farmers' perception of climate change, impact and adaptation strategies: a case study of four villages in the semi-arid regions of India," discuss how climate change poses a major threat to the semi-arid tropics, which is characterized by scanty and uncertain rainfall, infertile soils, poor infrastructure, extreme poverty and rapid population growth that in turn present serious environmental, economic and social impacts on the agricultural community. It is undeniable that adaptation to climate change has become a major concern to farmers, researchers and policy makers alike in order to tackle the challenges that climate change poses to farmers, it is thus important to have knowledge on their perceptions of climate change, potential adaptation measures and factors affecting adaptation. In addition, the extent to which farmers' perceptions on climate change coincide with actual climatic data needs to be further examined. The study used a qualitative approach to look into the perceived changes in rainfall and temperature, their impacts and adaptations strategies taken up by farmers in four villages in the states of Maharashtra and Andhra Pradesh. It also analyzed the accuracy of these perceptions based on actual available climatic data. The paper also looks into the determinants of adaptive capacity by examining a case of improved water management as an adaptation mechanism. The paper emphasizes that understanding the importance of farmers' perception is extremely important in developing adaptation plans to tackle the increasing effects of climate variability and shocks. The study stresses on the need for the policy makers to take note of farmers' concerns regarding climate variability and the responses they have. This appreciation and acknowledgement will make the likelihood of adaptation plans being adopted better at the local level. Therefore, it is important that information systems are better aligned with the national adaptation plans.

IPCC (2013); The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate reported that the Impacts of climate change vary depending on the state of development of a region and suggested that rising temperatures and changing precipitation rates will most likely hamper success of rain-fed agriculture in developing countries.

Mbilinyi *et al.* (2013); during their study on Impact of climate change to small scale farmers: voices of farmers in village communities in Tanzania assessed the effects of climate change on small scale farmer in Tanzania in the past decade, explore the environmental management that are being used and adaptation measures and policies to cope with climate change. Eight geographical regions were selected and interviews were conducted from 12 districts and 20 villages. It was found that both crop farming and livestock keeping has been affected negatively by climate change with an increase in the frequency of extreme events such as drought and flooding which has reduced soil fertility and yields from crop production and livestock keeping. The farmers also faced disappearance of major crops in some areas as they are trying to farm crops that are able to survive short or no rainfall resulting into socio economic challenges such as spread of diseases such as malaria in areas where there was no malaria before, reduced income, lack of employment (which in turn affect people's health, access to education and food) and conflict between livestock keepers and crop farmers among many other problems. Men would migrate to urban centre and look for casual employment and women, children and elderly remain in the village facing the problems alone with no support. With 80.00 per cent of Tanzanians depending on agriculture for survival an urgent need to explore various copping strategies, safety nets and policies that will prevent farmers falling into poverty due to lack of food and income from agriculture activities and livestock products was felt. There is also a need of having consistent strategies and improved institutional capacity and planning within different ministries and other stakeholders to address different challenges farmers face due to climate change.

Frank and Buckley (2012); in their paper on Small-scale farmers and climate change: How can farmer organizations and Fair trade build the adaptive capacity of smallholders, further it was discussed that smallholder farmers were disproportionately vulnerable to the impacts of climate change as a result of poverty, marginalization and reliance on natural resources. Climate change is likely to lead to decreasing crop yields in most tropical and sub-tropical regions, negatively impacting agricultural sectors and reducing food security in developing countries. It is imperative to identify approaches that strengthen ongoing economic development efforts and enhance the adaptive capacity of farmers, their households and their communities. Their paper explores the links between farmer organizations, Fair-trade and adaptation to climate change, and the extent to which such institutions and market arrangements can enhance the adaptive capacity of smallholder farmers. It does this by reviewing evidence from published research and studies and by analyzing case studies of two Fair-trade certified farmer organizations in Uganda and Malawi. The paper's findings suggest that membership of farmer organizations and participation in Fair-trade can strengthen smallholders' capacity to adapt to climate change in a number of ways.

Weinberg (2012); in the paper on Agricultural response to a changing climate: the role of economics and policy in the United States of America, said that changing climate will create new challenges for both the farmers and policy-makers. While farmers are reselient and can adjust to a wide variety of challenges, the policy makers need to up their game and adapt to options that include research and development on new crop varieties, improved early warning systems that provide daily weather predictions and seasonal forecasts, water management innovations, financial and technical assistance for adopting conservation practices, extension support, and supporting risk management tools such as crop insurance. Effective crop insurance policies could provide financial stability for growers and financially stable growers are more likely to invest in new growing practices to adapt to climate change. Premium rates can act as a price signal to farmers about risk and the value of mitigation or adaptation.

Bokhel *et al*. (2011); in their paper, " Climate Change and Agriculture Policies. How far should we look for synergy building between agriculture development and climate mitigation?" for FAO of the United Nations targeted towards national agriculture sector, forestry and food security policy makers, institution-based, agency and donor decision-makers discussed how Climate change issues should not be seen as new trend that will imply new conditionalities for developing countries. They pointed out as to how it is worth seeing the opportunities that could be brought by integrating climate change policies in the objectives of development. Indeed if climate change threatens development efforts, adaptation and mitigation strategies can help to achieve better agriculture production, food security, risk management and poverty reduction. Carbon balance appraisal may help in planning policies to cope with climate change while achieving development issues. The paper discusses adaptations to strengthen risk management options and sector resilience like crop management, involving existing crops types and varieties, the development of new varieties or replacing crops (which is then reflected in changes in the spatial location of crops) in order to rely on crop types and varieties that are better suited to a changed climate. Promoting a new kind of ecologic intensification would also decrease the loss risks (culture association, permanent cover), and use and tenure policies, the development of sustainable soil and land use management practices, and policies to encourage such practices can influence land use and land management, so that grazing or cropping are more resilient to climate extremes and changes. Some mitigation options and agriculture intensification discussed include Conservation agriculture and highlighting and protecting watersheds.

Margulis *et al.* (2011); in a study of economic impacts from climate change in Brazil, it was found that the problem is of great importance for the country's development agenda. Potential costs and risks are high and a burden to the poorer and more vulnerable brackets of the population above all, particularly in the North and North East region. In addition to this high social relevance, fighting climate change is both an opportunity and a requirement for public policies to be integrated. The projections of climate change impacts on the Brazilian economy over the next 40 years suggest the possibility of associating ambitious growth targets with the reduction of greenhouse gases emissions. From a strictly economic perspective, it is about increasing the country's competiveness and ensuring wide access to markets that tend to favour low carbon emission goods and services. Therefore, it is essential to ensure that the energy matrix continues to be 'clean' and that GDP growth also takes place in a 'clean' manner. Based on the current conditions of the Brazilian economy, none of these factors would mean any restrictions for Brazil. Ambitious growth targets and growing in a 'clean' fashion are one of the main challenges for building the future.

Shiferaw *et al.* (2011); in their paper, 'Crops that feed the world 6. Past successes and future challenges to the role played by maize in global food security.' discuss how higher temperatures will cause maize yields to reduce but at the same time facilitate and encourage production or multiplication of some weeds and pests. They insist that in order to manage the current climate change and for future adaptation to these variations, there is need for maize varieties that are tolerant to drought, heat and water logging and are resistant to diseases and pests and insects, and to effectively contribute to mitigating climate change. Other practices that could prove helpful could include practicing conservation agriculture and precision agriculture.

Vaghefi *et al.* (2011); in their study on the economic impacts of climate change on rice production in Malaysia, suggested various adaptation and mitigation strategies that can help the farmers from the study area to adjust and minimize the negative impacts that was predicted would be caused due to raise in temperature and CO_2 levels as observed in their study using the crop model ORYZA 2000. The various suggestions included strategies like large scale commercialized paddy farming by private companies, selection of temperature and drought tolerant varieties, adjustments in cropping calendar, opting for short-maturing varieties, adjustments in the crop production technology etc.

Wewerinke and Yu III (2010); in their research paper, Addressing climate change through sustainable development and the promotion of human rights, state that climate change poses a risk to the human rights of millions of people in the form of their rights to life, health, food and water. The risks are observed to be the highest in developing countries, where extreme weather events, crop failures and other emergencies related to climate change are projected to occur with greater frequency. The situation is worsened by the fact that most developing countries also lack the necessary technological and financial resources to adapt to climate change. Indeed they are already facing increased difficulties in realizing the economic, social and cultural rights of their people due to the financial, economic and food crises and growing populations. The study also points out the fact that the capacity of developing countries to realize human rights domestically is further limited as a result of the over-use by developed countries of the global atmospheric space and the global carbon budget.

Morton (2007); in his paper on the impact of climate change on smallholder and subsistence agriculture described that the most important impacts of global climate change will be felt among the populations, predominantly in developing countries, referred to as “subsistence” or “smallholder” farmers. He explained that their vulnerability to climate change comes both from being predominantly located in the tropics, and from various socioeconomic, demographic, and policy trends limiting their capacity to adapt to change. However, according to him, these impacts will be difficult to model or predict because the lack of standardized definitions of these sorts of farming system, and therefore of standard data above the national level, the intrinsic characteristics of these systems, particularly their complexity, their location-specificity, and their integration of agricultural and nonagricultural livelihood strategies along with their vulnerability to a range of climate-related and other stressors.

Johnson (1996); in his study on Weed management in small holder rice production in the tropics discuss how rice is infested by a complex and diverse weed flora and weed infestation in rice is one of the several major biological constraints limiting rice production worldwide. The study also reported that a shift towards the adoption of direct seeding technique was observed to have resulted in increased weed infestation, thereby limiting the productivity of rice crop.

Nguyen (2002); in his article, Global climate changes and rice food security, concluded his discussion on the note that a sustainable increase of rice production for food security would require efforts to enhance the capacity of rice production systems to adapt to the global climate change as well as to mitigate the effects that rice production has on global warming. It was pointed out that various technical options for adaptation and mitigation are available which could be further improved. The article highlighted the vital role that policy support to rice research and development to develop and transfer appropriate and efficient technologies, would play for the realization of such measures for sustainable rice production.

2.5. Impact of climate change on production and productivity of rice and maize.

Ansari *et al*. (2021); in their study on evaluating and Adapting Climate Change Impacts on Rice Production in Indonesia: A Case Study of the Keduang Subwatershed, Central Java used a combined simulated daily weather data (MarkSim) and the CERES-Rice crop model from the Decision Support System for Agrotechnology Transfer (DSSAT) software to predict rice production for three planting seasons under four climate change scenarios (RCPs 2.6, 4.5, 6.0, and 8.5) for the years 2021 to 2050 in study area and found that the predicted changing rainfall patterns, rising temperature, and intensifying solar radiation under climate change can lead to a reduction in rice yield in all three growing seasons. Under RCP 8.5, the impact on rice yield in the second dry season showed a probable decrease by up to 11.77% in the 2050s. The study emphasized on the need for a dynamic cropping calendar, modernization of irrigation systems, and integrated plant nutrient management to be developed for farming practices to adapt to the impact of climate change on rice production.

Beding *et al*. (2021); in their paper titled, “climate change impact on rice productivity in the rainfed Merauke District, Papua.”, aimed at determining the impact of climate change (rainfall) on rainfed rice productivity in Merauke Regency it being the focused production center of rice. The study utilized data on rainfall, temperature, solar radiation, humidity, planting area, harvest area and yield and found that climate change in the agricultural year of 2015 gave a negative effect on rainfed lowland rice production in the study area observed in the form of decreasing harvest area which further resulted in a decrease in rice production.

Srivastava *et al*. (2021); in their assessment of climate change impact on maize yield and yield attributes under different climate change scenarios in eastern India, used CERES-maize model evaluate the impact of climate change for maize yield and yield attributes for the projected time periods 2021–2050, and 2051–2080 by using different Representative Concentration Pathways (RCP) 2.6, 4.5, 6.0, and 8.5 W/m2 respectively for eastern India, and the projected results were compared with the baseline scenario of 1982–2012. The research recorded a change in yield of − 10.58%, − 14.80%, − 21.02%, and − 23.39% respectively for the time slice 2021–2050, and − 15.20%, − 18.54%, − 24.75%, and − 26.83% respectively for the time slice 2051–2080 for irrigated condition compared to the baseline (1982–2012). But, in rainfed condition, the change in yield recorded was higher of 10.55%, 9.20%, 8.13%, and 7.47% respectively with the time slice 2021–2050, while 10.63%, 6.65%, 7.47%, and 4.31% for the time slice 2051–2080. The study pointed towards the loss of grain yield to be more for time period of 2051–2080 rather than the time period 2021–2050 under irrigated condition in comparison to the baseline yield, while in rainfed condition, the grain yield increased in both the time periods 2021–2050, and 2051–2080 which indicates that the increase in rainfall reduced the negative impact of temperature on the crop yield.

Wu *et al*. (2021); in their paper titled, " Impact of climate change on maize yield in China from 1979 to 2016.", used the feasible generalized least square (FGLS) model and found that During the increase in temperature negatively impacted the maize yield of China wherein, for every 1°C increase in temperature, the maize yield was reduced by 5.19 kg 667 m–2 (1.7%). A marginal increase in precipitation was observed, and the maize yield showed an increase by an insignificant amount of 0.043 kg 667 m–2 (0.014%) for every 1 mm increase in precipitation. A spatial impact of climate change on maize yield was observed, with more significant impacts recorded in southern China wherein, a 1°C increase in temperature was seen to have resulted in a 7.49 kg 667 m–2 decrease in maize yield, while the impact of temperature on the maize yield in northern China was insignificant. For every 1 mm increase in precipitation, the maize yield reportedly increased by 0.013 kg 667 m–2 in southern China and 0.066 kg 667 m–2 in northern China.

Kumar (2019); while studying the impact of climate change on the productivity of rice and wheat crops in Punjab observed a significant rise in mean temperature in both the rice and wheat growing periods. An annual decrease of 7% was observed during the rice-growing period over the 30 years of the study period. The study predicted a significant climate change to lower the rice yield by 8.10% by 2080 and wheat by 6.51%.

Luhunga (2017); in an assessment of the Impacts of Climate Change on Maize Production in the Southern and Western Highlands Sub-agro Ecological Zones of Tanzania, used high resolution Regional Climate models (RCMs) and climate parameter data for the period of 1971–2000, 2010– 2039, 2040–2069 and 2070–2099 were fed into the Decision Support System for Agro -technological Transfer (DSSAT) to simulate maize growth and yields which simulated a decrease in maize yields over the Southern and southwestern sub ecological zones during present mid and end centuries. This decrease is stated to be mainly due to the increase in temperatures that fasten maturity and hence led to a decrease in yields.

Oseni and Masarirambi (2011); in their study on the effect of Climate Change on Maize (*Zea mays*) Production and Food Security in Swaziland used secondary data on rainfall in two agro-ecological zones and maize production from 1990 to 2009 which was analysed using two-way analysis of variance and the data was then subjected to regression analyses to establish trends. It was reported that a significant differences in average rainfall and growing season rainfall on maize production was observed in the study area. The rainfall trends in the severe drought prone area exhibited a declining tendency whilst that of the moderate drought prone area was somewhat stable. Reduced/or erratic rainfall during the years were found to have resulted in decreased maize production. The study put forward points like rainwater harvesting/soil conservation techniques, intercropping, growing of short duration/early maturing maize varieties, crop diversification such as millet and sorghum and migration of farmers to more productive Swazi Nation Land (SNL) for crop production in order to mitigate further impacts of climate change and help increase household food security in Swaziland.

Aggarwal et al. (2010); in their report titled, "Impacts of climate change on growth and yield of rice and wheat in the Upper Ganga Basin." For WWF, IND, 2010, reported that a 1ºC in temperature could possibly result in 4-5 million tones of loss in wheat production. The reports predicted that climate change could adversely influence the crop production in India with a relatively higher increase in temperature during the rabi season as compared to kharif season. Climate change is likely to benefit wheat crop in northern parts of the study region while, rice crop in the north of the study region is more likely to be affected by the change in climate compared to the rice crop in the southern region.

Haris *et al.* (2009); in their attempt to study the climate change impacts on productivity of rice (Oryza sativa) in Bihar assessed the impacts on yield of long duration rice commonly grown in the state during kharif season from 2006 to 2008. This study used INFOCROP model which was calibrated and validated with 57% coefficient of efficiency. The study predicted an increase in rice yields for 2020 scenario to the tune of 2.7% decrease upto 0.3% for 2050 and a decline of 31.3% in 2080 from baseline with the current prevailing agronomic practices. The study also conducted a sensitivity analysis through simulations for combinations of C02 and temperature changes and the results indicated at a potential increase in the yield of rice with elevated levels of co2 and decreased with an increase in temperature. The simulation further revealed that an increase in minimum temperature in the future could prove to be more detrimental for long duration rice variety (MTU-7029) in terms of yield.

RESEARCH METHODOLOGY

A study on the impact of climate change in the production and productivity of rice (*Oryza sativa* L.) and maize (*Zea mays* L.) was conducted in Arunachal Pradesh. For systematically solving the research problem and in-depth study of the concerned topic, appropriate research methodologies were applied. The research methodologies and procedures used for conducting the study are described under the following heads.

3.1. SELECTION OF STUDY AREA

The proposed study was conducted in Arunachal Pradesh in order to understand the impact of climate change in the production of rice and maize, which are the major cereal crops grown in the state.

3.1.1. DESCRIPTION OF THE STUDY AREA

The study was conducted in the state of Arunachal Pradesh. Arunachal Pradesh is located between 26.28° N and 29.30° N latitude and 91.20° E and 97.30° E longitude and has an area of 83,743 km^2 (32,333 sq mi). The elevation of the hills varies between 305 m to 3050 m above mean sea level (msl). The state is surrounded by states like Assam and Nagaland in the South and shares international borders with Bhutan in the west, Myanmar in the east and China in the north. Politically, the state has been sub-divided in 26 districts. Itanagar, the capital of the state is located at an altitude of 530 m msl. AR is the largest state in North East (NE) covering a total area of 83,743 sq. km., out of which 81.14 per cent is under tree cover (FSI, 2015) and also accounts for one-third of habitat area within the Himalayan biodiversity hot-spot. The total population of the state is 1.4 million amounting to a population density of about 17 inhabitants per square kilometer (Census, 2011). It receives 2000 to 5000 mm of rainfall annually under the influence of south-west monsoon. Subansiri, Lohit, Siang, Siyom, Dibang and Kameng are the major river in the state. AR is an agrarian state agriculture contributing 17.28 per cent to the total Gross State Domestic Product (GSDP) as in 2011(GoI, 2015a). The cropping intensity of the state is 131.74 per cent and net irrigated area is 53,280 ha (GoAR, 2014). Rice is the staple food for the inhabitants and mainly local rice varieties are cultivated in the state. While the rice is cultivated in wetlands and in jhum fields along the slopes; rice cum fish cultivation is also practiced in some of the districts like Lower Subansiri and Lohit. The other important crops grown in the state are maize, millet, wheat, pulses, ginger etc. The state is also ideal for horticultural and fruit orchards and known for its orange and kiwi.

3.1.1.1. EAST SIANG

The East Siang District is a wild mountainous area and presents a remarkable topographical variety. The District has an area of 4005 sq.km. and is lying approximately between 27º 43′ and 29º20′ North latitudes and 94º 42′ and 95º 35′ East latitudes. The Name of the district is derived from the Mighty River Siang that, originating from Tibet, where it is called Tsangpo, transcends down and flows through the entire length of the area until it descends down into the plains of Asam south of Pasighat town, where it meets Dihang and Lohit and becomes the Brahmaputra.The Pasighat town, the headquarter of the East Siang District, is situated at an altitude of 155 metres above main sea level and is the oldest town in Arunachal Pradesh – established in 1911 A.D. A political Officer was appointed in that year with a view to help the natives of the area to come down to the plains of Assam for trade and commerce. It would not be wrong to say, therefore, that the people of East Siang District were the first natives of the state to come in contact with the mainstream. Therefore this district is called as `the gateway to Arunachal Pradesh'. The mighty Siang river is the life-line of the East Siang District and in Pasighat, it calms down before entering Assam south of Pasighat. The town covers an area of 4005 sq.kms. and supports a population of nearly eighty thousand persons.

3.1.1.2. LOHIT

In the easternmost tip our country lies this enchanting land namely Lohit district of Arunachal Pradesh which is known for its pristine scenic beauty. Lohit named after the mighty river that meanders across the mountainous region from Tibet and enters India at Dichu village of Kibithoo circle of Anjaw district and gushes down to meet the mighty Brahmaputra in the plains of Assam.

3.2. Sampling plan

It is essential in any research work that the sample drawn for the study be a proper representation of the population from which the sample is drawn. Therefore, it is required that the sampling method followed be efficient and as unbiased as possible.

3.2.1. **Selection of State**:

Arunachal Pradesh is the universe in which the proposed study was conducted.

3.2.2. **Selection of Districts**:

Arunachal Pradesh comprises of 25 districts out of which 1 district each was selected for rice and maize respectively by purposive sampling methods according to the production, productivity and area under cultivation for the respective crops.

According to the Statistical abstract of Arunachal Pradesh 2003, East Siang had an area of 12,330 Ha under rice cultivation which was the third highest among all the districts. However it was the highest producer of the crop compared to all the other districts producing 26605 MT.

Lohit district had the largest area under maize cultivation with 9041Ha and it also was the highest maize producing district with 10126 MT (Statistical abstract of Arunachal Pradesh, 2003)

3.2.3. **Selection of Blocks**:

2 blocks were selected from each district by simple random sampling.

3.2.4. **Selection of Villages**:

In the third stage a list of villages, wherein most of the area is under the concerned crop was drawn keeping in mind the main objective of the research; out of which 2 villages were selected by following the simple random sampling method.

3.2.5. **Selection of Farmers**:

Finally in the fourth stage total number of households in the village was obtained by contacting the village elders out of which, 3 percent of the total village households was selected from each village by following the simple random sampling technique keeping in mind all the specific objectives to make the undertaken research work meaningful. A total of 87 households were selected altogether wherein 45 were from East Siang and 42 from Lohit district.

UNIVERSE WHERE THE STUDY WAS CONDUCTED
<u>ARUNACHAL PRADESH</u>

⇩

SELECTION OF DISTRICTS (PURPOSIVE SAMPLING)
EAST SIANG (Rice) and LOHIT (Wheat)
(2)

⇩

SELECTION OF BLOCKS (SIMPLE RANDOM SAMPLING)
(2 blocks) x (2 districts) = 4 blocks

⇩

SELECTION OF VILLAGES (SIMPLE RANDOM SAMPLING)
(2 from each block)
2 X 4=8 VILLAGES

⇩

SELECTION OF FARMERS (SIMPLE RANDOM SAMPLING)
3 percent of the total village households from each village were randomly selected from a list obtained from village elders.

3.3. Data collection

The research work was based on the primary and secondary data that was collected from reliable sources in order to fulfill the objectives of the study.

3.3.1. Primary data

The primary data was collected from the farmers with the help of structured and pre-tested interview schedule through personal interview method.

3.3.2. Secondary data

The secondary data was collected from the Regional Meteorological Department, Indian Meteorological Department, Ministry of Earth Science, G.O.I. Guwahati, and other concerned organizations functioning in the state.

3.4. Analytical framework

Collected data was scrutinized, tabulated and processed systematically according to the objectives laid down for the study. Tabular and functional analysis was used to meet the objectives of the study as and where needed.

3.5. Tabulation

The data was organized and tabulated for systematic representation, easy interpretation and analysis of the data collected.

3.6. Statistical analysis

The tabulated data was then made to undergo various statistical and analytical procedures to study and interpret the data in order to arrive at a conclusion. The following are the various analytical and statistical used during the research.

The meteorological data obtained had various data gaps for which some statistical tools were used in order to fill in the gaps.

3.6.1. Markov chain analysis to study the rainfall pattern.

Data on daily rainfall in the study area was collected from January 1988 to December 2018 from the DDGM, RMC, Guwahati. The daily rainfalls for the three season periods of pre-monsoon, monsoon, post-monsoon was studied and recorded. A three-state Markov chain was used to describe the behavior of rainfall occurrences in the study area. The states, considered being; dry (d), wet (w) and rainy (r). The probability of the process being in a particular state was calculated based on the Markov chain assumption that attaining a state depends on the immediate preceding state only. The conditions of rainfall occurrence for the three states being defined as follows:

a) a day will be considered dry if rainfall occurrence on that day is not more than 2.50mm,
b) wet if rainfall occurrence ranges from 2.51mm to less than 5.00mm and
c) rainy if rainfall occurrence ranges from 5.00mm and above.

Markov chain, transition probability matrices, probabilities of dry, wet and rainy days in the long run (equilibrium), expected length of season's spell and Weather Cycle (WC) was determined in the analysis of daily rainfall data for the periods of Pre-monsoon (Jan 1-March 31), Monsoon (April 1 - September 30) and Post-monsoon (October 1 - December 30) for the study area.

In this study, data collected on rainfall occurrences over a sequence of days can be modeled as a three-state Markov chain with state space S = d, w, r. The current day's rainfall being expected to depend only on that of the preceding day;

thus, the observed frequency of days of being in a particular atmospheric state j having just left atmospheric state i, i,j = {d,w,r} are presented in Table 3.6.1.1. while the associated transition probability matrix is presented in Table 3.6.1.2.

The definitions of the notations used in Table 3.6.1.1. are as provided below;

n_{dd}: Number of dry days preceded by dry days

ndr : Number of rainy days preceded by dry days

n_{wd}: Number of dry days preceded by wet days

n_{rw}: Number of wet days preceded by rainy days

n_{rr} : Number of rainy days preceded by rainy days, and so on.

Table 3.6.1.1. Frequency of days of being in atmospheric state j preceded by atmospheric state i, i, j = d, w, r

		Current Day (j)			
		Dry (d)	Wet (w)	Rainy (r)	Total
Previous Day (i)	Dry (d)	n_{dd}	n_{dw}	n_{dr}	n_d
	Wet (w)	n_{wd}	n_{ww}	n_{wr}	n_w
	Rainy (r)	n_{rd}	n_{rw}	n_{rr}	n_r

More generally, n_{ij}, i, j = {d,w,r} is the number of j days preceded by i days.

Also, $n_{d.} = n_{dd} + n_{dw} + n_{dr}$: represents the total number of dry days

$n_{w.} = n_{wd}+n_{ww} +n_{wr}$: is the total number of wet days

$n_{r.} = n_{rd} +n_{rw} + n_{rr}$: is the total number of rainy days

The maximum likelihood estimators of P_{ij}, i, j = {d,w,r}$\widehat{\mathbf{P_{ij}}}$ are given by

$$\widehat{\mathbf{P_{ij}}} = \left(\frac{\boldsymbol{nij}}{\sum_{j=d}^{r} \boldsymbol{nij}}\right)$$

The transition probability matrix, as given in Table 4 is defined by P = Pij = P(j/i), wherei,j∈ S The transition probability matricesPij in Table 4 are defined

Table 4: Transition probability matrix of being in atmospheric state j preceded by atmospheric

state i, i, j = d, w, r.

Table 3.6.1.2. Transition probability matrix

		Current Day (j)			
		Dry (d)	Wet (w)	Rainy (r)	Total
Previous Day (i)	Dry (d)	P_{dd}	P_{dw}	P_{dr}	P_d
	Wet (w)	P_{wd}	P_{ww}	P_{wr}	P_w
	Rainy (r)	P_{rd}	P_{rw}	P_{rr}	P_r

as follows;

$P_{dd} = P(d/d)$: Probability of a dry day preceded by a dry day

$P_{dw} = P(w/d)$: Probability of a wet day preceded by a dry day

$P_{wr} = P(r/w)$: Probability of a rainy day preceded by a wet day; and so on, subject to the condition that the sum of probabilities of each row equals to one.

That is; $P_{dd}+P_{dw}+P_{dr}= 1$, $P_{wd}+ P_{ww} + P_{wr} = 1$ and $P_{rd}+ P_{rw}+ P_{rr} = 1$

Calculation of Long Run (Equilibrium) Probabilities

Let p_{i1}, p_{i2} and p_{i3} be the probabilities of dry, wet and rainy days in the long run (equilibrium). The values of the probabilities p_{ii},i=1,2,3 can be determined by the matrix product:

$$\begin{bmatrix}\pi_1\\ \pi_2\\ \pi_3\end{bmatrix} = [p_1\ p_2 p_3] \times \begin{pmatrix} p_{dd} & p_{dw} & p_{dr}\\ p_{wd} & p_{ww} & p_{wr}\\ p_{rd} & rw & p_{rr}\end{pmatrix}$$

(2)

This finally gives the estimators of the long run equilibrium probabilities for each of the three periods as:

$\boldsymbol{\pi_1 = p_1P_{dd}+ p_2P_{wd} + p_3P_{rd}}$*(for dry days) (3)*

$\pi_2 = p_1 P_{dw} + p_2 P_{ww} + p_3 P_{rr}$*(for wet days) (4)*

$\pi_3 = p_1 P_{dr} + p_2 P_{wr} + p_3 P_{rr}$*(for rainy days) (5)*

Subject to the condition that: $\sum_{i=1}^{3} \pi_i = 1$

3.6.2. ARIMA Model

The monthly rainfall and temperatures was analyzed using time series analysis. A detailed strategy for the construction of linear stochastic equation describing the behavior of time series was then be examined. Consider the function Z_t represents forecasted rainfall and temperature at time t month. Y_t is series of observed data of rainfall and temperature at time t. If series is stationary then a ARIMA process can be represented as

$\nabla^p Z_t = \nabla^q Y_t$ ....(1)

Where ∇ is a back shift operator.

If series Y is not stationary then it can be reduced to a stationary series by differencing a finite number of times.

$\nabla^p Z_t = \nabla^q (1-B)^d Y_t$ ....(2)

Where d is a positive integer, and B is back shift operator on the index of time series so that

$BY_t = Y_{t-1}$; $B^2 Y_t = Y_t$-2 and so on.

Thus further equation (2) can be simplified into following equation.

$(1-\Phi_1 B-\Phi_2 B^2-\ldots\ldots.-\Phi_p B_p)Z_t=\theta_0+(1\theta_1 B-\theta_2 B^2-\ldots\ldots\ldots-\theta_q Bq)a_t$..... (3)

Where a_t's a sequence of identically distributed uncorrelated deviates, referred to as “white noise”. Combining equations (2) and (3) yields the basic Box-Jenkins models for non stationary time series

$(1-\Phi_1 B-\Phi_2 B^2-\ldots\ldots.-\Phi_p B_p)$ (1-B)d $Y_t = \theta_0 + (1-\theta_1 B-\theta_2 B^2- \ldots\ldots\ldots-\theta_q B_q)\ a_t$....(4)

Equation (4) represents an ARIMA process of order (p,d,q).

Seasonal ARIMA model represented as follows for a stationary series i.e. differencing parameters (d &d_s = 0) equal to Zero, used for forecasting rainfall and temperature

$\nabla^{ps}\nabla^{p}Z_t=\nabla^{qs}\nabla^{q}Y_t$ ….(5)

Where p_s and q_s are the seasonal parameters corresponding to AR and MA process.

Model of type of equation (5) can then be fitted to given set of data using an approach consists of mainly three steps (a) identification (b) estimation (c) application (forecasting) or diagnostic checking. At the identification stage tentative values of p,d,q and ps,ds,qsare chosen. Coefficients of variables used in model need to be estimated. Finally diagnostic checks can made to determine, whether the model fitted adequately describes the given time series. Any inadequacies discovered might suggest an alternative form of the model, and whole iterative cycle of identification, estimation and application can be repeated until a satisfactory model is obtained.

3.6.3. Regression analysis to study the effect of climatic parameters on crop production.

To examine the effect of climate on crop production, we regressed crop yield on weather variables using the following model wherein only weather parameters were used in the model and the use of farm inputs that are under farmers' control and likely to be endogenous and were intentionally avoided.

The set of models used during this study includes:

Model 1: Yield = f (rainfall)

Model 2: Yield = f (temperature (max, min), rainfall)

3.6.4. HENRY GARRETT'S RANKING TECHNIQUE

This technique was used to evaluate the problems faced by the farmers. The orders of merit given by the respondents were converted into rank by using the formula.

To find out the most significant factor which influences the respondent, Garrett's ranking technique was used. As per this method, respondents have been asked to assign the rank for all factors and the outcomes of such ranking have been converted into score value with the help of the following formula:

$$\text{Percent position} = \frac{100(\text{Rij} - 0.5)}{\text{Nj}}$$

Where Rij = Rank given for the i^{th} variable by j^{th} respondents

Nj = Number of variable ranked by j^{th} respondents.

With the help of Garrett's Table, the percent position estimated was converted into scores. Then for each factor, the scores of each individual are added and then total value of scores and mean values of score was calculated. The factors having highest mean value is considered to be the most important factor.

RESULTS AND DISCUSSION

The findings of the study conducted are as follows,

4.1. General information about the respondents.

Table 4.1.1. BASIC INFORMATION ABOUT THE RESPONDENTS

PARTICULARS		UNIT	VALUE
AVERAGE AGE		YEARS	46.16
AVERAGE SIZE OF THE FAMILY		Nos.	9
SEX RATIO		No. of females per 100 males	95.58
EDUCATIONAL STATUS		%	
1.	ILLITERATE		13.16
2.	PRIMARY		10.53
3.	MIDDLE		10.53
4.	SECONDARY		2.63
5.	H.SECONDARY		34.21
6.	GRADUATE OR ABOVE		28.95
AVERAGE LANDHOLDING		Ha	7.48
AVERAGE LAND UNDER AGRICULTUTRE AND ALLIED ACTIVITIES		Ha	7.41
1.	IRRIGATED	%	52.2
2.	RAINFED	%	47.8

The average age of the respondents in the study area was found to be 46 years. The size of the families were quiet large with an average of 9 members per household. The villages in the study area were found to live in joint families with the minimum of 60 to maximum of 290 no. of households in a village. The sex ratio of the respondents and their family members was found to be 95.58 females per 100 males. 10.53 % of the respondents had primary level of education, 10.53% had middle school level, 2.6% had secondary school level, 34.21% had higher secondary level and 28.95% had graduation level of education. The average landholding was found to be 7.48 Ha per household. The average land under agriculture and allied activities was 7.41Ha out of which 52.2 % was irrigated while 47.8 % was unirrigated (Table 4.1.1.).

Table 4.1.2. Land use pattern observed in the study area.

Sl. No.	DISTRICT		LAND UNDER AGRICULTURE AND ALLIED ACTIVITIES			
			RICE (Ha)	MAIZE (Ha)	PLANTATION CROPS (Ha)	OTHERS(Veg, fishery/livestock) (Ha)
1	EAST SIANG	AVERAGE	5.17	0.914	1.001	0.421
		PERCENTAGE	68.88	12.18	13.33	5.61
2.	LOHIT	AVERAGE	2.25	3.4807692	1.384615385	0.115384615
		PERCENTAGE	31.11702	48.138298	19.14893617	1.595744681

The farmers if Arunachal Pradesh mostly practices organic method of cultivation of crops with minimum usage of chemical input in the farms.

Rice and maize are some of the major crops grown in terms of area under cultivation. It was observed that 68.88% of the area under cultivation was utilised for paddy cultivation in East Siang followed by 12.18% area under maize. Lohit district had 48.13% of its area under cultivation growing maize followed by 31.12% of agricultural area under rice cultivation. However, a great portion of the farm family income is obtained by horticultural and plantation crops with these sectors having low volume - high income characteristics (Table 4.1.2.).

Rice is mostly cultivated in the kharif season with the sowing period spanning from the month of April-May to June-July depending on the variety of rice sown and harvested in the months of September to November. A variety of rice is grown in the region both local and introduced. The local varieties of rice include Itanagar, Deku, Amka, Neori, Yagrung, Katum, Kayong, Mosina, Raling, Kolom dhani etc. the farmers have also started to grow introduced varieties like CAU R1, IR8 and Ranjit in their farms.

Maize is grown in both kharif and rabi seasons. Farmers prefer to grow local varieties of maize during the winter season wherein the sowing is done during the months of September to October and harvested during December-January. During the summers, farmers usually plant introduced varieties of maize like DKC 9165, DHH77, DHH107 and DURGA. These are sown during the months of February to March and harvested in June-July.

4.2. RAINFALL PATTERN IN EAST SIANG DISTRICT DURING 1987 - 2018

Table 4.2.1 Monthly rainfall in East Siang during 1987 – 2018.

	Normal rainfall (mm)	Percentage Contribution	Extreme value (total monthly) (mm)		CV (%)	Trend coefficient
			Minimum	Maximum		
January	43.51	1.00	0.0	243.0	111.46	-0.56
February	97.36	2.23	9.7	245.3	63.97	-2.43
March	155.99	3.58	26.5	311.6	56.99	-0.01
April	273.33	6.27	65.5	622.2	51.57	0.02
May	406.07	9.32	77.4	1128.1	57.65	-0.01
June	748.53	17.17	301.2	1559.2	38.28	-3.31
July	1068.29	24.51	301.1	2261.3	43.44	-10.95
August	703.20	16.13	152.0	2363.0	67.47	-8.41
September	599.46	13.75	232.9	1549.6	45.33	0.00
October	211.41	4.85	11.7	1166.5	101.61	-0.01
November	34.09	0.78	0.0	158.1	133.25	0.05
December	17.49	0.40	0.0	72.8	108.12	-0.02

The months of January, November and December received a minimum rainfall of zero during the study period while there was a maximum rainfall of 2363mm in the month of August followed by July with 2261.3 mm rainfall during the study period. The inter year variation was very high for all the months ranging from 38 percent to 133 percent. The maximum variation was observed during the month of November (133.25 percent) (Table 4.2.1.).

The study showed that the monthly rainfall in the district of East Siang exhibited a decreasing trend for all the months except April and November wherein the rainfall showed an increasing trend through the study period.

Table 4.2.2. Seasonal and annual rainfall pattern in East Siang during 1987-2018.

Month	Normal rainfall (mm)	Percentage contribution	Extreme values (mm)		CV (%)
			Minimum	Maximum	
Pre monsoon	296.86	6.78	53.40	616.60	40.83
Monsoon	3817.28	87.21	2335.90	5992.90	23.69
Post monsoon	262.99	6.01	79.40	1196.70	77.37
Annual	4377.13	-	2771.90	7662.00	23.78

The district of East Siang received a normal annual rainfall of 4377.13 mm during the study period. Normal rainfall of 296.9 mm was received during the pre monsoon period, 3817.28 mm during the monsoon and 262.99 mm during the post monsoon periods. Minimum rainfall of 53.40 mm was received during the pre monsoon months and maximum rainfall of 5992.90 mm was received during the monsoon months. The rainfall pattern of East Siang exhibited a high annual as well as seasonal variation wherein the maximum variation was observed in the post monsoon period (Table 4.2.2.).

Table 4.2.3. Seasonal and annual rainfall pattern in East Siang during 1987-2002 and 2002-2018.

TIME PERIOD	Month	Normal rainfall (mm)	Percentage contribution	Extreme values (mm)		CV (%)
				Minimum	Maximum	
1987-2002	Pre monsoon (1987-2002)	305.61	6.73	53.40	505.70	36.76
	Monsoon (1987-2002)	3938.01	86.73	2335.90	5992.90	24.91
	Post monsoon (1987-2002)	296.92	6.54	126.00	1196.70	84.30
	Annual rainfall (1987-2002)	4540.54	-	2771.90	7662.00	25.96
2003-2018	Pre monsoon (2003-2018)	288.11	6.84	122.60	616.60	44.72
	Monsoon (2003-2018)	3696.55	87.73	2403.80	5529.20	21.71
	Post monsoon (2003-2018)	229.06	5.44	79.40	645.50	58.35
	Annual rainfall (2003-2018)	4213.73	-	2893.50	6404.30	20.19

In order to better understand the variation as well as trends, the study period was further divided into two time periods of sixteen years each. The district received a minimum rainfall of 53.40 mm in the pre monsoon months and a maximum rainfall of 5992.90 mm during the monsoon season for the time period of 1987 to 2002. In the time period 2002 to 2018, however, the minimum rain was received in the post monsoon season with 79.40 mm and a maximum amount was received during the monsoon months (Table 4.2.3.).

The annual variation in both the time periods range from 20 to 26 percent. Although the variation is quiet high for all the seasons in both the time periods, maximum variation of 84.3 percent and 58.35 percent was observed in the post monsoon months in both the time periods (Table 4.2.3.).

It can here be observed that the variability in the rainfall pattern happened more exponentially during the early half of the study period.

TABLE 4.2.4. Linear trends for pre monsoon, monsoon, post monsoon and annual rainfall in East Siang during 1987-2018.

Particulars	Trend value	p-value
Time period 1987-2018		
Pre monsoon	-11.06	0.078
Monsoon	-895.52*	0.042
Post monsoon	-5.01	0.211
Annual	-0.10*	0.037

Note: * indicates significance at 5 per cent.

It was observed that the annual seasonal rainfall shows decreasing linear trend for all the three seasons. The trend value was found significant during the monsoon period with a trend value of -895.52. The annual rainfall also showed significant decreasing linear trend with a trend value of -0.10 (Table 4.2.4.).

TABLE 4.2.5. Linear trends for pre monsoon, monsoon, post monsoon and annual rainfall in East Siang during 1987-2002 and 2003-2018.

Particulars	Trend value	p-value
Time period 1987-2002		
Pre monsoon	-11.06	0.078
Monsoon	-82.19	0.140
Post monsoon	-16.39	0.256
Annual	-109.64	0.098
Time period 2003-2018		
Pre monsoon	-11.87	0.101
Monsoon	-24.36	0.605
Post monsoon	1.74	0.825
Annual	-34.49	0.488

When distributed into two time periods viz., 1987-2002 and 2002-2018, in an attempt to better understand the changes, the seasonal rainfall exhibited erratic trend with a decreasing trend for all the seasons during the years 1987 to 2002, along with pre monsoon and monsoon seasons of the time period 2002 to 2018. However, rainfall in the post monsoon months of 2002 to 2018 showed an increasing linear trend hence, the overall observation proved to be erratic (Table 4.2.5.).

The overall study of the rainfall pattern of East Siang shows that the annual rainfall during the monsoon months have decreased significantly and the monthly and seasonal rainfall trends exhibited erratic behaviour. It can thus be said the study area observed a change in the timing and distribution of rainfall throughout the study period with a significant change in the volume of rainfall received during the monsoon months.

For the North Eastern states of India, the normal annual rainfall ranges from 200-300 cm. Arunachal Pradesh witnessed a significant decreasing trend in monsoon rainfall between 1989 and 2018, with many years experiencing deficit rainfall below the LPA for monsoon period of 1,726 mm. The state reportedly received its maximum rainfall in the month of July when it showed a high variability of 31 per cent. The overall variability of monsoon rainfall for the period was 21.7 per cent which is quiet high. Fourteen districts showed a decreasing rainfall trend wherein eight districts showed a significant decreasing rainfall trend. Districts like West Kameng and East Kameng in the western part of the state showed a decrease in the flow of mountain springs and streams in recent decades, which could be due to the decrease in rainfall (Sangomla. 2021)

Indian Meteorological Department (IMD) 2021 reported that the annual rainfall in the states of Arunachal Pradesh and Himachal Pradesh showed a significant decreasing trends during the 30 years through 1989- 2018 during the Southwest monsoon season from June-July-August-September (JJAS).

4.3. RAINFALL PATTERN IN LOHIT DISTRICT DURING 1987 -2018

Table 4.3.1. Monthly rainfall pattern in Lohit district during 1987-2018.

Month	Normal rainfall (mm)	Percentage Contribution	Extreme value (total monthly) (mm)		CV (%)	Trend coefficient
			Minimum	Maximum		
January	24.67	1.05	0.00	94.70	91.33	0.01
February	66.75	2.84	0.00	158.60	66.26	-0.42**
March	148.09	6.30	22.60	310.10	52.10	0.05
April	269.41	11.45	52.70	786.70	58.69	1.46
May	267.49	11.37	73.20	689.40	56.31	1.44
June	349.76	14.87	145.10	673.70	33.12	0.40
July	451.81	19.21	221.60	785.10	28.44	-4.28*
August	327.25	13.91	122.30	692.30	38.36	5.67**
September	285.29	12.13	109.20	601.20	41.99	0.23
October	126.43	5.37	19.90	303.90	54.67	-0.09
November	18.67	0.79	0.00	56.30	93.21	-0.28
December	16.89	0.72	0.00	61.70	108.49	-15.31*

Note: * and ** indicates significance at 5 and 1 per cent respectively.

During the study of the monthly rainfall pattern in Lohit district, the study area showed to have received a minimum rainfall of 0 mm during the months of January, February, November and December. Maximum rainfall was received in the month of April i.e. 786.70 mm followed by July with 785.10 mm rainfall. The rainfall exhibits high variation for all the months. The variation observed ranged from 28 percent to 108.5 percent. The rainfall received by the study area exhibited increasing trend for the months of January, March, April, May, June, August and September, and decreasing trend for the months of February, July, October, November and December. The trend value was found to be significant and decreasing during the months of February, July and December with trend values -0.42, -4.28 and -15.31 respectively. The trend was significant and increasing during the month of August with a trend value of 5.67. It was thus observed that rainfall received by the study area significantly decreased during the months of February, July and December, whereas, it increased significantly during the month of August during the study period (Table 4.3.1.).

Table 4.3.2. Seasonal rainfall pattern in Lohit district from 1987 to 2018.

Season	Normal rainfall (mm)	Percentage contribution	Extreme values (mm)		CV (%)
			Minimum	Maximum	
Pre monsoon	232.48	9.92	70.80	491.90	41.34
Monsoon	1954.34	83.41	1229.80	2831.10	19.36
Post monsoon	157.97	6.74	24.30	295.20	39.33
Annual	2343.07	-	1573.40	3254.70	17.36

Lohit district received an annual rainfall of 2343.07 mm during 1987 to 2018. The region received the minimum seasonal rainfall of 24.30 mm during the post monsoon season of the study period and the highest seasonal rainfall of

2831.10 mm during the monsoon season. The area showed high variability in the seasonal rainfall ranging from 19.36 percent in the monsoon period to 41.34 percent in the pre monsoon season (Table 4.3.2.).

The district received an average minimum seasonal rainfall of 157.97 mm during the post monsoon months and the highest average rainfall of 1954 mm during the monsoon months (Table 4.3.2.).

Table 4.3.3. Seasonal and annual rainfall pattern in Lohit during 1987-2002 and 2003-2018

TIME PERIOD	Season	Normal rainfall (mm)	Percentage contribution	Extreme values (mm)		CV (%)
				Minimum	Maximum	
1987-2002	Pre monsoon (1987-2002)	254.73	10.67	70.80	376.60	36.63
	Monsoon (1987-2002)	1961.80	82.20	1229.80	2706.00	19.30
	Post monsoon (1987-2002)	174.13	7.30	82.50	295.20	37.00
	Annual rainfall (1987-2002)	2386.76	-	1757.40	3018.60	15.08
2003-2018	Pre monsoon (2003-2018)	210.24	9.14	96.40	491.90	44.55
	Monsoon (2003-2018)	1946.88	84.67	1403.20	2831.10	19.42
	Post monsoon	141.80	6.17	24.30	223.80	38.92

	(2003-2018)					
	Annual rainfall (2003-2018)	2299.37	-	1573.40	3254.70	19.33

To better understand the variation as well as seasonal trends, the study period was further divided into two time periods of sixteen years each. It was thus observed that the district received a minimum rainfall of 70.80 mm in the pre monsoon months and a maximum rainfall of 2706.00 mm during the monsoon season for the time period of 1987 to 2002. In the time period 2003 to 2018, however, the minimum rain of 24.3 mm was received in the post monsoon season with maximum amount of 2831.10 mm received during the monsoon months.

The annual variation in both the time periods range from 15 to 20 percent. The seasonal variability was found higher in the post monsoon season for the time period 1987-2002 and pre-monsoon period for the time period 2003-2018 (Table 4.3.3.).

TABLE 4.3.4. Linear trends for seasonal and annual rainfall in Lohit district during 1987-2018.

Particulars	Trend value	p-value
1987-2018		
Pre monsoon	-1.90	0.317
Monsoon	-2.68	0.722
Post monsoon	-1.75	0.150
Annual	-6.29	0.435

The study showed that the annual seasonal rainfall for Lohit district exhibited a decreasing linear trend for all the three seasons during the study period (Table 4.3.4.).

Table 4.3.5. Linear trends for pre monsoon, monsoon, post monsoon seasons and annual rainfall in Lohit district during 1987- 2002 and 2003-2018.

Particulars	Trend value	p-value
1987-2002		
Pre monsoon	6.32	0.239
Monsoon	-12.29	0.580
Post monsoon	1.32	0.727
Annual	-8.69	0.682
2003-2018		
Pre monsoon	-4.83	0.376
Monsoon	-3.59	0.872
Post monsoon	-3.22	0.313
Annual	-8.91	0.733

Further distribution of the study period into two time periods viz., 1987-2002 and 2002-2018, showed that the seasonal rainfall exhibited erratic trend with a decreasing trend for all the seasons during the time period 2003-2018, and monsoon seasons during the time period of 1987-2002. The study however, showed that the rainfall in the pre and post monsoon months of 1987 to 2002 showed an increasing linear trend. This observation thus brings us to the understanding that the seasonal rainfall during the study period exhibited an erratic behaviour (Table 4.3.5.).

The study on the rainfall pattern in the Lohit district during 1987-2018 shows no significant change in the volume of annual rainfall throughout the study period. However the change observed is in the distribution pattern as well as the timing of the rainfall received by the place.

Studies on rainfall and the temperature regimes of northeast India indicate that there is no significant trend in rainfall for the region as a whole i.e. rainfall is neither increasing nor decreasing appreciably for the region as a whole (Das and Goswami, 2003; Das, 2004).

A study by Bhagwati *et al*. 2016, also found no clear and consistent trend in average total annual rainfall over the sub tropical hills of Arunachal Pradesh, but observed a wide inter and intra seasonal variation in its distribution. The results are also consistent with previous studies by Kumar *et al.* (2010), Dash et al. (2007) and Pal and Al- Tabbaa (2009). Though the change in rainfall is not very significant it was found to be decrease in the number of rainy days by about 11 percent. The distribution of rainfall also observed very erratic in the recent decade (Bhagawati *et al*. 2017).

The problem prevalent with erratic nature and unpredictable rainfall pattern lies in extreme weather events like floods and droughts. The response of hydrologic systems, erosion processes, and sedimentation in the Himalayan river basins could alter significantly due to climate change. Two extremely intense cloud bursts of unprecedented intensity in the western Meghalaya hills and Western Arunachal Pradesh each in 2004 produced two devastating flash floods in the Goalpara and Sonitpur districts of Assam bordering Meghalaya and Arunachal respectively causing hundreds of deaths and enormous loss to the animals and agriculture (Das *et al*. 2010)

According to the PRECIS regional climate model, annual rainfall is projected to decrease by 5 to 15 per cent in the 2030s as compared to baseline and increase by 25 to 35 per cent towards 2080s. Decrease in rainfall is projected for all seasons except pre-monsoon for 2030s (SAPCC, 2011).

4.4. Trend of temperature in East Siang from 2000-2018

Table 4.4.1. Trend of annual temperature (maximum and minimum) for East Siang from period 2000-2018

Average temperature		Trend Coefficient		CV (%)	
Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
28.03	19.75	0.06**	0.02	1.80	1.69

Note: **indicates significance at 0.01

It was observed during the study that the maximum annual temperature of East Siang exhibited a significant trend coefficient of 0.06 (Table 4.4.1). It can thus be concluded that the maximum temperature observed in East Siang exhibited an increasing trend during the study period of 2000-2018.

Table 4.4.2. Trend for monthly temperature of East Siang (2000-2018)

Month	Average Temperature(ºC)		Trend coefficient	
	Maximum	Minimum	Maximum	Minimum
January	23.53	13.14	0.05	0.03
February	24.22	15.14	0.13*	0.05
March	26.09	17.48	0.09	0.04
April	27.09	19.52	0.05	0.02
May	29.57	22.01	-0.03	-0.02
June	30.60	23.89	0.06	0.02
July	30.62	24.24	0.12**	0.01
August	31.08	24.59	0.15*	0.02
September	30.89	23.71	0.01	0.03
October	30.04	21.38	0.07	0.04
November	27.61	17.43	-0.01	0.00
December	25.02	14.43	-0.03	0.04

Note: * and ** indicates significance at 5 and 1 per cent respectively

A monthly study of the temperature trend in East Siang for the years 2000 to 2018 resulted in significant observations for maximum temperature at 5 percent for the months of February and August and 1 percent for the month of July. These observations tell us that the maximum temperature for the study area exhibited an increased during the months of February, July and August (Table 4.4.2).

It can thus be observed that the temperature in East Siang has significantly increased during the months of February, August and July for the study period.

Arunachal Pradesh is one of the coldest regions in India with an average daily high temperature of only 29 degrees centigrade. However, long term analysis indicates that Eastern Himalaya in general and Arunachal Pradesh in particular are experiencing widespread warming generally 0.01 to 0.04°C per year (Sharma *et al.* 2009).

The long term analysis of trends in observed temperature over Arunachal Pradesh using IMD gridded and temperature at daily time scale indicates towards a significant rise in temperature (Bhagawati *et al.* 2017). According to SAPCC 2011, the maximum temperature of the state is projected to increase by 2.2°C to 2.8°C during 2030s as compared to baseline and towards 2080s the increase is projected by 3.4°C to 5°C. Minimum temperature is projected to increase by 1°C to 2.6°C during 2030s and by 2.8°C to 5°C during 2080s (SAPCC 2011).

4.5. Relative Humidity of East Siang from 2006-2018

Table 4.5.1. Annual trend of Relative Humidity (morning 08:30 hours and evening 17:30 hours IST) for East Siang for the period 2006-2018

Average RH		Trend Coefficient	
Morning (08:30hrs IST)	Evening (17:30hrsIST)	Morning (08:30hrs IST)	Evening (17:30hrsIST)
76.72	77.04	0.07	-0.29

The average annual Relative Humidity for East Siang during 2006-2018 was 76.72 and 77.04 at 08:30 hrs and 17:30 hrs IST respectively. The trend coefficient was observed to be 0.07 and -0.29. The Relative Humidity was observed to have increased during the morning and decreased in the evening throughout the study period (Table 4.5.1.). However, the changes were not found to be significant.

Table 4.5.2. Trend for monthly Relative Humidity of East Siang (2006-18)

Month	Average Relative humidity (%)		CV (%)		Trend coefficient	
	Morning (08:30hrs IST)	Evening (17:30hrs IST)	Morning (08:30hrs IST)	Evening (17:30hrs IST)	Morning (08:30hrs IST)	Evening (17:30hrs IST)
January	69.10	69.46	4.98	5.99	-0.49	-0.31
February	71.49	70.02	8.25	6.79	0.48	0.32
March	71.04	74.34	6.58	7.15	0.05	0.56
April	76.16	78.03	7.64	6.34	-0.03	0.74*
May	78.77	80.49	5.15	4.97	0.30	0.30
June	86.59	83.38	3.66	3.42	-0.01	-0.16
July	89.28	84.21	4.96	2.83	-0.45	-0.14
August	86.62	83.51	5.68	2.18	-0.38	-0.22
September	84.17	80.87	4.32	4.58	0.57	-0.78**
October	72.90	76.14	5.15	6.44	-0.33	-0.98**
November	66.06	73.83	6.38	6.63	0.07	-0.51
December	67.74	71.86	3.34	4.55	-0.24	-0.41

Note: * and ** indicates significance at 5 and 1 per cent respectively

The monthly study of the Relative Humidity showed various increasing and decreasing trends for both morning and evening hours. However the changes were significant for the evening hours of 17:30 hours IST during the months of April, September and October where the Relative Humidity showed an increasing trend for the month of April and exhibited a decreasing trend for the months of September and October (Table 4.5.2.).

Similar results were found by Lairenjam *et al.*, wherein the mean relative humidity in North East India was, in general, found to be significantly increasing (Lairenjam *et al.* 2017).

A study across 215 stations across India for annual and seasonal trends in specific humidity, relative humidity and dry bulb temperature show evidence of an increase in air moisture content all over India during 1969-2007 with more than 90% stations showing increasing trends in specific humidity. Climatological means of relative humidity for the country was 63.9% and exhibited significantly increasing trend for all periods except for relative humidity in monsoon season. Increasing trends in summer season relative humidity and monsoon season dry bulb temperature over large parts of the country contribute significantly to upward trend in human discomfort (Jaswal and Koppar, 2011).

4.6. Effect of climate change in the production and productivity of rice.

Table 4.6.1. Productivity of rice and total annual rainfall in East Siang during 1987-2018.

YEAR	YIELD (Kg/Ha)	TOTAL ANNUAL RAINFALL (mm)
1987	1475.5	5684
1988	1200.5	7662.8
1989	1462.5	4498.8
1990	1469.75	4700.8
1991	1470	4961.2
1992	1350.5	2771.9
1993	1472.25	4853.2
1994	1400.25	3220.6
1995	1445.23	4008.8
1996	1470.5	4798.1
1997	1427.25	3615
1998	1289.75	6049.1
1999	1428.25	3619.2
2000	1099.5	1596.1
2001	1444.75	3280.5
2002	1451.3	4168.5
2003	1453.42	4369.6
2004	1399.23	5229.3
2005	1452	4251.9

2006	1431.32	3756
2007	1472	5079.7
2008	1449.27	4140.9
2009	1100.53	1753.9
2010	1454.34	4441.3
2011	1256.25	2893.5
2012	1290.56	6404.3
2013	1421.67	3303.4
2014	1450.65	4248.3
2015	1468.54	4596.3
2016	1242.5	2613.8
2017	1254.76	2832
2018	1099.74	1573.4

The study showed that the productivity of rice faced fluctuations of varying degrees during the study period. It was also observed that the productivity exhibited a slight decrease by the end if the study period (Table 4.6.1.).

TABLE 4.6.2. Regression analysis for yield of rice as a function of temperature and amount of rainfall.

Yield=*f (temperature (max, min), rainfall)*

Dependent variable (y): Yield
Independent variable (x_1): Rainfall
(x_2): Temperature (Max)
(x_3): Temperature (Min)

Regression Statistics	
Multiple R	0.733417807
R Square	0.53790168
Adjusted R Square	0.445482016
Standard Error	101.5565141
Observations	19

	INTERCEPT	RAINFALL	TEMPERATURE (max)	TEMPERATURE (min)
Coefficients	1703.747415	0.073506674	-16.72517376	-1.23937
Standard Error	931.2323868	0.019022687	24.51894348	11.61175
t Stat	1.829562029	3.864158371	-0.682132726	-0.10673
P-value	0.087261429	**0.001529072**	0.50555272	0.916415

Lower 95%	-281.1274232	0.032960777	-68.98606445	-25.9892
Upper 95%	3688.622254	0.11405257	35.53571694	23.51048
Lower 95.0%	-281.1274232	0.032960777	-68.98606445	-25.9892
Upper 95.0%	3688.622254	0.11405257	35.53571694	23.51048

Note: * indicates significance at 5 per cent.

A regression analysis of yield of rice as a function of total annual rainfall and maximum and minimum temperature showed that rainfall did have an impact on the crop yield. i.e. the relationship between yield of rice and rainfall was found to be significant whereas the relationship between yield and maximum and minimum temperature was not significant (Table 4.6.2.).

Climate change in the agricultural aspect has a negative effect on rainfed lowland rice production observed in the form of decreasing harvest area which further result in a decrease in rice production (Beding *et al*. 2021). The predicted changing rainfall patterns, rising temperature, and intensifying solar radiation under climate change can lead to a reduction in rice yield in all three growing seasons from 2021 to 2050 (Ansari *et al*. 2021).

4.7. Effect of climate change in the production and productivity of maize.

Table 4.7.1. Productivity of maize and total annual rainfall in Lohit district during 1987-2018.

YEAR	YIELD (Kg/Ha)	TOTAL ANNUAL RAINFALL (mm)
1987	1613	2578.6
1988	1605.34	2964.1
1989	1548.32	1757.4
1990	1594.07	2592.4
1991	1591.76	2541.9
1992	1549.89	1877.1
1993	1592.76	2439.9
1994	1556.78	2030.3
1995	1420.25	3018.6

1996	1568.45	2244.5
1997	1564.43	2228.3
1998	1595.99	2765.2
1999	1560	2137.8
2000	1592.65	2554.2
2001	1554.87	1979.7
2002	1595.76	2478.2
2003	1595.99	2486.3
2004	1596.37	2659.4
2005	1590.65	2544.1
2006	1489.76	1958.7
2007	1496.43	2314.2
2008	1476.84	1837.6
2009	1468.34	1753.9
2010	1360.85	3254.7
2011	1470.65	1761.1
2012	1546.56	2643.4
2013	1503.67	2055.2
2014	1509.87	2166.2
2015	1511.23	2335.9
2016	1476.56	2613.8
2017	1452.99	2832
2018	1433.5	1530.8

The study showed that the annual productivity of maize exhibited a steady decline throughout the study period.

4.7.2. Regression analysis for yield of maize as a function of total annual rainfall.

Yield=*f* *(rainfall)*

Dependent variable (y): Yield
Independent variable (x_1): Rainfall

Regression Statistics	
Multiple R	0.085068654
R Square	0.007236676
Adjusted R Square	-0.025855435
Standard Error	65.07992416
Observations	32

	Intercept	RAINFALL
Coefficients	1503.118953	0.013141615
Standard Error	66.80610861	0.028102271
t Stat	22.49972322	0.467635342
P-value	2.44299E-20	0.643424683
Lower 95%	1366.682678	-0.044250879
Upper 95%	1639.555228	0.070534109
Lower 95.0%	1366.682678	-0.044250879
Upper 95.0%	1639.555228	0.070534109

A regression analysis for yield of maize as a function of total annual rainfall showed no significant relationship between the parameters.

Seasonal shifting of rainfall may adversely affect the agricultural activities of NE India, which is mainly rainfed in nature. In addition, many stations show significant increasing trend in temperature, especially minimum temperature, which will surely affect the water balance of the region in near future, demanding a review of the cropping pattern and crop species (Lairenjam *et al.* 2017).

4.8. Various constraints faced by the rice and maize farmers of Arunachal Pradesh.

Table 4.8.1. Garrets Ranking of the major concerns faced by the rice and maize farmers of Arunachal Pradesh

FACTOR NO.	FACTORS / CONSTRAINTS	RANKING BY RICE FARMERS		RANKING BY MAIZE FARMERS	
		AVERAGE SCORE	RANK	AVERAGE SCORE	RANK
F1	Decreasing yield	66	1	64.62	1
F2	Degrading quality of the produce	29.2	5	27.31	5
F3	Unpredictability of the weather	52.4	3	43.08	4
F4	Increasing Pest and disease infestation	65.8	2	61.92	2
F5	Weed infestation	36.6	4	53.08	3

Both the rice farmers as well as maize farmers reported a declining yield of their crops throughout the study period and the particular constraint was ranked the highest according to Garrett's ranking with an average score of 66 percent and 64.62 percent for the rice and maize farmers respectively. The constraint that was ranked second by both the rice and maize farmers was increasing pest and disease infestation in their fields (Table 4.8.1.). Some farmers also reported that some insects which were considered as minor pest with negligible damage to the crops had lately been the cause of major infestations causing major losses in yield and income if the farm family. Various districts of Arunachal Pradesh including East Siang, Upper Siang, Siang and Lower Siang reported a massive infestation of the rice fields by white-blacked plant hopper, brown plant hopper, green plant hopper and spiny beetle. These pests that were initially seen and observed to be localized in the area witnessed a sudden multiplication and quick spread with the infestation going beyond the threshold level over fifty percent (The Arunachal Times; 2020).

The rice farmers ranked unpredictability of weather condition as the third, increasing weed infestation as fourth and degrading quality of produce as fifth most important problems faced by them. In case of the maize farmers, increasing weed infestation was ranked third, followed by unpredictability of weather and degrading quality of produce (Table 4.8.1.).

The reliability of agriculture on rain has reduced in the recent years with climate change as the seasonal rainfall has been marked by delayed onsets, declining number of rainy days and increased intensities altering farming calendars with negative effects on the yields. Climatic manifestations in terms of variable rainfall over the years have made it difficult to maintain the fragile balance between the onset, duration and the amount of rain, and the timing of agricultural activities. Climate change and uncertainty increases the already existing pressure on the agricultural sector (Bhagawati *et al*. 2017).

Warming environment is beneficial for weeds, insects and diseases. The climate change is a concern to researchers and farmers because it would lead to changes in insect and disease dynamics in terms of distribution, abundance and management of insects and pathogens. Climate change will probably alter the geographical and temporal distribution of pests and insects in the future. New diseases may arise in certain regions, and other diseases may cease to be economically important (Coakley *et al.* 1999). For example, rice blast disease caused by *Pyricularia oryzae* which is prevalent in the region and is the main cause behind the hindrance in harnessing the full potential of rice cultivars is favoured by the increase in temperature in the state of Arunachal Pradesh. The simulation model shows that the risk of blast epidemic is likely to increase under current trend of temperature rise in Arunachal Pradesh (Luo *et al.* 1995).

Thus, climate change has the potential to act as a ‘risk multiplier’ in Arunachal Pradesh, where agriculture and other natural resource-based system are already failing to keep pace with the demand on them (Bhagawati *et al.* 2017).

4.9. VARIOUS MITIGATION AND ADAPTATION MEASURES FOLLOWED BY THE FARMERS IN VIEW OF THE PROBLEMS FACED BY THEM DUE TO CLIMATE CHANGE.

4.9.1. Change in the timing and intensity of rainfall during various stages of crop growth.

According to the rice growing families from East Siang, about three to four decades ago, the sowing of rice was done around the month of May as it was during this month that the region witnessed the onset of monsoon. The farmers pressed on the requirement of rain during various stages of crop growth especially during the active tillering stage for a higher yield and the detrimental affect delayed rainfall has on the yield. However the farmers of the region have reported witnessing delayed monsoon since the past two decades which had caused reduced yield for the local varieties.

Keeping in view the need for proper rainfall during the active tillering stage of crop growth, the farmers have now adjusted their agricultural calendar and shifted the sowing time of the concerned crops from the month of May to June-July.

The farmers also observed improper filling of grains (*amiang*) and thus low yield whenever there is heavy rainfall during the flowering and grain-filling stages of the crop (August). Other phenomenon reported was that heavy rainfall during maturing stage of the crop (late September to October) leads the filled grains to germinate while it is still on the plant, before it is even harvested. Such seeds then become unfit for consumption and hence cause losses to farm family.

Since different varieties of rice have different crop durations, the farmers have adjusted the sowing time as well as harvesting time of the particular crops to tally along with the crop duration and critical time in order to avoid undesirable weather conditions during the various stages of crop growth and harvest period.

Crop-management techniques that have the ability to enhance crop development under various environmental stresses like choice of sowing time, planting density, and optimum irrigation practices are crucial plant adaptability approach techniques to tackle weather stresses (Battisti *et al*. 2018).

Development of new crop varieties with higher yield potential and resistance to multiple stresses (drought, flood, salinity) will be the key to maintain yield stability (NAPCC, 2016).

4.9.2. Reduced volume of water in the mountain streams.

The paddy farmers rely on mountain streams to irrigate their rice fields along with the annual rainfall. They claim that the fields irrigated with mountain stream water produced crops with higher yield and better tasting grains. They have also observed a reduction in the volume of the stream water in the past decade along with rapid felling of trees in the mountain forests. The village communities then soon came to a conclusion that the two phenomenon were interconnected

The villagers have since collectively decided to avoid unnecessary and extensive chopping down of trees to avoid drying up of the river streams which is regulated by the village elders.

Efficient use of natural resources such as water is highly critical for adaptation to climate change. With hotter temperature and changing precipitation pattern, water will further become a scarce resource. Serious attempts towards water conservation, water harvesting and improvement of irrigation accessibility and water use efficiency will highly be essential for crop production and livelihood management (NAPCC, 2016).

4.9.3. Heavy and untimely rainfall during sowing season of maize.

The maize farmers of Lohit district have reported that the uncertainty in the amount and duration of rainfall has caused farmers great distress in planning their farm activities. Though light rainfall is preferred and welcome during the sowing seasons for maize, the crop can't stand heavy rainfall and flooding of fields causing great losses to the farmers.

The farmers have hence shifted the maize fields to highland areas where there is less chance of flooding in order to mitigate the problem. Also, in case the farmers are halfway through sowing the maize in their fields and the place witnesses sudden heavy rainfall with high risks of flood, they sow the rest of the field with leguminous crops like black eyed beans, soyabeans, rice bean and hyacinth bean.

Anthropological and sociological studies have highlighted the importance of community based resource management and social learning to enhance their capacity to adapt to the impacts of future climate change. Tribal and hill knowledge systems are charged with potential indigenous practices used for absorption and conservation of rainwater, nutrient and weed management, crop production and plant protection. Their belief systems effectively help in weather forecasting and risk adjustment in crop cultivation (NAPCC, 2016).

A study in Africa also found common agricultural adaptation strategies used by farmers to include practices like use of drought resistant varieties of crops, crop diversification, changes in cropping pattern and calendar of planting, conserving soil moisture through appropriate tillage methods, improving irrigation efficiency, and afforestation and agro-forestry (Akinnagbe and Irohibe, 2014).

The farmers from South Asia on the face of constraints caused due to changing climate, in autonomous adaptation, adjust the planting and harvesting season with changes in precipitation patterns so that the crop season coincides with the precipitation periods (Ahmed and Suphachalasai, 2014).

4.10. POLICY MEASURES.

It is well accepted fact that Climate change has created challenges for the agricultural sector, and will continue to do so. However, the extent of affect it has is dependent on how we respond to the change. Climate change adaptation can be understood as the spontaneous or organized processes by which human beings and society adjust to changes in climate. It can be done by making changes in production systems and social and economic organization in order to reduce vulnerability to changing climatic conditions. Adaptation in agricultural sector is essential in order to enhance its capacity to deal with climate change conditions, improve the resilience and reduce its vulnerability to changing climate (Bockel *et al.*; 2011). Policy reforms are hence needed within and beyond the agricultural sector to strengthen farmer incentives to achieve sustainable productivity growth without sacrificing climate change mitigation and adaptation.

Some of the policies that can help farmers with recognizing and understanding the affect that climate change has on agriculture as well as equip them with means to adapt to and mitigate the problems that is caused due to climate change are,

a) The locals are aware of climate change to an extent and are consciously taking actions for mitigation but require Government intervention in the form of improved extension services in order to ensure efficient dissemination of necessary and up-to-date information regarding climate changes, problems and various mitigation and adaptive measures to overcome them. The farmers of the state live in villages with a well knit social structure. It would be easier to disseminate information and increase the rate of adoption if the government and other concerned institutions involve the popular and authoritative figures of the villages as a medium since the villagers are more likely to trust have confidence in them.

b) The people in the villages are mostly unaware or sometimes reluctant to invest in risk sharing and transfer schemes such as crop insurance, compensation and calamity funds. It is necessary that the Government and agriculture related institutions come up with means to encouraged farmers to adopt such practices and promote community based risk management tools like grain banks and self help groups to help the farmers to lower the risks.

c) The state also lacks an efficient crop monitoring system, climate forecasting as well as mapping of vulnerable areas and a network for timely transfer of the information to the farmers. It is seen through the study that the climatic parameters exhibit an erratic behaviour in the study area and hence it is highly necessary that the concerned institutions concentrate on developing the required technical assistance so as to provide the farmers with adequate warning and required information so that they can equip themselves to minimise the risk due to erratic and extreme weather conditions..

d) The agricultural scenario of the state is predominantly low input, non mechanized and subsistence in nature. They practice traditional means of cultivation and the state is organic by default with an average use of agrochemicals as low as 0.08 kg ha^{-1} (Department of Agriculture, Govt. of Arunachal Pradesh, 2021). Hence it is necessary that steps like introduction of pest, disease, and climate resilient varieties be introduced, crop diversification be encouraged, sustainability be promoted and awareness regarding climate friendly actions be inculcated so as to mitigate the ill effects of climate change on agriculture while preserving the quality of the natural resources and still obtaining optimum yield.

SUMMARY AND CONCLUSION

The average age of the respondents in the study area was found to be 46 years. The size of the families were quiet large with an average of 9 members per household. The villages in the study area were found to live in joint families with the minimum of 60 to maximum of 290 no. of households in a village. The sex ratio of the respondents and their family members was found to be 95.58 females per 100 males. 10.53 % of the respondents had primary level of education, 10.53% had middle school level, 2.6% had secondary school level, 34.21% had higher secondary level and 28.95% had graduation level of education. The average landholding was found to be 7.48 Ha per household. The average land under agriculture and allied activities was 7.41Ha out of which 52% was irrigated while 47% was unirrigated.

It was found through the study that most of the farmers of Arunachal Pradesh practice organic method of cultivation of crops with minimum usage of chemical input in the farms.

Rice and maize are some of the major crops grown in terms of area under cultivation. However, a great portion of the farm family income is obtained by horticultural and plantation crops with these sectors having low volume - high income characteristics.

Rice is mostly cultivated in the kharif season with the sowing period spanning from the month of April-May to June-July depending on the variety of rice sown and harvested in the months of September to November. Various local and introduced rice varieties are grown in the region. The local varieties of rice include Itanagar, Deku, Amka, Neori, Yagrung, Katum, Kayong, Mosina, Raling, Kolom dhani etc. the farmers have also started to grow introduced varieties like CAU R1, IR8 and Ranjit in their farms.

Maize is grown in both kharif and rabi seasons. Farmers prefer to grow local varieties of maize during the winter season wherein the sowing is done during the months of September to October and harvested during December-January. During the summers, farmers usually plant introduced varieties of maize like DKC 9165, DHH77, DHH107 and DURGA. These are sown during the months of February to March and harvested in June-July.

It was observed through the study that the total annual rainfall for both East Siang and Lohit districts decreases throughout the study period. The monthly rainfall for East Siang exhibited a decreasing linear trend for all months except for the months of April which showed an increasing trend and the month of September which showed a trend coefficient of zero. The monthly variability was also found to be very high. East Siang received a minimum monthly rainfall of 0 mm during the months of January, November and December. It received maximum rainfall during the months of July and August**.** Annual seasonal rainfall of East Siang exhibited erratic rainfall pattern with both increasing as well as decreasing seasonal trends. The maximum annual seasonal rainfall was received during the monsoon months of April to September.

The study on the annual seasonal rainfall from 1987 to 2018 in East Siang showed a decreasing linear trend for all the three seasons. The trend value was found significant during the monsoon period with a trend value of -895.52 which means that though the rainfall received by the study area decreased during the study period for all the seasons, the decrease was significant during the monsoon season. The annual rainfall also showed significant decreasing linear trend with a trend value of -0.10.

Lohit district received a minimum monthly rainfall of 0 mm in the months of January, February, November and December. The highest rainfall was obtained in the months of April and July. The monthly variation was observed to be very high and the monthly rainfall was observed to be erratic with both increasing and decreasing linear trends. The study area received the minimum seasonal rainfall during the post monsoon months and the highest in the monsoon months. The rainfall received by Lohit district exhibited increasing trend for the months of January, March, April, May, June, August and September, and decreasing trend for the months of February, July, October, November and December. The trend value was found to be significant and decreasing during the months of February, July and December with trend values -0.42, -4.28 and -15.31 respectively. The trend was significant and increasing during the month of August with a trend value of 5.67. It was thus observed that rainfall received by the study area significantly decreased during the months of February, July and December, whereas, it increased significantly during the month of August during the study period.

It thus brings us to an understanding that the study area is witnessing climate change in the form of significant increase and decrease of seasonal as well as monthly rainfall along with unpredictable and untimely distribution of the rainfall throughout the seasons.

The study showed that the maximum annual temperature of East Siang exhibited a significant trend coefficient of 0.06 indicating that the maximum temperature observed in East Siang exhibited an increasing trend during the study period of 2000-2018

A monthly study of the temperature trend in East Siang resulted in significant observations for maximum temperature at 5 percent for the months of February and August and 1 percent for the month of July. These observations tell us that the maximum temperature for the study area exhibited an increased during the months of February, July and August.

The average annual Relative Humidity for East Siang during 2006-2018 was 76.72 and 77.04 at 0830 hrs and 1730 hrs IST respectively. The trend coefficient was observed to be 0.07 and -0.29. The Relative Humidity was observed to have increased during the morning and decreased in the evening throughout the study period. However, the changes were not found to be significant.

The monthly study of the Relative Humidity showed various increasing and decreasing trends. However the changes were significant for the evening hours of 1730 hours IST during the months of April, September and October where the Relative Humidity showed an increasing trend for the month of April and exhibited a decreasing trend for the months of September and October.

Thus hypothesis $H_0$1: There was no change in climate pattern in the Arunachal Pradesh: can be rejected.

The productivity of both rice and maize crops were observed to have fluctuations throughout the study period and exhibited a decreasing trend.

It was found that total annual rainfall had an impact on the productivity of rice but not on that of maize in the study area.

Thus hypothesis $H_0$2: Climatic parameters did not have any impact on rice and maize production, can be rejected.

The study showed that 76 percent of the respondents perceived a change in the amount of annual rainfall while 89 percent perceived a change in the timeliness, distribution and duration of rainfall. In a Garrett's ranking analysis of the various constraints faced by the paddy and maize farmers, decreasing yield was ranked first with an average score of 66 percent and, 64.64 percent by the paddy and maize farmers respectively. Increasing disease and pest infestation was ranked second scoring an average of 65.8 percent and 61.92 percent by the rice and maize growers respectively. Other problems included increasing weed infestation, unpredictability of weather and degrading quality of the produce.

The paddy and maize farmers have adapted to the various challenges faced by them due to the change in climatic condition by adopting new cultivation practices like changing their agricultural calendar, introduction of climate resilient varieties, and switching to other crops with low risks and higher returns.

Understanding the fact that Climate change has created challenges for the agricultural sector, and will continue to do so it is necessary that Policy reforms be made within and beyond the agricultural sector to strengthen farmer incentives to achieve sustainable productivity growth without sacrificing climate change mitigation and adaptation. It was observed that the locals were aware of climate change to an extent and were consciously taking actions for mitigation but require Government intervention in the form of improved extension services in order to ensure efficient dissemination of necessary and up-to-date information. It would also increase the ease of information disbursement and adoption rate if the popular and authoritative figures of the villages are involved in the process. The people in the villages are mostly unaware or sometimes reluctant to invest in risk sharing and transfer schemes and it is necessary that the Government and agriculture related institutions come up with means to encouraged farmers to adopt such practices and promote community based risk management tools like grain banks and self help groups to help the farmers to lower risks. The lack of efficient crop monitoring system, climate forecasting as well as mapping of vulnerable areas and a network for timely transfer of the information to the farmers should be prioritised as it is seen through the study that the climatic parameters of the study area exhibit an erratic behaviour and hence present risk due to sudden and extreme weather conditions. Introduction of pest, disease, and climate resilient varieties, encouraging crop diversification, promoting sustainability and awareness regarding climate friendly actions should be inculcated so as to mitigate the ill effects of climate change on agriculture while preserving the quality of the natural resources and still obtaining optimum yield.

REFERENCES

Adams, R. M., Hurd, B. H., Lenhart, S. and Leary, N. 1998. Effects of global climate change on agriculture: an interpretative review. Leary 31 Department of Agricultural and Resource Economics, Oregon State University, Corvallis, Oregon. **11**: 19–30.

Adams, R.M. 1986. Agriculture, forestry and related benefits of air pollution control. *Am J Agric Econ.***68**:885–894.

Adams, R.M., Hurd, B.H., Lenhart, S. and Leary, N. 1998. Effects of global climate change on agriculture: An interpretative review. *Climate Research.***11**:19–30.

Aggarwal, P. K. and Mall, R. K. 2002. Climate Change and Rice Yields in Diverse Agro-environments of India II. Effect of uncertainties in scenarios and crop models on impact assessment. *Climatic Change*. **52**(3): 331-343.

Aggarwal, P. K., Kumar, S. N. and Pathak, H. 2010. Impacts of climate change on growth and yield of rice and wheat in the Upper Ganga Basin. Climate Change Impacts on Freshwater Ecosystems in the Himalayas (CCIFEH). WWF Report (IND) 2010.

Akinnagbe, O.M. and Irohibe, I. J. 2014. Agricultural adaptation strategies to climate change impacts in Africa: a review. *Bangladesh J. Agril. Res.***39**(3): 407-418.

Allen, L. H., Boote Jr., K. J. Jones, J. W., Jones, P. H., Valle, R. R., Acock, B., Rogers, H. H. and Dahlman, R. C. 1987. Response of vegetation to rising carbon dioxide: Photosynthesis, biomass, and seed yield of soybean. *Global Biogeochemical Cycles***1**:1-14.

Amondo, E. and Simtowe, F. 2018. Technology innovations, Productivity and Production Risk Effects of Adopting Drought Tolerant Maize Varieties in Rural Zambia. Vancouver: International Association of Agricultural Economics (IAAE); 2018.

Ansari, A., Lin, Y.-P. and Lur, H.-S. 2021. Evaluating and Adapting Climate Change Impacts on Rice Production in Indonesia: A Case Study of the Keduang Subwatershed, Central Java. *Environments2021*. **8:** 117.

Araya, A., Kisekka, I., Girma, A., Hadgu, K. M., Tegebu, F. N., Kassa, A. H., Ferreira-Filho, H. R., Beltrao, N. E., Afewerk, A., Abadi, B., Tsehaye, Y., Martorano, L. G. and Abraha, A. Z. 2016. Climate change and agricultural research paper: the challenges and opportunities for wheat production under future climate in Northern Ethiopia.

Arndt, C., Farmer, W., Strzepek, K. and Thurlow, J. 2012. Climate Change, Agriculture and Food Security in Tanzania.Policy research working paper:no.6188. World Bank, Washington DC. https://doi.org/10.1596/1813-9450-6188. Accessed on 21 July 2019

Arora, N, K. 2019. Earth: 50 years challenge. Environmental Sustainability, DOI 10.1007/s42398-019-00053-5.

Arora, N.K. 2019. Impact of climate change on agriculture production and its sustainable solutions Society for Environmental Sustainability 2019. *Environmental Sustainability* (2019). **2**:95–96.

Arunachal Pradesh state action plan on climate change. 2011, Government of Arunachal Pradesh. India Environment Portal. Draft report http://www.indiaenvironmentportal.org.in/content/346052/arunachal-pradesh-state-action-plan-on-climate-change/. Accessed on 02, July 2020.

Auffhammer, M. V., Ramanathan, V. and Vincent, J. R. 2006. Integrated Model Shows that Atmospheric Brown Cloud and GHGs have Reduced Rice Harvests in India. Proceedings of the National Academy of Sciences of the USA. **103**(52): 23-7.

Banerjee, R. R. 2014. Farmers' perception of climate change, impact and adaptation strategies: a case study of four villages in the semi-arid regions of India. Springer Science+Business Media Dordrecht 2014. *Natural Hazards Journal of the International Society for the Prevention and Mitigation of Natural Hazards*. **74**.

Battisti R., Sentelhas P.C., Parker P.S., Nendel C., Gil M.D.S., Farias J.R. and Basso C.J. 2018. Assessment of crop-management strategies to improve soybean resilience to climate change in Southern Brazil. *Crop Pasture Sci.* **69**:154–162.

Beding, P. A., Palobo, F., Tiro, B. M. W., Lestari, R. H. S. and Rumbarar, M. K. 2021. Climate change impact on rice productivity in the rainfed Merauke District, Papua. 1st International Conference on Sustainable Tropical Land Management. IOP Conf. Series: Earth and Environmental Science. **648** (2021) 012104.

Berg. A., Noblet-Ducoudré. N. de., Sultan. B., Lengaigne. M., Guimberteau. M. 2013. Projections of climate change impacts on potential C4 crop productivity over tropical regions. *Agricultural and Forest Meteorology***170**: 89–102.

Bhagawati, K., Bhagawati, R., Sen, A., Shukla, K.K. and Alone, R.A. 2016. Rainfall Trend and Variability Analysis of Sub-Tropical Hills of Arunachal Pradesh in Northeastern Himalayan Region of India. *Current World Environment*. **11**(2): 631-636.

Bhagawati, R., Bhagawati, K., Jini, D., Alone, R. A., R. Singh, Chandra, A., Makdoh, B., Sen, A. and Shukla, K.K. 2017. Review on Climate Change and its Impact on

Agriculture of Arunachal Pradesh in the Northeastern Himalayan Region of India. *Nature Environment and Pollution Technology An International Quarterly Scientific Journal*. **16** (2): 535-539.

Billa, L., Mansor, S.B., Mahmud, A.R. 2004. Spatial information technology in flood early warning system: an overview of theory, application and latest development in Malaysia. *Disaster Prevention and Management*. **13** (5), 356e363.

Bockel, L., Phiri, D. and Tinlot, M. 2011. Climate Change and Agriculture Policies How Far Should We Look for Synergy Building Between Agriculture Development and Climate Mitigation? FAO of the United Nations, ISSN 2219-9497 E-ISBN 978-92-5-106778-9.

Callaway, J. M., Markovska, N., Cukaliev, O., Causevski, A., Gjoshevski, D., Taseska, V. and Nikolova, S. 2011. Assessing the Economic Impact of Climate Change: National Case studies. Energy Demand for Space Heating and Cooling Mavrovo Hydropower Plant System Pelagonia Valley and Strezevo Irrigation Scheme ,UNDP8-ma Udarna brigade -2 1000.

Chhogyel, N., Kumar, L., Bajgai, Y., and Hasan, Md. K. 2020. Perception of farmers on climate change and its impacts on agriculture across various altitudinal zones of Bhutan *Himalayas. International Journal of Environmental Science and Technology* . **17**: 3607–3620.

Climate changeand variability. https://en.wikipedia.org/wiki/Climate_change. Accessed on 30th August 2017.

Coakley, S.M., Scherm, H. and Chakraborty, S. 1999. Climate change and plant disease management. *Annual Review of Phytopathology*. **37**: 399-426.

Cure J. D. and Acock, B. 1986. Crop responses to carbon dioxide doubling: a literature survey. Agric For Meteorology. **38**: 127–145.

Darwin, R., Tsigas, M., Lewandrowski, J. & Raneses, A. 2005. World agriculture and climate change: economic adaptation. USDA Agricultural Economic Report No. 703. pp 86.

Das, A., Ghosh, P.K., Choudhury, B.U., Patel, D.P., Munda, G.C., Ngachan, S.V. and Chowdhury, P. 2010. Climate change in Northeast India: recent facts and events – worry for agricultural management. ISPRS Archives XXXVIII-8/W3 Workshop Proceedings: Impact of Climate Change on Agriculture. ICAR Research Complex for NEH Region, Umiam-793 103, Meghalaya, India.

Das, P.J. and Goswami, D.C., 2003. Long-term variability of rainfall over northeast India. Indian Journal of Landscape Systems and Ecological Studies, **26**(1):1-20.

Das, P.J., 2004. Rainfall Regime of Northeast India: A Hydrometeorological Study with Special Emphasis on the Brahmaputra Basin. Unpublished Ph.D. Thesis. Gauhati University (accessed on September 12, 2021).

Dash, S.K., Jenamani, R.K., Kalsi, S.R. and Panda, S.K. 2007. Some evidence of climate change in twentieth-century India. *Climatic Change*. **85**:299-321.

Department of Agriculture, Government of Arunachal Pradesh. Arunachal agriculture at a glance. https://www.agri.arunachal.gov.in/apagri.php. Accessed on: 21November 2021.

Easterling, W.E. 1996. Adapting North American Agriculture to Climate Change in Review, *Agricultural and Forest Meteorology*. **80** (1), 1-54.

FAO 2021. FAO in India. India at a glance. http://www.fao.org/india/fao-in-india/india-at-a-glance/en/. Accessed on 20 April 2021.

FAO. 2005 "Impact of Climate Change, Pests and Diseases on Food Security and Poverty Reduction." Special event background document for the 31st Session of the Committee on World Food Security. Rome. pp 23-26.

FAO. 2007."Adaptation to climate change in agriculture, forestry and fisheries: Perspective, framework and priorities." Food and Agriculture Organization of the United Nations Rome, 2007. Sales and Marketing Group - Information Division Food and Agriculture Organization of the United Nations Viale delle Terme di Caracalla - 00100 Rome, Italy.

FAO. 2008. Organic agriculture and climate change. http://www.fao.org/organicag/oa-specialfeatures/oa-climatechange/en/. Accessed on 25 September 2019

FAO. 2014. Information brief agriculture/land at the Lima climate talks. 1-12 December. http://www.fao.org/3/a-at620e.pdf. Accessed on 25 September 2019.

FAO., 2012. Building resilience for adaptation to climate change in the agriculture sector. Proceedings of a Joint FAO/OECD Workshop 23–24 April 2012. Food and Agriculture Organization of the United Nations Organisation for Economic co-operation and Development Rome, 2012 ISBN 978-92-5-107373-5.

Foguesatto, C, R., and Machado, J. A. D. 2020. What shapes farmers' perception of climate change? A case study of southern Brazil. Springer, New York.

Frank, J. and Buckley, P. C. 2012. Small-scale farmers and climate change How can farmer organisations and Fairtrade build the adaptive capacity of smallholders?

Gornall, J., Betts, R., Burke, E., Clark, R., Camp, J., Willet, K., and Wiltshire, A. 2010. Implications of climate change for agricultural productivity in the early twenty-first century. *Phil. Trans. R. Soc. B* (2010) **365**: 2973–2989.

Guiteras, R. 2007. The Impact of Climate Change on Indian Agriculture Department of Economics, MIT. University of Maryland; College Park, MD 20742. Market Paper Draft.

Guiteras, R. 2009. The impact of climate change on Indian agriculture. Manuscript, Department of Economics, University of Maryland.

Gumbo, D. 2006. Working together to respond to climate change. Zimbabwe Country case study on domestic policy frameworks for adaptation in the water sector.

Hansen, J. W. 2002. Realizing the potential benefits of climate prediction to agriculture: issues, approaches, challenges. *Agricultural Systems*. **74**: 309– 330.

Haris, A. A., Biswas, S. and Chhabra, V. 2009. Climate change impacts on productivity of rice (Oryza sativa) in Bihar. *Indian Journal of Agronomy***55** (4): 295- 298.

Hoffmann, U. 2013. Agriculture: a key driver and a major victim of global warming, in: Lead Article in Section B at Hoffmann, pp 3-8.

Howden, S. M., Jean-Franc.¸ Soussana, O., Tubiello, F. N., Chhetri, N., Dunlop, M., and Meinke, H. 2007. Adapting agriculture to climate change PNAS. 104 (50): 19695.

Hulme, M., Zhao, Z. C. and Tao, J. 1994. Recent and future climate change in East Asia. *International journal of climatology*.**14**(6): 637-58.

Indian Meteorological Department (IMD). 2021. Changing Rainfall Pattern in the Country. Vikaspedia. https://vikaspedia.in/news/changing-rainfall-pattern-in-the-country. Accessed on 21 November 2021.

Initial National Communication of Ethiopia. 2001. Initial National Communication of Ethiopia. to the United Nations Framework Convention on Climate Change.

Report of the Federal Democratic Republic of Ethiopia, Ministry of Water Resources, National Meteorological Services Agency. [http://unfccc.int/resource/docs/natc/ethnc1.]

Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: Climate change impacts, adaptation and vulnerability - Summary for policymakers. Contribution of Working Group II to the Fourth Assessment Report of the IPCC.

Intergovernmental Panel on Climate Change (IPCC). 2007. The Physical Science Basis (Cambridge: Cambridge University Press).

Intergovernmental Panel on Climate Change 1996. Climate Change 1995. The Science of Climate Change. Contribution of WGI to the Second Assessment Report of the Intergovernmental Panel on Climate Change. Published for the Intergovernmental Panel on Climate Change. ISBN 0 521 56433 6.

IPCC (2007) Climate change 2007: synthesis report. IPCC fourth assessment report (AR4) http://www.ipcc.ch/pdf/assessmentreport. Accessed on 2 September 2017.

IPCC. Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate. Cambridge, United Kingdom/New York, NY, USA: Cambridge University Press; 2013.

Iqbal, K. and Siddique, A. 2014. Impact of climate change on agricultural productivity: evidence from panel data of Bangladesh. The University of Western Australia.

Jain, S. K. and Kumar, V. 2012 Trend analysis of rainfall and temperature data for India. Review article.*Current Science*. **102**(1): 37-49.

Jaswal, A.K. and Koppar, A.L. 2011. Recent climatology and trends in surface humidity over India for 1969-2007**.** *Mausam***. 62**(2): 145-162.

Johnson, D. E. 1996. Weed management in small holder rice production in the tropics. In: Radeliffes, E.B., Hutchison, W.D. (Eds.). IPM Ward Textbook. University of Minnesota, St. Paul, MN.

Karn, P. K. 2014. The Impact of Climate Change on Rice Prduction in Nepal. South Asian Network for Development and Environmental Economics (SANDEE). Working Paper, No. 85–14.

Karn, P. K. 2014. The Impact of Climate Change on Rice Prduction in Nepal, South Asian Network for Development and Environmental Economics (SANDEE) Working Paper No. 85–14.

Kaushik, I. and Singh, S. M. 2008. Seasonal ARIMA model for forecasting of monthly rainfall and temperature. *Journal of Environmental Research And Development*. **3**(2): 506-14.

Kimball, B.A. 1983. Carbon dioxide and agricultural yields: an assemblage and analyses of 430 prior observations. *Agronomy Journal*. **75**:779–788.

Korres, N. E., Varanasi, V. K., Gitsopoulos, T. K. and Bararpour, M. T. 2017. Climate Change Effects on Rice, Weeds And Weed Management In Asian-Pacific Region. Weed management in rice in the Asian-Pacific region. Asian-Pacific Weed Science Society (APWSS); The Weed Science Society of Japan, Japan and Indian Society of Weed Science, India. International Standard Book Number: ISBN -13: 978-81-931978-4-4.

Kumar A, Sharma, P. and Joshi, S. 2016. Assessing the Impacts of Climate Change on Land Productivity in Indian Crop Agriculture: An Evidence from Panel Data Analysis, J. Agr. Sci. Tech. **18**: 1-13.

Kumar, N. 2019. Arora Environmental Sustainability. Impact of climate change on agriculture production and its sustainable solutions. *Society for Environmental Sustainability*. **2**:95–96.

Kumar, S. and Sidana, B. K. 2019. Impact of climate change on the productivity of rice and wheat crops in Punjab. *Economic and Political weekly*, **l4** (46).

Kumar, V., Jain, S. K. and Singh, Y. 2010. Analysis of long-term rainfall trends in India.*Hydrological Sciences Journal*. **55**(4): 484-496.

Kumar, V., Jain, S.K. and Singh, Y. 2010. Analysis of long-term rainfall trends in India. *Hydrological Sciences Journal*. **55**: 484-496.

Lairenjam. C., Hodam, S., Bandyopadhyay, A. and Bhadra, A. 2017. Historical and temporal trends of climatic parameters in North East India. Global NEST Journal. 19(4): 547-561.

Lal, M. S. K., Singh, G., Srinivasan, L. S., Rathore, D., Naidu, K. and Tripathi, C. N. 1999. Growth and Yield Response of Soybean in Madhya Pradesh, India to Climate Variability and Change. *Agricultural and Forest Meteorology*. **93**(2):53-70.

Latha, A., Latha, K. V., Gopinath, M. and Bhat, A. R. S. 2012. Impact of Climate Change on Rainfed Agriculture in India: A Case Study of Dharwad.*International Journal of Environmental Science and Development.* **3**(4): 1-15.

Le Treut, H., Somerville, R., Cubasch, U., Ding, Y., Mauritzen, C., Mokssit, A., Peterson, T. and Prather, M. 2007. Historical Overview of Climate Change. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B.

Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Loo, Y. Yi., Billa, L. and Singh, A. 2015. Effect of climate change on seasonal monsoon in Asia and its impact on the variability of monsoon rainfall in Southeast Asia. *Geoscience Frontiers*. China University of Geosciences (Beijing). 6(6):817-22.

Luhunga, P. M. 2017. Assessment of the impacts of climate change on maize production in southern and western highlands sub-agro ecological zones of Tanzania. *Frontiers in Environmental Science*. **5**:51.

Luo, Y., Tebeest, D.O., Teng, P.S. and Fabellar, N.G. 1995. Simulation studies on risk analysis of rice leaf blast epidemics associated with global climate change in several Asian countries. *Journal of Biogeography*. **22**: 673-678.

MAFF, 2000. Climate change and Agriculture in the UK Ministry of Agriculture, Fisheries and Food.

Mahato, Anupama., 2014. Climate Change and its Impact on Agriculture. *International Journal of Scientific and Research Publications.* **4**(4): 1-5. ISSN 2250-3153.

Malhi, G.S., Kaur, M., Kaushik, P. 2021. Impact of Climate Change on Agriculture and Its Mitigation Strategies: A Review. *Sustainability 2021*. **13**:1318.

Margulis, S., Dubeux, C. B. S. and Marcovitch, J. 2011. The Economics of Climate Change in Brazil: Costs and Opportunities. *Economia Do Clima.* São Paulo: FEA/USP. In view of climate change. pp 84.

Markand, O. and Kishtawal, C. M. 2014. Trends in Rainfall and Temperature Patterns over North East India. Open access e-*Journal Earth Science India*. **7**(4): 90-100.

Mbilinyi, A., Saibul, G. O. and Vivian, K. 2013. Impact of climate change to small scale farmers: voices of farmers in village communities in Tanzania. ESRF Discussion paper No. 47. Economic and Social Research Foundation.

Mertz, O., Mbow, C., Reenberg, A. and Diouf, A. 2009. Farmers' perceptions of climate change and agricultural adaptation strategies in rural Sahel. *Environment Management***43**(5):804–816.

Mohandass, S. A. A., Kareem, T. B., Ranganathan, J. and Jeyaraman, S. 1995. Rice Production in India under Current and Future Climates. In Matthews, R. B.;Kropff, M. J.; Bachelet, D. and Laar,Van. H. (eds). Modeling the Impact of Climate Change on Rice Production in Asia. U.K.: CAB International.

Morton, J, F. 2007. The impact of climate change on smallholder and subsistence agriculture. Proceedings of the National Academy of Sciences of the USA. **104**(50) : 19680—19685.

NAPCC. 2016. Climate Change and Agriculture in India. A Thematic Report of National Mission on Strategic Knowledge for Climate Change (NMSKCC) under National Action Plan on Climate Change (NAPCC).

Nguyen, N, V., 2002. Global climate changes and rice food security. Executive Secretary, International Rice Commission, FAO, Rome, Italy. pp24-30.

Ninan, K. N. and Bedamatta, S. 2012. Climate change, agriculture, poverty and livelihoods: astatus report. The Institute for Social and Economic Change, Bangalore.

OECD, 2016. Agriculture and Climate Change: Towards Sustainable, Productive and Climate-Friendly Agricultural Systems. Background Note 4 © OECD 2016. OEWCD Meeting of Agriculture Ministers. www.oecd.org/agriculture/ministerial. Accessed on 5 September 2020.

Oseni, T.O. and Masarirambi, M.T. 2011. Effect of Climate Change on Maize (Zea mays) Production and Food Security in Swaziland. *American-Eurasian J. Agric. & Environ. Sci.* **11** (3): 385-391.

Osman-Elasha, B., Nagmeldin ,G., Spanger-Siegfried, E., Dougherty, B., Hanafi, A., Zakieldeen S., Sanjak, A., Atti, H,A. and Elhassa, H,M. 2006. Adaptation strategies to increase human resilience against climate variability and change: lessons from arid regions of Sudan. AIACC Working paper No. 42.

Oza, M. and Kishtawal C.M. 2014. Spatial analysis of Indian summer monsoon rainfall. Space Application Centre, ISRO, *Journal of Geomatrics*. **8**(1):40-7.

Pal, I. and Al-Tabbaa. 2009.Trends in seasonal precipitation extremes – an indicator of climate change in Kerala. *Indian Journal of Hydrology*. **367**:62-69.

Parihar, C.M., Jat, S. L., Singh, A.K., Kumar, R. S., Hooda, K.S., G.K. Chikkappa and Singh, D.K. 2011.Maize Production Technologies in India. DMR Technical Bulletin2011. Directorate of Maize Research, Pusa Campus, New Delhi-110 012. pp 30.

Raheem A.M., Yahya W.B. and Obisesan K.O. 2015.A markov chain approach on pattern of rainfall distribution. *Journal of Environmental Statistics*. **7**(1).

Rahman, M. A., Kang, S.C., Nagabhatla, N. and Macnee, R.2017. Impacts of temperature and rainfall variation on rice productivity in major ecosystems of Bangladesh. *Agriculture and food security.*

Rathore, L. S., Singh, K. K., Saseendran, S. A. and Baxla, A. K. 2001. Modelling the Impact of Climate Change on Rice Production in India. *Mausam*. **52**(1): 62-85.

Ray, D. 2019. Climate change is affecting crop yields and reducing global food supplies. University of Minnesota’s Institute on the Environment.

https://theconversation.com/climate-change-is-affecting-crop-yields-and-reducing-global-food-supplies-118897. Accessed on 02.07.2020

Saini, A. D. and Nanda, R. 1986. Relationship between Incident Radiation, Leaf Area and Dry Matter Yield in Wheat. *Indian Journal of Agricultural Sciences*. **56**(3): 512-519.

Sangomla, A. 2021. Climate crisis in North East India: How geography, rainfall variations define calamity course**.** DTE analyses geography of 8 northeastern states and shows what changing climate and rainfall patterns mean for the region. Climate change. *Down to earth*.

SAPCC 2011. Arunachal Pradesh State action plan on climate change. Department of Environment and Forest. Government of Arunachal Pradesh, Itanagar.

Saseenddran, A. S. K., Singh, K. K., Rathore, L. S., Singh, S. V. and Sinha, S. K. 2000. Effects of Climate Change on Rice Production in the Tropical Humid Climate of Kerala, India. *Climatic Change*. **44**(2): 495-514.

Science and Technology Intervention in North Eastern Region (STINER). http://neist.res.in/stiner/arunachal_pradesh.php. Accessed on 21 November 2021.

Sharma, E., Chettri, N., Tse-ring, K., Shrestha, A.B., Jing, F., Mool, P. and Eriksson, M. 2009. Climate change impacts and vulnerability in the Eastern Himalayas. ICMOD, Kathmandu, Nepal.

Sheehy, J.E., Mitchell, P.L. and Ferrer, A.B. 2006. Decline in rice grain yields with temperature: Models and correlations can give different estimates. *Field Crop Research*. **98**: 151-156.

Shiferaw, B., Prasanna, B, M., Hellin, J., Bänziger, M. 2011. Crops that feed the world 6. Past successes and future challenges to the role played by maize in global food security. *Food Security*, *2011*. pp 307-327.

Srivastava, R.K., Panda, R.K. and Chakraborty, A. 2021. Assessment of climate change impact on maize yield and yield attributes under different climate change scenarios in eastern India. *Ecological Indicators.***120**. 106881.

Statistical Abstract of Arunachal Pradesh. 2003. Directorate of Economics and Statistics, Itanagar.

Stern. N. 2006. The Economics of Climate Change: The Stern Review. Cambridge, UK Cambridge University Press.

Sutherst, R. W., Maywald, G. F. and Skarrate, D. B. 1995. Predicting insect distributions in a changed climate. In: Harrington R, Stork NE (eds) Insects in a changing environment. Academic Press, London. pp 59–71.

The Arunachal Times. 2020. Siang valley paddy farmers in distress as rice insect pests massive damage. The Arunachal Times, Pasighat. https://arunachaltimes.in/index.php/2020/09/13/siang-valley-paddy-farmers-in-distress-as-rice-insect-pests-inflict-massive-damage/ Accessed on 02.12.2020.

Thomas, D., Osbahr, H., Twyman, C., Adger, N. and Hewitson, B. 2005 Adaptations to climate change amongst natural resource-dependant societies in the developing world: across the Southern African climate gradient. Technical Report 35, Tyndall Centre for Climate Change Research.

Times Of India, Arunachal apples losing taste due to climate change. PTI| Feb 24, 2013.

Turner, A. 2013. The Indian Monsoon in a Changing Climate. Retrieved May 21, 2019 from: http://www.rmets.org/weather-and-climate/climate/indian-monso on-changing-climate. Accessed on: 14 December 2020.

USDA United States Department of Agriculture, 2015. Brown. M.E., Antle. J.M., Backlund. P., Carr. E.R., Easterling. W.E., Walsh. M.K., Ammann. C., Attavanich. W., Barrett. C.B., Bellemare. M.F., Dancheck. V., Funk. C., Grace. K., Ingram. J.S.I., Jiang. H., Maletta. H., Mata. T., Murray. A., Ngugi. M., Ojima. D., O'Neill. B., and Tebaldi. C. 2015. Climate Change, Global Food Security, and the U.S. Food System. 146.

Vaghefi, N., Shamsuddin, M, N., Makmon, A. and Bagheri, M. 2011. The economic impacts of climate change on rice production in Malaysia.International Journal of Agricultural *Research.* ***6****(1): 67-74.*

Vyankatrao, N. P. 2017. Impact of climate change on agricultural production in India: effect on rice productivity. *Bioscience Discovery*, **8**(4): 897-914.

Wassmann, R. and Dobermann, A. 2007. Climate Change Adaptation through Rice Production in Regions with High Poverty Levels. International Rice Research Institute Los Baños, Philippines Seconded from Research Center Karlsruhe (IMK-IFU), Germany. **4**(1).

Weinberg, M. 2012. Economic Research Service, United States Department of Agriculture (USDA), Washington, DC1 Agricultural response to a changing climate: the role of economics and policy in the United States of America, building resilience for adaptation to climate change in the agriculture sector. pp 345-346.

Welch, J. R., Vincent, J. R.; Auffhammer, M., Moya, P. F., Dobermann, A. and Dawe, D. 2010. 'Rice yields in tropical/subtropical Asia exhibit large but opposing sensitivities to minimum and maximum temperatures’. Proceedings of the National Academy of Sciences of the USA, early edition. www.pnas.org/cgi/doi/10.1073/pnas.1001222107. Accessed on 05 September 2017

Wewerinke, M. and Yu III, V.P. 2010. Addressing climate change through sustainable development and the promotion of human rights. South Centre.

World Resources Institute (WRI) in collaborationwith United Nations Development Programme, United Nations Environment Programme, and World Bank. 2005. World Resources 2005: The Wealth of the Poor—Managing Ecosystems to Fight Poverty. Washington, DC: WRI.

Wu, J., Zhang J., Ge, Z., Xing, L., Han, S., Shen, C. and Kong, F. 2021. Impact of climate change on maize yield in China from 1979 to 2016. *Journal of Integrative Agriculture2021*. **20**(1): 289–299.

Yohannes, H. 2016. A Review on Relationship between Climate Change and Agriculture. *Journal of Earth Scienceand Climate Change*. **60**(2): 3-35.

ANNEXURE –I

1. SURVEY SCHEDULE
PART:I

1. GENERAL INFORMATION:

a. Name of Farmer ______________________
b. Father's name/ Husband's name ______________________
c. Village ______________________
d. Block ______________________
e. Age ______________________
f. Sex ______________________
g. Marital status ______________________
h. No. of family members
Male: ___
Female : ___
Children : ___
i. Occupation
Primary : ______________________
Secondary : ______________________
j. Size of landholding ______________ (ha)

2. DEMOGRAPHIC FEATURES OF THE FARM FAMILY:

Sl. No.	Name	Marital Status	Age (yrs)	Sex	Education				Dependence status		
					I	P	HS	G	E	ED	D
1.											
2.											
3.											

4.											
5.											
6.											
7.											
8.											
9.											
10.											

I = Illiterate, P = Primary, HS = High School & G = Graduate, E = Earners, ED = Earning Dependent & D = Dependents.

3. LAND USE PATTERN:

S. No.	**Land use**	**Area (ha)**		**Source of irrigation**
		Irrigated	**Un irrigated**	
1.	Total land under cultivation			
2.	Land under jhum cultivation			
3.	Land under lowland cultivation			
4.	Land under rice/maize			
5.	Land under orchards			
6.	Land under plantation crops			
7.	Fallow land			
8.	Barren land			
9.	Land under housing and settelment.			
10.	Others			

4. CROPPING PATTERN:

S. No.	Crops	Area (ha.)	Variety	Rent paid*	
				Kind	Cash
KHARIF(July-Oct)					
1.					
2.					
3.					
4.					
Total					
RABI(Oct-March)					
1.					
2.					
3.					
4.					
Total					
ZAID(March-June)					
1.					
2.					
3.					
4.					
Total					
PLANTATION CROPS					
1.					

2.					
3.					
4.					
Total					

5. FAMILY FARMING HISTORY FOR PAST 30 YEARS

1. Generation details ______________________________

2. Cropping history ______________________________

.

6. YIELD (RICE/MAIZE)

S. No.	**YEAR (S)**	**YIELD (ANNUAL)**	
		IN LOCAL STANDARD	IN KG
1.			
2.			
3.			
4.			
5.			

7. FARM INCOME:

S. No.	SOURCES	INCOME (Rs. $unit^{-1}$)					
		1988-1993	1994-1998	1999-2003	2004-2008	2009-2013	2014-1018
1.	AGRICULTURE						
	a) Rice						
	b) Maize						
	c) Millet						
	d) Other cereals						
	e) Vegetables i) ii) iii) iv) v)						
	f) Fruits i) ii) iii) iv) v)						
2.	LIVESTOCK						
	a) Mithun						
	b) Buffalo						
	c) Pigs						
	d) Chicken						
	e) Goat						
	f) Others						
3.	BUSINESS						

	a)						
	b)						
4.	OTHERS						
	a)						
	b)						
	c)						

PART:II

1. CLIMATE CHANGE OBSERVED:

a) Do you know about climate change?	YES ___	NO ___
b) Do you think there has been climate change in the past 30 years?	YES ___	NO ___
c) Climate change observed	a) Change in rainfall pattern	DESCRIPTION ________________ ________________ ________________ ________________ ________________
	b) Change in temperature	________________ ________________ ________________ ________________
	c) Change in Relative Humidity	________________ ________________ ________________
	d) Others	________________ ________________ ________________ ________________ ________________

REMARKS:____
____
____
____
____

2. CLIMATE-CROP RELATIONSHIP

SL.NO	CLIMATE CONDITION	CORRESPONDING EFFECT IN CROP PRODUCTION	WHETHER ADDRESSED (YES/NO)	IF YES HOW

3. PROBLEMS FACED DUE TO CLIMATE CHANGE

FACTOR NO.	FACTORS / CONSTRAINTS	RANKING
F1	Decreasing yield	

F2	Degrading quality of the produce	
F3	Unpredictability of the weather	
F4	Increasing Pest and disease infestation	
F5	Weed infestation	

OTHERS (If any)

a. ____

b. ____

c. ____

d. ____

e. ____

f. ____

4. CONSTRAINTS FACED

a. ____________________

b. ____________________

c. ____________________

d. ____________________

e. ____________________

5. EXPECTATIONS FROM THE GOVERNMENT AND OTHER CONCERNED INSTITUTIONS:

a. ____

b. ____

c. ____

d. ____

e. ____

ANNEXURE-II

भारत सरकार
पृथ्वी विज्ञान मंत्रालय
भारत मौसम विज्ञान विभाग
क्षेत्रीय विज्ञान केन्द्र
लोकप्रिय गोपीनाथ बरदलै अन्तर्राष्ट्रीय हवाई अड्डा
गुवाहाटी - 781015

No. SPEED POST
Government of India
MINISTRY OF EARTH SCIENCE
India Meteorological Department
Regional Meteorological Centre
LGBI Airport, Guwahati - 781015

Date : ....

सं/ NO. GH.TS.13(R) / 2019 / 40

दिनांक/ DT. 03 -03- 2020

To
Avicha Tangjang
Nagaland University,
S.A.S.R.D, Medziphema,
Nagaland, PIN-797106

Sub : Supply of meteorological data

Ref.: (i) Your letter No. Nil dated 18-03-2019
(ii) This office email msg dated 18.02.2020

Sir,

With reference to above, kindly find enclosed herewith daily rainfall of Pasighat and Namsai for the period 1987 to 2018 (with some data gap), daily maximum temperature (1987 to 1992, 2001 to 2018 with some data gap), minimum temperature (1987 to 1990, 1992,2000 to 2018 with some data gap), daily relative humidity at 0830 & 1730 hrs IST (1990,1991, 2000 to 2018 with some data gap), daily vapour pressure at 0830 hrs & 1730 hrs IST (1990, 1991, 2006 to 2018 with some data gap) of Pasighat against the payment of Rs 48,655/- (Rupees Forty eight thousand six hundred and fifty five) only vide SBI Demand Draft No 086504 dated 19-02-2020.

Thanking you,

Yours faithfully,

3/3/2020
(R.N.Saha)
Meteorologist-A
for DDGM, RMC Guwahati

Phone No. : 0361-2840243, 2840206, 2840238, 2841377, 2840225, Fax : 0361-2840243
EPABX : 2841779
e-mail : ddgm-rmc-guw@nic.in, Website : www.imdguwahati.gov.in

Station: Pasighat (District: East Siang)

Parameter: Daily maximum temperature in degree Celsius

Period: 01-01-1987 to 31-12-1992, 01-01-2001 to 31-12-2018 (with some data gap)

Year	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1987	1	22.8	23.1	23.7	23.8	23.5	24.9	25.0	20.8	26.4	27.0	26.7		24.7	25.2	25.0	25.7	27.1	26.1	20.2	26.4	26.8	26.2	27.3	27.6	27.8	27.9	28.5	28.9	27.6	27.9	
1987	2	28.1	26.2	29.7	28.0	24.0	22.5	23.7	26.5	27.6	28.5	26.8	27.3	27.8	28.5	28.8	29.6	30.6	22.0	27.5	26.1	25.8	22.7	21.2	25.2	29.2	30.4	24.9	24.9			
1987	3	22.3	27.2	28.8	28.0	29.6	29.9	28.4	20.1	19.7	20.6	21.0	20.7	18.5	19.6		26.2	29.8	23.2	19.8	20.6	21.5	20.7	28.1	29.8	30.7	32.0	26.3	22.7		32.0	33.0
1987	4	30.0	23.7	23.8	22.5	23.1	22.6		32.1	26.6	19.6	22.2	24.4	22.2	27.2	30.0	30.3	31.6	32.6	33.0	28.4	31.8	33.0	34.2	26.7	21.5	22.4	24.9	32.5	31.0	23.2	
1987	5	31.2	23.5	27.0	30.4	24.1	28.3	28.0	32.1	30.4	32.1	31.6	30.1	32.0	33.4	32.4	24.8	28.3	30.5	23.0	23.6	30.2	34.0	34.6	30.6	26.2	24.6	30.4	33.5	34.1	33.3	34.4
1987	6	34.9	31.6	27.8	34.4	36.3	27.2	24.8	30.2	35.8	34.9	34.8	33.7	32.3	27.4	31.6	34.5	36.6	37.0	37.6	37.5	38.5		29.7	25.2	26.3	26.1	26.0	27.7	29.8	26.9	
1987	7	25.2	25.1	25.9	27.4	33.9	27.9	28.1	34.0	31.7	32.4	29.1	32.1	29.1	32.9	29.9	26.8	29.4	36.4	36.5	31.6	28.4	25.5	24.7	24.2	30.9	27.7	30.9	29.0	28.7	26.0	25.8
1987	8	28.0	30.8	31.2	32.5	32.8	28.5	30.5	25.1	25.9	24.5	23.4	22.7	25.1	31.9	33.4	32.2	32.5	33.8	34.5	35.4	30.4	29.1	33.2	34.2	36.1	29.3	35.2	33.9	32.9	28.3	25.3
1987	9	26.5	25.8	31.4	31.6	28.3	32.0	24.9	31.1	33.1	32.4	33.4	36.0	32.2	32.9	27.3	29.8	29.2	28.5	28.9	31.8	33.4	27.8	32.9	33.4	25.5	27.2	25.2	24.4	27.2	29.7	
1987	10	22.8	28.6	25.8	27.2	29.7	29.9	28.5	29.4	32.6	32.4	29.5	30.4	29.9	32.2	32.0	31.8	30.9	29.4	28.6	25.7	23.8	29.4	29.9	30.1	31.5	30.9	30.1	29.8	29.5	30.0	29.9
1987	11	23.8	21.6	28.0	26.5	28.1	28.9	29.1	29.9	30.5	30.2	29.7	30.4	28.2	23.9	28.6	25.8	28.3	29.1	28.6	29.4	29.0	28.3	28.6	28.9	28.5	28.0	28.5	26.8	27.7	25.8	
1987	12	28.5	26.0	27.1	26.9	24.4	24.5	26.0	26.3	26.3	26.9	26.5	25.9	23.9	17.8	19.1	24.2	24.8	24.9	25.5	25.6	24.4	24.3	24.8	23.3	24.2	24.8	23.5	24.5	24.2	24.4	23.1
1988	1	25.2	23.9	25.4	24.3	24.8	20.0	23.5	22.8	22.5	24.1	21.4	25.0	24.7	25.9	20.8	23.5	16.5	17.4	22.5	24.3	24.6	24.8	24.8	25.2		16.0	18.0	20.1	24.4	23.1	25.2
1988	2	25.0	25.7	25.8	26.8	27.1	27.9	27.5	27.7	27.0	27.1	24.8	21.8	24.0	23.0	18.4	22.0	18.5	24.7	24.8	25.4	24.2	21.1	19.0	19.6	18.0	22.8	22.3	19.3	25.2		
1988	3	19.9	23.5	24.0	20.0	27.2	22.5	18.3	22.8	28.3	26.8	25.2	30.3	29.0		20.5	23.9	25.1	27.3	25.6	20.5	19.6	23.7	21.1	27.7	28.4	27.7	27.5	25.6	24.7	24.4	23.4
1988	4	25.0	23.5	29.1	31.3	32.3	25.5	28.8	27.0	30.4	23.3	24.8	28.5	28.8	27.1	20.3		28.7	24.0	25.0	29.7	29.6		23.0	28.0	31.4	27.4	29.7	23.8	30.2	32.1	
1988	5	33.7	34.2	33.7	33.4	29.9	36.4	32.4	32.0	32.9	25.4	22.1	23.5	25.3	30.4	31.6	32.5	31.5	31.7	34.0	29.4	27.0	24.1	25.7	28.6	23.9	24.8	23.9	23.6	22.8	23.0	29.1
1988	6	32.3	34.0	35.7	36.5	36.4	36.1	36.0	31.0	34.2	36.3	32.3	33.4	32.3	30.5	33.1	32.0	30.8	28.5	31.0	31.8	30.6	29.0	29.2	30.5	30.8	33.7	35.4	35.8	32.9	32.2	
1988	7	29.5	29.7	28.4	24.8	24.1	24.1	24.3	26.5	28.3	29.8	25.3	26.9	31.5	33.9	33.5	33.4	34.4	34.1	30.1	27.0	25.5	31.0	25.2	26.0	25.2	27.1	28.4	31.4	31.8	29.7	34.5
1988	8	35.7	34.2	31.5	36.3	31.1	26.2	30.9	32.6	33.8	32.8	33.1	30.8	26.1	26.7	27.4	31.8	32.8	33.0	31.8	31.6	25.5	24.2	24.0	23.8	23.8	23.3	23.2	23.9	24.2	28.0	27.4
1988	9	25.8	27.3	25.9	24.7	23.9	26.7	28.9	27.6	28.5	29.3	28.0	30.2	28.7	30.1	32.9	33.8	30.9	28.8	33.0	32.6	33.1	31.7	32.3	32.9	32.7	32.5		24.0	26.8	28.5	
1988	10	32.1	33.3	30.4	26.3	23.9	26.0	28.0	30.8	30.5	27.3	31.1	32.7	33.2	26.2	24.3	28.4	31.3	25.6	28.3	22.6	23.3	25.5	30.3	30.7	30.0	29.9	30.0	29.9	30.1	30.0	30.2
1988	11	29.8	29.3	28.3	27.9	28.1	26.9	28.0	27.4	28.2	29.5	29.8	29.9	29.8	28.0	28.2	28.4	28.2	28.9	28.0	29.0	29.3	29.3	28.7	29.0	29.2	28.3	29.1	28.5	23.3	17.5	
1988	12	20.4	27.4	28.0	27.1	27.0	26.8	23.9	20.4	25.9	26.8	27.4	26.9	26.0	25.9	26.4	26.5	25.2	24.7	24.1	23.9	25.4	23.0	24.9	24.3	25.4	24.4	25.8	23.8	25.1	24.5	25.0

1989	1	25.9	26.5	25.2	24.9	18.5	23.0	22.1	23.9	25.4	18.2	17.2	19.6	21.4	21.6	21.4	22.8	22.9	20.2	21.9	22.0	23.6	24.4	21.3	24.4	25.3	23.8	20.9	16.8	22.5	24.3	
1989	2	25.4	22.2	23.8	24.3	24.9		15.8	20.5	17.8	22.0	21.0	21.4	25.0	22.2	15.7	15.2	17.8	18.3	20.0	14.8	19.9	23.3	24.4	25.9	29.2	27.5	28.7				
1989	3	29.0	28.9	23.5	27.9	26.2	24.5	24.3	22.2	24.4	27.2	23.8	24.6	26.3	28.9	29.6	26.1	26.3	29.9	30.1	29.8	30.0	28.6	24.2	30.1	30.6	31.3	26.9	30.3	22.3		
1989	4	25.0	22.5	22.6	22.4	26.9	30.2	25.9	30.0	30.3	23.6	23.4	28.4	23.8	28.8	29.7		28.3	25.1	26.3	29.9	29.3	29.9	29.7	27.4	26.2	22.1	23.9	20.8	22.8		
1989	5	23.1	30.0	29.4	31.6	34.0	32.2	27.8	26.1	24.8	32.3	31.9	33.9	31.8	30.0	29.8	31.8	33.8	35.1	33.5	31.8	31.1	31.3	34.1	34.3	31.9	35.4	31.9	33.5	28.8	32.0	
1989	6	30.9	31.1	30.0	29.7	33.1	30.1	26.4	24.9	27.9	32.5	35.0	35.6	35.1	32.8	27.0	30.1	27.8	32.0	32.9	35.0	35.2	35.9	32.0	29.3	24.9	30.0	33.0	32.0	31.6	24.0	
1989	7	23.3	24.1	25.7	25.0	28.0	30.1	29.0	28.4	28.5	25.9	26.2	29.0	32.9	27.4	30.2	26.8	24.7	28.1	30.8	32.6	34.9	36.6	36.1	34.1	31.1	33.0	32.8	25.0	24.9	26.9	31.3
1989	8	29.6	33.4	35.4	35.2	33.5	33.9	33.3	29.6	30.9	32.7	31.1	34.9	32.9	31.1	29.0	30.8	32.8	31.4	25.7	24.6	27.5	32.9	34.4	35.0	34.4	32.4	32.1	30.1	31.6	33.4	32.3
1989	9	32.1	28.1	25.2	25.1	25.2	29.5	32.6	31.8	34.3	34.9	35.5	33.8	32.0	31.3	30.9	30.4	28.0	25.2	23.5	26.5	30.4	30.4	30.9	30.3	32.2	30.5	31.3	33.2	28.4	28.1	
1989	10	24.8	26.5	28.5	32.0	33.4	32.8	31.6	29.0	25.0	23.9	26.8	30.3	33.5	32.6	32.8	32.6	33.0	25.1	22.5	23.9	30.2	30.9	29.6	30.9	31.5	32.0	30.2	24.6	29.4	29.3	29.5
1989	11	25.9	29.6	28.0	25.4	19.4	18.4	19.4	24.1	26.9	27.4	28.0	28.1	28.1	27.8	28.4	25.4	19.7	26.1	26.6	26.4	25.0	26.1	26.3	26.4	26.8	28.0	27.5	27.0	24.9	24.8	
1989	12	21.9	25.2	25.5	24.9	24.5	24.0	24.6	25.2	24.3	24.9	25.2	24.8	21.5	25.0	25.5	24.4	22.1	25.0	24.2	24.5	24.0	22.5	24.2	23.0	22.5	17.6	19.4	16.7	22.9	22.6	22.4
1990	1	22.0	22.3	22.2	23.7	24.4	24.0	23.3	24.4	25.2	23.9	23.6	24.0	25.3	24.4	21.1	24.0	25.1	24.3	24.0	25.4	25.9	27.2	24.1	27.3	27.4	27.6	26.0	23.4	18.0	16.9	16.2
1990	2	17.8	16.6	19.8	21.5	18.3	16.4	22.0	25.4	26.5	27.2	27.2	24.2	24.4	25.4	21.9	17.7	16.3	23.0	25.8	23.9	22.2	17.8	18.4	19.2	21.3	21.8	16.4	17.9			
1990	3	19.4	21.7	21.8	25.7	24.5	25.7	21.2	23.1	26.1	24.8	25.3	20.3	21.3	19.3	27.0	28.0	29.2	30.4	31.0	30.8	30.2	25.0	26.6	19.5	23.9	23.9	24.6	24.8	20.0	21.7	20.9
1990	4	23.3	22.1	21.4	22.0	20.0	23.2	27.2	28.6		18.3	22.9	29.0	31.1	24.8	24.9	23.3	25.6	25.1	24.3	20.2	20.1	21.4	22.3	25.9	29.3	29.6	31.5	25.8	24.1	23.3	
1990	5	24.9	28.1	27.8	27.4	32.8	31.9	32.5	32.0	30.2	29.4	30.3	33.3	33.4		23.8	30.0	33.3	35.2	35.6	29.5	28.0	29.5	29.5	33.0	33.8	30.5	27.4	25.5	29.0	33.0	34.2
1990	6	31.3	31.5	27.2	25.5	25.6	25.0	24.8	24.9	27.1	31.3	32.0	31.8	33.3	35.6	36.1	32.8	31.6	26.1	29.8	28.9	31.2	26.0	26.6	28.6	34.2		26.1	26.3	31.1	26.6	
1990	7	29.3	35.8	36.8	35.6	31.5	31.3	29.2	29.7	28.6	33.8	33.6	32.8	28.8	26.8	34.2	33.0	26.0	25.2		30.8	32.6	33.2	34.1	32.0	27.9	28.5	31.2	30.1	34.1	33.4	
1990	8	33.5	30.2	32.7	33.4	31.3	32.0	33.6	32.9	32.5	33.0	31.5	29.7	28.0	32.9	33.1	33.0	33.2	31.1	33.4	35.0	36.0	33.9	31.6		34.8		32.0	36.0	35.6	36.2	34.4
1990	9	35.6	36.1	36.2	36.0	30.0	33.8	28.8	25.8	25.3	27.0	31.6	33.7	35.6	31.7	29.0	28.3	24.6	25.6	30.4	34.8	33.3	33.8	26.4	23.2	27.0	25.5	24.2	23.2	23.4	24.9	
1990	10	27.7	27.0	28.2	27.4	28.0	27.8	29.6		24.6	24.0	22.0	28.3	30.6	30.5	30.6	27.0	24.8	29.0	30.0	31.0	30.8	31.0	30.7	30.4	31.1	31.5	30.5	29.9	30.0	29.9	30.7
1990	11	31.2	30.8	29.6	29.0	28.0	30.5	30.6	30.5	30.8	32.4	27.4	32.2	31.1	31.0	30.5	30.2	30.0	30.0	29.1	28.2	29.3	29.0	27.8	30.4	30.0	30.8	29.0	28.8	29.8	27.7	
1990	12	27.2		18.6	25.6	25.8	25.7	25.0	26.2	26.4	26.8	26.7	26.1	25.6	25.6	26.0	23.5	25.4	25.7	20.2	26.7	26.3	26.8	25.5	25.7	24.0	25.6	25.8	25.6	22.0	25.1	25.4
1992	1	20.7	19.8	22.0	20.6	22.5	22.5	22.6	22.7	22.8	23.5	24.3	19.7	16.4	22.1	24.7	24.0	26.7	19.3	22.5	23.1	23.3	22.0	22.9	22.4	22.3	24.0	25.8	26.2	25.7	27.0	27.0
1992	2	27.3		15.6	22.9	16.0	18.4	23.0	21.3	16.2	16.5	17.0	22.3	23.5	24.6	21.5	17.5	15.0	16.0	20.5	22.5	19.5	18.8	19.5	19.1	23.8	22.5	23.1	24.5	23.0		

1992	3	25.3	26.5	26.0	22.3	17.8	18.0	17.1	17.6	19.3	18.8	19.5	21.8	24.0	28.1	23.9	24.2	29.6	21.6	17.2	19.8	22.1	20.4	22.6	21.5	26.4	28.5	24.5	29.0	31.6	22.3	24.4
1992	4	27.4	27.7	29.6	26.5	30.2	26.1	30.5		20.9	27.0	30.2	30.2	26.2	26.0	24.8	26.5	28.0	26.5	30.6	22.6	28.5	31.8	31.5	28.2	30.0	27.2	29.1	29.0	29.6	30.4	
1992	5	32.0	33.4	26.6	30.7	30.6	26.0	29.6	24.0	29.8	33.0	28.0	33.0	34.5	34.7		24.0	24.6	23.5	25.0	27.8	25.0	25.8	31.8	28.2	32.6	32.8	28.0	28.4	32.6	32.7	32.6
1992	6	25.3	27.6	29.0	32.6	34.8	33.8	31.0	30.4	31.4	33.2	34.5	29.6	25.2	25.7	30.3	31.6	34.2	30.2	27.4	26.4	30.2		25.4	27.1	29.6	27.9	29.2	26.6	33.0	30.8	
1992	7	31.6	31.8	33.3	30.4	26.7	27.4	31.2	29.7	31.2	30.8	35.6	34.7	25.4	24.1	25.7	26.6	31.8	32.7	32.9	30.2	32.8	30.1	30.0	32.4	34.7	33.8	34.8	34.8	32.3	31.6	34.9
1992	8	35.1	35.5	33.7	31.8	28.6	30.8	32.5	34.0	32.4	30.2	33.2	34.3	35.7	34.8	31.1	34.1	33.2	31.0	34.9	31.6	32.6	25.1	31.0	30.5	26.0	29.2	31.6	32.5	33.7	34.1	32.0
1992	9	33.3	34.1	35.2	33.5	30.7	30.8	34.0	33.9	31.2	33.2	32.9	28.0	28.5	25.6	26.8	27.5	29.8	30.5	30.7	32.6	32.8	33.1	33.9	34.8	34.9	29.1	24.2	23.8	25.8	29.9	
1992	10	31.9	32.0	32.1	31.4	30.5	29.6	28.9	30.3	32.1	32.8	32.0	31.2	24.6	24.7	21.7	27.3	24.5	28.7	30.9	26.8	28.6	30.4	29.0	23.9	25.6	26.8	28.9	28.7	29.8	29.0	30.6
1992	11	31.0	31.0	30.0	29.8	29.6	29.8	28.0	28.7	29.1	30.4	25.8	28.6	29.0	28.7	28.8	29.0	29.5	28.0	28.2	28.9	28.0	29.1	29.1	28.7	21.8	20.8	25.2	24.5	27.3	27.0	
1992	12	26.6	23.3	19.9	17.2	22.7	19.0	23.5	24.8	24.7	24.7	24.6	24.7	24.8	24.0	24.6	25.0	24.5	25.3	24.7	23.6	23.8	24.2	24.1	23.8	23.8	23.5	24.4	23.0	23.6	23.4	24.6
2000	1	24.6	25.8	24.8	25.0	25.0	25.0	24.8	25.0	24.0	23.2	23.6	24.5	21.0	17.2	17.6	21.6	18.4	23.6	27.0	14.6	16.0	20.0	19.0	20.6	25.0	25.0	25.8	17.6	19.4	17.8	23.4
2000	2	18.4	15.2	18.0	22.2	24.0	20.4	23.0	17.2	16.4	23.8	25.4	23.0	26.6	28.0	28.0	27.8	27.0	23.8	21.8	24.4	20.8	24.8	25.0	21.6	24.6	26.1	25.8	25.0	27.0		
2000	3	24.6	21.4	18.2	20.4	23.4	24.8	19.1	18.4	23.2	21.4	19.8	25.0	24.0	18.6	18.6	18.8	18.4	22.6	24.8	25.4	27.2	25.4	30.6	31.2	31.4	31.0	32.4	33.2	30.6	30.6	31.4
2000	4	23.0	20.6	23.6	23.0	22.8	23.2	22.2	22.8	21.4	31.6	28.8	28.6	30.6	32.2	33.0	27.6	22.6	24.6	30.8	31.8	24.2	26.6	22.6	22.0	26.4	25.4	29.2	26.0	22.4	22.4	
2000	5	27.9	23.2	25.2	31.4	33.2	28.4	31.6	29.8	32.6	34.0	34.6	36.0	35.8	35.0	34.8	31.4	31.4	26.8	26.6	32.4	35.0	29.6	26.6	33.2	31.0	29.0	24.8	24.0	27.6	30.2	32.4
2000	6	27.4	32.6	35.2	36.0	35.2	29.6	32.4	26.2	25.6	27.2	N/A	27.4	27.8	31.4	33.0	34.0	35.6	31.2	28.6	24.2	23.4	24.0	25.4	29.0	30.0	31.4	33.0	32.0	28.2	28.2	
2000	7	28.8	33.0	31.4	26.8	27.8	32.0	31.0	28.6	28.2	33.0	35.0	35.0	26.8	29.4	32.2	34.4	34.8	33.8	30.0	30.8	32.8	32.0	29.8	32.2	31.0	27.8	31.6	26.2	31.0	28.2	24.4
2000	8	24.2	24.2	24.0	24.6	28.6	32.2	33.2	31.8	27.8	32.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31.4	31.6	30.4	33.0	32.8	32.8	32.2	33.4	30.0	31.4	28.8	27.6	31.6	31.4
2000	9	32.2	24.6	34.8	31.8	28.6	30.2	29.2	29.6	26.8	25.4	30.2	32.4	35.2	34.2	24.6	23.6	26.4	29.8	30.0	31.2	31.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
2001	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	33.0	32.0	29.8	28.2	29.4	31.6	31.2	32.6	30.8	31.4	33.2	33.2	32.2	32.8	31.2	33.6	29.4	33.2	33.2	32.0	
2001	10	28.8	25.4	27.6	24.8	23.8	24.4	24.8	30.8	27.6	29.6	30.4	30.6	31.0	28.6	31.0	32.2	28.8	25.4	28.2	30.4	31.6	32.0	32.2	31.4	31.2	30.8	31.8	30.8	31.2	31.2	25.2
2001	11	29.4	30.4	30.4	23.6	26.0	29.8	29.2	29.6	28.4	29.4	25.0	26.6	29.2	29.6	30.2	27.6	29.2	27.6	28.6	29.8	25.6	26.8	23.4	26.6	26.4	27.6	26.8	25.8	25.8	25.0	
2001	12	25.2	24.8	25.4	26.2	21.1	22.0	26.6	20.4	28.2	23.4	24.2	25.0	26.2	26.4	26.0	26.4	26.6	26.5	27.0	26.6	26.4	25.4	25.6	25.2	25.4	25.2	25.4	26.2	23.6	25.0	25.0
2002	1	25.0	26.2	25.6	25.0	25.6	25.8	22.8	24.8	22.0	23.2	23.6	25.0	24.4	25.6	25.0	23.6	19.4	19.0	17.2	21.6	17.2	18.8	19.0	17.2	21.0	18.8	20.8	21.0	23.8	25.0	24.0
2002	2	24.4	23.6	17.8	23.0	24.4	23.0	25.6	26.0	27.6	27.8	28.2	28.0	27.0	28.8	29.0	30.6	30.6	29.8	27.0	26.0	20.0	25.0	28.2	27.6	27.4	24.8	22.8	23.4			
2002	3	26.8	28.0	21.8	21.2	22.6	21.8	27.6	29.0	29.0	30.2	25.6	27.4	28.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2002	9	N/A	N/A	N/A	N/A	N/A	35.1	34.8	36.6	35.3	34.6	35.2	33.5	31.6	30.6	24.6	25.3	26.2	31.8	34.4	35.4	32.3	32.0	24.2	22.2	23.8	31.5	28.4	24.6	23.8	23.3	
2002	10	23.8	31.0	27.5	30.9	31.6	33.7	33.8	32.8	33.3	31.8	31.8	30.6	31.7	32.7	32.6	32.0	31.9	24.1	26.6	30.9	29.6	26.3	29.6	30.6	31.3	31.4	30.8	31.4	29.8	29.9	30.6
2002	11	28.6	24.8	30.5	31.3	28.3	29.8	29.8	30.8	30.5	30.6	29.9	26.4	20.4	22.7	27.0	28.2	27.9	29.6	28.4	19.7	27.1	27.1	28.3	28.9	28.7	29.7	29.2	29.2	29.6	29.5	

2002	12	29.6	26.9	27.6	27.6	27.8	28.0	27.2	27.2	27.2	26.6	26.0	26.8	26.4	26.4	27.7	26.8	23.1	22.8	23.7	23.6	18.0	24.2	24.3	23.7	23.7	23.3	22.2	19.8	21.2	23.3	23.4
2003	1	18.9	23.8	25.2	25.6	23.8	24.6	25.2	24.8	25.2	24.8	23.6	21.7	21.7	22.2	23.7	26.2	26.6	26.2	25.9	25.7	25.5	24.7	19.2	15.2	18.8	24.6	23.8	25.7	23.8	15.6	19.2
2003	2	21.7	25.7	26.4	26.0	26.5	19.2	24.2	18.2	20.2	23.4	23.6	23.7	16.9	23.4	23.7	24.7	26.2	26.7	27.7	24.0	24.1	25.4	27.6	26.4	21.0	17.2	22.2	26.7			
2003	3	28.4	29.7	26.9	24.4	27.9	25.9	26.9	21.7	27.0	27.3	22.4	23.4	18.7	23.4	25.4	22.7	20.5	26.8	19.4	17.8	23.9	28.1	29.9	32.0	29.5	28.9	29.6	29.5	29.8	24.8	23.2
2003	4	21.6	20.8	26.9	27.9	31.3	28.8	30.9	26.4	24.8	29.7	28.1	21.2	26.7	32.2	25.8	28.5	21.0	26.4	31.6	24.4	22.9	24.0	29.0	32.2	33.7	27.8	29.7	30.2	30.0	30.4	
2003	5	27.4	26.6	28.4	24.8	25.0	24.1	28.2	26.6	24.4	26.8	30.8	32.2	34.1	34.9	30.5	32.1	25.4	31.8	33.7	33.5	26.4	25.7	32.2	32.6	30.0	24.5	23.6	24.3	32.9	33.9	34.5
2003	6	34.9	35.5	32.9	35.5	26.8	28.7	26.1	29.5	26.8	31.0	32.7	27.6	26.4	26.3	29.0	33.8	35.4	35.6	33.4	35.3	34.9	35.4	33.4	28.8	25.3	25.4	26.8	26.3	25.3	27.9	
2003	7	31.8	27.6	25.4	25.6	27.2	25.4	24.2	24.2	26.4	24.7	26.4	27.3	30.0	31.3	34.0	31.8	30.7	32.2	25.6	26.5	30.3	32.6	34.9	37.4	35.7	36.6	33.9	30.3	25.5	27.7	34.2
2003	8	29.4	29.3	33.7	34.7	34.8	31.9	33.3	32.4	28.8	26.4	29.2	32.9	32.9	30.6	30.5	29.7	27.2	29.9	32.6	32.6	33.5	33.8	27.8	30.1	32.8	33.4	27.3	32.2	29.9	29.2	26.2
2003	9	32.6	29.6	31.2	32.2	31.0	33.4	31.8	31.9	32.9	33.3	32.8	29.3	34.0	31.8	32.3	31.0	29.6	28.9	26.2	27.2	28.0	31.7	33.4	35.2	30.3	31.2	27.6	29.2	33.2	28.8	
2003	10	26.4	28.9	31.2	28.2	27.6	30.4	30.8	28.8	28.0	24.3	29.4	29.7	30.6	32.3	31.5	31.4	32.3	26.4	27.9	26.2	28.1	24.7	28.8	26.2	24.9	24.2	24.0	29.4	30.7	30.1	30.6
2003	11	29.1	29.9	29.4	29.7	29.8	24.0	22.7	23.9	28.7	27.8	28.9	29.3	29.4	28.6	18.6	28.8	28.7	27.7	26.8	25.6	28.0	28.4	28.4	28.0	24.9	27.8	20.4	21.4	26.9	26.8	
2003	12	26.3	26.5	26.3	19.3	23.0	25.3	24.2	26.7	21.9	25.3	27.1	26.8	26.8	27.8	27.7	26.4	21.6	26.6	23.4	24.6	26.6	27.3	27.1	23.5	26.3	26.3	26.7	19.3	21.7	24.2	24.9
2004	1	24.4	21.3	24.4	25.4	25.0	25.8	25.4	24.8	24.9	25.5	26.4	24.6	26.5	25.9	22.6	24.2	22.4	21.1	16.0	22.3	23.7	24.4	25.3	21.4	22.2	25.0	24.7	22.9	24.6	25.7	25.5
2004	2	22.4	18.9	20.2	22.4	20.7	22.9	22.9	25.5	28.5	28.3	27.6	27.9	29.4	28.9	25.8	27.6	28.4	27.4	29.4	19.5	26.6	23.1	24.9	27.7	28.9	30.6	28.9	18.2	18.2		
2004	3	19.4	22.7	21.8	28.4	28.4	20.8	23.4	30.2	31.4	26.2	28.2	29.9	31.8	32.0	33.2	33.2	32.8	33.8	23.5	20.4	20.2	20.0	20.8	21.7	23.0	23.6	22.7	26.9	25.6	24.2	27.4
2004	4	23.8	28.5	21.9	28.5	30.4	31.3	31.2	24.7	26.5	26.1	27.8	22.8	20.1	19.9	19.9	22.4	30.5	24.5	26.2	31.0	32.1	28.3	26.6	30.6	31.8	31.9	33.5	30.1	32.3	32.3	
2004	5	31.0	26.7	31.0	32.6	32.9	30.0	32.7	33.7	23.8	22.7	23.1	23.6	22.9	23.4	25.3	25.8	32.6	30.4	31.0	32.7	25.5	23.4	25.2	26.2	26.3	31.7	33.2	32.5	30.4	31.8	32.1
2004	6	34.3	31.8	28.3	28.8	31.2	32.8	31.7	31.6	32.8	34.0	35.3	34.5	32.5	28.9	33.0	34.8	29.0	31.0	31.8	29.9	25.9	25.8	24.6	28.0	30.6	27.6	30.2	30.5	25.3	30.0	
2004	7	33.7	34.3	34.7	28.8	29.2	25.4	24.7	24.7	24.2	24.2	24.7	29.4	31.8	32.2	31.5	24.8	25.4	24.1	24.1	29.5	29.6	34.5	34.7	33.1	30.6	33.6	35.0	32.4	32.5	29.1	31.1
2004	8	33.1	34.3	34.3	27.9	30.8	30.9	33.5	34.3	33.0	34.2	34.5	36.0	35.5	30.0	33.9	24.7	33.5	35.0	32.8	35.0	35.0	34.2	32.5	30.0	27.5	27.4	27.0	31.8	33.0	30.9	29.0
2004	9	27.4	32.0	29.0	31.8	28.3	26.5	25.6	26.2	31.2	33.2	33.7	27.6	30.9	33.2	32.3	33.4	33.9	30.9	32.8	31.8	33.6	31.7	27.5	29.3	30.6	29.8	31.9	30.7	26.4	31.3	
2004	10	32.7	31.8	27.1	24.2	22.7	24.8	26.2	22.0	22.2	28.7	30.6	30.7	26.4	28.9	24.4	29.4	30.4	30.6	30.5	30.2	29.9	30.3	30.2	29.8	30.1	30.9	30.0	26.6	28.4	28.3	28.4
2004	11	28.8	28.9	28.7	29.4	29.4	29.6	28.9	28.3	26.0	27.2	28.3	28.5	27.7	27.4	27.3	27.3	28.5	28.3	23.0	27.3	28.1	28.8	28.1	21.7	27.5	28.1	28.7	28.2	28.2	27.4	
2004	12	28.0	27.9	26.6	27.4	26.6	26.4	27.9	27.2	26.4	26.7	26.6	27.4	27.0	26.1	27.0	25.9	25.7	26.0	25.4	19.5	15.5	19.0	22.5	20.7	20.8	19.2	21.0	23.0	23.9	22.9	22.9
2005	1	24.6	24.4	25.0	22.8	24.4	25.2	25.2	25.2	25.1	14.8	19.2	21.2	22.3	22.2	23.1	24.0	24.7	21.7	16.8	19.5	22.2	18.2	24.0	20.9	21.8	22.5	23.4	24.2	22.9	25.4	27.0
2005	2	20.1	20.4	24.7	25.7	24.0	22.8	20.4	24.9	25.8	26.3	27.2	25.4	17.2	17.0	16.4	15.8	22.5	21.8	23.6	21.6	24.9	25.1	20.7	25.7	17.8	17.3	24.9	21.6			
2005	3	24.7	22.0	18.3	26.2	22.8	21.2	24.1	19.8	19.4	19.2	21.9	28.4	29.4	30.7	29.9	28.8	25.7	24.8	28.2	20.2	18.7	20.5	20.4	21.7	21.8	25.1	27.9	20.8	19.5	22.9	22.7
2005	4	24.1	28.1	30.4	24.7	29.3	28.9	21.7	21.9	24.8	25.1	28.4	26.8	28.9	29.8	28.4	25.7	23.0	25.3	26.7	28.0	29.5	31.7	31.9	25.5	30.8	23.3	21.7	24.7	25.5	25.8	

2005	5	30.4	30.8	31.4	27.8	29.3	25.4	24.6	29.8	29.8		26.9	25.5	24.8	26.8	23.4	31.0	28.3	27.3	24.2	28.9	24.6	31.1	31.7	32.7	30.8	29.7	31.3	24.7	28.2	32.8	33.8
2005	6	27.7	27.8	28.8	32.0	33.2	32.7	33.2	32.2	33.7	34.2	33.6	33.4	34.2	33.2	31.4	33.6	34.3	30.2	29.2	28.3	31.4	26.1	29.4	27.7	30.6	33.3	34.1	34.4	33.2	30.9	
2005	7	34.1	32.6	31.8	34.8	34.7	34.2	31.2	33.3	26.4	24.8	25.0	25.0	27.9	31.6	30.2	25.2	26.4	24.4	25.0	29.2	31.8	33.3	34.2	33.3	33.8	34.6	34.0	34.0	34.7	35.3	35.5
2005	8	33.8	29.8	33.4	26.4	27.2	28.9	28.8	31.3	34.2	30.0	30.9	33.8	34.0	33.5	33.1	30.9	33.2	28.7	27.4	26.7	27.4	27.2	25.2	27.0	28.1	25.8	26.7	26.2	28.0	30.3	33.0
2005	9	33.9	35.2	30.0	31.2	31.4	31.0	33.1	34.2	34.7	34.9	35.0	36.2	35.4	35.2	35.0	35.2	33.4	36.2	35.2	33.2	33.4	26.6	24.1	24.2	29.6	32.2	34.2	34.2	31.0	29.2	
2005	10	32.4	25.2	27.2	31.2	31.6	32.2	32.4	29.8	32.8	31.8	31.8	30.5	30.8	31.0	31.2	31.2	30.8	28.0	27.0	27.2	26.2	23.8	21.8	27.2	27.0	25.7	29.2	29.2	29.6	28.8	27.5
2005	11	27.6	29.6	29.3	30.0	28.9	29.8	30.2	27.3	29.2	28.7	27.8	28.0	28.1	28.0	28.8	28.7	20.9	19.8	25.4	27.3	27.8	27.9	21.8	25.2	25.7	26.0	26.2	26.3	26.2	26.1	
2005	12	26.3	25.8	25.7	26.2	25.8	26.2	26.2	26.2	26.2	26.7	26.6	26.3	25.6	26.3	25.2	24.4	24.4	24.2	25.0	25.4	25.0	20.0	18.9	25.4	26.2	25.3	24.6	24.2	24.8	25.1	24.6
2006	1	25.2	25.2	25.2	24.5	24.8	25.2	25.5	25.2	25.8	25.3	24.9	24.2	22.8	18.0	23.2	22.8	23.1	16.2	18.7	23.2	22.4	21.0	23.4	25.0	25.4	26.0	25.8	26.0	25.7	26.8	27.8
2006	2	28.3	28.2	28.6	25.9	25.3	27.0	28.4	28.3	28.9	28.7	28.1	28.1	25.8	19.8	18.3	18.7	22.4	27.3	27.0	25.7	19.8	23.3	20.9	20.8	21.2	20.4	19.0	23.6			
2006	3	24.1	28.4	24.8	25.4	30.7	27.0	26.4	29.4	30.6	30.7	25.7	25.7	21.6	26.7	24.2	22.9	29.4	30.0	29.8	29.7	28.4	19.7	21.2	21.2	21.4	23.0	28.2	26.4	30.5	30.6	30.8
2006	4	30.4	24.2	20.2	20.0	26.2	26.8	23.6	28.2	29.8	24.0	22.8	25.8	26.8	27.6	27.4	26.8	25.4	24.0	27.4	29.8	30.6	31.0	31.4	28.5	30.2	29.2	26.2	31.2	33.8	32.9	
2006	5	33.8	32.9	29.7	24.4	23.7	23.4	29.4	32.7	32.2	31.2	29.2	28.2	28.6	25.2	31.8	33.3	34.3	34.4	35.0	29.4	31.3	34.0	32.4	34.7	36.5	33.0	24.0	24.7	24.6	23.4	24.7
2006	6	24.2	29.6	31.8	33.6	32.8	31.9	30.5	29.4	25.2	24.5	24.7	23.2	23.9	24.6	24.5	23.8	29.6	32.8	34.0	35.0	28.4	33.2	29.7	30.7	31.2	31.0	30.8	30.4	32.6	34.4	
2006	7	35.2	35.9	36.4	28.6	26.2	25.4	27.0	26.6	33.4	33.6	24.0	29.4	31.0	31.8	30.8	34.7	29.8	30.2	30.7	33.6	30.2	29.2	26.4	29.4	28.8	31.4	34.3	34.6	35.9	36.2	34.8
2006	8	33.7	35.6	34.8	31.7	30.8	28.4	30.2	32.6	33.5	36.6	34.7	35.5	35.4	34.6	36.2	36.4	36.9	32.2	32.8	34.4	32.9	33.0	29.4	26.2	27.7	30.2	32.9	34.6	34.9	32.4	31.4
2006	9	33.1	33.9	34.6	32.2	25.4	25.2	25.2	26.2	30.2	25.7	27.0	24.4	24.5	26.0	32.2	31.7	31.4	34.3	35.5	34.8	32.6	29.1	30.6	30.2	31.9	31.5	33.5	35.1	33.6	31.4	
2006	10	32.8	32.0	31.4	30.1	25.7	30.7	31.2	32.7	33.2	33.2	31.4	30.8	30.7	31.7	31.4	31.2	31.7	30.2	30.0	31.7	24.8	30.0	31.2	31.0	31.4	31.6	30.6	30.8	30.2	30.5	30.7
2006	11	30.9	29.2	30.1	26.1	30.6	30.6	29.8	30.5	29.5	29.2	22.8	29.4	29.4	30.7	30.1	29.7	30.0	29.1	28.8	19.2	25.9	23.4	17.2	16.7	18.8	15.8	22.8	20.5	24.2	23.9	
2006	12	24.1	25.0	24.9	25.4	26.4	26.5	26.0	26.2	22.4	23.5	23.6	17.3	23.3	23.9	23.7	25.8	24.8	25.5	26.0	25.7	25.6	26.6	25.8	24.8	25.2	25.0	21.4	19.5	23.5	23.2	24.5
2007	1	17.4	17.0	20.4	23.0	21.0	25.0	25.0	24.0	24.8	24.5	23.2	23.0	18.8	20.0	15.8	18.6	19.2	22.7	22.6	22.3	22.2	20.7	22.9	25.7	26.2	25.4	26.2	26.4	26.4	26.5	25.7
2007	2	25.2	25.6	21.0	17.7	16.7	21.7	19.4	17.2	23.8	25.7	25.0	21.9	19.4	18.2	17.3	20.1	19.2	20.8	23.7	24.8	25.6	27.3	27.7	28.1	28.7	20.2	22.0	25.9			
2007	3	26.4	20.7	23.8	26.5	27.0	19.2	20.7	24.8	26.0	26.3	22.4	27.7	29.0	25.2	25.0	25.4	26.4	28.0	30.2	30.7	30.5	21.3	29.0	28.9	21.0	21.6	28.7	32.3	32.8	32.5	32.2
2007	4	29.5	23.4	22.0	24.8	22.2	23.2	27.0	19.6	22.2	19.0	19.7	26.8	29.4	31.4	32.6	32.8	31.6	33.7	32.7	25.2	21.9	22.2	20.2	21.4	23.2	21.5	22.4	28.9	31.8	33.6	
2007	5	33.8	34.0	34.4	35.2	35.1	36.5	36.0	33.9	32.8	32.7	28.8	33.8	30.7	27.7	22.2	24.4	32.7	34.5	35.3	32.7	33.7	32.3	25.0	24.7	23.2	28.2	27.4	31.2	32.2	30.7	26.2
2007	6	24.7	25.2	27.4	31.9	33.2	31.5	30.3	24.8	28.3	24.8	31.2	33.2	33.7	25.0	28.8	24.5	24.8	27.0	31.7	34.2	31.5	27.8	29.2	26.7	32.0	33.3	34.6	32.7	33.4	33.2	
2007	7	32.2	34.6	35.6	36.1	36.3	36.2	31.2	32.8	27.7	27.5	27.8	29.6	33.7	31.8	35.6	28.8	27.8	26.2	26.7	25.7	27.7	24.7	24.8	24.7	23.7	25.5	23.9	23.7	24.4	26.0	24.2
2007	8	26.9	31.2	33.2	34.6	35.6	36.0	34.0	30.9	34.3	35.2	34.1	30.7	27.7	29.5	30.1	28.2	33.1	31.8	34.1	32.8	31.3	31.8	33.2	32.0	32.0	30.6	33.2	30.2	31.2	32.4	32.2
2007	9	32.2	29.2	25.4	23.4	22.8	24.6	24.3	25.5	24.7	25.5	29.5	31.2	32.2	33.3	28.8	29.2	32.2	33.8	34.8	34.8	35.3	35.2	34.6	33.8	33.7	33.2	33.2	30.7	34.0	32.8	

2007	10	33.2	33.2	34.2	34.7	35.2	34.4	35.6	30.0	25.2	28.4	24.1	29.7	32.6	31.9	32.0	25.0	29.2	27.6	28.8	27.7	29.1	28.5	28.7	29.4	30.5	30.2	29.8	28.2	28.8	30.7	28.2
2007	11	30.2	31.2	30.2	30.0	30.7	26.2	29.4	30.2	30.2	30.8	30.8	29.2	30.2	24.6	22.2	20.2	23.0	28.2	28.9	29.0	29.6	29.5	28.3	28.4	28.2	27.7	27.5	27.0	26.7	24.2	
2007	12	20.7	24.2	26.4	20.8	24.3	25.5	25.2	25.0	25.2	26.2	25.2	25.7	25.4	25.3	25.1	25.3	24.8	24.8	25.0	24.6	24.0	23.2	24.8	24.7	24.7	25.8	25.2	23.0	23.7	25.0	24.2
2008	1	26.2	26.7	26.2	25.2	25.7	25.7	25.7	25.8	25.3	24.8	20.7	16.7	19.7	20.7	23.3	25.2	26.2	24.2	16.8	18.0	18.0	20.5	18.4	13.7	20.5	19.2	20.2	15.2	13.5	13.4	18.4
2008	2	19.2	21.5	22.8	22.5	22.2	24.2	22.7	18.2	16.2	18.2	21.7	21.2	18.7	22.0	23.8	24.2	24.6	20.5	21.7	23.8	25.2	26.0	28.0	23.2	18.4	24.7	23.4	25.1	27.7		
2008	3	29.0	27.8	27.7	26.6	24.0	26.5	29.1	26.2	28.6	29.6	29.1	25.3	24.7	24.6	21.2	25.2	27.8	27.1	22.9	20.7	18.5	22.5	26.4	24.7	23.8	21.1	22.5	21.2	24.3	23.4	23.8
2008	4	23.2	21.3	23.7	23.8	30.3	29.6	31.7	31.5	31.8	32.2	32.4	30.0	22.3	21.5	28.3	30.8	23.2	24.7	22.2	28.0	30.8	31.2	32.3	24.3	24.2	22.7	22.2	21.5	26.2	30.7	
2008	5	26.7	24.2	28.2	31.2	32.0	30.8	28.6	28.2	30.2	29.7	32.7	34.8	31.2	34.2	32.5	32.9	34.7	29.3	27.6	26.2	27.6	30.2	31.8	31.2	31.2	31.2	30.0	28.2	32.4	29.0	27.1
2008	6	28.3	29.4	26.2	30.0	33.0	30.6	33.7	29.6	33.5	29.5	24.8	30.8	25.4	31.1	34.2	33.9	34.4	28.2	25.7	25.4	24.9	27.8	31.3	32.8	33.4	30.0	32.8	34.0	34.8	32.1	
2008	7	30.6	28.4	27.8	24.6	26.8	33.6	35.2	35.8	33.4	31.6	26.2	28.4	32.4	28.7	30.8	30.9	30.8	33.4	30.0	28.2	25.7	24.8	30.6	27.2	28.5	30.3	35.2	34.9	30.6	32.1	31.6
2008	8	32.6	32.0	30.4	31.2	26.4	26.8	33.1	34.9	34.6	34.0	32.2	28.2	31.7	30.6	26.6	25.6	26.7	27.2	31.4	33.7	32.0	32.7	33.8	30.0	25.4	25.0	25.0	25.3	25.4	25.5	26.2
2008	9	27.3	23.7	25.0	23.9	28.9	32.3	34.2	31.4	33.0	32.9	33.1	31.7	34.6	30.8	35.4	35.6	33.3	32.7	33.8	34.4	29.4	33.9	32.9	34.2	32.6	34.2	32.4	34.0	31.6	31.2	
2008	10	33.0	29.0	32.7	31.2	31.6	32.2	29.7	29.4	29.0	30.2	32.2	32.4	32.0	32.5	32.6	31.7	32.1	31.8	28.2	32.0	32.0	31.8	32.0	31.2	25.5	24.2	20.3	25.5	28.2	28.9	29.5
2008	11	29.6	29.2	29.7	29.4	28.9	29.2	28.4	28.3	29.7	29.8	29.3	28.7	28.8	28.5	26.8	27.7	27.3	28.5	27.8	26.6	27.8	19.3	25.7	25.9	26.1	27.6	28.3	26.8	24.5	28.3	
2008	12	28.0	26.7	26.4	26.8	27.7	27.2	26.7	27.2	26.7	26.3	26.2	25.2	25.8	25.2	25.4	26.0	26.6	26.3	26.7	25.2	25.7	21.0	20.7	26.7	25.6	26.8	22.7	23.9	24.5	25.2	22.7
2009	1	23.5	22.7	24.7	25.2	22.2	20.7	22.0	24.6	24.9	25.1	24.6	24.7	25.6	25.7	26.1	26.0	25.8	26.2	26.2	26.3	26.4	26.9	26.9	28.2	25.0	18.7	18.7	18.2	25.5	25.2	26.5
2009	2	19.5	25.8	25.7	26.2	26.6	27.7	27.7	27.9	28.4	28.4	29.2	21.8	26.7	26.8	27.7	28.6	29.2	29.8	27.5	28.7	22.2	18.4	20.0	16.8	17.5	18.6	22.7	25.2			
2009	3	22.7	27.8	26.6	28.6	26.7	26.4	21.7	22.7	25.9	26.2	28.0	27.8	31.0	32.9	31.4	26.8	29.7	29.5	30.4	28.7	30.6	27.4	32.3	32.3	32.4	32.5	29.5	29.4	26.9	20.2	21.7
2009	4	21.2	29.2	28.2	24.8	25.3	30.7	23.3	25.9	26.5	25.4	28.9	30.9	32.8	30.1	32.9	31.2	27.7	22.3	27.3	24.5	26.7	23.4	23.0	26.6	32.3	33.4	33.2	33.4	33.2	27.8	
2009	5	27.1	32.3	33.8	30.8	29.9	30.3	28.1	28.2	27.9	30.8	29.7	32.8	25.0	24.9	31.4	33.2	32.6	27.8	31.7	33.8	31.8	29.2	35.4	36.2	29.6	29.5	32.0	33.2	33.8	31.9	32.4
2009	6	29.4	32.4	33.9	35.2	33.4	34.9	34.4	32.8	31.2	29.7	26.1	30.2	30.2	29.6	33.1	33.0	34.7	33.9	34.2	32.6	31.6	33.0	34.4	35.8	33.4	30.1	27.2	26.2	25.5	25.3	
2009	7	25.5	25.1	27.8	25.8	26.2	26.8	31.8	30.1	29.5	28.5	30.3	35.1	36.9	35.7	35.7	32.2	32.4	34.4	36.2	37.1	34.5	32.9	32.6	31.4	29.4	26.8	31.6	30.2	32.1	29.1	29.3
2009	8	33.5	31.1	33.0	30.8	32.5	33.3	35.5	33.6	29.7	34.4	32.9	26.8	28.5	32.3	30.5	26.2	25.7	26.7	30.3	27.0	26.3	30.1	31.4	29.7	34.9	34.9	33.8	30.7	30.0	32.3	35.0
2009	9	35.1	33.3	35.5	35.2	35.2	35.5	36.5	36.9	35.9	31.5	32.9	33.7	34.2	33.5	31.9	33.0	32.1	26.8	25.0	25.0	25.8	29.4	32.4	31.8	31.4	33.4	35.3	35.4	35.4	35.1	
2009	10	35.8	35.8	32.5	28.7	27.6	30.7	27.7	25.3	24.5	28.4	31.2	32.2	31.4	32.4	32.2	31.2	32.4	27.2	30.4	28.2	30.2	31.2	30.1	29.2	30.6	30.9	30.4	31.1	30.7	30.4	29.9
2009	11	25.8	27.9	29.4	31.2	25.1	29.2	29.7	29.3	29.2	28.3	26.7	28.0	27.7	27.8	20.8	21.9	20.4	22.9	24.6	20.8	25.4	25.6	26.3	26.7	24.5	25.9	26.5	26.5	26.3	27.0	
2009	12	27.2	26.3	27.9	25.3	23.5	20.2	20.6	23.6	23.6	23.7	24.0	25.4	25.4	23.0	25.5	23.3	22.9	22.5	19.5	23.6	23.8	24.4	24.3	23.2	23.9	22.6	22.5	23.0	23.2	23.2	19.3
2010	1	23.0	23.3	24.9	24.3	23.7	23.8	24.9	25.8	25.7	24.8	24.1	23.8	24.4	21.6	17.4	21.7	23.8	26.2	24.4	26.0	26.4	26.9	27.5	26.7	25.1	27.2	26.7	26.3	26.2	25.5	26.6
2010	2	26.3	23.2	20.1	23.0	25.0	25.9	26.8	27.6	28.0	23.2	21.2	27.8	19.0	20.5	23.3	23.6	25.2	22.9	23.8	25.6	27.2	28.1	23.9	18.3	19.9	27.3	27.4	26.9			

2010	3	27.4	18.0	18.5	20.3	19.5	21.3	28.1	22.0	24.0	28.7	29.6	29.5	22.9	21.0	23.9	28.6	31.9	32.1	32.8	33.4	33.7	28.9	19.9	21.2	21.4	20.6	26.2	18.8	27.3	23.0	19.5
2010	4	21.0	24.8	25.1	29.0	26.8	25.4	31.7	32.2	24.0	23.2	29.4	27.0	23.7	23.3	31.4	30.5	28.8	29.2	22.0	22.0	22.0	22.0	20.4	21.4	20.7	27.2	28.1	29.7	32.0	28.7	
2010	5	32.2	31.0	24.6	26.1	30.5	30.4	31.2	30.9	25.4	26.0	23.0	23.4	23.8	23.4	27.0	22.0	30.1	32.9	24.8	24.5	24.1	30.0	32.5	30.5	29.9	31.2	32.0	32.5	33.2	28.6	28.6
2010	6	23.8	27.6	25.8	27.0	23.8	22.9	23.0	24.9	24.2	27.4	28.5	30.1	29.8	30.9	33.2	31.9	33.7	32.4	32.2	26.1	29.0	28.3	31.0	34.4	34.2	26.8	25.8	25.3	30.2	32.3	
2010	7	33.1	31.9	33.1	30.0	32.5	28.4	25.4	24.6	24.7	25.4	28.7	33.0	31.8	32.3	31.0	29.0	26.8	25.4	29.4	27.4	27.1	27.6	29.8	33.4	34.1	28.9	35.0	32.9	30.4	30.0	30.3
2010	8	30.8	34.7	31.9	33.1	36.1	34.4	32.5	31.3	33.6	35.5	34.0	35.6	29.8	32.4	30.3	28.4	29.9	31.9	33.0	30.4	25.8	25.6	28.5	33.4	32.4	30.8	30.1	31.9	34.4	31.1	32.4
2010	9	27.4	32.3	34.2	25.3	29.1	27.1	30.3	29.2	24.5	24.1	31.1	32.7	33.2	33.2	31.9	31.6	33.3	33.4	28.6	27.4	32.4	32.4	33.4	30.9	29.2	24.4	24.6	26.0	32.1	33.1	
2010	10	33.3	32.7	32.0	31.1	30.4	29.8	30.9	26.1	25.5	29.9	28.7	29.9	31.9	30.6	29.9	28.5	23.8	27.6	32.6	34.1	26.5	25.5	28.0	31.8	31.5	30.8	30.9	29.6	29.7	30.7	30.5
2010	11	25.2	26.8	30.4	30.0	30.9	30.9	30.5	30.0	31.8	30.5	29.4	26.3	29.1	22.5	27.9	30.0	27.2	27.9	21.9	20.2	19.6	25.4	26.7	26.0	25.2	25.8	26.4	24.4	22.2	20.2	
2010	12	25.9	26.0	26.6	25.4	25.0	21.3	25.5	27.5	20.7	26.9	26.7	19.0	24.3	24.5	24.3	24.4	25.3	25.2	23.9	24.0	24.0	24.4	23.7	23.0	23.2	23.4	23.8	24.3	24.2	24.4	24.6
2011	1	17.3	22.4	23.0	23.5	24.2	25.0	24.4	26.2	26.4	25.4	24.3	23.1	23.5	22.4	23.4	16.7	13.8	19.9	14.4	19.9	21.2	22.2	20.7	17.3	22.5	21.7	19.1	20.5	23.8	24.4	20.8
2011	2	24.2	25.1	26.4	26.4	27.0	27.1	26.8	19.8	19.0	23.6	25.8	26.5	26.0	26.0	19.5	22.0	19.7	21.7	22.4	25.8	25.5	27.1	27.4	28.3	28.8	29.5	28.3	28.0			
2011	3	29.3	30.0	30.0	26.5	23.4	23.5	27.0	27.7	23.0	23.2	28.5	24.3	26.8	26.3	29.6	30.5	30.4	17.8	17.4	19.6	23.3	26.3	28.0	24.4	26.3	26.4	28.3	27.0	22.5	26.8	21.8
2011	4	22.6	26.1	26.0	26.6	29.4	28.4	21.5	21.0	27.0	29.0	32.0	32.8	30.4	29.5	28.9	28.0	30.7	29.2	24.8	23.5	24.5	24.6	27.5	28.3	29.3	31.0	30.8	27.3	29.6	32.5	
2011	5	25.4	23.6	21.3	28.9	31.5	33.2	32.6	32.6	31.4	32.7	33.2	30.8	31.3	32.3	30.1	30.7	33.6	34.3	32.2	29.1	30.0	31.1	23.8	28.0	32.0	33.9	35.2	33.2	33.5	30.0	29.5
2011	6	31.4	32.6	28.4	26.4	28.9	31.9	34.4	29.5	31.9	33.1	30.1	32.5	34.4	35.0	35.3	34.4	29.0	36.4	35.2	34.9	32.9	29.5	30.1	33.5	34.6	33.4	33.5	33.3	32.4	32.4	
2011	7	30.6	28.8	29.0	31.2	29.9	25.9	25.4	27.8	27.8	32.6	34.3	34.8	28.3	29.0	26.1	32.0	30.9	24.8	30.4	35.1	36.0	29.8	29.0	32.4	33.0	33.4	31.4	30.5	29.0	30.8	32.7
2011	8	33.5	35.9	35.3	28.8	29.4	27.8	31.3	34.4	33.0	32.4	33.9	35.2	28.2	29.7	25.5	25.2	32.3	26.9	33.0	35.0	33.4	23.0	32.4	29.2	32.8	34.9	35.9	36.0	36.9	35.9	35.4
2011	9	32.4	34.0	32.5	35.0	35.6	30.4	30.0	31.2	34.9	32.6	34.0	34.8	31.0	34.9	33.0	29.4	29.7	30.5	33.4	34.8	32.2	33.0	31.8	25.7	25.9	30.8	27.1	32.5	33.0	34.4	
2011	10	32.5	33.0	31.2	33.0	33.7	33.7	34.0	33.6	33.4	33.7	33.5	33.4	33.3	32.9	27.9	25.2	31.9	32.5	33.4	31.5	32.8	26.5	28.7	30.0	31.0	30.5	28.6	30.3	30.4	29.7	28.9
2011	11	26.2	28.7	28.7	28.8	29.7	28.7	29.5	28.2	29.0	29.1	29.2	29.0	22.5	22.2	23.9	21.8	20.7	26.0	27.2	28.0	29.7	29.8	29.6	29.5	29.4	29.5	29.2	28.2	27.7	26.7	
2011	12	29.7	29.6	27.9	20.3	27.6	28.7	30.2	29.3	27.6	20.2	21.7	23.3	22.5	24.3	24.7	21.9	25.4	26.2	25.8	25.8	25.5	26.2	26.5	25.2	26.9	25.4	25.9	27.5	26.7	25.9	26.5
2012	1	21.7	18.2	22.2	16.7	22.5	16.9	22.1	21.6	21.2	22.2	21.7	23.8	22.6	21.2	21.8	23.6	15.2	14.7	20.7	20.3	17.7	22.2	22.3	23.2	21.2	23.5	17.7	21.5	24.2	24.9	25.2
2012	2	25.2	25.1	24.8	26.9	26.5	23.2	25.4	25.3	21.1	23.4	24.4	24.3	24.2	25.6	23.2	23.8	23.4	27.1	19.9	24.5	26.5	27.8	27.9	27.8	23.3	20.5	27.5	25.0	20.9		
2012	3	17.9	24.2	17.5	22.7	22.2	23.7	24.6	24.7	27.1	27.8	28.7	30.2	28.2	23.2	28.0	24.1	27.7	29.5	30.7	31.5	26.7	23.7	26.5	31.9	31.7	30.7	21.7	24.3	22.9	25.9	32.4
2012	4	32.7	33.8	33.4	32.6	22.7	21.6	23.0	20.7	23.0	29.5	29.1	25.2	24.6	20.9	24.0	23.4	20.9	20.4	26.3	31.5	32.7	24.2	29.7	26.1	23.2	25.6	22.2	22.5	25.2	22.9	
2012	5	25.7	25.0	28.0	29.2	32.4	33.2	33.7	33.7	35.1	35.0	33.2	31.3	26.8	25.2	23.2	31.4	26.8	32.4	33.8	34.4	33.8	32.7	24.4	23.7	32.4	34.0	34.4	34.4	35.6	33.2	34.6
2012	6	32.4	28.6	25.2	28.8	24.0	26.2	31.7	34.1	33.4	32.0	30.7	29.2	24.8	26.9	25.4	32.4	33.2	34.8	33.7	32.6	25.7	29.6	24.7	25.3	25.2	24.6	25.1	30.7	33.7	35.6	
2012	7	34.7	35.3	28.2	24.6	29.1	31.1	35.9	34.6	30.8	27.0	25.1	25.5	27.2	31.7	26.2	25.1	25.3	26.3	32.2	35.1	32.3	25.2	25.5	27.1	32.3	33.2	29.2	31.5	31.7	33.6	30.2

2012	8	28.4	32.2	34.7	35.1	33.5	30.7	30.6	33.3	34.2	32.9	34.9	31.6	33.0	32.8	34.4	33.2	34.8	34.4	31.6	26.5	25.2	28.2	26.2	30.0	34.3	30.4	33.9	33.4	34.2	31.5	26.2
2012	9	25.7	29.2	26.2	32.1	33.6	34.4	35.2	36.2	35.2	32.1	33.2	24.6	30.2	25.7	23.7	24.3	27.7	24.4	24.4	24.1	24.1	24.1	23.5	24.2	30.2	32.2	33.0	32.4	32.7	30.5	
2012	10	26.6	24.3	23.4	23.1	26.8	30.7	32.2	32.6	28.3	30.2	22.7	27.4	29.0	31.0	30.7	29.6	29.7	29.9	30.4	30.4	30.7	30.2	30.1	30.0	28.5	29.6	30.6	31.3	30.9	30.7	30.1
2012	11	29.7	28.6	29.3	28.9	29.3	29.2	29.2	23.7	27.2	27.2	29.0	28.6	29.2	28.4	28.7	28.0	29.0	29.0	28.3	29.2	28.8	28.4	28.6	28.5	23.2	25.2	24.7	26.1	27.2	26.0	
2012	12	26.9	26.6	26.7	26.7	26.4	26.2	25.6	21.8	24.2	25.2	23.3	19.7	16.8	18.2	23.5	22.7	24.3	24.7	23.2	17.2	22.2	25.0	25.7	25.3	25.5	24.7	24.5	23.9	25.2	23.2	20.5
2013	1	24.6	25.2	21.5	17.9	20.4	21.7	21.8	15.2	20.7	21.6	20.4	23.0	23.0	22.8	23.1	24.8	24.9	26.2	25.7	24.4	25.4	26.5	25.6	25.6	25.1	24.8	25.2	26.2	28.1	27.7	27.3
2013	2	26.9	24.8	24.2	27.3	28.7	29.2	28.8	27.2	28.9	29.3	29.5	28.9	30.3	28.6	29.3	28.9	21.6	22.4	25.7	28.3	29.6	31.7	32.2	33.2	31.5	31.0	31.2	30.4			
2013	3	30.5	31.4	33.2	32.6	32.8	31.8	31.8	31.2	31.7	31.2	30.2	28.2	32.2	32.7	29.4	28.4	27.4	26.4	25.7	29.4	28.2	18.2	29.0	31.2	25.4	21.4	28.2	30.1	25.7	20.1	23.5
2013	4	23.3	29.4	23.2	24.3	27.2	22.6	25.2	25.7	28.2	26.2	24.3	25.7	29.4	26.1	21.9	24.4	27.8	27.3	25.8	27.6	27.7	28.1	32.0	32.2	31.8	33.2	32.6	31.2	30.0	32.2	
2013	5	25.6	24.2	25.1	21.9	21.5	29.1	29.4	31.2	30.4	30.2	29.5	26.7	23.2	24.1	29.5	27.7	25.2	22.7	27.2	31.7	34.0	34.2	30.2	26.7	33.5	35.0	35.7	33.6	33.1	33.2	29.4
2013	6	29.4	31.7	32.8	32.7	33.1	32.8	32.7	31.3	30.8	34.6	37.0	37.4	37.1	36.9	35.2	33.7	32.3	29.8	32.5	31.7	34.5	35.7	31.9	34.4	26.4	25.2	25.0	27.7	31.6	34.5	
2013	7	27.7	30.7	33.5	29.7	28.2	28.2	26.7	25.2	24.8	25.2	30.3	31.0	31.3	30.9	33.4	33.7	30.0	26.2	26.3	31.2	32.3	33.3	33.2	33.8	33.6	34.0	32.4	33.2	34.5	35.9	31.2
2013	8	33.1	33.2	34.0	33.6	28.4	30.4	26.0	28.7	31.0	33.2	33.0	31.2	31.7	33.0	32.6	29.6	31.0	35.4	35.6	33.5	36.0	32.8	31.8	33.6	30.6	34.0	32.8	30.9	27.2	26.3	28.8
2013	9	30.0	28.0	25.2	25.2	24.6	30.4	31.0	33.0	32.5	33.0	32.0	34.0	34.7	34.9	32.5	34.5	36.0	37.1	37.0	31.3	33.8	33.6	33.5	35.0	33.9	29.7	33.0	35.8	31.6	30.7	
2013	10	30.9	33.0	32.6	29.0	26.9	26.1	25.8	31.6	32.5	32.0	33.8	33.6	31.9	31.8	27.4	31.4	32.5	32.2	30.4	29.6	24.4	25.1	29.6	29.5	30.4						
2013	11															27.7	28.0	27.7	28.0	28.5	27.8	28.3	28.8	28.4	27.8	27.9	27.6	28.6	29.5	27.3	28.4	
2013	12	28.1	21.6	28.3	28.5	27.6	27.3	27.8	27.3	27.3	27.0	23.4	18.6	23.5	22.3	21.3	23.7	23.3	23.7	24.0	19.6	23.0	21.7	21.0	23.0	24.3	22.8	23.9	24.3	21.4	21.6	24.3
2014	1	24.1	23.6	23.6	24.3	24.7	16.8	18.8	21.9	23.3	24.0	24.4	21.4	24.8	25.4	23.2	22.7	25.8	26.1	25.2	24.7	26.2	26.3	25.7	26.2	26.5	26.5	26.6	26.8	26.8	27.3	27.4
2014	2	27.3	27.4	26.7	26.9	26.3	17.9	23.4	15.9	16.2	20.3	24.7	20.8	21.3	24.3	17.5	15.5	15.9	22.8	24.5	27.6	27.0	27.9	23.7	27.7	28.1	28.0	23.7	23.2			
2014	3	25.8	23.5	25.6	27.8	25.3	26.8	26.5	26.6	28.8	29.6	29.1	29.3	21.4	24.5	30.9	32.2	32.0	31.8	25.0	23.8	26.7	27.7	26.9	29.2	29.3	29.3	29.0	30.0	22.1	25.7	29.1
2014	4	27.5	23.5	24.2	20.9	30.3	32.2	31.0	27.2	22.0	27.2	28.8	32.2	32.4	33.9	25.4	29.5	24.8	30.3	33.8	33.3	31.8	35.3	31.3	29.4	27.8	30.4	30.7	27.6	31.6	33.8	
2014	5	35.7	29.0	25.6	24.0	32.1	27.8	21.0	21.4	22.0	23.2	22.9	23.4	24.2	24.8	27.0	24.4	25.5	31.8	33.3	31.2	23.7	24.7	31.8	34.8	31.9	33.0	29.5	28.7	27.9	32.6	34.1
2014	6	35.4	33.2	32.1	29.6	28.9	31.2	31.9	32.1	28.3	30.0	33.0	32.6	35.6	34.3	33.9	32.9	36.5	37.2	35.3	27.1	32.4	27.2	32.2	29.2	34.1	35.8	31.2	25.1	27.3	32.4	
2014	7	35.4	34.7	28.6	32.4	31.6	27.8	26.3	25.9	31.3	35.0	36.4	35.9	36.3	32.8	27.2	32.7	32.9	31.6	32.6	34.7	34.3	30.8	33.9	35.8	36.3	36.8	37.3	33.6	35.5	34.6	35.6
2014	8	34.4	36.5	35.0	35.5	30.1	29.3	35.2	34.1	32.3	27.4	29.8	24.4	25.5	24.6	24.4	26.6	32.1	29.5	27.7	33.6	29.3	24.6	24.0	23.2	24.4	29.2	30.5	34.4	34.5	34.4	35.7
2014	9	36.6	35.1	35.4	36.1	34.3	35.6	32.8	32.9	28.8	31.2	29.8	28.4	29.1	34.0	33.9	33.0	34.4	34.0	33.6	27.5	28.1	25.5	23.6	28.5	31.0	25.8	25.9	30.6	31.8	33.1	
2014	10	32.9	33.4	33.0	33.0	34.0	34.9	34.1	33.8	34.3	31.3	33.0	33.3	32.3	27.7	30.4	32.3	32.1	30.6	31.3	31.7	31.9	31.3	30.7	30.8	25.0	28.0	30.0	30.2	30.8	30.5	
2014	11	31.3	31.4	32.1	30.3	31.0	31.3	30.9	31.0	30.8	30.7	30.4	30.4	26.0	29.1	29.8	28.1	27.7	29.8	28.8	29.0	27.5	25.2	19.5	25.5	26.7	24.6	26.8	22.7	24.7	26.5	
2014	12	26.5	28.1	27.7	27.8	28.7	28.0	28.0	25.6	23.4	22.4	23.3	25.9	24.3	24.1	26.3	26.1	24.2	24.8	25.0	25.3	23.6	25.5	25.4	26.1	25.9	25.7	26.4	27.7	27.8	27.4	24.5

2015	1	26.5	27.4	25.0	22.3	21.0	24.4	26.0	27.1	26.9	23.4	24.6	24.1	26.4	26.3	24.7	27.3	27.3	23.8	25.8	25.5	26.4	26.3	26.4	24.9	25.6	25.9	26.5	25.0	25.9	23.6	23.9
2015	2	25.7	27.0	27.7	25.8	26.8	26.1	25.9	26.3	25.4	24.2	26.6	26.7	17.6	23.5	25.9	26.8	27.2	28.2	22.0	26.9	27.8	26.8	28.0	29.9	28.2	19.7	20.7	22.7			
2015	3	25.8	28.3	24.3	23.6	21.2	21.4	22.5	28.4	30.3	30.1	29.8	30.8	29.6	26.4	19.9	22.0	27.3	23.9	27.8	29.6	30.9	31.9	32.8	28.0	32.7	31.6	26.8	21.3	29.8	31.8	20.0
2015	4	23.4	20.4	27.6	21.0	22.8	20.4	24.0	23.3	24.3	23.1	22.2	30.5	29.3	30.2	33.5	33.7	26.6	21.5	24.1	30.4	25.6	23.0	20.9	23.0	31.0	28.2	29.2	31.1	31.5	30.1	
2015	5	32.0	28.0	30.1	24.0	28.6	31.7	29.3	34.8	32.9	33.9	33.0	29.1	32.7	31.1	26.9	23.9	24.0	30.5	32.4	34.4	30.6	26.6	23.2	27.8	24.1	25.0	24.1	23.4	27.7	33.3	26.9
2015	6	24.9	25.0	28.4	32.6	25.8	24.2	23.7	23.4	23.1	24.9	31.4	28.5	27.8	26.2	27.7	28.7	27.9	31.4	32.4	31.6	34.2	30.4	33.6	34.1	36.5	37.3	36.0	35.1	25.8	26.6	
2015	7	27.6	30.6	31.4	25.6	30.4	35.3	37.7	32.1	35.3	31.7	34.4	31.9	31.8	26.4	30.5	33.6	35.4	35.1	36.4	32.7	29.3	31.9	26.9	31.0	34.2	36.6	36.8	36.7	36.6	36.4	34.8
2015	8	34.4	36.5	31.0	25.2	25.1	29.5	30.5	33.5	34.6	36.5	36.4	33.9	33.5	29.4	26.1	26.7	29.7	25.1	25.2	25.0	29.4	32.9	32.2	30.4	33.2	34.6	30.4	25.2	24.3	24.3	24.6
2015	9	26.8	27.0	27.5	33.8	29.8	29.3	30.1	32.5	33.9	35.2	30.6	31.2	33.2	32.0	34.5	32.7	31.7	34.9	36.2	27.3	27.7	25.6	26.8	28.8	25.8	30.3	32.6	32.8	33.4	33.7	
2015	10	34.2	33.5	29.8	33.6	31.4	33.8	34.7	28.8	31.8	28.8	30.8	32.9	33.0	31.6	29.2	31.6	31.9	31.7	31.6	31.6	32.2	31.8	29.1	28.5	30.7	30.6	31.3	31.3	30.9	30.8	31.0
2015	11	29.8	30.2	30.4	22.0	20.4	23.3	26.4	28.1	29.2	29.7	29.4	28.9	28.6	28.9	28.6	28.4	25.7	29.1	28.0	28.3	28.6	27.8	28.2	27.7	28.2	27.2	25.5	27.4	28.3	27.9	
2015	12	27.9	27.4	28.0	24.5	24.0	26.4	26.4	26.8	25.2	25.7	25.4	19.5	17.2	20.3	17.9	17.9	22.2	22.4	22.9	22.7	22.4	22.6	23.6	21.8	24.4	23.5	23.5	24.3	24.3	23.9	24.0
2016	1	27.0	26.1	24.0	25.1	25.2	25.0	24.4	24.4	16.2	22.4	23.6	23.8	23.8	22.4	23.0	21.7	24.0	23.3	24.8	18.0	23.4	24.8	23.8	24.2	22.3	24.1	20.8	23.4	24.4	23.8	25.5
2016	2	22.6	25.2	22.3	24.8	25.4	27.7	28.2	28.3	18.0	20.0	17.1	16.8	19.4	22.8	25.8	25.8	27.1	27.2	28.1	24.9	20.2	24.4	19.2	25.2	27.1	29.2	30.2	30.9	30.8		
2016	3	30.0	28.9	28.9	28.5	30.4	29.1	23.0	19.7	21.6	23.3	23.7	24.9	25.6	26.8	26.4	25.6	28.9	30.0	25.2	28.3	19.9	21.1	25.2	29.7	32.4	31.8	31.7	20.8	20.4	29.3	27.8
2016	4	28.3	29.4	32.4	31.4	26.3	27.3	24.5	24.5	28.6	30.9	23.3	29.2	21.4	21.8	27.8	22.3	30.3	22.4	21.9	24.9	20.2	24.8	22.7	25.1	26.0	29.9	29.2	25.7	27.2	25.4	
2016	5	28.0	30.9	27.4	31.4	28.8	29.0	30.9	30.6	33.1	34.4	35.2	34.9	26.9	27.0	23.0	22.5	22.6	22.3	31.2	32.8	28.5	27.9	32.4	35.5	28.5	28.4	27.5	32.9	31.9	30.4	30.9
2016	6	31.9	34.0	35.6	34.3	32.3	31.7	33.9	32.0	31.5	35.4	35.4	31.4	29.1	29.9	34.3	35.2	30.5	31.2	24.8	25.5	24.7	25.1	26.4	32.9	33.0	34.1	34.2	34.0	34.3	26.1	
2016	7	27.7	25.7	26.8	31.8	33.3	33.5	33.9	35.6	35.1	33.8	34.3	32.5	31.4	27.1	29.4	32.8	26.2	25.8	25.7	28.0	26.0	25.7	24.6	24.8	24.9	29.0	30.3	31.7	32.6	33.7	35.4
2016	8	35.3	36.1	37.0	35.4	33.3	33.4	33.5	34.2	33.4	35.5	35.4	33.5	32.5	34.6	35.5	35.6	36.0	36.5	32.4	32.3	34.6	35.3	31.8	35.6	36.2	35.4	32.5	35.5	31.7	31.2	29.5
2016	9	24.2	26.3	29.1	31.7	30.5	33.4	33.5	28.6	28.7	30.5	31.8	31.9	31.5	32.9	33.2	32.4	32.5	31.9	31.8	31.7	30.7	27.2	25.1	27.0	30.7	27.3	31.6	32.6	33.3	30.4	
2016	10	33.6	33.7	34.0	34.7	33.9	32.6	31.8	25.5	24.2	27.9	25.0	25.2	25.4	30.2	32.0	32.2	32.3	32.0	31.7	31.1	30.9	31.2	31.7	32.9	29.3	32.7	30.7	31.1	32.0	31.7	31.4
2016	11	31.3	32.2	31.2	30.0	25.3	25.2	25.7	26.3	29.8	30.7	31.2	30.2	30.3	29.5	29.8	29.7	29.2	28.6	28.3	28.1	27.7	27.2	27.3	27.2	27.5	28.2	28.4	26.7	28.3	28.2	
2016	12	28.5	27.3	28.3	28.4	27.8	27.6	27.4	27.7	27.8	27.6	26.8	27.2	26.3	27.3	27.4	29.0	28.4	27.7	27.4	25.7	25.8	27.9	24.8	22.0	19.2	24.1	24.2	25.0	26.0	25.9	25.8
2017	1	25.8	24.0	26.3	27.3	22.9	26.0	25.7	25.8	26.1	25.8	21.1	23.5	24.5	24.3	25.1	24.9	25.0	26.3	26.7	26.2	26.8	27.8	28.4	27.8	29.3	29.4	27.1	22.1	25.8	27.7	23.5
2017	2	23.0	26.0	27.7	28.7	29.6	28.8	23.6	27.6	27.5	24.6	19.8	26.4	28.1	28.6	28.3	28.9	24.9	30.3	30.6	18.4	17.5	21.3	27.0	20.5	26.4	24.6	22.4	27.7			
2017	3	27.6	20.2	20.0	25.8	18.7	25.6	25.2	25.3	22.0	22.3	18.3	24.7	25.1	25.7	28.5	28.8	25.0	18.7	24.0	18.8	26.3	28.0	30.6	30.6	29.6	30.8	29.8	26.8	21.8	24.8	31.4
2017	4	28.0	20.2	20.6	23.0	29.7	30.0	31.0	27.4	25.6	26.6	26.5	31.6	31.9	32.4	26.2	24.9	32.4	32.5	30.9	24.0	29.6	31.6	27.7	25.6	21.7	22.7	25.2	26.2	22.9	25.7	
2017	5	24.1	24.7	31.0	25.8	20.3	26.6	30.0	32.8	33.9	30.7	32.6	33.5	35.0	30.9	34.1	28.2	32.2	33.5	28.1	27.5	25.3	30.6	28.4	25.6	24.8	26.4	30.0	35.0	31.5	25.9	25.3

2017	6	26.5	23.8	25.5	30.4	32.8	34.6	35.7	33.4	32.5	35.7	35.5	32.3	29.5	30.4	30.8	32.1	26.7	28.6	28.1	30.6	31.3	33.2	33.8	34.4	28.7	27.3	32.0	34.4	27.8	25.0	
2017	7	24.7	26.0	29.3	29.8	27.9	34.0	28.1	26.2	25.9	25.1	28.8	32.2	34.2	33.2	34.3	35.8	33.2	36.7	37.2	32.3	33.9	36.7	35.9	33.9	34.0	32.4	32.5	35.2	33.6	33.8	32.6
2017	8	28.3	28.0	30.7	34.5	36.4	33.2	28.5	25.7	25.5	25.0	25.0	28.4	28.5	30.9	29.8	29.8	33.6	33.2	32.6	34.0	34.5	35.5	36.2	30.2	31.8	34.0	33.2	35.7	33.4	34.8	33.3
2017	9	31.2	27.2	30.4	30.0	28.8	32.8	33.4	29.0	25.8	30.0	29.0	33.0	31.6	33.4	34.5	36.0	35.7	36.4	36.2	33.8	28.2	26.2	28.4	32.0	33.9	32.9	35.2	34.2	31.7	30.5	
2017	10	28.2	26.9	31.4	32.3	33.8	35.1	33.7	33.4	34.4	34.0	34.7	34.2	30.8	23.7	26.2	31.2	33.3	33.7	33.7	32.8	23.2	26.2	27.2	28.4	27.7	30.0	30.2	30.0	29.6	23.4	28.6
2017	11	29.5	29.7	30.3	30.4	30.3	31.0	30.4	30.4	30.2	30.8	30.0	29.2	29.0	27.3	27.5	28.0	28.2	28.6	29.8	30.2	28.4	28.5	28.2	28.4	29.0	28.2	28.2	27.5	25.5	27.4	
2017	12	29.6	27.2	27.5	27.4	27.6	27.8	27.6	27.0	24.2	26.4	27.3	27.6	27.6	27.2	25.8	25.2	25.2	26.2	25.5	25.8	26.0	26.4	26.2	25.2	26.2	26.4	26.0	26.0	25.4	26.0	25.4
2018	1	25.4	25.6	25.4	25.0	24.8	18.3	16.2	22.0	23.4	23.0	23.4	23.8	23.2	24.6	23.6	25.0	25.2	25.4	26.4	24.2	25.5	24.9	25.4	25.2	18.6	22.4	17.2	23.0	22.5	21.5	23.5
2018	2	25.0	24.5	18.8	16.8	20.0	23.0	18.7	19.2	17.2	20.0	25.0	27.5	27.5	21.4	24.0	27.0	27.7	28.2	22.7	27.5	25.7	26.5	27.6	28.0	20.9	20.9	26.8	29.1			
2018	3	26.6	24.6	18.0	18.5	23.2	21.7	28.0	30.6	31.1	27.0	24.7	26.3	28.0	29.2	31.4	22.2	25.7	21.3	28.3	30.8	30.9	30.1	21.9	27.3	29.7	23.1	24.8	29.6	29.9	25.7	30.2
2018	4	32.3	33.3	32.1	33.3	27.7	23.5	32.7	29.4	29.2	26.7	27.8	25.7	20.5	19.6	27.7	32.0	33.2	32.0	29.5	30.2	26.3	22.9	24.2	29.5	32.3	31.2	32.3	31.6	30.8	31.5	
2018	5	31.5	28.2	28.5	30.4	30.3	27.0	28.0	30.2	28.4	23.6	25.4	28.8	25.8	30.0	30.6	29.0	33.6	31.6	34.8	24.8	35.4	35.4	34.0	32.0	28.8	26.6	24.5	28.0	30.0	29.0	30.2
2018	6	35.0	29.0	34.6	33.4	36.5	37.5	33.0	36.1	36.1	37.7	34.6	34.2	28.2	25.3	25.4	25.4	26.2	31.6	32.7	34.4	33.4	25.6	31.2	28.8	32.7	31.6	31.6	27.6	27.2	25.4	
2018	7	24.6	24.7	25.1	25.8	31.5	33.4	33.8	30.3	28.0	28.7	33.3	32.7	36.2	35.7	33.3	37.0	34.3	36.2	36.8	38.4	36.2	34.9	29.9	32.0	33.2	34.1	32.5	29.7	30.4	32.3	28.7
2018	8	31.7	32.5	25.7	31.5	32.3	36.5	36.7	30.2	32.4	33.9	33.7	31.7	35.1	35.8	33.5	35.2	33.8	32.6	37.2	37.4	30.3	30.9	34.5	35.3	31.7	33.2	33.5	34.0	30.4	28.6	32.7
2018	9	31.0	29.5	30.4	33.4	34.3	34.4	30.7	28.4	25.4	26.8	24.1	24.0	25.3	26.2	29.5	31.2	33.7	33.2	34.7	25.7	34.8	29.8	30.2	24.3	24.1	27.0	27.4	31.8	31.0	30.8	
2018	10	27.4	24.4	26.4	32.1	32.3	31.7	31.4	30.0	30.0	30.8	30.6	25.4	22.0	29.0	23.3	24.0	29.0	26.8	25.8	30.8	29.8	30.8	30.7	30.4	30.7	30.4	30.5	35.0	29.7	28.6	29.7
2018	11	29.7	29.7	29.6	25.2	21.0	22.7	20.7	28.8	29.0	28.6	27.7	27.7	26.7	25.3	25.9	22.8	17.7	19.6	24.4	25.3	25.2	25.5	26.7	26.8	17.6	28.6	28.4	26.4	26.2	26.0	
2018	12	25.7	25.7	24.7	26.0	24.6	24.6	24.6	25.3	25.3	25.2	24.7	25.4	24.8	25.8	25.0	24.8	22.8	16.4	19.9	23.9	24.9	25.5	25.5	25.3	24.4	23.6	24.6	24.4	21.4	24.2	24.0

Station: Pasighat (District: East Siang)
Parameter: Daily relative humidity in % at 0830 hrs IST
Period: 01-01-1990 to 31-12-1991, 01-01-2001 to 31-12-2001, 01-01-2006 to 31-12-2018 (with some data gap)

Year	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1991	1	67	60	69	66	65	64	62	64	66	68	68	66	67	62	70	53	57	70	78	91	70	68	58	65	59	60	46	52	57	65	65
1991	2	87	98	74	57	66	62	59	73	63	75	70	87	91	72	67	73	71	59	67	64	60	61	70	59	74	79	77	98			
1991	3	94	87	63	59	70	96	98	57	59	68	58	88	90	61	63	85	62	60	59	80	98	64	67	76	86	62	57	61	61	59	60
1991	4	94	98	72	98	96	98	98	89	74	82	72	85	52	57	76	89	84	49	46	46	52	64	66	94	89	84	57	54	66	74	
1991	5	68	91	98	98	94	96	98	93	94	93	96	98	89	81	66	67	80	68	75	67	61	57	98	96	64	63	66	78	62	83	77
1991	6	69	91	96	74	78	98	81	82	72	86	98	98	98	98	98	98	98	93	96	98	98	100	100	100	85	82	74	83	95	98	
1991	7	98	100	98	96	100	100	100	100	100	100	100	100	100	98	71	76	98	100	96	73	78	98	78	87	78	79	83	74	81	100	100
1991	8	100	100	100	100	100	87	95	100	96	96	95	76	95	95	93	95	72	77	87	71	66	66	78	98	71	85	95	71	71	98	80
1991	9	87	96	98	95	78	98	80	89	97	90	87	79	82	70	71	80	92	98	100	98	80	91	92	100	98	96	100	71	71	78	
1991	10	71	85	70	71	96	78	73	77	86	73	67	71	74	94	96	91	87	91	82	86	68	67	64	81	64	61	60	60	62	59	67
1991	11	66	69	71	63	58	81	63	63	77	63	91	91	68	56	60	62	64	61	58	50	68	55	55	54	59	62	58	80	72	80	
1991	12	100	96	96	68	61	57	69	61	56	58	68	65	62	65	61	67	60	57	64	62	72	91	85	91	98	100	89	85	72	76	
2001	1	73	71	73	64	89	57	62	64	64	64	63	69	73	63	54	57	53	63	59	54	67	93	95	62	67	74	70	69	74	78	
2001	2	70	88	96	73	70	60	60	55	68	74	73	68	64	61	56	57	62	96	84	94	75	64	63	70	85	96	70				
2001	3	60	66	61	63	59	49	58	54	56	55	47	54	58	57	50	74	70	47	51	53	63	52	66	92	74	61	48	67	87	80	
2001	4	68	67	80	74	63	57	65	64	68	82	83	59	72	71	76	89	90	77	84	72	91	62	58	56	55	91	77	98	82	98	
2001	5	63	69	57	57	95	67	73	88	86	85	69	63	58	57	51	90	82	90	91	62	69	90	98	87	72	79	64	69	60	72	76
2001	6	90	74	60	96	64	61	91	95	93	65	61	66	65	60	80	76	69	93	97	98	100	78	78	72	100	83	100	96	92	97	
2001	7	90	82	77	66	81	71	75	67	97	71	87	100	100	98	82	83	71	81	100	93	98	86	65	86	97	98	98	100	100	100	
2001	8	98	97	98	72	65	69	78	66	73	69	92	95	86	71	87	92	87	97	82	79	81	98	100	98	93	95	84	89	82	78	89
2001	9	95	100	100	100	84	71	79	78	91	93	74	79	96	90	87	81	95	77	96	92	83	74	86	78	85	78	93	72	78	99	
2001	10	95	93	91	91	98	100	100	88	77	76	75	75	69	81	82	62	64	88	76	60	61	68	62	59	61	61	61	61	58	65	96
2001	11	52	65	63	71	91	61	65	61	61	63	62	68	54	69	64	61	68	68	65	65	71	70	88	71	62	61	64	55	63	57	

2001	12	70	75	58	62	73	68	62	91	85	67	64	67	64	61	59	61	62	58	55	53	61	58	54	52	60	55	60	60	65	65	66
2006	1	63	70	61	66	64	61	57	63	62	62	61	63	89	89	67	69	78	98	74	74	86	94	87	78	61	60	63	62	64	59	61
2006	2	59	64	64	66	77	64	64	53	58	59	56	61	63	71	88	98	92	71	74	69	96	79	90	98	82	95	98	91			
2006	3	62	55	65	65	67	64	60	61	58	58	67	75	94	61	77	71	74	75	56	46	65	70	79	70	68	73	76	61	62	42	52
2006	4	52	55	88	74	80	91	94	62	59	75	85	96	91	80	87	91	91	98	72	65	64	56	57	87	65	68	84	62	54	48	
2006	5	52	57	72	93	94	96	69	60	69	70	67	82	72	77	59	55	56	51	53	86	71	65	64	60	57	84	100	100	100	100	98
2006	6	100	93	78	76	78	90	100	92	96	98	98	96	96	98	98	98	76	74	68	73	87	77	98	82	82	86	95	98	100	70	
2006	7	100	93	78	76	78	90	100	92	96	98	98	96	96	98	98	98	76	74	68	73	87	77	98	82	82	86	95	98	100	70	
2006	8	88	76	67	86	83	98	87	71	74	63	66	70	76	95	66	62	64	86	89	76	90	74	100	100	100	98	89	75	71	79	90
2006	9	81	92	68	86	98	98	98	93	92	100	91	100	98	96	80	77	72	73	64	72	68	92	85	88	78	89	71	70	77	90	
2006	10	79	87	80	93	95	70	65	64	64	66	64	71	62	70	63	69	63	56	67	64	72	65	60	57	52	57	56	52	57	58	61
2006	11	58	57	64	67	65	65	64	56	69	67	91	84	64	65	64	64	54	69	59	82	76	69	96	91	98	98	66	68	60	66	
2006	12	70	70	66	63	63	64	67	59	68	68	64	92	71	63	66	68	62	60	69	68	62	61	64	64	66	72	71	93	67	73	69
2007	1	72	74	95	77	78	77	67	68	61	67	69	67	85	84	60	77	65	66	64	63	59	84	72	67	62	58	63	60	64	64	73
2007	2	68	66	78	93	98	74	98	74	81	65	64	63	93	70	98	84	73	78	59	61	63	61	58	59	59	88	72	59			
2007	3	67	96	91	61	57	81	75	62	67	68	60	59	54	73	89	79	48	52	54	51	57	80	64	60	98	90	62	58	58	52	53
2007	4	61	86	90	89	82	83	71	96	91	92	94	64	56	57	46	52	68	60	60	98	100	100	96	100	92	94	100	67	56	52	
2007	5	57	52	61	51	55	52	50	57	74	93	75	59	68	71	98	91	73	60	56	69	77	86	98	100	98	85	85	83	81	80	100
2007	6	84	91	95	64	72	92	98	100	93	100	93	74	66	98	95	100	100	100	93	73	93	96	97	98	78	71	68	85	71	78	
2007	7	89	79	79	66	68	57	97	79	100	98	98	98	83	95	76	89	95	100	100	100	100	100	100	100	100	95	100	100	100	98	100
2007	8	96	86	73	71	67	65	67	98	80	75	79	82	95	87	98	98	90	89	71	79	78	73	74	97	72	98	86	100	100	83	87
2007	9	85	89	100	100	100	100	100	100	100	100	96	92	79	82	100	100	73	76	64	59	61	57	59	57	59	68	64	76	76	74	
2007	10	81	78	70	71	68	67	66	76	96	90	93	93	65	68	81	95	74	90	81	91	64	61	74	70	63	63	59	61	70	65	75
2007	11	65	65	58	60	67	64	61	62	65	60	56	54	52	60	59	64	79	90	82	79	63	59	50	57	58	61	61	58	59	66	69
2007	12	98	65	66	90	66	67	62	54	66	64	57	54	61	62	67	68	64	62	58	59	62	66	65	61	64	65	69	75	77	72	69
2008	1	68	67	63	58	56	66	58	59	58	62	69	98	76	83	78	66	67	73	100	96	96	95	52	95	79	81	84	93	95	81	75
2008	2	71	62	62	68	67	62	66	68	100	94	98	67	86	70	75	78	82	84	80	98	81	76	59	54	85	98	53	58	54		
2008	3	60	53	77	57	77	79	63	61	58	62	59	68	74	89	94	84	65	72	88	86	100	79	72	75	90	86	100	90	83	96	79
2008	4	71	73	85	80	58	54	53	54	56	57	50	71	96	96	74	57	86	100	84	77	64	64	56	76	89	83	100	100	96	74	

2008	5	77	98	93	65	63	67	100	75	76	71	66	63	80	59	88	63	63	88	88	94	95	72	78	85	84	95	82	85	90	81	96
2008	6	77	79	85	79	68	100	75	100	61	100	100	84	98	93	80	79	69	100	98	96	98	98	80	81	70	97	76	71	70	89	
2008	7	97	100	95	100	100	67	65	64	67	90	98	100	90	97	98	92	98	81	93	98	98	100	100	96	98	90	71	77	89	98	97
2008	8	95	93	80	92	302	92	80	69	74	75	82	98	98	87	95	100	100	100	95	79	98	78	81	90	100	100	100	100	100	100	100
2008	9	90	100	98	100	98	78	71	92	71	75	71	95	75	85	66	66	71	71	75	70	85	95	78	81	80	75	82	73	98	86	
2008	10	79	95	86	92	93	89	90	81	84	76	70	63	65	63	63	66	66	61	64	54	63	56	58	55	70	75	96	84	74	72	67
2008	11	63	64	64	69	61	52	54	59	57	57	59	63	63	62	65	61	62	58	60	55	67	98	62	61	61	61	58	58	59	59	
2008	12	64	64	64	68	63	65	72	65	64	62	66	73	70	72	84	68	68	67	64	72	67	71	72	70	68	63	81	66	71	61	69
2009	1	67	57	61	61	66	75	72	60	65	67	69	68	65	64	63	67	64	64	66	65	68	67	69	72	68	98	100	100	71	68	72
2009	2	98	69	63	63	65	66	62	64	58	64	62	61	68	70	68	63	63	58	70	55	75	75	66	81	98	98	84	75			
2009	3	69	48	51	64	67	77	78	78	73	66	74	62	38	43	49	51	61	55	61	59	55	77	54	54	52	53	61	58	69	86	90
2009	4	98	65	60	77	94	70	89	74	85	71	65	59	57	64	56	59	82	96	67	72	69	88	91	96	70	62	55	64	63	64	
2009	5	91	69	62	72	74	65	91	79	94	91	96	64	74	83	63	58	57	89	65	64	65	70	59	53	69	93	84	76	71	96	71
2009	6	80	69	64	65	79	85	72	74	98	90	98	70	96	92	83	86	66	73	76	93	98	92	79	76	83	85	98	100	100	100	
2009	7	100	100	100	100	100	100	97	100	100	97	98	66	63	71	62	86	86	78	77	60	79	95	93	100	100	100	92	77	95	100	100
2009	8	93	100	86	97	94	97	77	85	89	85	78	100	100	81	97	100	100	98	100	100	100	95	95	92	73	67	78	82	98	95	70
2009	9	68	84	68	66	70	67	66	63	64	80	81	76	66	73	73	89	95	100	100	98	100	46	88	77	96	74	68	64	67	62	
2009	10	60	61	65	64	91	80	100	100	93	92	80	71	64	64	56	73	65	95	82	93	71	58	63	72	61	65	63	64	64	65	62
2009	11	69	66	66	64	66	64	64	64	66	66	79	66	65	74	89	100	100	98	94	73	65	55	60	62	70	70	72	65	79	68	
2009	12	70	70	70	70	81	90	100	75	77	85	70	73	73	80	62	77	75	84	94	63	68	66	65	65	64	69	68	67	67	70	67
2010	1	68	64	66	63	64	59	63	64	64	67	62	69	70	93	95	93	88	66	61	62	62	57	57	57	60	52	28	61	62	51	59
2010	2	61	54	67	57	55	55	58	56	55	58	66	62	84	76	66	63	67	81	59	62	66	61	63	88	74	60	65	63			
2010	3	66	98	100	76	96	78	73	59	68	60	60	63	83	66	72	65	60	59	59	53	58	76	92	100	100	94	96	100	79	83	100
2010	4	96	96	81	78	84	89	79	62	89	78	74	85	86	92	64	82	70	76	100	100	98	100	100	100	94	93	84	78	81	91	
2010	5	81	83	96	100	90	86	87	84	88	88	96	100	100	94	98	96	82	71	98	98	95	84	69	69	85	73	76	77	77	92	95
2010	6	96	85	98	90	96	98	98	87	91	98	84	82	86	83	80	82	81	98	85	100	95	100	97	83	94	100	100	100	93	82	
2010	7	80	72	85	98	97	98	100	100	100	100	100	97	97	89	83	98	97	100	95	95	98	98	97	81	89	97	71	83	92	98	86
2010	8	95	77	93	90	70	82	93	86	82	72	83	80	98	75	83	90	98	89	85	90	97	98	100	86	85	86	95	82	78	98	79
2010	9	98	91	79	100	100	98	93	96	100	100	90	80	78	77	97	90	85	79	98	100	83	76	75	87	85	100	100	87	69	69	

2010	10	63	72	64	62	65	77	82	86	93	88	77	63	72	76	72	88	93	85	68	70	93	74	91	77	60	75	72	86	64	65	69
2010	11	76	84	67	63	63	62	61	66	71	68	68	73	61	70	67	64	69	72	77	98	98	67	73	69	69	75	75	79	92	92	
2010	12	68	65	65	61	60	67	61	64	70	70	68	96	75	84	69	65	59	64	62	64	63	58	58	70	66	64	65	68	70	72	67
2011	1	67	74	71	65	67	66	66	64	62	67	61	57	64	82	89	89	93	69	91	84	75	65	67	72	71	71	81	76	66	67	59
2011	2	63	66	64	63	63	60	61	67	80	71	73	70	71	67	77	72	96	88	74	64	64	57	62	61	57	56	72	50			
2011	3	54	54	57	60	96	90	73	66	83	72	65	81	57	64	58	45	54	84	91	100	91	96	76	87	92	75	70	80	74	71	80
2011	4	92	65	68	73	82	60	63	69	72	64	74	82	56	83	83	57	63	62	80	96	96	78	65	67	60	63	63	88	62	59	
2011	5	93	96	96	74	62	58	74	91	75	66	59	70	95	68	96	71	67	61	85	70	76	70	100	100	67	60	63	60	65	83	98
2011	6	95	88	93	98	93	70	71	96	74	95	98	82	66	65	78	71	78	66	76	72	97	87	95	89	74	63	71	98	95	95	
2011	7	98	93	98	100	87	100	100	100	98	83	72	70	98	97	98	90	98	100	89	67	67	96	86	83	97	78	100	98	97	82	85
2011	8	82	77	70	92	77	89	81	69	70	95	71	70	90	100	100	100	93	100	79	71	78	87	75	100	79	67	63	64	62	65	75
2011	9	98	75	92	69	67	76	98	90	69	89	85	72	74	68	82	95	100	100	73	71	97	92	76	100	100	93	75	82	67	63	
2011	10	85	75	67	72	77	66	67	66	65	68	64	68	68	66	84	98	97	71	87	71	63	96	72	65	64	58	84	75	76	64	57
2011	11	71	66	64	62	63	68	63	63	52	57	57	61	61	72	74	92	67	61	69	56	59	62	59	61	58	66	63	65	61	70	
2011	12	62	59	61	62	66	65	68	67	73	100	78	71	70	64	71	72	67	64	65	67	71	65	65	64	61	60	61	64	66	66	66
2012	1	71	74	96	71	76	89	68	66	55	76	64	79	72	75	70	65	69	93	74	74	87	70	70	76	77	76	91	76	66	75	76
2012	2	73	71	69	65	60	69	72	72	92	92	66	59	61	61	66	69	68	62	77	75	71	67	69	70	83	96	90	87	92		
2012	3	96	98	96	98	94	92	94	94	94	84	56	61	63	73	71	70	53	58	56	59	60	75	87	60	57	61	98	73	100	96	65
2012	4	59	52	53	58	96	92	87	94	75	64	60	78	98	96	92	91	94	83	96	64	58	80	96	89	91	86	92	100	91	83	
2012	5	90	92	83	85	61	59	57	59	56	55	62	64	93	98	100	100	73	79	68	66	68	83	98	100	72	68	67	70	64	90	69
2012	6	69	95	100	96	96	100	85	77	79	95	96	93	95	93	100	95	86	82	90	89	100	86	100	100	100	100	100	73	76	78	
2012	7	90	75	100	100	100	97	79	79	92	100	100	100	100	100	100	100	100	100	95	82	100	100	100	100	85	86	100	85	95	78	98
2012	8	92	98	73	74	82	98	97	79	75	98	71	92	81	83	74	81	75	74	100	100	100	98	100	96	76	91	79	82	77	89	100
2012	9	100	93	100	72	83	73	63	66	71	82	79	100	83	95	100	100	98	100	100	100	100	100	100	100	85	70	72	73	78	95	
2012	10	98	93	100	100	100	87	69	68	82	72	98	95	91	75	78	69	67	67	60	67	67	65	72	68	89	73	62	64	61	60	59
2012	11	59	59	63	60	63	64	67	92	60	61	68	61	61	60	50	64	55	58	58	63	61	62	63	64	74	65	74	63	68	66	
2012	12	61	63	68	68	68	67	75	77	74	72	75	80	96	87	68	71	68	70	75	82	82	65	62	57	58	57	51	63	57	63	63
2013	1	63	65	76	74	69	71	74	78	65	82	82	74	80	74	74	74	67	68	64	84	70	62	62	61	64	64	66	66	59	59	58
2013	2	59	63	60	62	62	64	69	68	74	59	54	61	51	54	57	54	72	98	61	65	50	52	51	50	53	56	57	57			

2013	3	69	63	55	37	51	49	56	49	55	32	71	63	61	57	70	84	67	88	80	80	79	98	68	78	76	87	91	86	81	98	94
2013	4	71	62	69	94	80	74	61	66	63	69	91	82	73	98	78	96	75	84	93	71	69	67	58	62	52	54	57	74	70	71	
2013	5	88	96	82	92	80	60	62	67	78	77	71	100	84	93	91	58	83	100	98	71	68	69	88	94	63	60	64	75	93	73	81
2013	6	93	93	75	76	72	98	87	93	92	78	65	60	52	52	52	68	92	97	84	75	80	70	98	83	100	100	100	100	97	82	
2013	7	95	89	79	100	100	100	97	100	100	100	98	90	90	97	95	92	98	100	100	95	97	81	93	86	98	82	85	97	70	83	96
2013	8	88	80	80	71	100	79	98	95	93	75	78	79	92	91	94	97	100	67	74	79	63	95	92	76	90	79	87	92	90	100	100
2013	9	100	98	100	100	100	100	68	76	73	87	66	65	69	69	73	72	71	70	71	97	70	68	69	78	75	98	71	66	66	67	
2013	10	65	62	68	84	100	100	100	71	64	69	68	62	59	67	80	73	67	69	77	70	100	93	64	69	67	77	N/A	N/A	N/A	N/A	N/A
2013	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	57	58	59	56	57	59	59	55	59	60	60	57	62	63	61	64	67	
2013	12	63	67	63	66	64	66	67	68	67	69	80	80	72	69	79	61	61	65	60	63	63	64	68	71	64	71	75	73	82	89	76
2014	1	66	71	71	71	64	85	95	65	66	65	69	87	62	61	65	66	67	63	64	59	64	62	66	62	60	70	65	72	59	65	61
2014	2	51	60	61	57	70	98	67	100	98	98	63	74	65	62	70	100	100	78	61	58	55	61	67	68	61	61	67	77			
2014	3	71	81	83	81	88	81	64	63	66	58	57	69	62	58	60	55	59	54	87	74	69	52	56	57	53	70	59	63	96	96	74
2014	4	59	58	69	90	64	57	58	74	98	98	70	53	49	51	70	59	80	63	54	57	57	53	53	53	56	51	62	92	56	55	
2014	5	56	51	69	78	63	95	98	100	100	100	100	100	98	100	98	92	72	59	61	76	98	98	82	61	59	76	98	100	98	88	58
2014	6	62	74	71	95	78	100	74	89	98	92	82	86	71	89	89	78	58	58	87	98	95	93	95	98	83	72	93	100	100	95	
2014	7	76	79	100	100	80	98	100	100	85	81	80	75	79	89	97	92	83	97	85	81	72	94	82	79	69	74	61	81	74	79	83
2014	8	72	69	92	83	100	100	82	93	92	100	100	100	100	100	100	100	93	98	100	94	100	100	100	100	100	98	87	76	75	66	74
2014	9	73	74	79	68	90	94	72	79	87	92	90	92	100	71	68	95	86	77	86	98	95	100	100	88	98	98	98	79	71	68	
2014	10	65	65	66	65	63	65	63	60	63	64	62	62	64	63	92	88	70	63	94	60	62	65	62	62	58	72	69	64	69	58	62
2014	11	60	63	63	61	59	51	58	68	60	56	59	70	74	70	68	70	80	61	62	61	61	69	94	81	66	71	65	71	71	67	
2014	12	70	66	76	68	66	67	69	69	86	76	84	63	60	58	68	66	57	62	59	61	57	56	61	63	62	60	60	62	61	59	62
2015	1	66	56	62	72	98	66	62	61	51	69	66	60	53	55	58	59	54	56	58	62	59	57	60	62	64	64	61	74	66	83	66
2015	2	59	54	52	54	65	59	80	68	65	76	68	69	100	66	63	62	59	56	59	64	59	80	61	56	63	96	100	94			
2015	3	70	63	92	96	98	72	71	57	58	56	51	59	57	66	90	79	77	86	70	50	53	52	56	54	52	51	83	83	64	63	98
2015	4	98	100	83	100	94	98	62	69	100	66	75	67	63	59	53	53	100	100	83	64	63	88	100	87	57	87	70	60	62	75	
2015	5	57	84	98	92	73	70	86	61	61	53	57	68	73	70	87	96	98	86	64	59	65	100	100	100	100	96	98	96	95	71	93
2015	6	100	98	82	71	92	100	100	100	100	100	89	93	98	100	98	92	100	86	100	95	86	90	97	77	62	64	74	79	98	100	
2015	7	100	97	92	100	92	79	64	72	68	93	71	81	97	98	93	68	60	62	61	75	100	86	100	78	63	60	60	59	55	60	62

2015	8	68	63	98	100	100	100	86	81	74	64	68	78	83	100	100	100	100	100	100	100	85	77	86	96	89	77	74	100	100	100	100
2015	9	100	96	93	86	100	89	87	92	75	67	90	93	90	73	69	100	90	68	66	95	98	100	100	98	100	92	70	74	67	65	
2015	10	63	67	85	65	63	63	62	88	81	96	66	57	63	65	80	69	67	63	61	60	61	60	62	96	63	62	61	58	61	63	66
2015	11	61	64	59	100	98	79	57	59	62	55	58	58	60	67	68	67	73	75	62	62	63	63	61	64	58	61	64	62	65	65	
2015	12	65	80	83	96	71	69	65	73	68	73	82	85	84	85	73	65	67	74	63	66	65	61	60	59	61	63	52	57	69	78	66
2016	1	71	61	61	62	62	62	64	68	95	70	67	67	68	67	66	85	69	70	70	74	79	67	69	63	73	63	65	67	63	71	61
2016	2	68	64	71	68	72	69	65	61	89	96	98	73	71	70	68	63	66	67	68	69	98	96	86	61	59	59	54	56	53		
2016	3	59	61	64	63	62	61	83	90	94	85	81	77	69	89	91	75	52	58	72	59	85	92	70	57	55	50	54	98	98	58	68
2016	4	82	74	56	64	78	82	96	100	81	63	93	76	100	77	79	80	62	96	91	74	100	81	100	94	85	67	68	83	83	98	
2016	5	96	66	68	70	88	62	68	67	56	53	53	56	88	93	98	98	100	98	62	63	77	95	70	59	96	96	88	66	71	73	81
2016	6	86	84	59	69	86	93	68	96	100	66	61	89	100	97	79	70	83	85	100	100	100	100	100	93	90	81	85	78	78	100	
2016	7	100	95	100	92	83	94	74	72	83	97	83	90	97	100	95	90	100	100	100	98	100	100	100	100	100	89	86	82	99	84	68
2016	8	56	56	63	79	73	82	86	88	86	76	79	90	98	74	76	81	75	62	89	85	76	64	97	85	65	77	89	75	100	93	93
2016	9	100	100	98	92	100	89	82	100	100	87	87	68	70	69	74	95	81	70	84	96	95	95	98	100	98	100	83	76	73	73	
2016	10	75	76	78	65	74	71	70	100	100	98	100	96	93	70	71	68	62	63	61	63	64	59	62	64	61	61	68	69	63	66	60
2016	11	61	62	60	59	72	75	67	77	68	62	57	64	61	67	65	63	61	60	56	54	59	57	59	59	62	58	54	63	64	66	
2016	12	64	66	66	67	57	55	52	58	58	58	63	62	61	62	63	59	63	63	63	63	70	62	60	72	88	98	85	70	57	64	60
2017	1	61	63	60	63	67	67	59	60	60	84	79	60	70	67	68	59	66	59	56	60	57	57	51	52	56	46	57	60	65	65	174
2017	2	87	65	80	82	83	86	98	90	85	98	94	92	90	96	96	91	81	80	71	98	98	98	92	86	73	69	79	76			
2017	3	73	76	98	96	87	84	73	69	66	71	96	90	90	61	69	59	63	85	75	78	57	64	59	81	89	72	68	74	81	86	67
2017	4	86	92	94	98	68	75	71	88	95	87	74	61	72	62	80	94	67	71	74	90	88	74	91	96	94	96	92	88	94	78	
2017	5	96	84	68	77	92	91	82	71	68	85	76	72	69	74	73	90	80	74	95	93	91	95	93	95	96	96	81	79	79	95	98
2017	6	96	98	100	86	74	79	77	72	94	94	95	86	87	98	88	88	98	98	98	88	92	82	82	75	98	98	78	92	97	98	
2017	7	98	96	98	98	97	92	98	98	98	98	96	78	76	93	83	83	97	84	98	95	97	75	79	96	97	97	87	79	81	91	89
2017	8	100	100	85	85	73	95	100	100	98	100	100	95	100	100	100	100	74	94	79	77	77	72	67	89	92	74	71	95	85	92	98
2017	9	98	100	100	100	98	76	86	93	100	92	90	79	82	77	68	68	70	71	73	82	100	100	100	81	76	77	70	89	96	95	
2017	10	98	98	96	75	89	71	71	73	81	68	70	68	77	100	100	87	63	64	60	60	100	98	95	100	73	65	69	67	64	72	84
2017	11	62	67	65	64	61	63	66	64	60	65	58	61	59	64	63	68	69	69	74	71	65	65	63	63	61	62	68	74	69	59	
2017	12	58	64	64	63	61	71	62	62	62	71	61	68	81	85	72	75	65	66	67	67	69	71	69	67	65	65	59	61	59	61	57

2018	1	57	67	70	65	67	66	90	53	60	66	68	64	85	73	73	61	63	68	70	71	68	64	69	63	93	74	69	59	68	69	74
2018	2	70	73	82	98	82	72	92	98	100	70	66	57	68	66	88	70	59	69	68	56	69	65	79	68	62	74	84	65			
2018	3	64	72	96	82	81	96	66	60	61	46	64	65	63	63	57	98	92	83	60	61	59	58	76	76	64	58	62	63	52	75	60
2018	4	56	52	54	59	79	93	58	74	73	77	75	91	100	98	87	62	56	54	65	64	95	96	83	74	53	60	69	54	60	67	
2018	5	98	78	65	76	89	61	61	74	96	81	81	76	81	66	96	65	67	66	60	71	67	70	98	100	93	93	98	88	60	72	69
2018	6	63	77	80	73	62	54	85	56	49	49	72	82	95	96	100	98	100	92	82	78	91	100	100	98	98	97	68	92	95	96	
2018	7	100	98	100	98	90	87	86	93	98	100	83	90	69	79	92	71	86	80	68	64	85	66	100	83	83	82	100	86	92	79	100
2018	8	89	95	100	93	98	81	66	86	74	75	79	72	79	73	98	73	72	82	65	61	95	97	92	80	93	78	90	86	100	98	80
2018	9	75	90	100	74	68	78	83	95	100	100	100	100	100	98	87	70	67	78	76	69	68	98	100	100	98	100	95	78	80	77	
2018	10	81	80	85	71	67	71	69	96	71	77	66	93	100	84	91	75	72	75	73	67	61	77	63	82	91	57	74	63	60	69	56
2018	11	59	61	69	92	94	96	67	87	61	85	60	61	71	65	72	100	100	68	71	71	69	70	62	63	65	63	58	66	66	66	
2018	12	57	60	66	66	72	71	65	60	57	58	62	57	63	62	66	62	63	87	93	79	70	61	69	68	62	75	65	65	73	66	57

Station: Pasighat (District: East Siang)

Parameter: Daily maximum temperature in degree Celsius

Period: 01-01-1987 to 31-12-1992, 01-01-2001 to 31-12-2018 (with some data gap)

Year	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1987	1	22.8	23.1	23.7	23.8	23.5	24.9	25.0	20.8	26.4	27.0	26.7		24.7	25.2	25.0	25.7	27.1	26.1	20.2	26.4	26.8	26.2	27.3	27.6	27.8	27.9	28.5	28.9	27.6	27.9	
1987	2	28.1	26.2	29.7	28.0	24.0	22.5	23.7	26.5	27.6	28.5	26.8	27.3	27.8	28.5	28.8	29.6	30.6	22.0	27.5	26.1	25.8	22.7	21.2	25.2	29.2	30.4	24.9	24.9			
1987	3	22.3	27.2	28.8	28.0	29.6	29.9	28.4	20.1	19.7	20.6	21.0	20.7	18.5	19.6		26.2	29.8	23.2	19.8	20.6	21.5	20.7	28.1	29.8	30.7	32.0	26.3	22.7		32.0	33.0
1987	4	30.0	23.7	23.8	22.5	23.1	22.6		32.1	26.6	19.6	22.2	24.4	22.2	27.2	30.0	30.3	31.6	32.6	33.0	28.4	31.8	33.0	34.2	26.7	21.5	22.4	24.9	32.5	31.0	23.2	
1987	5	31.2	23.5	27.0	30.4	24.1	28.3	28.0	32.1	30.4	32.1	31.6	30.1	32.0	33.4	32.4	24.8	28.3	30.5	23.0	23.6	30.2	34.0	34.6	30.6	26.2	24.6	30.4	33.5	34.1	33.3	34.4
1987	6	34.9	31.6	27.8	34.4	36.3	27.2	24.8	30.2	35.8	34.9	34.8	33.7	32.3	27.4	31.6	34.5	36.6	37.0	37.6	37.5	38.5		29.7	25.2	26.3	26.1	26.0	27.7	29.8	26.9	
1987	7	25.2	25.1	25.9	27.4	33.9	27.9	28.1	34.0	31.7	32.4	29.1	32.1	29.1	32.9	29.9	26.8	29.4	36.4	36.5	31.6	28.4	25.5	24.7	24.2	30.9	27.7	30.9	29.0	28.7	26.0	25.8
1987	8	28.0	30.8	31.2	32.5	32.8	28.5	30.5	25.1	25.9	24.5	23.4	22.7	25.1	31.9	33.4	32.2	32.5	33.8	34.5	35.4	30.4	29.1	33.2	34.2	36.1	29.3	35.2	33.9	32.9	28.3	25.3
1987	9	26.5	25.8	31.4	31.6	28.3	32.0	24.9	31.1	33.1	32.4	33.4	36.0	32.2	32.9	27.3	29.8	29.2	28.5	28.9	31.8	33.4	27.8	32.9	33.4	25.5	27.2	25.2	24.4	27.2	29.7	
1987	10	22.8	28.6	25.8	27.2	29.7	29.9	28.5	29.4	32.6	32.4	29.5	30.4	29.9	32.2	32.0	31.8	30.9	29.4	28.6	25.7	23.8	29.4	29.9	30.1	31.5	30.9	30.1	29.8	29.5	30.0	29.9
1987	11	23.8	21.6	28.0	26.5	28.1	28.9	29.1	29.9	30.5	30.2	29.7	30.4	28.2	23.9	28.6	25.8	28.3	29.1	28.6	29.4	29.0	28.3	28.6	28.9	28.5	28.0	28.5	26.8	27.7	25.8	
1987	12	28.5	26.0	27.1	26.9	24.4	24.5	26.0	26.3	26.3	26.9	26.5	25.9	23.9	17.8	19.1	24.2	24.8	24.9	25.5	25.6	24.4	24.3	24.8	23.3	24.2	24.8	23.5	24.5	24.2	24.4	23.1
1988	1	25.2	23.9	25.4	24.3	24.8	20.0	23.5	22.8	22.5	24.1	21.4	25.0	24.7	25.9	20.8	23.5	16.5	17.4	22.5	24.3	24.6	24.8	24.8	25.2		16.0	18.0	20.1	24.4	23.1	25.2
1988	2	25.0	25.7	25.8	26.8	27.1	27.9	27.5	27.7	27.0	27.1	24.8	21.8	24.0	23.0	18.4	22.0	18.5	24.7	24.8	25.4	24.2	21.1	19.0	19.6	18.0	22.8	22.3	19.3	25.2		
1988	3	19.9	23.5	24.0	20.0	27.2	22.5	18.3	22.8	28.3	26.8	25.2	30.3	29.0		20.5	23.9	25.1	27.3	25.6	20.5	19.6	23.7	21.1	27.7	28.4	27.7	27.5	25.6	24.7	24.4	23.4
1988	4	25.0	23.5	29.1	31.3	32.3	25.5	28.8	27.0	30.4	23.3	24.8	28.5	28.8	27.1	20.3		28.7	24.0	25.0	29.7	29.6		23.0	28.0	31.4	27.4	29.7	23.8	30.2	32.1	
1988	5	33.7	34.2	33.7	33.4	29.9	36.4	32.4	32.0	32.9	25.4	22.1	23.5	25.3	30.4	31.6	32.5	31.5	31.7	34.0	29.4	27.0	24.1	25.7	28.6	23.9	24.8	23.9	23.6	22.8	23.0	29.1
1988	6	32.3	34.0	35.7	36.5	36.4	36.1	36.0	31.0	34.2	36.3	32.3	33.4	32.3	30.5	33.1	32.0	30.8	28.5	31.0	31.8	30.6	29.0	29.2	30.5	30.8	33.7	35.4	35.8	32.9	32.2	
1988	7	29.5	29.7	28.4	24.8	24.1	24.1	24.3	26.5	28.3	29.8	25.3	26.9	31.5	33.9	33.5	33.4	34.4	34.1	30.1	27.0	25.5	31.0	25.2	26.0	25.2	27.1	28.4	31.4	31.8	29.7	34.5
1988	8	35.7	34.2	31.5	36.3	31.1	26.2	30.9	32.6	33.8	32.8	33.1	30.8	26.1	26.7	27.4	31.8	32.8	33.0	31.8	31.6	25.5	24.2	24.0	23.8	23.8	23.3	23.2	23.9	24.2	28.0	27.4
1988	9	25.8	27.3	25.9	24.7	23.9	26.7	28.9	27.6	28.5	29.3	28.0	30.2	28.7	30.1	32.9	33.8	30.9	28.8	33.0	32.6	33.1	31.7	32.3	32.9	32.7	32.5		24.0	26.8	28.5	
1988	10	32.1	33.3	30.4	26.3	23.9	26.0	28.0	30.8	30.5	27.3	31.1	32.7	33.2	26.2	24.3	28.4	31.3	25.6	28.3	22.6	23.3	25.5	30.3	30.7	30.0	29.9	30.0	29.9	30.1	30.0	30.2
1988	11	29.8	29.3	28.3	27.9	28.1	26.9	28.0	27.4	28.2	29.5	29.8	29.9	29.8	28.0	28.2	28.4	28.2	28.9	28.0	29.0	29.3	29.3	28.7	29.0	29.2	28.3	29.1	28.5	23.3	17.5	
1988	12	20.4	27.4	28.0	27.1	27.0	26.8	23.9	20.4	25.9	26.8	27.4	26.9	26.0	25.9	26.4	26.5	25.2	24.7	24.1	23.9	25.4	23.0	24.9	24.3	25.4	24.4	25.8	23.8	25.1	24.5	25.0

1989	1	25.9	26.5	25.2	24.9	18.5	23.0	22.1	23.9	25.4	18.2	17.2	19.6	21.4	21.6	21.4	22.8	22.9	20.2	21.9	22.0	23.6	24.4	21.3	24.4	25.3	23.8	20.9	16.8	22.5	24.3	
1989	2	25.4	22.2	23.8	24.3	24.9		15.8	20.5	17.8	22.0	21.0	21.4	25.0	22.2	15.7	15.2	17.8	18.3	20.0	14.8	19.9	23.3	24.4	25.9	29.2	27.5	28.7				
1989	3	29.0	28.9	23.5	27.9	26.2	24.5	24.3	22.2	24.4	27.2	23.8	24.6	26.3	28.9	29.6	26.1	26.3	29.9	30.1	29.8	30.0	28.6	24.2	30.1	30.6	31.3	26.9	30.3	22.3		
1989	4	25.0	22.5	22.6	22.4	26.9	30.2	25.9	30.0	30.3	23.6	23.4	28.4	23.8	28.8	29.7		28.3	25.1	26.3	29.9	29.3	29.9	29.7	27.4	26.2	22.1	23.9	20.8	22.8		
1989	5	23.1	30.0	29.4	31.6	34.0	32.2	27.8	26.1	24.8	32.3	31.9	33.9	31.8	30.0	29.8	31.8	33.8	35.1	33.5	31.8	31.1	31.3	34.1	34.3	31.9	35.4	31.9	33.5	28.8	32.0	
1989	6	30.9	31.1	30.0	29.7	33.1	30.1	26.4	24.9	27.9	32.5	35.0	35.6	35.1	32.8	27.0	30.1	27.8	32.0	32.9	35.0	35.2	35.9	32.0	29.3	24.9	30.0	33.0	32.0	31.6	24.0	
1989	7	23.3	24.1	25.7	25.0	28.0	30.1	29.0	28.4	28.5	25.9	26.2	29.0	32.9	27.4	30.2	26.8	24.7	28.1	30.8	32.6	34.9	36.6	36.1	34.1	31.1	33.0	32.8	25.0	24.9	26.9	31.3
1989	8	29.6	33.4	35.4	35.2	33.5	33.9	33.3	29.6	30.9	32.7	31.1	34.9	32.9	31.1	29.0	30.8	32.8	31.4	25.7	24.6	27.5	32.9	34.4	35.0	34.4	32.4	32.1	30.1	31.6	33.4	32.3
1989	9	32.1	28.1	25.2	25.1	25.2	29.5	32.6	31.8	34.3	34.9	35.5	33.8	32.0	31.3	30.9	30.4	28.0	25.2	23.5	26.5	30.4	30.4	30.9	30.3	32.2	30.5	31.3	33.2	28.4	28.1	
1989	10	24.8	26.5	28.5	32.0	33.4	32.8	31.6	29.0	25.0	23.9	26.8	30.3	33.5	32.6	32.8	32.6	33.0	25.1	22.5	23.9	30.2	30.9	29.6	30.9	31.5	32.0	30.2	24.6	29.4	29.3	29.5
1989	11	25.9	29.6	28.0	25.4	19.4	18.4	19.4	24.1	26.9	27.4	28.0	28.1	28.1	27.8	28.4	25.4	19.7	26.1	26.6	26.4	25.0	26.1	26.3	26.4	26.8	28.0	27.5	27.0	24.9	24.8	
1989	12	21.9	25.2	25.5	24.9	24.5	24.0	24.6	25.2	24.3	24.9	25.2	24.8	21.5	25.0	25.5	24.4	22.1	25.0	24.2	24.5	24.0	22.5	24.2	23.0	22.5	17.6	19.4	16.7	22.9	22.6	22.4
1990	1	22.0	22.3	22.2	23.7	24.4	24.0	23.3	24.4	25.2	23.9	23.6	24.0	25.3	24.4	21.1	24.0	25.1	24.3	24.0	25.4	25.9	27.2	24.1	27.3	27.4	27.6	26.0	23.4	18.0	16.9	16.2
1990	2	17.8	16.6	19.8	21.5	18.3	16.4	22.0	25.4	26.5	27.2	27.2	24.2	24.4	25.4	21.9	17.7	16.3	23.0	25.8	23.9	22.2	17.8	18.4	19.2	21.3	21.8	16.4	17.9			
1990	3	19.4	21.7	21.8	25.7	24.5	25.7	21.2	23.1	26.1	24.8	25.3	20.3	21.3	19.3	27.0	28.0	29.2	30.4	31.0	30.8	30.2	25.0	26.6	19.5	23.9	23.9	24.6	24.8	20.0	21.7	20.9
1990	4	23.3	22.1	21.4	22.0	20.0	23.2	27.2	28.6		18.3	22.9	29.0	31.1	24.8	24.9	23.3	25.6	25.1	24.3	20.2	20.1	21.4	22.3	25.9	29.3	29.6	31.5	25.8	24.1	23.3	
1990	5	24.9	28.1	27.8	27.4	32.8	31.9	32.5	32.0	30.2	29.4	30.3	33.3	33.4		23.8	30.0	33.3	35.2	35.6	29.5	28.0	29.5	29.5	33.0	33.8	30.5	27.4	25.5	29.0	33.0	34.2
1990	6	31.3	31.5	27.2	25.5	25.6	25.0	24.8	24.9	27.1	31.3	32.0	31.8	33.3	35.6	36.1	32.8	31.6	26.1	29.8	28.9	31.2	26.0	26.6	28.6	34.2		26.1	26.3	31.1	26.6	
1990	7	29.3	35.8	36.8	35.6	31.5	31.3	29.2	29.7	28.6	33.8	33.6	32.8	28.8	26.8	34.2	33.0	26.0	25.2		30.8	32.6	33.2	34.1	32.0	27.9	28.5	31.2	30.1	34.1	33.4	
1990	8	33.5	30.2	32.7	33.4	31.3	32.0	33.6	32.9	32.5	33.0	31.5	29.7	28.0	32.9	33.1	33.0	33.2	31.1	33.4	35.0	36.0	33.9	31.6		34.8		32.0	36.0	35.6	36.2	34.4
1990	9	35.6	36.1	36.2	36.0	30.0	33.8	28.8	25.8	25.3	27.0	31.6	33.7	35.6	31.7	29.0	28.3	24.6	25.6	30.4	34.8	33.3	33.8	26.4	23.2	27.0	25.5	24.2	23.2	23.4	24.9	
1990	10	27.7	27.0	28.2	27.4	28.0	27.8	29.6		24.6	24.0	22.0	28.3	30.6	30.5	30.6	27.0	24.8	29.0	30.0	31.0	30.8	31.0	30.7	30.4	31.1	31.5	30.5	29.9	30.0	29.9	30.7
1990	11	31.2	30.8	29.6	29.0	28.0	30.5	30.6	30.5	30.8	32.4	27.4	32.2	31.1	31.0	30.5	30.2	30.0	30.0	29.1	28.2	29.3	29.0	27.8	30.4	30.0	30.8	29.0	28.8	29.8	27.7	
1990	12	27.2		18.6	25.6	25.8	25.7	25.0	26.2	26.4	26.8	26.7	26.1	25.6	25.6	26.0	23.5	25.4	25.7	20.2	26.7	26.3	26.8	25.5	25.7	24.0	25.6	25.8	25.6	22.0	25.1	25.4
1992	1	20.7	19.8	22.0	20.6	22.5	22.5	22.6	22.7	22.8	23.5	24.3	19.7	16.4	22.1	24.7	24.0	26.7	19.3	22.5	23.1	23.3	22.0	22.9	22.4	22.3	24.0	25.8	26.2	25.7	27.0	27.0
1992	2	27.3		15.6	22.9	16.0	18.4	23.0	21.3	16.2	16.5	17.0	22.3	23.5	24.6	21.5	17.5	15.0	16.0	20.5	22.5	19.5	18.8	19.5	19.1	23.8	22.5	23.1	24.5	23.0		
1992	3	25.3	26.5	26.0	22.3	17.8	18.0	17.1	17.6	19.3	18.8	19.5	21.8	24.0	28.1	23.9	24.2	29.6	21.6	17.2	19.8	22.1	20.4	22.6	21.5	26.4	28.5	24.5	29.0	31.6	22.3	24.4
1992	4	27.4	27.7	29.6	26.5	30.2	26.1	30.5		20.9	27.0	30.2	30.2	26.2	26.0	24.8	26.5	28.0	26.5	30.6	22.6	28.5	31.8	31.5	28.2	30.0	27.2	29.1	29.0	29.6	30.4	
1992	5	32.0	33.4	26.6	30.7	30.6	26.0	29.6	24.0	29.8	33.0	28.0	33.0	34.5	34.7		24.0	24.6	23.5	25.0	27.8	25.0	25.8	31.8	28.2	32.6	32.8	28.0	28.4	32.6	32.7	32.6

1992	6	25.3	27.6	29.0	32.6	34.8	33.8	31.0	30.4	31.4	33.2	34.5	29.6	25.2	25.7	30.3	31.6	34.2	30.2	27.4	26.4	30.2		25.4	27.1	29.6	27.9	29.2	26.6	33.0	30.8	
1992	7	31.6	31.8	33.3	30.4	26.7	27.4	31.2	29.7	31.2	30.8	35.6	34.7	25.4	24.1	25.7	26.6	31.8	32.7	32.9	30.2	32.8	30.1	30.0	32.4	34.7	33.8	34.8	34.8	32.3	31.6	34.9
1992	8	35.1	35.5	33.7	31.8	28.6	30.8	32.5	34.0	32.4	30.2	33.2	34.3	35.7	34.8	31.1	34.1	33.2	31.0	34.9	31.6	32.6	25.1	31.0	30.5	26.0	29.2	31.6	32.5	33.7	34.1	32.0
1992	9	33.3	34.1	35.2	33.5	30.7	30.8	34.0	33.9	31.2	33.2	32.9	28.0	28.5	25.6	26.8	27.5	29.8	30.5	30.7	32.6	32.8	33.1	33.9	34.8	34.9	29.1	24.2	23.8	25.8	29.9	
1992	10	31.9	32.0	32.1	31.4	30.5	29.6	28.9	30.3	32.1	32.8	32.0	31.2	24.6	24.7	21.7	27.3	24.5	28.7	30.9	26.8	28.6	30.4	29.0	23.9	25.6	26.8	28.9	28.7	29.8	29.0	30.6
1992	11	31.0	31.0	30.0	29.8	29.6	29.8	28.0	28.7	29.1	30.4	25.8	28.6	29.0	28.7	28.8	29.0	29.5	28.0	28.2	28.9	28.0	29.1	29.1	28.7	21.8	20.8	25.2	24.5	27.3	27.0	
1992	12	26.6	23.3	19.9	17.2	22.7	19.0	23.5	24.8	24.7	24.7	24.6	24.7	24.8	24.0	24.6	25.0	24.5	25.3	24.7	23.6	23.8	24.2	24.1	23.8	23.8	23.5	24.4	23.0	23.6	23.4	24.6
2000	1	24.6	25.8	24.8	25.0	25.0	25.0	24.8	25.0	24.0	23.2	23.6	24.5	21.0	17.2	17.6	21.6	18.4	23.6	27.0	14.6	16.0	20.0	19.0	20.6	25.0	25.0	25.8	17.6	19.4	17.8	23.4
2000	2	18.4	15.2	18.0	22.2	24.0	20.4	23.0	17.2	16.4	23.8	25.4	23.0	26.6	28.0	28.0	27.8	27.0	23.8	21.8	24.4	20.8	24.8	25.0	21.6	24.6	26.1	25.8	25.0	27.0		
2000	3	24.6	21.4	18.2	20.4	23.4	24.8	19.1	18.4	23.2	21.4	19.8	25.0	24.0	18.6	18.6	18.8	18.4	22.6	24.8	25.4	27.2	25.4	30.6	31.2	31.4	31.0	32.4	33.2	30.6	30.6	31.4
2000	4	23.0	20.6	23.6	23.0	22.8	23.2	22.2	22.8	21.4	31.6	28.8	28.6	30.6	32.2	33.0	27.6	22.6	24.6	30.8	31.8	24.2	26.6	22.6	22.0	26.4	25.4	29.2	26.0	22.4	22.4	
2000	5	27.9	23.2	25.2	31.4	33.2	28.4	31.6	29.8	32.6	34.0	34.6	36.0	35.8	35.0	34.8	31.4	31.4	26.8	26.6	32.4	35.0	29.6	26.6	33.2	31.0	29.0	24.8	24.0	27.6	30.2	32.4
2000	6	27.4	32.6	35.2	36.0	35.2	29.6	32.4	26.2	25.6	27.2	N/A	27.4	27.8	31.4	33.0	34.0	35.6	31.2	28.6	24.2	23.4	24.0	25.4	29.0	30.0	31.4	33.0	32.0	28.2	28.2	
2000	7	28.8	33.0	31.4	26.8	27.8	32.0	31.0	28.6	28.2	33.0	35.0	35.0	26.8	29.4	32.2	34.4	34.8	33.8	30.0	30.8	32.8	32.0	29.8	32.2	31.0	27.8	31.6	26.2	31.0	28.2	24.4
2000	8	24.2	24.2	24.0	24.6	28.6	32.2	33.2	31.8	27.8	32.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31.4	31.6	30.4	33.0	32.8	32.8	32.2	33.4	30.0	31.4	28.8	27.6	31.6	31.4
2000	9	32.2	24.6	34.8	31.8	28.6	30.2	29.2	29.6	26.8	25.4	30.2	32.4	35.2	34.2	24.6	23.6	26.4	29.8	30.0	31.2	31.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
2001	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	33.0	32.0	29.8	28.2	29.4	31.6	31.2	32.6	30.8	31.4	33.2	33.2	32.2	32.8	31.2	33.6	29.4	33.2	33.2	32.0	
2001	10	28.8	25.4	27.6	24.8	23.8	24.4	24.8	30.8	27.6	29.6	30.4	30.6	31.0	28.6	31.0	32.2	28.8	25.4	28.2	30.4	31.6	32.0	32.2	31.4	31.2	30.8	31.8	30.8	31.2	31.2	25.2
2001	11	29.4	30.4	30.4	23.6	26.0	29.8	29.2	29.6	28.4	29.4	25.0	26.6	29.2	29.6	30.2	27.6	29.2	27.6	28.6	29.8	25.6	26.8	23.4	26.6	26.4	27.6	26.8	25.8	25.8	25.0	
2001	12	25.2	24.8	25.4	26.2	21.1	22.0	26.6	20.4	28.2	23.4	24.2	25.0	26.2	26.4	26.0	26.4	26.6	26.5	27.0	26.6	26.4	25.4	25.6	25.2	25.4	25.2	25.4	26.2	23.6	25.0	25.0
2002	1	25.0	26.2	25.6	25.0	25.6	25.8	22.8	24.8	22.0	23.2	23.6	25.0	24.4	25.6	25.0	23.6	19.4	19.0	17.2	21.6	17.2	18.8	19.0	17.2	21.0	18.8	20.8	21.0	23.8	25.0	24.0
2002	2	24.4	23.6	17.8	23.0	24.4	23.0	25.6	26.0	27.6	27.8	28.2	28.0	27.0	28.8	29.0	30.6	30.6	29.8	27.0	26.0	20.0	25.0	28.2	27.6	27.4	24.8	22.8	23.4			
2002	3	26.8	28.0	21.8	21.2	22.6	21.8	27.6	29.0	29.0	30.2	25.6	27.4	28.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2002	9	N/A	N/A	N/A	N/A	N/A	35.1	34.8	36.6	35.3	34.6	35.2	33.5	31.6	30.6	24.6	25.3	26.2	31.8	34.4	35.4	32.3	32.0	24.2	22.2	23.8	31.5	28.4	24.6	23.8	23.3	
2002	10	23.8	31.0	27.5	30.9	31.6	33.7	33.8	32.8	33.3	31.8	31.8	30.6	31.7	32.7	32.6	32.0	31.9	24.1	26.6	30.9	29.6	26.3	29.6	30.6	31.3	31.4	30.8	31.4	29.8	29.9	30.6
2002	11	28.6	24.8	30.5	31.3	28.3	29.8	29.8	30.8	30.5	30.6	29.9	26.4	20.4	22.7	27.0	28.2	27.9	29.6	28.4	19.7	27.1	27.1	28.3	28.9	28.7	29.7	29.2	29.2	29.6	29.5	
2002	12	29.6	26.9	27.6	27.6	27.8	28.0	27.2	27.2	27.2	26.6	26.0	26.8	26.4	26.4	27.7	26.8	23.1	22.8	23.7	23.6	18.0	24.2	24.3	23.7	23.7	23.3	22.2	19.8	21.2	23.3	23.4
2003	1	18.9	23.8	25.2	25.6	23.8	24.6	25.2	24.8	25.2	24.8	23.6	21.7	21.7	22.2	23.7	26.2	26.6	26.2	25.9	25.7	25.5	24.7	19.2	15.2	18.8	24.6	23.8	25.7	23.8	15.6	19.2
2003	2	21.7	25.7	26.4	26.0	26.5	19.2	24.2	18.2	20.2	23.4	23.6	23.7	16.9	23.4	23.7	24.7	26.2	26.7	27.7	24.0	24.1	25.4	27.6	26.4	21.0	17.2	22.2	26.7			

2003	3	28.4	29.7	26.9	24.4	27.9	25.9	26.9	21.7	27.0	27.3	22.4	23.4	18.7	23.4	25.4	22.7	20.5	26.8	19.4	17.8	23.9	28.1	29.9	32.0	29.5	28.9	29.6	29.5	29.8	24.8	23.2
2003	4	21.6	20.8	26.9	27.9	31.3	28.8	30.9	26.4	24.8	29.7	28.1	21.2	26.7	32.2	25.8	28.5	21.0	26.4	31.6	24.4	22.9	24.0	29.0	32.2	33.7	27.8	29.7	30.2	30.0	30.4	
2003	5	27.4	26.6	28.4	24.8	25.0	24.1	28.2	26.6	24.4	26.8	30.8	32.2	34.1	34.9	30.5	32.1	25.4	31.8	33.7	33.5	26.4	25.7	32.2	32.6	30.0	24.5	23.6	24.3	32.9	33.9	34.5
2003	6	34.9	35.5	32.9	35.5	26.8	28.7	26.1	29.5	26.8	31.0	32.7	27.6	26.4	26.3	29.0	33.8	35.4	35.6	33.4	35.3	34.9	35.4	33.4	28.8	25.3	25.4	26.8	26.3	25.3	27.9	
2003	7	31.8	27.6	25.4	25.6	27.2	25.4	24.2	24.2	26.4	24.7	26.4	27.3	30.0	31.3	34.0	31.8	30.7	32.2	25.6	26.5	30.3	32.6	34.9	37.4	35.7	36.6	33.9	30.3	25.5	27.7	34.2
2003	8	29.4	29.3	33.7	34.7	34.8	31.9	33.3	32.4	28.8	26.4	29.2	32.9	32.9	30.6	30.5	29.7	27.2	29.9	32.6	32.6	33.5	33.8	27.8	30.1	32.8	33.4	27.3	32.2	29.9	29.2	26.2
2003	9	32.6	29.6	31.2	32.2	31.0	33.4	31.8	31.9	32.9	33.3	32.8	29.3	34.0	31.8	32.3	31.0	29.6	28.9	26.2	27.2	28.0	31.7	33.4	35.2	30.3	31.2	27.6	29.2	33.2	28.8	
2003	10	26.4	28.9	31.2	28.2	27.6	30.4	30.8	28.8	28.0	24.3	29.4	29.7	30.6	32.3	31.5	31.4	32.3	26.4	27.9	26.2	28.1	24.7	28.8	26.2	24.9	24.2	24.0	29.4	30.7	30.1	30.6
2003	11	29.1	29.9	29.4	29.7	29.8	24.0	22.7	23.9	28.7	27.8	28.9	29.3	29.4	28.6	18.6	28.8	28.7	27.7	26.8	25.6	28.0	28.4	28.4	28.0	24.9	27.8	20.4	21.4	26.9	26.8	
2003	12	26.3	26.5	26.3	19.3	23.0	25.3	24.2	26.7	21.9	25.3	27.1	26.8	26.8	27.8	27.7	26.4	21.6	26.6	23.4	24.6	26.6	27.3	27.1	23.5	26.3	26.3	26.7	19.3	21.7	24.2	24.9
2004	1	24.4	21.3	24.4	25.4	25.0	25.8	25.4	24.8	24.9	25.5	26.4	24.6	26.5	25.9	22.6	24.2	22.4	21.1	16.0	22.3	23.7	24.4	25.3	21.4	22.2	25.0	24.7	22.9	24.6	25.7	25.5
2004	2	22.4	18.9	20.2	22.4	20.7	22.9	22.9	25.5	28.5	28.3	27.6	27.9	29.4	28.9	25.8	27.6	28.4	27.4	29.4	19.5	26.6	23.1	24.9	27.7	28.9	30.6	28.9	18.2	18.2		
2004	3	19.4	22.7	21.8	28.4	28.4	20.8	23.4	30.2	31.4	26.2	28.2	29.9	31.8	32.0	33.2	33.2	32.8	33.8	23.5	20.4	20.2	20.0	20.8	21.7	23.0	23.6	22.7	26.9	25.6	24.2	27.4
2004	4	23.8	28.5	21.9	28.5	30.4	31.3	31.2	24.7	26.5	26.1	27.8	22.8	20.1	19.9	19.9	22.4	30.5	24.5	26.2	31.0	32.1	28.3	26.6	30.6	31.8	31.9	33.5	30.1	32.3	32.3	
2004	5	31.0	26.7	31.0	32.6	32.9	30.0	32.7	33.7	23.8	22.7	23.1	23.6	22.9	23.4	25.3	25.8	32.6	30.4	31.0	32.7	25.5	23.4	25.2	26.2	26.3	31.7	33.2	32.5	30.4	31.8	32.1
2004	6	34.3	31.8	28.3	28.8	31.2	32.8	31.7	31.6	32.8	34.0	35.3	34.5	32.5	28.9	33.0	34.8	29.0	31.0	31.8	29.9	25.9	25.8	24.6	28.0	30.6	27.6	30.2	30.5	25.3	30.0	
2004	7	33.7	34.3	34.7	28.8	29.2	25.4	24.7	24.7	24.2	24.2	24.7	29.4	31.8	32.2	31.5	24.8	25.4	24.1	24.1	29.5	29.6	34.5	34.7	33.1	30.6	33.6	35.0	32.4	32.5	29.1	31.1
2004	8	33.1	34.3	34.3	27.9	30.8	30.9	33.5	34.3	33.0	34.2	34.5	36.0	35.5	30.0	33.9	24.7	33.5	35.0	32.8	35.0	35.0	34.2	32.5	30.0	27.5	27.4	27.0	31.8	33.0	30.9	29.0
2004	9	27.4	32.0	29.0	31.8	28.3	26.5	25.6	26.2	31.2	33.2	33.7	27.6	30.9	33.2	32.3	33.4	33.9	30.9	32.8	31.8	33.6	31.7	27.5	29.3	30.6	29.8	31.9	30.7	26.4	31.3	
2004	10	32.7	31.8	27.1	24.2	22.7	24.8	26.2	22.0	22.2	28.7	30.6	30.7	26.4	28.9	24.4	29.4	30.4	30.6	30.5	30.2	29.9	30.3	30.2	29.8	30.1	30.9	30.0	26.6	28.4	28.3	28.4
2004	11	28.8	28.9	28.7	29.4	29.4	29.6	28.9	28.3	26.0	27.2	28.3	28.5	27.7	27.4	27.3	27.3	28.5	28.3	23.0	27.3	28.1	28.8	28.1	21.7	27.5	28.1	28.7	28.2	28.2	27.4	
2004	12	28.0	27.9	26.6	27.4	26.6	26.4	27.9	27.2	26.4	26.7	26.6	27.4	27.0	26.1	27.0	25.9	25.7	26.0	25.4	19.5	15.5	19.0	22.5	20.7	20.8	19.2	21.0	23.0	23.9	22.9	22.9
2005	1	24.6	24.4	25.0	22.8	24.4	25.2	25.2	25.2	25.1	14.8	19.2	21.2	22.3	22.2	23.1	24.0	24.7	21.7	16.8	19.5	22.2	18.2	24.0	20.9	21.8	22.5	23.4	24.2	22.9	25.4	27.0
2005	2	20.1	20.4	24.7	25.7	24.0	22.8	20.4	24.9	25.8	26.3	27.2	25.4	17.2	17.0	16.4	15.8	22.5	21.8	23.6	21.6	24.9	25.1	20.7	25.7	17.8	17.3	24.9	21.6			
2005	3	24.7	22.0	18.3	26.2	22.8	21.2	24.1	19.8	19.4	19.2	21.9	28.4	29.4	30.7	29.9	28.8	25.7	24.8	28.2	20.2	18.7	20.5	20.4	21.7	21.8	25.1	27.9	20.8	19.5	22.9	22.7
2005	4	24.1	28.1	30.4	24.7	29.3	28.9	21.7	21.9	24.8	25.1	28.4	26.8	28.9	29.8	28.4	25.7	23.0	25.3	26.7	28.0	29.5	31.7	31.9	25.5	30.8	23.3	21.7	24.7	25.5	25.8	
2005	5	30.4	30.8	31.4	27.8	29.3	25.4	24.6	29.8	29.8		26.9	25.5	24.8	26.8	23.4	31.0	28.3	27.3	24.2	28.9	24.6	31.1	31.7	32.7	30.8	29.7	31.3	24.7	28.2	32.8	33.8
2005	6	27.7	27.8	28.8	32.0	33.2	32.7	33.2	32.2	33.7	34.2	33.6	33.4	34.2	33.2	31.4	33.6	34.3	30.2	29.2	28.3	31.4	26.1	29.4	27.7	30.6	33.3	34.1	34.4	33.2	30.9	
2005	7	34.1	32.6	31.8	34.8	34.7	34.2	31.2	33.3	26.4	24.8	25.0	25.0	27.9	31.6	30.2	25.2	26.4	24.4	25.0	29.2	31.8	33.3	34.2	33.3	33.8	34.6	34.0	34.0	34.7	35.3	35.5

2005	8	33.8	29.8	33.4	26.4	27.2	28.9	28.8	31.3	34.2	30.0	30.9	33.8	34.0	33.5	33.1	30.9	33.2	28.7	27.4	26.7	27.4	27.2	25.2	27.0	28.1	25.8	26.7	26.2	28.0	30.3	33.0
2005	9	33.9	35.2	30.0	31.2	31.4	31.0	33.1	34.2	34.7	34.9	35.0	36.2	35.4	35.2	35.0	35.2	33.4	36.2	35.2	33.2	33.4	26.6	24.1	24.2	29.6	32.2	34.2	34.2	31.0	29.2	
2005	10	32.4	25.2	27.2	31.2	31.6	32.2	32.4	29.8	32.8	31.8	31.8	30.5	30.8	31.0	31.2	31.2	30.8	28.0	27.0	27.2	26.2	23.8	21.8	27.2	27.0	25.7	29.2	29.2	29.6	28.8	27.5
2005	11	27.6	29.6	29.3	30.0	28.9	29.8	30.2	27.3	29.2	28.7	27.8	28.0	28.1	28.0	28.8	28.7	20.9	19.8	25.4	27.3	27.8	27.9	21.8	25.2	25.7	26.0	26.2	26.3	26.2	26.1	
2005	12	26.3	25.8	25.7	26.2	25.8	26.2	26.2	26.2	26.2	26.7	26.6	26.3	25.6	26.3	25.2	24.4	24.4	24.2	25.0	25.4	25.0	20.0	18.9	25.4	26.2	25.3	24.6	24.2	24.8	25.1	24.6
2006	1	25.2	25.2	25.2	24.5	24.8	25.2	25.5	25.2	25.8	25.3	24.9	24.2	22.8	18.0	23.2	22.8	23.1	16.2	18.7	23.2	22.4	21.0	23.4	25.0	25.4	26.0	25.8	26.0	25.7	26.8	27.8
2006	2	28.3	28.2	28.6	25.9	25.3	27.0	28.4	28.3	28.9	28.7	28.1	28.1	25.8	19.8	18.3	18.7	22.4	27.3	27.0	25.7	19.8	23.3	20.9	20.8	21.2	20.4	19.0	23.6			
2006	3	24.1	28.4	24.8	25.4	30.7	27.0	26.4	29.4	30.6	30.7	25.7	25.7	21.6	26.7	24.2	22.9	29.4	30.0	29.8	29.7	28.4	19.7	21.2	21.2	21.4	23.0	28.2	26.4	30.5	30.6	30.8
2006	4	30.4	24.2	20.2	20.0	26.2	26.8	23.6	28.2	29.8	24.0	22.8	25.8	26.8	27.6	27.4	26.8	25.4	24.0	27.4	29.8	30.6	31.0	31.4	28.5	30.2	29.2	26.2	31.2	33.8	32.9	
2006	5	33.8	32.9	29.7	24.4	23.7	23.4	29.4	32.7	32.2	31.2	29.2	28.2	28.6	25.2	31.8	33.3	34.3	34.4	35.0	29.4	31.3	34.0	32.4	34.7	36.5	33.0	24.0	24.7	24.6	23.4	24.7
2006	6	24.2	29.6	31.8	33.6	32.8	31.9	30.5	29.4	25.2	24.5	24.7	23.2	23.9	24.6	24.5	23.8	29.6	32.8	34.0	35.0	28.4	33.2	29.7	30.7	31.2	31.0	30.8	30.4	32.6	34.4	
2006	7	35.2	35.9	36.4	28.6	26.2	25.4	27.0	26.6	33.4	33.6	24.0	29.4	31.0	31.8	30.8	34.7	29.8	30.2	30.7	33.6	30.2	29.2	26.4	29.4	28.8	31.4	34.3	34.6	35.9	36.2	34.8
2006	8	33.7	35.6	34.8	31.7	30.8	28.4	30.2	32.6	33.5	36.6	34.7	35.5	35.4	34.6	36.2	36.4	36.9	32.2	32.8	34.4	32.9	33.0	29.4	26.2	27.7	30.2	32.9	34.6	34.9	32.4	31.4
2006	9	33.1	33.9	34.6	32.2	25.4	25.2	25.2	26.2	30.2	25.7	27.0	24.4	24.5	26.0	32.2	31.7	31.4	34.3	35.5	34.8	32.6	29.1	30.6	30.2	31.9	31.5	33.5	35.1	33.6	31.4	
2006	10	32.8	32.0	31.4	30.1	25.7	30.7	31.2	32.7	33.2	33.2	31.4	30.8	30.7	31.7	31.4	31.2	31.7	30.2	30.0	31.7	24.8	30.0	31.2	31.0	31.4	31.6	30.6	30.8	30.2	30.5	30.7
2006	11	30.9	29.2	30.1	26.1	30.6	30.6	29.8	30.5	29.5	29.2	22.8	29.4	29.4	30.7	30.1	29.7	30.0	29.1	28.8	19.2	25.9	23.4	17.2	16.7	18.8	15.8	22.8	20.5	24.2	23.9	
2006	12	24.1	25.0	24.9	25.4	26.4	26.5	26.0	26.2	22.4	23.5	23.6	17.3	23.3	23.9	23.7	25.8	24.8	25.5	26.0	25.7	25.6	26.6	25.8	24.8	25.2	25.0	21.4	19.5	23.5	23.2	24.5
2007	1	17.4	17.0	20.4	23.0	21.0	25.0	25.0	24.0	24.8	24.5	23.2	23.0	18.8	20.0	15.8	18.6	19.2	22.7	22.6	22.3	22.2	20.7	22.9	25.7	26.2	25.4	26.2	26.4	26.4	26.5	25.7
2007	2	25.2	25.6	21.0	17.7	16.7	21.7	19.4	17.2	23.8	25.7	25.0	21.9	19.4	18.2	17.3	20.1	19.2	20.8	23.7	24.8	25.6	27.3	27.7	28.1	28.7	20.2	22.0	25.9			
2007	3	26.4	20.7	23.8	26.5	27.0	19.2	20.7	24.8	26.0	26.3	22.4	27.7	29.0	25.2	25.0	25.4	26.4	28.0	30.2	30.7	30.5	21.3	29.0	28.9	21.0	21.6	28.7	32.3	32.8	32.5	32.2
2007	4	29.5	23.4	22.0	24.8	22.2	23.2	27.0	19.6	22.2	19.0	19.7	26.8	29.4	31.4	32.6	32.8	31.6	33.7	32.7	25.2	21.9	22.2	20.2	21.4	23.2	21.5	22.4	28.9	31.8	33.6	
2007	5	33.8	34.0	34.4	35.2	35.1	36.5	36.0	33.9	32.8	32.7	28.8	33.8	30.7	27.7	22.2	24.4	32.7	34.5	35.3	32.7	33.7	32.3	25.0	24.7	23.2	28.2	27.4	31.2	32.2	30.7	26.2
2007	6	24.7	25.2	27.4	31.9	33.2	31.5	30.3	24.8	28.3	24.8	31.2	33.2	33.7	25.0	28.8	24.5	24.8	27.0	31.7	34.2	31.5	27.8	29.2	26.7	32.0	33.3	34.6	32.7	33.4	33.2	
2007	7	32.2	34.6	35.6	36.1	36.3	36.2	31.2	32.8	27.7	27.5	27.8	29.6	33.7	31.8	35.6	28.8	27.8	26.2	26.7	25.7	27.7	24.7	24.8	24.7	23.7	25.5	23.9	23.7	24.4	26.0	24.2
2007	8	26.9	31.2	33.2	34.6	35.6	36.0	34.0	30.9	34.3	35.2	34.1	30.7	27.7	29.5	30.1	28.2	33.1	31.8	34.1	32.8	31.3	31.8	33.2	32.0	32.0	30.6	33.2	30.2	31.2	32.4	32.2
2007	9	32.2	29.2	25.4	23.4	22.8	24.6	24.3	25.5	24.7	25.5	29.5	31.2	32.2	33.3	28.8	29.2	32.2	33.8	34.8	34.8	35.3	35.2	34.6	33.8	33.7	33.2	33.2	30.7	34.0	32.8	
2007	10	33.2	33.2	34.2	34.7	35.2	34.4	35.6	30.0	25.2	28.4	24.1	29.7	32.6	31.9	32.0	25.0	29.2	27.6	28.8	27.7	29.1	28.5	28.7	29.4	30.5	30.2	29.8	28.2	28.8	30.7	28.2
2007	11	30.2	31.2	30.2	30.0	30.7	26.2	29.4	30.2	30.2	30.8	30.8	29.2	30.2	24.6	22.2	20.2	23.0	28.2	28.9	29.0	29.6	29.5	28.3	28.4	28.2	27.7	27.5	27.0	26.7	24.2	
2007	12	20.7	24.2	26.4	20.8	24.3	25.5	25.2	25.0	25.2	26.2	25.2	25.7	25.4	25.3	25.1	25.3	24.8	24.8	25.0	24.6	24.0	23.2	24.8	24.7	24.7	25.8	25.2	23.0	23.7	25.0	24.2

2008	1	26.2	26.7	26.2	25.2	25.7	25.7	25.7	25.8	25.3	24.8	20.7	16.7	19.7	20.7	23.3	25.2	26.2	24.2	16.8	18.0	18.0	20.5	18.4	13.7	20.5	19.2	20.2	15.2	13.5	13.4	18.4
2008	2	19.2	21.5	22.8	22.5	22.2	24.2	22.7	18.2	16.2	18.2	21.7	21.2	18.7	22.0	23.8	24.2	24.6	20.5	21.7	23.8	25.2	26.0	28.0	23.2	18.4	24.7	23.4	25.1	27.7		
2008	3	29.0	27.8	27.7	26.6	24.0	26.5	29.1	26.2	28.6	29.6	29.1	25.3	24.7	24.6	21.2	25.2	27.8	27.1	22.9	20.7	18.5	22.5	26.4	24.7	23.8	21.1	22.5	21.2	24.3	23.4	23.8
2008	4	23.2	21.3	23.7	23.8	30.3	29.6	31.7	31.5	31.8	32.2	32.4	30.0	22.3	21.5	28.3	30.8	23.2	24.7	22.2	28.0	30.8	31.2	32.3	24.3	24.2	22.7	22.2	21.5	26.2	30.7	
2008	5	26.7	24.2	28.2	31.2	32.0	30.8	28.6	28.2	30.2	29.7	32.7	34.8	31.2	34.2	32.5	32.9	34.7	29.3	27.6	26.2	27.6	30.2	31.8	31.2	31.2	31.2	30.0	28.2	32.4	29.0	27.1
2008	6	28.3	29.4	26.2	30.0	33.0	30.6	33.7	29.6	33.5	29.5	24.8	30.8	25.4	31.1	34.2	33.9	34.4	28.2	25.7	25.4	24.9	27.8	31.3	32.8	33.4	30.0	32.8	34.0	34.8	32.1	
2008	7	30.6	28.4	27.8	24.6	26.8	33.6	35.2	35.8	33.4	31.6	26.2	28.4	32.4	28.7	30.8	30.9	30.8	33.4	30.0	28.2	25.7	24.8	30.6	27.2	28.5	30.3	35.2	34.9	30.6	32.1	31.6
2008	8	32.6	32.0	30.4	31.2	26.4	26.8	33.1	34.9	34.6	34.0	32.2	28.2	31.7	30.6	26.6	25.6	26.7	27.2	31.4	33.7	32.0	32.7	33.8	30.0	25.4	25.0	25.0	25.3	25.4	25.5	26.2
2008	9	27.3	23.7	25.0	23.9	28.9	32.3	34.2	31.4	33.0	32.9	33.1	31.7	34.6	30.8	35.4	35.6	33.3	32.7	33.8	34.4	29.4	33.9	32.9	34.2	32.6	34.2	32.4	34.0	31.6	31.2	
2008	10	33.0	29.0	32.7	31.2	31.6	32.2	29.7	29.4	29.0	30.2	32.2	32.4	32.0	32.5	32.6	31.7	32.1	31.8	28.2	32.0	32.0	31.8	32.0	31.2	25.5	24.2	20.3	25.5	28.2	28.9	29.5
2008	11	29.6	29.2	29.7	29.4	28.9	29.2	28.4	28.3	29.7	29.8	29.3	28.7	28.8	28.5	26.8	27.7	27.3	28.5	27.8	26.6	27.8	19.3	25.7	25.9	26.1	27.6	28.3	26.8	24.5	28.3	
2008	12	28.0	26.7	26.4	26.8	27.7	27.2	26.7	27.2	26.7	26.3	26.2	25.2	25.8	25.2	25.4	26.0	26.6	26.3	26.7	25.2	25.7	21.0	20.7	26.7	25.6	26.8	22.7	23.9	24.5	25.2	22.7
2009	1	23.5	22.7	24.7	25.2	22.2	20.7	22.0	24.6	24.9	25.1	24.6	24.7	25.6	25.7	26.1	26.0	25.8	26.2	26.2	26.3	26.4	26.9	26.9	28.2	25.0	18.7	18.7	18.2	25.5	25.2	26.5
2009	2	19.5	25.8	25.7	26.2	26.6	27.7	27.7	27.9	28.4	28.4	29.2	21.8	26.7	26.8	27.7	28.6	29.2	29.8	27.5	28.7	22.2	18.4	20.0	16.8	17.5	18.6	22.7	25.2			
2009	3	22.7	27.8	26.6	28.6	26.7	26.4	21.7	22.7	25.9	26.2	28.0	27.8	31.0	32.9	31.4	26.8	29.7	29.5	30.4	28.7	30.6	27.4	32.3	32.3	32.4	32.5	29.5	29.4	26.9	20.2	21.7
2009	4	21.2	29.2	28.2	24.8	25.3	30.7	23.3	25.9	26.5	25.4	28.9	30.9	32.8	30.1	32.9	31.2	27.7	22.3	27.3	24.5	26.7	23.4	23.0	26.6	32.3	33.4	33.2	33.4	33.2	27.8	
2009	5	27.1	32.3	33.8	30.8	29.9	30.3	28.1	28.2	27.9	30.8	29.7	32.8	25.0	24.9	31.4	33.2	32.6	27.8	31.7	33.8	31.8	29.2	35.4	36.2	29.6	29.5	32.0	33.2	33.8	31.9	32.4
2009	6	29.4	32.4	33.9	35.2	33.4	34.9	34.4	32.8	31.2	29.7	26.1	30.2	30.2	29.6	33.1	33.0	34.7	33.9	34.2	32.6	31.6	33.0	34.4	35.8	33.4	30.1	27.2	26.2	25.5	25.3	
2009	7	25.5	25.1	27.8	25.8	26.2	26.8	31.8	30.1	29.5	28.5	30.3	35.1	36.9	35.7	35.7	32.2	32.4	34.4	36.2	37.1	34.5	32.9	32.6	31.4	29.4	26.8	31.6	30.2	32.1	29.1	29.3
2009	8	33.5	31.1	33.0	30.8	32.5	33.3	35.5	33.6	29.7	34.4	32.9	26.8	28.5	32.3	30.5	26.2	25.7	26.7	30.3	27.0	26.3	30.1	31.4	29.7	34.9	34.9	33.8	30.7	30.0	32.3	35.0
2009	9	35.1	33.3	35.5	35.2	35.2	35.5	36.5	36.9	35.9	31.5	32.9	33.7	34.2	33.5	31.9	33.0	32.1	26.8	25.0	25.0	25.8	29.4	32.4	31.8	31.4	33.4	35.3	35.4	35.4	35.1	
2009	10	35.8	35.8	32.5	28.7	27.6	30.7	27.7	25.3	24.5	28.4	31.2	32.2	31.4	32.4	32.2	31.2	32.4	27.2	30.4	28.2	30.2	31.2	30.1	29.2	30.6	30.9	30.4	31.1	30.7	30.4	29.9
2009	11	25.8	27.9	29.4	31.2	25.1	29.2	29.7	29.3	29.2	28.3	26.7	28.0	27.7	27.8	20.8	21.9	20.4	22.9	24.6	20.8	25.4	25.6	26.3	26.7	24.5	25.9	26.5	26.5	26.3	27.0	
2009	12	27.2	26.3	27.9	25.3	23.5	20.2	20.6	23.6	23.6	23.7	24.0	25.4	25.4	23.0	25.5	23.3	22.9	22.5	19.5	23.6	23.8	24.4	24.3	23.2	23.9	22.6	22.5	23.0	23.2	23.2	19.3
2010	1	23.0	23.3	24.9	24.3	23.7	23.8	24.9	25.8	25.7	24.8	24.1	23.8	24.4	21.6	17.4	21.7	23.8	26.2	24.4	26.0	26.4	26.9	27.5	26.7	25.1	27.2	26.7	26.3	26.2	25.5	26.6
2010	2	26.3	23.2	20.1	23.0	25.0	25.9	26.8	27.6	28.0	23.2	21.2	27.8	19.0	20.5	23.3	23.6	25.2	22.9	23.8	25.6	27.2	28.1	23.9	18.3	19.9	27.3	27.4	26.9			
2010	3	27.4	18.0	18.5	20.3	19.5	21.3	28.1	22.0	24.0	28.7	29.6	29.5	22.9	21.0	23.9	28.6	31.9	32.1	32.8	33.4	33.7	28.9	19.9	21.2	21.4	20.6	26.2	18.8	27.3	23.0	19.5
2010	4	21.0	24.8	25.1	29.0	26.8	25.4	31.7	32.2	24.0	23.2	29.4	27.0	23.7	23.3	31.4	30.5	28.8	29.2	22.0	22.0	22.0	22.0	20.4	21.4	20.7	27.2	28.1	29.7	32.0	28.7	
2010	5	32.2	31.0	24.6	26.1	30.5	30.4	31.2	30.9	25.4	26.0	23.0	23.4	23.8	23.4	27.0	22.0	30.1	32.9	24.8	24.5	24.1	30.0	32.5	30.5	29.9	31.2	32.0	32.5	33.2	28.6	28.6

2010	6	23.8	27.6	25.8	27.0	23.8	22.9	23.0	24.9	24.2	27.4	28.5	30.1	29.8	30.9	33.2	31.9	33.7	32.4	32.2	26.1	29.0	28.3	31.0	34.4	34.2	26.8	25.8	25.3	30.2	32.3	
2010	7	33.1	31.9	33.1	30.0	32.5	28.4	25.4	24.6	24.7	25.4	28.7	33.0	31.8	32.3	31.0	29.0	26.8	25.4	29.4	27.4	27.1	27.6	29.8	33.4	34.1	28.9	35.0	32.9	30.4	30.0	30.3
2010	8	30.8	34.7	31.9	33.1	36.1	34.4	32.5	31.3	33.6	35.5	34.0	35.6	29.8	32.4	30.3	28.4	29.9	31.9	33.0	30.4	25.8	25.6	28.5	33.4	32.4	30.8	30.1	31.9	34.4	31.1	32.4
2010	9	27.4	32.3	34.2	25.3	29.1	27.1	30.3	29.2	24.5	24.1	31.1	32.7	33.2	33.2	31.9	31.6	33.3	33.4	28.6	27.4	32.4	32.4	33.4	30.9	29.2	24.4	24.6	26.0	32.1	33.1	
2010	10	33.3	32.7	32.0	31.1	30.4	29.8	30.9	26.1	25.5	29.9	28.7	29.9	31.9	30.6	29.9	28.5	23.8	27.6	32.6	34.1	26.5	25.5	28.0	31.8	31.5	30.8	30.9	29.6	29.7	30.7	30.5
2010	11	25.2	26.8	30.4	30.0	30.9	30.9	30.5	30.0	31.8	30.5	29.4	26.3	29.1	22.5	27.9	30.0	27.2	27.9	21.9	20.2	19.6	25.4	26.7	26.0	25.2	25.8	26.4	24.4	22.2	20.2	
2010	12	25.9	26.0	26.6	25.4	25.0	21.3	25.5	27.5	20.7	26.9	26.7	19.0	24.3	24.5	24.3	24.4	25.3	25.2	23.9	24.0	24.0	24.4	23.7	23.0	23.2	23.4	23.8	24.3	24.2	24.4	24.6
2011	1	17.3	22.4	23.0	23.5	24.2	25.0	24.4	26.2	26.4	25.4	24.3	23.1	23.5	22.4	23.4	16.7	13.8	19.9	14.4	19.9	21.2	22.2	20.7	17.3	22.5	21.7	19.1	20.5	23.8	24.4	20.8
2011	2	24.2	25.1	26.4	26.4	27.0	27.1	26.8	19.8	19.0	23.6	25.8	26.5	26.0	26.0	19.5	22.0	19.7	21.7	22.4	25.8	25.5	27.1	27.4	28.3	28.8	29.5	28.3	28.0			
2011	3	29.3	30.0	30.0	26.5	23.4	23.5	27.0	27.7	23.0	23.2	28.5	24.3	26.8	26.3	29.6	30.5	30.4	17.8	17.4	19.6	23.3	26.3	28.0	24.4	26.3	26.4	28.3	27.0	22.5	26.8	21.8
2011	4	22.6	26.1	26.0	26.6	29.4	28.4	21.5	21.0	27.0	29.0	32.0	32.8	30.4	29.5	28.9	28.0	30.7	29.2	24.8	23.5	24.5	24.6	27.5	28.3	29.3	31.0	30.8	27.3	29.6	32.5	
2011	5	25.4	23.6	21.3	28.9	31.5	33.2	32.6	32.6	31.4	32.7	33.2	30.8	31.3	32.3	30.1	30.7	33.6	34.3	32.2	29.1	30.0	31.1	23.8	28.0	32.0	33.9	35.2	33.2	33.5	30.0	29.5
2011	6	31.4	32.6	28.4	26.4	28.9	31.9	34.4	29.5	31.9	33.1	30.1	32.5	34.4	35.0	35.3	34.4	29.0	36.4	35.2	34.9	32.9	29.5	30.1	33.5	34.6	33.4	33.5	33.3	32.4	32.4	
2011	7	30.6	28.8	29.0	31.2	29.9	25.9	25.4	27.8	27.8	32.6	34.3	34.8	28.3	29.0	26.1	32.0	30.9	24.8	30.4	35.1	36.0	29.8	29.0	32.4	33.0	33.4	31.4	30.5	29.0	30.8	32.7
2011	8	33.5	35.9	35.3	28.8	29.4	27.8	31.3	34.4	33.0	32.4	33.9	35.2	28.2	29.7	25.5	25.2	32.3	26.9	33.0	35.0	33.4	23.0	32.4	29.2	32.8	34.9	35.9	36.0	36.9	35.9	35.4
2011	9	32.4	34.0	32.5	35.0	35.6	30.4	30.0	31.2	34.9	32.6	34.0	34.8	31.0	34.9	33.0	29.4	29.7	30.5	33.4	34.8	32.2	33.0	31.8	25.7	25.9	30.8	27.1	32.5	33.0	34.4	
2011	10	32.5	33.0	31.2	33.0	33.7	33.7	34.0	33.6	33.4	33.7	33.5	33.4	33.3	32.9	27.9	25.2	31.9	32.5	33.4	31.5	32.8	26.5	28.7	30.0	31.0	30.5	28.6	30.3	30.4	29.7	28.9
2011	11	26.2	28.7	28.7	28.8	29.7	28.7	29.5	28.2	29.0	29.1	29.2	29.0	22.5	22.2	23.9	21.8	20.7	26.0	27.2	28.0	29.7	29.8	29.6	29.5	29.4	29.5	29.2	28.2	27.7	26.7	
2011	12	29.7	29.6	27.9	20.3	27.6	28.7	30.2	29.3	27.6	20.2	21.7	23.3	22.5	24.3	24.7	21.9	25.4	26.2	25.8	25.8	25.5	26.2	26.5	25.2	26.9	25.4	25.9	27.5	26.7	25.9	26.5
2012	1	21.7	18.2	22.2	16.7	22.5	16.9	22.1	21.6	21.2	22.2	21.7	23.8	22.6	21.2	21.8	23.6	15.2	14.7	20.7	20.3	17.7	22.2	22.3	23.2	21.2	23.5	17.7	21.5	24.2	24.9	25.2
2012	2	25.2	25.1	24.8	26.9	26.5	23.2	25.4	25.3	21.1	23.4	24.4	24.3	24.2	25.6	23.2	23.8	23.4	27.1	19.9	24.5	26.5	27.8	27.9	27.8	23.3	20.5	27.5	25.0	20.9		
2012	3	17.9	24.2	17.5	22.7	22.2	23.7	24.6	24.7	27.1	27.8	28.7	30.2	28.2	23.2	28.0	24.1	27.7	29.5	30.7	31.5	26.7	23.7	26.5	31.9	31.7	30.7	21.7	24.3	22.9	25.9	32.4
2012	4	32.7	33.8	33.4	32.6	22.7	21.6	23.0	20.7	23.0	29.5	29.1	25.2	24.6	20.9	24.0	23.4	20.9	20.4	26.3	31.5	32.7	24.2	29.7	26.1	23.2	25.6	22.2	22.5	25.2	22.9	
2012	5	25.7	25.0	28.0	29.2	32.4	33.2	33.7	33.7	35.1	35.0	33.2	31.3	26.8	25.2	23.2	31.4	26.8	32.4	33.8	34.4	33.8	32.7	24.4	23.7	32.4	34.0	34.4	34.4	35.6	33.2	34.6
2012	6	32.4	28.6	25.2	28.8	24.0	26.2	31.7	34.1	33.4	32.0	30.7	29.2	24.8	26.9	25.4	32.4	33.2	34.8	33.7	32.6	25.7	29.6	24.7	25.3	25.2	24.6	25.1	30.7	33.7	35.6	
2012	7	34.7	35.3	28.2	24.6	29.1	31.1	35.9	34.6	30.8	27.0	25.1	25.5	27.2	31.7	26.2	25.1	25.3	26.3	32.2	35.1	32.3	25.2	25.5	27.1	32.3	33.2	29.2	31.5	31.7	33.6	30.2
2012	8	28.4	32.2	34.7	35.1	33.5	30.7	30.6	33.3	34.2	32.9	34.9	31.6	33.0	32.8	34.4	33.2	34.8	34.4	31.6	26.5	25.2	28.2	26.2	30.0	34.3	30.4	33.9	33.4	34.2	31.5	26.2
2012	9	25.7	29.2	26.2	32.1	33.6	34.4	35.2	36.2	35.2	32.1	33.2	24.6	30.2	25.7	23.7	24.3	27.7	24.4	24.4	24.1	24.1	24.1	23.5	24.2	30.2	32.2	33.0	32.4	32.7	30.5	
2012	10	26.6	24.3	23.4	23.1	26.8	30.7	32.2	32.6	28.3	30.2	22.7	27.4	29.0	31.0	30.7	29.6	29.7	29.9	30.4	30.4	30.7	30.2	30.1	30.0	28.5	29.6	30.6	31.3	30.9	30.7	30.1

2012	11	29.7	28.6	29.3	28.9	29.3	29.2	29.2	23.7	27.2	27.2	29.0	28.6	29.2	28.4	28.7	28.0	29.0	29.0	28.3	29.2	28.8	28.4	28.6	28.5	23.2	25.2	24.7	26.1	27.2	26.0	
2012	12	26.9	26.6	26.7	26.7	26.4	26.2	25.6	21.8	24.2	25.2	23.3	19.7	16.8	18.2	23.5	22.7	24.3	24.7	23.2	17.2	22.2	25.0	25.7	25.3	25.5	24.7	24.5	23.9	25.2	23.2	20.5
2013	1	24.6	25.2	21.5	17.9	20.4	21.7	21.8	15.2	20.7	21.6	20.4	23.0	23.0	22.8	23.1	24.8	24.9	26.2	25.7	24.4	25.4	26.5	25.6	25.6	25.1	24.8	25.2	26.2	28.1	27.7	27.3
2013	2	26.9	24.8	24.2	27.3	28.7	29.2	28.8	27.2	28.9	29.3	29.5	28.9	30.3	28.6	29.3	28.9	21.6	22.4	25.7	28.3	29.6	31.7	32.2	33.2	31.5	31.0	31.2	30.4			
2013	3	30.5	31.4	33.2	32.6	32.8	31.8	31.8	31.2	31.7	31.2	30.2	28.2	32.2	32.7	29.4	28.4	27.4	26.4	25.7	29.4	28.2	18.2	29.0	31.2	25.4	21.4	28.2	30.1	25.7	20.1	23.5
2013	4	23.3	29.4	23.2	24.3	27.2	22.6	25.2	25.7	28.2	26.2	24.3	25.7	29.4	26.1	21.9	24.4	27.8	27.3	25.8	27.6	27.7	28.1	32.0	32.2	31.8	33.2	32.6	31.2	30.0	32.2	
2013	5	25.6	24.2	25.1	21.9	21.5	29.1	29.4	31.2	30.4	30.2	29.5	26.7	23.2	24.1	29.5	27.7	25.2	22.7	27.2	31.7	34.0	34.2	30.2	26.7	33.5	35.0	35.7	33.6	33.1	33.2	29.4
2013	6	29.4	31.7	32.8	32.7	33.1	32.8	32.7	31.3	30.8	34.6	37.0	37.4	37.1	36.9	35.2	33.7	32.3	29.8	32.5	31.7	34.5	35.7	31.9	34.4	26.4	25.2	25.0	27.7	31.6	34.5	
2013	7	27.7	30.7	33.5	29.7	28.2	28.2	26.7	25.2	24.8	25.2	30.3	31.0	31.3	30.9	33.4	33.7	30.0	26.2	26.3	31.2	32.3	33.3	33.2	33.8	33.6	34.0	32.4	33.2	34.5	35.9	31.2
2013	8	33.1	33.2	34.0	33.6	28.4	30.4	26.0	28.7	31.0	33.2	33.0	31.2	31.7	33.0	32.6	29.6	31.0	35.4	35.6	33.5	36.0	32.8	31.8	33.6	30.6	34.0	32.8	30.9	27.2	26.3	28.8
2013	9	30.0	28.0	25.2	25.2	24.6	30.4	31.0	33.0	32.5	33.0	32.0	34.0	34.7	34.9	32.5	34.5	36.0	37.1	37.0	31.3	33.8	33.6	33.5	35.0	33.9	29.7	33.0	35.8	31.6	30.7	
2013	10	30.9	33.0	32.6	29.0	26.9	26.1	25.8	31.6	32.5	32.0	33.8	33.6	31.9	31.8	27.4	31.4	32.5	32.2	30.4	29.6	24.4	25.1	29.6	29.5	30.4						
2013	11															27.7	28.0	27.7	28.0	28.5	27.8	28.3	28.8	28.4	27.8	27.9	27.6	28.6	29.5	27.3	28.4	
2013	12	28.1	21.6	28.3	28.5	27.6	27.3	27.8	27.3	27.3	27.0	23.4	18.6	23.5	22.3	21.3	23.7	23.3	23.7	24.0	19.6	23.0	21.7	21.0	23.0	24.3	22.8	23.9	24.3	21.4	21.6	24.3
2014	1	24.1	23.6	23.6	24.3	24.7	16.8	18.8	21.9	23.3	24.0	24.4	21.4	24.8	25.4	23.2	22.7	25.8	26.1	25.2	24.7	26.2	26.3	25.7	26.2	26.5	26.5	26.6	26.8	26.8	27.3	27.4
2014	2	27.3	27.4	26.7	26.9	26.3	17.9	23.4	15.9	16.2	20.3	24.7	20.8	21.3	24.3	17.5	15.5	15.9	22.8	24.5	27.6	27.0	27.9	23.7	27.7	28.1	28.0	23.7	23.2			
2014	3	25.8	23.5	25.6	27.8	25.3	26.8	26.5	26.6	28.8	29.6	29.1	29.3	21.4	24.5	30.9	32.2	32.0	31.8	25.0	23.8	26.7	27.7	26.9	29.2	29.3	29.3	29.0	30.0	22.1	25.7	29.1
2014	4	27.5	23.5	24.2	20.9	30.3	32.2	31.0	27.2	22.0	27.2	28.8	32.2	32.4	33.9	25.4	29.5	24.8	30.3	33.8	33.3	31.8	35.3	31.3	29.4	27.8	30.4	30.7	27.6	31.6	33.8	
2014	5	35.7	29.0	25.6	24.0	32.1	27.8	21.0	21.4	22.0	23.2	22.9	23.4	24.2	24.8	27.0	24.4	25.5	31.8	33.3	31.2	23.7	24.7	31.8	34.8	31.9	33.0	29.5	28.7	27.9	32.6	34.1
2014	6	35.4	33.2	32.1	29.6	28.9	31.2	31.9	32.1	28.3	30.0	33.0	32.6	35.6	34.3	33.9	32.9	36.5	37.2	35.3	27.1	32.4	27.2	32.2	29.2	34.1	35.8	31.2	25.1	27.3	32.4	
2014	7	35.4	34.7	28.6	32.4	31.6	27.8	26.3	25.9	31.3	35.0	36.4	35.9	36.3	32.8	27.2	32.7	32.9	31.6	32.6	34.7	34.3	30.8	33.9	35.8	36.3	36.8	37.3	33.6	35.5	34.6	35.6
2014	8	34.4	36.5	35.0	35.5	30.1	29.3	35.2	34.1	32.3	27.4	29.8	24.4	25.5	24.6	24.4	26.6	32.1	29.5	27.7	33.6	29.3	24.6	24.0	23.2	24.4	29.2	30.5	34.4	34.5	34.4	35.7
2014	9	36.6	35.1	35.4	36.1	34.3	35.6	32.8	32.9	28.8	31.2	29.8	28.4	29.1	34.0	33.9	33.0	34.4	34.0	33.6	27.5	28.1	25.5	23.6	28.5	31.0	25.8	25.9	30.6	31.8	33.1	
2014	10	32.9	33.4	33.0	33.0	34.0	34.9	34.1	33.8	34.3	31.3	33.0	33.3	32.3	27.7	30.4	32.3	32.1	30.6	31.3	31.7	31.9	31.3	30.7	30.8	25.0	28.0	30.0	30.2	30.8	30.5	
2014	11	31.3	31.4	32.1	30.3	31.0	31.3	30.9	31.0	30.8	30.7	30.4	30.4	26.0	29.1	29.8	28.1	27.7	29.8	28.8	29.0	27.5	25.2	19.5	25.5	26.7	24.6	26.8	22.7	24.7	26.5	
2014	12	26.5	28.1	27.7	27.8	28.7	28.0	28.0	25.6	23.4	22.4	23.3	25.9	24.3	24.1	26.3	26.1	24.2	24.8	25.0	25.3	23.6	25.5	25.4	26.1	25.9	25.7	26.4	27.7	27.8	27.4	24.5
2015	1	26.5	27.4	25.0	22.3	21.0	24.4	26.0	27.1	26.9	23.4	24.6	24.1	26.4	26.3	24.7	27.3	27.3	23.8	25.8	25.5	26.4	26.3	26.4	24.9	25.6	25.9	26.5	25.0	25.9	23.6	23.9
2015	2	25.7	27.0	27.7	25.8	26.8	26.1	25.9	26.3	25.4	24.2	26.6	26.7	17.6	23.5	25.9	26.8	27.2	28.2	22.0	26.9	27.8	26.8	28.0	29.9	28.2	19.7	20.7	22.7			
2015	3	25.8	28.3	24.3	23.6	21.2	21.4	22.5	28.4	30.3	30.1	29.8	30.8	29.6	26.4	19.9	22.0	27.3	23.9	27.8	29.6	30.9	31.9	32.8	28.0	32.7	31.6	26.8	21.3	29.8	31.8	20.0

2015	4	23.4	20.4	27.6	21.0	22.8	20.4	24.0	23.3	24.3	23.1	22.2	30.5	29.3	30.2	33.5	33.7	26.6	21.5	24.1	30.4	25.6	23.0	20.9	23.0	31.0	28.2	29.2	31.1	31.5	30.1	
2015	5	32.0	28.0	30.1	24.0	28.6	31.7	29.3	34.8	32.9	33.9	33.0	29.1	32.7	31.1	26.9	23.9	24.0	30.5	32.4	34.4	30.6	26.6	23.2	27.8	24.1	25.0	24.1	23.4	27.7	33.3	26.9
2015	6	24.9	25.0	28.4	32.6	25.8	24.2	23.7	23.4	23.1	24.9	31.4	28.5	27.8	26.2	27.7	28.7	27.9	31.4	32.4	31.6	34.2	30.4	33.6	34.1	36.5	37.3	36.0	35.1	25.8	26.6	
2015	7	27.6	30.6	31.4	25.6	30.4	35.3	37.7	32.1	35.3	31.7	34.4	31.9	31.8	26.4	30.5	33.6	35.4	35.1	36.4	32.7	29.3	31.9	26.9	31.0	34.2	36.6	36.8	36.7	36.6	36.4	34.8
2015	8	34.4	36.5	31.0	25.2	25.1	29.5	30.5	33.5	34.6	36.5	36.4	33.9	33.5	29.4	26.1	26.7	29.7	25.1	25.2	25.0	29.4	32.9	32.2	30.4	33.2	34.6	30.4	25.2	24.3	24.3	24.6
2015	9	26.8	27.0	27.5	33.8	29.8	29.3	30.1	32.5	33.9	35.2	30.6	31.2	33.2	32.0	34.5	32.7	31.7	34.9	36.2	27.3	27.7	25.6	26.8	28.8	25.8	30.3	32.6	32.8	33.4	33.7	
2015	10	34.2	33.5	29.8	33.6	31.4	33.8	34.7	28.8	31.8	28.8	30.8	32.9	33.0	31.6	29.2	31.6	31.9	31.7	31.6	31.6	32.2	31.8	29.1	28.5	30.7	30.6	31.3	31.3	30.9	30.8	31.0
2015	11	29.8	30.2	30.4	22.0	20.4	23.3	26.4	28.1	29.2	29.7	29.4	28.9	28.6	28.9	28.6	28.4	25.7	29.1	28.0	28.3	28.6	27.8	28.2	27.7	28.2	27.2	25.5	27.4	28.3	27.9	
2015	12	27.9	27.4	28.0	24.5	24.0	26.4	26.4	26.8	25.2	25.7	25.4	19.5	17.2	20.3	17.9	17.9	22.2	22.4	22.9	22.7	22.4	22.6	23.6	21.8	24.4	23.5	23.5	24.3	24.3	23.9	24.0
2016	1	27.0	26.1	24.0	25.1	25.2	25.0	24.4	24.4	16.2	22.4	23.6	23.8	23.8	22.4	23.0	21.7	24.0	23.3	24.8	18.0	23.4	24.8	23.8	24.2	22.3	24.1	20.8	23.4	24.4	23.8	25.5
2016	2	22.6	25.2	22.3	24.8	25.4	27.7	28.2	28.3	18.0	20.0	17.1	16.8	19.4	22.8	25.8	25.8	27.1	27.2	28.1	24.9	20.2	24.4	19.2	25.2	27.1	29.2	30.2	30.9	30.8		
2016	3	30.0	28.9	28.9	28.5	30.4	29.1	23.0	19.7	21.6	23.3	23.7	24.9	25.6	26.8	26.4	25.6	28.9	30.0	25.2	28.3	19.9	21.1	25.2	29.7	32.4	31.8	31.7	20.8	20.4	29.3	27.8
2016	4	28.3	29.4	32.4	31.4	26.3	27.3	24.5	24.5	28.6	30.9	23.3	29.2	21.4	21.8	27.8	22.3	30.3	22.4	21.9	24.9	20.2	24.8	22.7	25.1	26.0	29.9	29.2	25.7	27.2	25.4	
2016	5	28.0	30.9	27.4	31.4	28.8	29.0	30.9	30.6	33.1	34.4	35.2	34.9	26.9	27.0	23.0	22.5	22.6	22.3	31.2	32.8	28.5	27.9	32.4	35.5	28.5	28.4	27.5	32.9	31.9	30.4	30.9
2016	6	31.9	34.0	35.6	34.3	32.3	31.7	33.9	32.0	31.5	35.4	35.4	31.4	29.1	29.9	34.3	35.2	30.5	31.2	24.8	25.5	24.7	25.1	26.4	32.9	33.0	34.1	34.2	34.0	34.3	26.1	
2016	7	27.7	25.7	26.8	31.8	33.3	33.5	33.9	35.6	35.1	33.8	34.3	32.5	31.4	27.1	29.4	32.8	26.2	25.8	25.7	28.0	26.0	25.7	24.6	24.8	24.9	29.0	30.3	31.7	32.6	33.7	35.4
2016	8	35.3	36.1	37.0	35.4	33.3	33.4	33.5	34.2	33.4	35.5	35.4	33.5	32.5	34.6	35.5	35.6	36.0	36.5	32.4	32.3	34.6	35.3	31.8	35.6	36.2	35.4	32.5	35.5	31.7	31.2	29.5
2016	9	24.2	26.3	29.1	31.7	30.5	33.4	33.5	28.6	28.7	30.5	31.8	31.9	31.5	32.9	33.2	32.4	32.5	31.9	31.8	31.7	30.7	27.2	25.1	27.0	30.7	27.3	31.6	32.6	33.3	30.4	
2016	10	33.6	33.7	34.0	34.7	33.9	32.6	31.8	25.5	24.2	27.9	25.0	25.2	25.4	30.2	32.0	32.2	32.3	32.0	31.7	31.1	30.9	31.2	31.7	32.9	29.3	32.7	30.7	31.1	32.0	31.7	31.4
2016	11	31.3	32.2	31.2	30.0	25.3	25.2	25.7	26.3	29.8	30.7	31.2	30.2	30.3	29.5	29.8	29.7	29.2	28.6	28.3	28.1	27.7	27.2	27.3	27.2	27.5	28.2	28.4	26.7	28.3	28.2	
2016	12	28.5	27.3	28.3	28.4	27.8	27.6	27.4	27.7	27.8	27.6	26.8	27.2	26.3	27.3	27.4	29.0	28.4	27.7	27.4	25.7	25.8	27.9	24.8	22.0	19.2	24.1	24.2	25.0	26.0	25.9	25.8
2017	1	25.8	24.0	26.3	27.3	22.9	26.0	25.7	25.8	26.1	25.8	21.1	23.5	24.5	24.3	25.1	24.9	25.0	26.3	26.7	26.2	26.8	27.8	28.4	27.8	29.3	29.4	27.1	22.1	25.8	27.7	23.5
2017	2	23.0	26.0	27.7	28.7	29.6	28.8	23.6	27.6	27.5	24.6	19.8	26.4	28.1	28.6	28.3	28.9	24.9	30.3	30.6	18.4	17.5	21.3	27.0	20.5	26.4	24.6	22.4	27.7			
2017	3	27.6	20.2	20.0	25.8	18.7	25.6	25.2	25.3	22.0	22.3	18.3	24.7	25.1	25.7	28.5	28.8	25.0	18.7	24.0	18.8	26.3	28.0	30.6	30.6	29.6	30.8	29.8	26.8	21.8	24.8	31.4
2017	4	28.0	20.2	20.6	23.0	29.7	30.0	31.0	27.4	25.6	26.6	26.5	31.6	31.9	32.4	26.2	24.9	32.4	32.5	30.9	24.0	29.6	31.6	27.7	25.6	21.7	22.7	25.2	26.2	22.9	25.7	
2017	5	24.1	24.7	31.0	25.8	20.3	26.6	30.0	32.8	33.9	30.7	32.6	33.5	35.0	30.9	34.1	28.2	32.2	33.5	28.1	27.5	25.3	30.6	28.4	25.6	24.8	26.4	30.0	35.0	31.5	25.9	25.3
2017	6	26.5	23.8	25.5	30.4	32.8	34.6	35.7	33.4	32.5	35.7	35.5	32.3	29.5	30.4	30.8	32.1	26.7	28.6	28.1	30.6	31.3	33.2	33.8	34.4	28.7	27.3	32.0	34.4	27.8	25.0	
2017	7	24.7	26.0	29.3	29.8	27.9	34.0	28.1	26.2	25.9	25.1	28.8	32.2	34.2	33.2	34.3	35.8	33.2	36.7	37.2	32.3	33.9	36.7	35.9	33.9	34.0	32.4	32.5	35.2	33.6	33.8	32.6
2017	8	28.3	28.0	30.7	34.5	36.4	33.2	28.5	25.7	25.5	25.0	25.0	28.4	28.5	30.9	29.8	29.8	33.6	33.2	32.6	34.0	34.5	35.5	36.2	30.2	31.8	34.0	33.2	35.7	33.4	34.8	33.3

2017	9	31.2	27.2	30.4	30.0	28.8	32.8	33.4	29.0	25.8	30.0	29.0	33.0	31.6	33.4	34.5	36.0	35.7	36.4	36.2	33.8	28.2	26.2	28.4	32.0	33.9	32.9	35.2	34.2	31.7	30.5	
2017	10	28.2	26.9	31.4	32.3	33.8	35.1	33.7	33.4	34.4	34.0	34.7	34.2	30.8	23.7	26.2	31.2	33.3	33.7	33.7	32.8	23.2	26.2	27.2	28.4	27.7	30.0	30.2	30.0	29.6	23.4	28.6
2017	11	29.5	29.7	30.3	30.4	30.3	31.0	30.4	30.4	30.2	30.8	30.0	29.2	29.0	27.3	27.5	28.0	28.2	28.6	29.8	30.2	28.4	28.5	28.2	28.4	29.0	28.2	28.2	27.5	25.5	27.4	
2017	12	29.6	27.2	27.5	27.4	27.6	27.8	27.6	27.0	24.2	26.4	27.3	27.6	27.6	27.2	25.8	25.2	25.2	26.2	25.5	25.8	26.0	26.4	26.2	25.2	26.2	26.4	26.0	26.0	25.4	26.0	25.4
2018	1	25.4	25.6	25.4	25.0	24.8	18.3	16.2	22.0	23.4	23.0	23.4	23.8	23.2	24.6	23.6	25.0	25.2	25.4	26.4	24.2	25.5	24.9	25.4	25.2	18.6	22.4	17.2	23.0	22.5	21.5	23.5
2018	2	25.0	24.5	18.8	16.8	20.0	23.0	18.7	19.2	17.2	20.0	25.0	27.5	27.5	21.4	24.0	27.0	27.7	28.2	22.7	27.5	25.7	26.5	27.6	28.0	20.9	20.9	26.8	29.1			
2018	3	26.6	24.6	18.0	18.5	23.2	21.7	28.0	30.6	31.1	27.0	24.7	26.3	28.0	29.2	31.4	22.2	25.7	21.3	28.3	30.8	30.9	30.1	21.9	27.3	29.7	23.1	24.8	29.6	29.9	25.7	30.2
2018	4	32.3	33.3	32.1	33.3	27.7	23.5	32.7	29.4	29.2	26.7	27.8	25.7	20.5	19.6	27.7	32.0	33.2	32.0	29.5	30.2	26.3	22.9	24.2	29.5	32.3	31.2	32.3	31.6	30.8	31.5	
2018	5	31.5	28.2	28.5	30.4	30.3	27.0	28.0	30.2	28.4	23.6	25.4	28.8	25.8	30.0	30.6	29.0	33.6	31.6	34.8	24.8	35.4	35.4	34.0	32.0	28.8	26.6	24.5	28.0	30.0	29.0	30.2
2018	6	35.0	29.0	34.6	33.4	36.5	37.5	33.0	36.1	36.1	37.7	34.6	34.2	28.2	25.3	25.4	25.4	26.2	31.6	32.7	34.4	33.4	25.6	31.2	28.8	32.7	31.6	31.6	27.6	27.2	25.4	
2018	7	24.6	24.7	25.1	25.8	31.5	33.4	33.8	30.3	28.0	28.7	33.3	32.7	36.2	35.7	33.3	37.0	34.3	36.2	36.8	38.4	36.2	34.9	29.9	32.0	33.2	34.1	32.5	29.7	30.4	32.3	28.7
2018	8	31.7	32.5	25.7	31.5	32.3	36.5	36.7	30.2	32.4	33.9	33.7	31.7	35.1	35.8	33.5	35.2	33.8	32.6	37.2	37.4	30.3	30.9	34.5	35.3	31.7	33.2	33.5	34.0	30.4	28.6	32.7
2018	9	31.0	29.5	30.4	33.4	34.3	34.4	30.7	28.4	25.4	26.8	24.1	24.0	25.3	26.2	29.5	31.2	33.7	33.2	34.7	25.7	34.8	29.8	30.2	24.3	24.1	27.0	27.4	31.8	31.0	30.8	
2018	10	27.4	24.4	26.4	32.1	32.3	31.7	31.4	30.0	30.0	30.8	30.6	25.4	22.0	29.0	23.3	24.0	29.0	26.8	25.8	30.8	29.8	30.8	30.7	30.4	30.7	30.4	30.5	35.0	29.7	28.6	29.7
2018	11	29.7	29.7	29.6	25.2	21.0	22.7	20.7	28.8	29.0	28.6	27.7	27.7	26.7	25.3	25.9	22.8	17.7	19.6	24.4	25.3	25.2	25.5	26.7	26.8	17.6	28.6	28.4	26.4	26.2	26.0	
2018	12	25.7	25.7	24.7	26.0	24.6	24.6	24.6	25.3	25.3	25.2	24.7	25.4	24.8	25.8	25.0	24.8	22.8	16.4	19.9	23.9	24.9	25.5	25.5	25.3	24.4	23.6	24.6	24.4	21.4	24.2	24.0

Station: Pasighat (District: East Siang)

Parameter: Daily minimum temperature in degree celsius

Period: 01-01-1987 to 31-12-1990, 01-01-1992 to 31-12-1992, 01-01-2000 to 31-12-2018 (with some data gap)

Year	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1987	1	11.2	9.5	10.1	9.5	10.7	10.5		13.2	12.6	12.5	12.6	13.1	11.3	12.3	14.3	10.7	10.9	11.7	12.1	13.6	12.2	14.1	13.3	13.4	12.6	12.9	13.5	13.1	13.5	11.9	12.6
1987	2	12.5	14.2	16.0	16.2	14.0	12.9	11.6	13.3	13.4	12.6	13.4	12.3	12.2	13.3	13.3	13.8	15.6	14.1	15.1	13.5	16.6	15.1	14.2	15.6	14.9	16.7	15.5	13.6			
1987	3	14.1	15.9	15.6	14.3	17.1	15.0	16.5	14.9	13.8	14.7	14.2	14.1	13.7	15.3	15.6	15.7	16.5	15.9	15.5	13.1	15.3	15.9	17.5	18.9	18.4	19.8	18.3	19.0	15.7	19.5	18.8
1987	4	18.7	18.6	18.1	18.9	17.8	17.0	20.6	21.2	17.6	17.2	17.2	16.5	15.5	17.7	17.2	19.6	19.2	19.9	19.5	18.6	19.7	19.7	19.5	18.3	18.3	18.3	20.1	20.0	20.8	18.7	
1987	5	18.9	18.9	20.9	19.1	19.4	20.0	18.0	19.4	18.4	21.6	22.4	21.5	22.6	23.2	22.3	21.5	22.2	21.0	19.1	18.6	19.2	19.8	21.7	22.4	20.1	20.6	21.0	22.8	23.2	23.0	24.1
1987	6	24.2	21.6	22.8	25.0	24.2	20.2	20.4	23.4	22.6	25.6	24.0	23.2	23.4	21.6	23.7	25.6	26.4	26.0	27.4	26.6	27.0	23.9	22.8	23.2	22.7	22.8	23.4	23.2	23.4	23.4	
1987	7	22.2	23.0	22.9	23.9	23.5	22.9	23.2	23.6	23.8	24.0	23.6	23.9	23.6	23.2	23.5	23.0	25.2	27.0	24.8	23.2	23.4	23.0	22.9	21.0	21.8	22.2	23.4	23.3	23.2	22.4	23.0

1987	8	23.4	23.4	24.0	25.2	22.6	23.4	23.6	22.4	22.4	21.1	21.1	20.8	21.9	24.1	23.6	23.6	24.3	26.2	22.4	25.8	24.4	23.5	25.3	25.7	23.5	24.3	25.7	23.3	23.6	23.6	22.7
1987	9	20.4	25.4	24.0	24.2	22.9	23.6	22.5	23.4	22.2	24.4	25.2	23.0	23.7	24.0	23.6	23.8	23.5	23.5	23.4	23.4	23.2	22.8	22.7	21.3	22.3	23.2	21.7	22.0	22.2	21.6	
1987	10	21.0	21.2	21.4	21.5	23.6	22.4	24.2	23.8	20.5	22.7	22.1	22.5	21.9	22.0	22.4	23.0	22.8	20.1	20.2	20.6	19.1	21.9	21.6	21.4	21.8	19.7	19.4	19.1	18.4	18.0	20.4
1987	11	17.8	16.4	17.4	19.1	17.9	17.6	18.2	18.8	17.6	17.3	17.1	17.0	16.8	17.6	18.0	17.5	16.3	16.8	16.9	17.5	16.6	17.3	18.0	16.0	17.1	16.5	16.0	14.8	14.6	14.9	
1987	12	14.6	14.1	13.4	13.8	15.3	15.7	15.9	15.0	15.2	14.3	13.3	13.8	15.4	16.2	13.2	13.3	13.1	13.0	13.3	13.5	13.0	12.2	12.4	12.0	12.0	11.9	11.6	11.5	11.6	10.2	12.0
1988	1	12.0	12.6	12.0	12.5	13.5	14.8	15.0	14.0	10.3	12.0	11.8	13.9	14.8	13.7	13.6	14.1	11.0	9.1	11.9	10.8	11.8	10.5	14.8	14.0	13.0	13.0	12.9	12.6	13.0	13.9	13.1
1988	2	13.5	14.2	14.5	14.7	15.0	15.3	15.0	14.5	15.9	18.3	18.3	17.5	17.2	14.2	14.2	14.1	13.9	13.4	13.4	15.6	15.5	15.2	13.8	14.5	13.0	12.8	15.1	15.0	16.1		
1988	3	15.1	15.4	15.0	15.5	17.0	15.2	15.0	15.7	18.8	16.7	17.5	18.3	16.5	16.0	15.2	17.0	17.7	19.2	18.1	17.5	15.0	15.9	16.6	16.3	16.7	19.0	18.0	18.1	17.5	17.8	18.3
1988	4	17.9	16.4	17.6	20.0	19.5	19.1	20.1	22.2	20.5	19.9	18.8	20.0	19.1	18.2	17.1	16.5	19.4	19.2	18.8	19.5	19.2	19.1	18.8	18.5	19.3	22.0	19.1	18.7	20.6	20.8	
1988	5	21.8	21.5	22.4	21.6	21.4	24.0	23.4	23.0	22.5	20.2	19.6	19.8	19.0	20.0	21.1	22.8	20.7	21.7	22.0	21.9	21.0	20.5	19.7	21.1	21.1	21.0	20.6	20.7	20.5	20.6	21.2
1988	6	23.6	24.5	24.1	22.5	24.3	24.1	25.1	25.2	26.3	23.2	23.7	22.6	23.9	23.2	24.0	24.7	24.3	22.7	23.5	23.9	24.0	22.5	23.4	23.2	24.2	25.7	24.7	24.3	24.8	25.0	
1988	7	24.6	24.7	23.6	22.2	22.1	22.0	22.1	22.6	23.0	23.1	22.9	22.1	24.0	25.3	25.2	25.0	25.6	24.2	23.1	23.5	23.7	24.3	23.5	23.3	23.1	23.6	23.8	24.1	24.9	23.0	25.0
1988	8	25.0	25.2	26.3	24.9	24.1	24.4	25.1	25.1	25.0	24.1	24.1	23.3	23.7	23.3	23.7	24.4	24.7	25.1	23.9	23.5	23.2	22.5	22.3	21.9	22.0	21.4	21.8	22.0	22.1	22.5	23.1
1988	9	22.6	23.0	23.0	22.5	22.5	23.1	23.1	23.6	22.7	23.2	23.1	22.5	22.7	22.1	24.2	25.3	24.5	23.6	24.7	23.3	25.1	24.6	24.1	25.2	24.8	22.6	22.0	22.4	22.5	23.2	
1988	10	24.0	22.9	22.4	22.2	22.0	22.1	22.0	20.8	22.0	23.1	22.7	23.5	21.9	21.0	21.1	20.6	21.7	21.4	20.7	20.2	19.9	20.6	20.3	19.9	19.0	19.2	19.0	19.0	18.9	18.5	18.6
1988	11	18.5	18.1	18.0	17.3	17.6	17.1	18.4	18.0	17.9	16.9	17.7	17.0	16.3	17.1	15.2	15.0	15.4	15.3	16.0	15.5	16.2	15.8	14.5	13.9	11.8	12.0	11.5	14.3	14.4	14.8	
1988	12	15.8	18.2	14.9	14.6	16.8	16.6	16.5	14.4	13.7	14.0	13.4	13.1	14.7	14.7	13.6	15.0	13.7	13.2	13.2	12.8	12.9	12.1	11.8	11.4	13.0	12.6	12.8	12.8	12.2	12.0	12.2
1989	1	12.1	11.8	11.9	12.0	10.5	10.6	11.8	10.4	10.5	11.0	10.7	9.8	9.6	9.0	9.8	10.0	10.4	10.0	10.0	11.6	11.3	12.0	12.2	12.5	13.4	13.8	13.3	12.8	13.1	12.9	
1989	2	13.6	14.0	14.0	13.5	13.8	14.2	13.8	14.0	13.8	14.3	14.4	14.0	13.9	13.6	9.4	9.1	10.4	11.0	11.4	10.2	11.8	10.1	12.1	12.4	13.0	14.1	14.8				
1989	3	15.2	16.3	16.2	16.8	17.0	17.1	17.2	17.1	16.5	16.6	16.2	15.3	15.5	16.8	16.5	17.6	16.0	16.4	17.2	17.6	17.9	17.0	17.0	18.0	18.7	20.0	20.6	18.9	16.6		
1989	4	17.0	16.5	17.1	17.3	18.3	18.9	19.0	19.3	20.6	18.1	17.5	18.1	17.9	18.2	17.8	17.2	17.7	17.7	19.0	19.3	18.4	20.1	18.8	18.7	17.2	17.4	17.1	15.6	15.7		
1989	5	15.6	19.1	19.6	21.6	22.0	22.7	21.0	20.9	21.0	20.6	21.0	21.5	22.6	21.5	19.9	20.2	23.0	23.3	22.7	23.1	22.2	23.2	23.9	24.8	24.2	25.3	23.8	21.1	22.9	23.3	
1989	6	23.4	22.8	23.1	23.9	22.6	22.1	22.6	22.2	23.6	23.5	24.7	26.2	24.4	23.1	23.2	23.0	22.6	24.3	25.1	24.6	25.0	25.1	24.0	23.5	23.1	24.4	24.0	24.2	23.3	21.4	
1989	7	21.2	21.9	22.4	22.6	23.7	23.6	22.3	22.6	23.0	22.1	22.0	24.2	23.5	23.2	23.5	23.2	20.7	23.2	23.6	23.9	25.1	26.1	25.9	24.9	25.0	25.1	23.6	22.5	21.6	21.3	22.4
1989	8	22.6	24.4	25.3	24.6	23.6	24.3	24.1	23.9	24.2	24.8	23.2	23.9	23.5	23.5	24.0	23.8	23.4	23.8	22.5	22.3	23.3	24.1	24.7	25.5	25.1	24.6	25.3	24.2	24.3	24.8	25.0
1989	9	23.7	23.3	23.2	23.1	23.0	23.2	24.3	24.6	25.6	25.5	24.8	24.2	22.5	23.2	23.2	23.7	23.8	21.4	21.7	21.9	23.0	23.3	23.3	23.6	23.1	23.8	23.9	22.1	22.6	22.4	
1989	10	22.2	22.6	23.0	24.0	24.5	23.9	24.0	24.2	21.2	20.4	21.2	22.2	23.1	23.2	22.6	21.6	20.6	20.8	19.2	19.0	20.1	19.9	20.0	20.5	20.1	21.5	19.4	18.6	19.4	18.5	17.6
1989	11	18.3	18.1	18.0	16.9	16.6	16.1	16.3	16.4	16.6	15.2	16.5	15.9	16.2	16.1	17.1	16.5	16.0	16.1	16.2	15.9	16.2	15.5	15.4	15.2	15.3	14.8	15.0	15.1	16.6	16.2	
1989	12	13.6	12.0	11.6	11.7	11.5	11.3	11.6	12.1	11.6	11.6	12.1	12.4	13.5	13.7	12.6	11.8	11.1	11.4	11.3	11.2	11.4	13.1	12.9	13.1	13.1	13.2	12.5	7.8	9.0	10.0	10.2

1990	1	11.2	10.9	11.2	11.8	11.1	12.2	11.3	11.8	11.1	11.2	10.9	11.8	12.5	13.3	10.5	12.1	12.6	15.1	13.1	14.1	15.0	16.5	15.8	14.5	14.9	15.8	16.8	16.6	13.8	14.0	13.6
1990	2	13.7	13.2	13.0	13.2	12.6	11.1	12.7	13.1	13.4	15.5	15.5	13.3	14.8	15.5	14.4	13.4	11.0	12.5	14.4	14.8	14.0	12.5	11.0	13.4	13.9	13.4	12.8	13.1			
1990	3	14.0	14.4	13.6	13.7	14.4	14.0	14.8	13.0	14.5	15.5	13.4	15.2	13.7	13.5	14.9	16.6	16.0	17.2	17.7	16.7	17.3	16.2	16.5	17.4	17.2	15.2	14.5	14.8	15.3	16.2	16.3
1990	4	16.4	15.8	14.6	14.5	14.6	15.7	16.8	15.4	14.5	15.1	16.7	17.9	19.7	18.6	18.4	17.3	17.9	18.2	18.4	17.6	17.7	18.0	18.2	18.6	19.2	20.1	19.5	19.4	19.0	18.7	
1990	5	19.8	19.6	19.2	18.1	21.4	21.3	22.3	21.0	22.2	18.2	21.1	22.4	21.5	19.5	19.6	20.6	23.6	24.0	20.8	22.5	22.0	22.6	23.5	22.4	23.4	20.2	22.6	21.6	21.8	23.8	22.6
1990	6	24.0	23.0	23.0	21.7	21.8	21.8	21.2	21.0	21.2	22.0	23.4	23.1	24.8	25.6	24.9	24.8	24.2	23.0	22.9	24.5	24.4	23.6	22.2	23.4	24.9	25.1	25.5	23.6	22.8	23.2	
1990	7	23.6	26.0	26.2	24.6	22.2	23.7	24.4	23.6	23.3	24.1	23.7	24.2	23.7	22.8	25.4	22.8	22.4	22.4	23.2	23.4	23.6	25.2	24.7	23.7	23.2	23.6	23.2	24.2	23.9	24.5	
1990	8	23.8	23.8	24.2	23.6	23.0	23.8	24.3	24.2	23.0	24.2	23.4	23.2	23.9	24.4	24.9	24.2	24.3	23.2	25.2	25.8	26.0	25.0	23.2	23.1	22.0	23.4	25.0	25.2	25.7	25.2	25.5
1990	9	25.6	23.0	24.9	24.1	24.3	23.0	23.2	23.0	23.2	23.5	24.7	25.0	24.2	24.4	23.4	22.2	20.7	20.1	21.1	22.6	23.1	22.4	22.2	20.7	21.6	21.3	21.0	21.0	20.6	20.9	
1990	10	21.4	21.8	21.8	20.4	21.7	20.0	24.2	22.5	20.5	19.8	20.2	21.3	21.6	22.4	22.8	20.1	18.4	20.2	19.6	19.6	19.0	19.5	19.7	19.6	20.0	19.1	19.0	18.6	19.2	19.0	19.1
1990	11	19.4	19.0	17.6	17.6	17.3	18.6	19.3	18.2	18.1	17.4	19.0	18.8	18.9	18.1	17.8	17.1	16.6	14.8	15.5	15.3	15.6	15.2	17.3	17.4	16.4	17.2	16.6	15.4	16.4	15.8	
1990	12	16.2	15.2	15.0	14.8	14.9	14.5	14.8	14.6	14.0	14.2	14.4	13.8	13.3	13.1	13.5	13.2	12.9	14.1	13.9	14.0	14.2	13.2	14.0	13.2	12.6	16.2	15.4	16.0	13.8	14.4	14.2
1992	1	10.4	11.1	10.2	10.1	10.3	11.4	8.6	10.8	12.0	10.4	14.1	12.8	10.4	12.2	12.3	12.1	12.2	10.3	10.1	13.0	8.2	12.4	11.4	9.2	12.3	12.9	17.4	15.0	16.0	14.6	14.2
1992	2	14.6	12.4	11.6	11.4	12.2	9.0	9.6	12.4	12.0	12.6	8.4	10.4	10.4	13.6	12.6	12.7	11.8	10.4	11.8	12.6	12.2	12.8	14.6	12.4	10.6	10.4	11.0	10.2	13.3		
1992	3	14.4	15.0	15.3	13.8	15.9	14.0	14.6	15.6	14.2	14.8	14.0	12.9	17.0	18.2	17.1	16.0	15.8	15.2	14.0	16.2	16.2	17.1	17.0	17.2	18.2	19.2	19.8	21.0	20.4	18.6	19.6
1992	4	19.2	16.4	19.4	18.1	17.9	18.8	17.6	18.4	18.9	20.2	21.6	21.5	20.2	20.2	19.8	19.0	17.2	18.0	19.6	18.0	18.7	20.4	18.4	19.8	18.6	20.0	19.8	21.4	19.6	19.4	
1992	5	21.4	20.6	20.2	18.4	19.4	20.2	19.2	18.6	20.2	22.0	20.2	22.4	23.2	22.6	20.6	20.4	20.4	20.4	20.2	21.8	19.6	19.8	20.0	21.2	21.4	22.4	21.6	21.0	22.8	22.4	23.2
1992	6	22.0	22.4	22.0	24.0	24.8	24.2	23.2	22.4	23.0	24.0	21.4	24.0	23.2	22.4	24.6	25.4	25.6	26.6	24.2	24.8	25.0	23.2	22.6	23.2	23.2	23.3	23.2	22.8	23.9	24.4	
1992	7	23.9	24.2	24.6	23.0	23.4	23.1	24.6	24.2	24.6	25.0	25.1	23.4	22.6	21.9	22.2	22.1	23.7	22.9	24.5	23.0	24.4	24.1	23.6	24.4	24.6	23.9	25.9	23.1	24.5	24.0	25.5
1992	8	25.3	23.5	25.0	24.0	23.1	23.0	23.4	24.4	23.7	24.2	24.7	25.8	25.8	24.3	25.4	24.8	22.9	25.7	24.0	25.4	23.9	23.0	23.1	24.0	22.3	23.7	24.9	26.0	25.0	26.1	24.4
1992	9	24.2	26.1	24.4	22.2	23.8	23.7	24.5	25.0	23.6	23.9	24.5	23.0	22.7	22.5	22.6	22.6	22.8	22.1	22.2	22.8	23.2	23.0	22.8	24.7	23.2	23.4	22.1	20.7	20.3	21.5	
1992	10	22.9	23.5	23.5	21.7	23.1	22.2	23.3	23.1	23.1	22.3	22.8	22.5	20.3	18.7	19.4	20.1	19.3	20.6	20.5	20.2	20.5	21.5	19.9	17.7	18.2	17.7	15.2	18.6	18.7	19.1	19.0
1992	11	18.9	18.9	19.1	18.2	19.1	19.5	19.5	16.8	18.3	18.8	17.9	17.2	16.7	16.4	16.1	16.0	14.9	15.0	15.5	15.6	16.7	17.9	17.3	17.4	15.7	13.0	14.4	15.2	15.0	14.5	
1992	12	15.2	16.3	14.3	13.3	14.7	13.2	12.5	12.3	12.2	12.0	12.1	12.7	11.5	12.2	12.6	12.5	12.5	12.0	11.5	11.2	11.1	12.0	12.0	11.5	10.4	11.0	11.1	12.5	12.1	10.0	11.5
2000	1	12.4	13.6	12.0	11.0	11.2	11.6	11.8	10.0	12.4	11.8	12.6	15.2	13.2	15.0	14.4	14.6	13.8	14.0	13.4	13.2	12.6	12.2	15.7	11.4	12.6	13.2	13.2	14.2	12.0	13.2	11.4
2000	2	12.4	13.0	11.6	14.4	15.4	14.4	13.8	13.4	14.6	14.4	13.0	14.8	15.0	15.0	15.2	14.0	15.8	15.0	13.4	14.4	13.6	13.8	15.2	14.6	12.4	14.4	13.6	13.8	13.4		
2000	3	14.4	14.8	14.0	14.2	14.2	15.2	16.6	15.6	15.8	13.8	15.0	14.4	14.6	15.2	15.2	14.8	14.8	15.4	16.0	16.6	17.6	15.8	17.2	19.2	17.4	17.0	19.2	19.0	18.4	20.0	20.0
2000	4	21.2	18.2	18.6	18.0	18.6	17.4	19.0	18.4	18.0	18.0	18.4	20.2	19.2	20.8	21.8	21.8	20.4	19.4	19.8	21.4	20.2	19.0	20.2	19.4	19.0	18.8	18.8	19.8	20.0	20.0	
2000	5	18.8	19.4	19.2	18.4	21.0	22.8	21.4	23.0	22.4	22.4	22.9	29.8	25.8	25.4	25.0	22.0	21.4	25.0	23.2	22.2	24.0	21.8	22.0	21.6	22.8	23.2	22.4	22.0	22.0	21.2	21.2

2000	6	23.4	23.4	24.8	26.0	26.6	26.0	24.2	23.8	23.2	23.6	23.8	21.4	22.2	23.0	24.4	23.2	24.8	25.6	25.0	22.6	22.4	22.2	21.8	22.8	23.0	24.2	25.2	24.6	24.0	24.0	
2000	7	23.4	23.8	24.2	24.2	24.8	24.8	24.4	25.4	23.8	25.0	25.2	26.4	24.0	23.4	25.0	23.4	25.6	25.4	24.2	24.2	24.4	25.6	23.2	23.2	24.8	24.0	24.0	23.6	23.8	24.0	23.4
2000	8	22.6	22.4	22.0	22.2	23.0	23.4	25.0	25.2	24.8	24.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24.0	25.2	24.0	25.6	24.4	25.4	24.0	24.8	25.8	25.0	24.6	23.6	24.4	25.2
2000	9	21.6	26.2	24.8	23.4	23.6	24.8	24.0	23.4	23.4	23.2	23.2	25.2	26.4	26.6	23.6	21.0	21.2	21.4	22.2	22.2	22.0	22.6	22.2	21.8	21.8	21.2	21.6	21.6	21.8	23.6	
2000	10	23.2	N/A	22.6	22.4	22.6	22.4	23.2	22.4	22.4	22.2	23.4	24.2	23.0	18.4	19.0	19.0	16.4	19.6	19.5	21.8	21.6	21.6	21.0	19.6	16.8	14.6	15.4	20.6	19.6	17.8	15.8
2000	11	21.4	19.8	20.2	16.4	15.8	16.6	18.0	18.8	18.0	17.4	18.8	19.8	19.8	16.8	16.8	17.8	17.6	15.6	17.4	15.8	13.0	16.8	15.6	16.0	17.2	17.4	17.0	15.6	16.4	16.6	
2000	12	16.0	14.2	13.2	10.6	13.6	14.6	14.4	14.2	14.6	15.2	14.8	12.2	14.0	12.8	14.0	14.6	14.4	13.6	13.8	15.0	17.2	14.8	14.8	15.2	13.4	13.0	12.6	13.0	11.8	12.0	14.2
2001	1	16.0	15.4	14.4	13.4	12.0	12.0	13.0	13.2	11.4	10.0	11.8	11.6	12.6	12.2	13.6	15.0	12.8	13.6	14.2	14.8	15.8	13.8	13.0	13.0	13.6	14.6	14.4	15.0	13.8	13.8	16.4
2001	2	17.8	16.8	16.0	15.0	13.6	13.6	13.6	16.0	13.4	15.0	15.6	16.8	16.8	17.0	16.8	15.4	17.0	17.6	16.0	16.6	15.4	13.2	14.6	14.4	15.4	16.0	15.2	17.0			
2001	3	17.2	17.8	16.0	17.8	18.0	19.6	14.0	15.6	15.2	17.6	18.4	16.8	17.0	17.6	16.0	16.8	17.2	16.0	17.8	17.2	17.6	18.4	19.4	17.6	15.8	17.0	14.8	18.0	18.6	18.2	18.4
2001	4	18.0	17.2	17.0	17.6	20.6	21.6	20.2	20.8	19.2	17.6	18.8	19.0	20.8	20.4	19.8	20.4	18.2	20.2	19.4	20.2	19.4	19.0	19.4	18.4	21.0	19.4	18.8	18.6	19.0	19.2	
2001	5	15.6	19.0	22.0	23.4	21.2	22.0	21.4	20.6	20.8	20.6	21.6	21.2	21.8	23.2	24.2	24.0	24.2	24.4	22.2	23.4	24.2	22.8	23.6	21.6	22.8	24.2	24.6	24.6	24.2	24.8	24.4
2001	6	22.6	22.2	23.0	22.0	21.4	22.4	21.8	22.2	23.0	24.4	25.4	26.4	26.0	26.0	23.0	25.6	25.6	24.4	23.4	23.0	23.8	24.0	23.8	26.0	24.2	24.6	24.0	24.4	25.4	24.8	
2001	7	24.2	24.4	24.4	26.6	25.2	24.8	27.0	27.4	24.4	25.0	25.4	23.2	23.6	23.4	25.0	25.6	26.0	25.6	24.2	24.6	24.2	24.6	25.2	25.0	25.2	24.0	23.8	23.2	23.4	23.2	23.6
2001	8	24.0	24.4	23.6	25.0	25.0	26.4	23.6	25.0	26.6	25.0	25.0	23.0	28.0	26.4	25.0	24.8	25.6	25.0	24.6	26.2	26.4	25.0	22.8	22.8	23.6	23.4	23.4	25.2	24.8	25.0	24.0
2001	9	24.8	23.2	22.8	22.4	23.6	25.4	24.8	21.2	24.0	23.8	25.0	24.0	23.6	23.8	24.0	24.0	21.6	23.0	23.8	23.4	24.4	24.2	23.0	23.4	23.6	24.0	23.2	23.8	25.0	24.2	
2001	10	22.0	22.2	21.2	21.4	21.6	22.4	22.0	22.6	23.0	24.4	23.4	23.4	23.8	23.8	22.0	21.2	22.0	22.2	17.0	21.6	20.8	20.8	19.2	20.6	20.0	19.4	20.0	29.6	19.6	20.8	20.6
2001	11	19.0	20.6	19.6	20.8	19.2	19.8	18.4	19.2	17.2	19.2	19.8	16.8	18.0	17.0	17.4	19.4	19.4	19.4	17.4	18.0	18.4	19.0	18.0	12.6	15.0	16.6	15.6	15.2	13.8	13.6	
2001	12	15.6	14.4	16.2	13.2	16.0	17.8	16.6	14.8	14.6	15.2	14.4	13.8	13.2	14.6	14.0	14.0	13.8	13.8	13.4	13.6	13.0	13.0	13.0	12.2	12.0	12.0	12.2	13.4	13.0	13.6	12.8
2002	1	11.8	10.0	12.2	11.8	10.2	11.6	11.0	12.8	13.8	11.0	12.2	11.6	12.2	13.6	12.6	13.0	14.6	14.6	14.8	19.8	15.2	14.6	14.2	13.6	11.8	13.2	12.6	13.2	14.6	14.6	13.4
2002	2	13.0	13.4	16.0	15.0	13.0	14.4	15.4	15.2	18.0	17.8	17.4	17.0	17.2	18.2	16.8	17.0	16.6	16.0	17.6	16.4	15.0	15.6	15.6	15.8	17.6	17.0	15.4	15.4			
2002	3	15.0	15.4	18.0	16.6	17.4	15.4	16.0	15.4	18.0	17.4	18.6	18.2	18.6	19.2	17.6	17.4	16.4	17.2	18.2	18.6	20.0	20.8	18.4	17.8	16.4	18.0	17.6	18.0	18.0	17.4	17.0
2002	4	18.4	18.8	17.2	16.8	17.2	19.0	20.4	21.8	20.4	18.0	15.2	17.8	18.6	20.0	21.4	20.2	19.6	20.6	20.4	18.2	20.4	20.2	21.0	19.0	22.4	21.8	20.0	18.0	19.6	18.8	
2002	5	18.4	21.8	20.0	19.6	19.6	20.4	21.8	21.8	22.6	24.4	21.2	20.0	20.4	22.6	22.6	23.6	24.8	26.4	22.4	22.4	21.8	20.4	20.6	22.0	23.2	22.2	22.0	21.8	22.0	23.4	22.0
2002	6	22.8	23.2	23.6	24.4	24.0	23.8	23.6	24.6	23.4	25.0	23.6	23.2	23.2	23.6	23.6	23.8	24.4	24.2	23.4	23.2	23.6	24.6	26.8	26.2	26.6	24.8	23.8	23.6	23.0	24.0	
2002	7	24.8	25.2	23.8	24.2	23.6	24.0	24.4	24.4	24.8	25.2	25.2	24.8	24.2	24.0	25.2	26.8	26.2	25.2	23.8	23.0	22.8	23.2	23.4	23.0	24.0	24.2	24.6	23.4	24.8	24.6	
2002	8	24.0	24.6	25.4	24.4	24.4	24.8	25.2	26.8	25.8	24.0	23.8	22.6	24.0	24.2	25.6	25.6	24.4	23.4	23.8	23.8	24.0	25.8	26.2	23.2	25.3	24.0	24.4	23.4	22.6	25.0	23.0
2002	9	24.6	25.2	22.5	23.4	24.4	24.6	25.2	25.8	25.8	25.8	25.0	24.0	23.8	23.6	23.1	22.8	21.2	21.8	22.8	24.0	25.4	24.4	22.6	21.2	21.2	22.0	23.0	22.6	22.4	22.2	
2002	10	22.0	21.4	23.6	24.2	23.5	23.4	23.4	22.6	22.2	22.2	22.1	21.2	20.6	21.8	21.8	21.0	21.4	21.2	20.0	20.0	20.8	19.8	20.8	20.8	21.9	21.4	19.6	19.8	19.6	19.2	18.8

2002	11	19.0	20.7	20.0	20.2	18.8	18.7	18.6	19.3	18.8	18.4	18.4	19.8	18.2	18.1	18.0	17.4	17.0	17.2	11.8	18.2	16.6	16.7	16.6	16.5	18.4	19.0	18.6	18.0	17.4	17.1	
2002	12	17.2	18.4	16.7	17.2	17.0	16.8	16.2	16.0	15.0	14.0	14.2	14.2	13.3	14.4	14.2	14.8	16.1	15.2	13.0	15.0	15.2	14.8	13.8	14.4	14.4	15.7	12.7	14.3	12.5	11.8	13.3
2003	1	14.1	14.0	12.8	13.0	13.8	12.7	13.4	13.2	15.6	13.2	9.7	7.0	8.8	8.0	6.5	10.0	12.2	12.5	11.3	12.3	11.0	12.3	13.4	13.7	12.5	13.3	12.3	13.7	14.2	13.0	13.2
2003	2	14.9	16.0	15.6	16.5	16.2	15.0	12.8	11.2	14.4	13.0	15.6	15.4	13.0	13.0	12.1	12.7	13.5	14.4	15.2	16.0	14.4	14.0	14.0	14.9	17.0	14.8	15.0	15.4			
2003	3	16.1	16.8	19.6	17.8	16.4	15.0	15.2	15.2	14.8	14.6	17.6	16.4	15.8	15.4	16.6	17.0	16.8	16.8	15.8	14.8	15.1	15.4	16.0	18.4	18.7	19.0	20.2	19.8	19.8	19.0	18.4
2003	4	18.0	17.2	17.8	19.9	20.6	21.8	21.4	20.2	21.8	20.2	21.9	18.4	18.9	20.0	21.2	18.8	19.6	19.0	18.8	20.6	20.4	18.5	19.8	20.3	21.5	22.3	22.0	22.1	22.0	21.7	
2003	5	21.8	19.1	20.3	21.8	20.6	19.4	19.1	19.7	18.8	20.6	18.8	21.7	23.2	22.2	24.1	22.5	23.2	21.9	23.9	24.8	22.0	21.7	21.0	23.8	23.1	23.2	22.0	21.9	22.4	25.4	24.6
2003	6	24.9	25.9	22.6	26.4	24.2	23.1	22.8	23.1	22.2	21.0	24.5	22.6	22.0	22.5	21.3	24.8	26.0	26.0	26.0	26.0	25.6	26.5	25.6	24.0	23.5	23.4	23.0	23.2	22.6	24.0	
2003	7	22.5	23.0	23.6	23.0	23.0	23.6	22.5	22.6	22.8	22.2	22.4	23.0	23.0	24.0	24.5	24.9	25.5	25.0	23.2	23.1	23.2	25.0	24.8	27.1	25.0	27.4	25.4	25.8	24.0	24.0	24.4
2003	8	24.1	24.8	23.0	25.4	25.9	24.9	24.6	25.8	25.2	24.5	23.8	24.8	24.9	24.6	24.8	25.6	24.7	24.2	25.2	25.0	25.4	26.2	23.2	24.0	24.1	24.8	24.5	24.5	24.8	24.8	23.8
2003	9	24.0	25.0	24.2	24.8	24.0	24.8	24.0	23.8	25.5	25.9	25.0	24.9	26.2	25.7	24.4	24.0	25.2	23.4	23.7	23.2	23.7	23.8	24.2	25.2	23.6	23.6	23.6	23.1	23.8	24.4	
2003	10	23.4	23.7	25.6	22.2	23.0	22.1	23.2	22.0	22.0	22.0	22.0	21.2	21.2	21.9	21.5	22.0	22.8	23.0	22.8	21.3	22.6	20.8	21.7	21.5	21.6	20.2	20.6	19.0	20.7	21.0	21.0
2003	11	19.3	19.4	19.9	19.4	19.5	19.4	19.2	19.2	19.5	18.5	18.8	19.0	18.8	17.6	17.1	16.9	16.6	17.6	18.0	15.1	22.4	16.0	18.3	16.8	17.8	18.6	18.2	17.4	17.3	16.2	
2003	12	15.9	16.1	16.0	16.4	16.0	17.2	17.1	15.7	15.4	15.0	15.1	15.0	15.2	15.0	14.5	14.9	16.7	15.1	16.0	15.5	13.5	15.3	14.7	14.1	15.5	15.2	14.0	15.0	10.0	11.4	12.4
2004	1	12.5	14.3	14.3	14.4	13.2	12.5	13.8	14.2	11.6	12.5	13.4	13.3	13.2	14.0	12.3	13.3	13.4	11.7	14.1	11.7	12.0	15.3	14.2	14.9	14.9	14.0	13.0	12.6	11.7	11.9	15.5
2004	2	16.1	15.0	13.4	12.1	11.2	13.6	12.8	11.8	13.2	13.3	13.7	14.8	15.1	15.9	16.4	16.1	15.0	15.2	16.2	14.2	14.8	15.2	15.1	14.2	15.2	17.1	16.0	17.4	16.6		
2004	3	16.7	17.8	18.0	17.6	16.8	18.2	17.8	17.7	17.4	18.4	18.6	18.4	20.2	19.4	20.0	20.7	20.8	21.8	20.4	19.1	18.8	19.0	18.8	19.5	19.9	19.8	18.7	19.2	18.7	17.8	16.9
2004	4	17.4	15.0	18.1	18.6	20.1	21.4	21.8	18.0	19.8	19.0	20.3	21.0	18.7	18.0	18.2	18.2	16.8	20.2	19.5	20.8	20.4	22.2	20.4	21.1	21.9	22.5	22.1	20.5	21.5	22.2	
2004	5	22.7	20.5	21.0	21.2	22.4	21.4	22.6	20.0	21.8	20.8	21.0	21.0	21.5	21.5	21.2	22.0	22.2	24.1	21.6	22.8	22.7	21.3	21.6	21.7	21.6	22.1	24.2	24.0	24.0	23.6	24.0
2004	6	23.0	25.0	22.6	23.0	24.5	24.0	24.5	24.4	25.2	25.2	25.5	25.6	24.4	23.7	23.8	24.0	22.5	22.7	23.7	24.5	23.4	23.6	22.1	22.8	23.2	25.0	24.0	24.5	24.3	24.0	
2004	7	24.2	25.2	24.0	24.3	23.8	23.6	22.6	22.0	21.8	22.0	22.0	22.7	23.9	24.5	24.8	23.4	23.0	22.4	22.0	22.2	23.4	24.2	24..9	24.2	23.3	24.0	26.1	23.6	24.1	23.9	23.6
2004	8	24.2	24.7	24.2	24.2	23.7	24.8	24.4	25.5	23.2	24.4	25.8	25.5	26.3	24.3	24.9	25.8	26.8	25.8	24.5	25.6	24.8	25.0	24.8	24.5	24.3	23.8	23.4	23.7	25.0	24.0	23.8
2004	9	23.6	23.9	23.5	23.8	24.8	23.7	22.8	22.3	22.4	23.6	23.3	22.0	21.6	23.1	22.6	22.8	24.1	20.7	22.6	22.4	23.8	23.9	23.8	23.0	22.5	23.0	22.7	24.0	22.0	21.7	
2004	10	22.8	23.9	22.4	21.0	20.7	19.6	19.5	18.2	20.0	20.5	20.0	22.4	23.5	22.5	20.6	19.6	21.2	21.0	20.8	20.5	20.0	20.2	20.4	18.2	19.0	19.0	18.9	19.3	18.0	18.5	18.2
2004	11	17.6	17.7	18.5	18.1	17.9	17.6	17.3	17.1	18.4	18.9	18.0	17.1	18.1	17.7	17.0	15.9	17.0	17.0	18.6	17.8	16.2	16.5	16.0	16.1	15.2	16.0	15.9	15.8	15.1	15.2	
2004	12	15.8	15.7	14.6	12.0	14.5	14.6	16.0	16.8	15.2	15.4	15.2	15.2	15.0	15.2	14.8	15.0	15.0	14.6	13.3	15.0	13.8	12.8	14.2	14.6	13.6	12.6	12.8	11.0	11.0	11.8	11.8
2005	1	12.8	13.2	14.0	14.7	14.0	14.5	13.6	14.3	12.8	12.2	14.2	10.6	11.4	11.4	12.2	12.2	13.9	14.8	14.0	12.2	12.7	11.7	12.5	11.7	10.2	12.6	13.2	14.6	13.0	14.3	14.0
2005	2	17.5	14.2	14.2	13.7	13.6	14.6	15.0	14.8	15.9	15.7	14.0	15.6	14.8	13.8	13.3	12.7	14.2	14.2	16.4	16.6	15.8	12.9	14.6	15.4	16.4	14.8	15.1	17.6			
2005	3	17.6	17.0	16.3	16.4	17.7	17.2	17.0	17.3	17.1	17.1	17.2	17.5	18.9	17.6	18.1	18.2	20.3	20.0	19.7	17.5	17.0	16.5	17.0	17.8	15.6	15.5	16.8	16.2	16.6	16.8	17.8

2005	4	17.5	19.0	18.4	19.4	16.8	17.6	19.4	17.8	19.0	19.2	18.8	18.0	19.0	19.2	20.5	20.4	19.9	19.0	19.0	21.2	20.5	20.3	21.0	22.3	19.3	21.0	19.0	18.7	18.9	20.0	
2005	5	20.5	20.8	21.6	21.0	21.3	20.0	19.6	19.6	20.8	21.5	20.3	19.2	19.5	19.8	19.0	19.2	19.8	21.3	21.8	20.0	20.0	20.4	22.0	21.8	24.1	22.5	23.4	22.8	21.5	23.0	24.2
2005	6	22.6	22.5	22.6	23.0	21.6	24.0	25.3	24.2	24.6	25.0	25.2	25.1	24.7	25.2	24.5	25.5	27.0	23.5	24.5	24.3	24.2	23.2	23.2	23.5	22.5	23.5	25.2	25.6	24.7	24.7	
2005	7	25.0	25.1	24.2	24.9	25.7	26.0	26.1	24.4	24.0	23.2	22.8	22.0	22.5	24.0	23.7	23.0	22.8	22.5	22.1	23.0	24.4	24.9	25.2	25.1	26.0	26.6	25.2	25.0	24.0	26.4	26.9
2005	8	25.9	26.5	25.9	25.6	24.1	23.7	24.2	24.2	26.1	25.0	25.7	25.4	26.3	23.9	25.5	25.0	25.0	25.2	25.1	24.0	23.0	23.0	23.5	23.0	23.3	22.8	22.8	23.2	23.2	24.5	23.5
2005	9	25.5	25.4	23.3	24.5	24.7	24.6	23.2	24.4	25.2	26.0	25.8	25.5	24.5	24.2	23.7	23.9	25.4	25.2	26.0	24.8	24.5	23.0	21.8	21.6	21.8	22.4	24.4	25.0	25.2	23.1	
2005	10	23.5	23.0	22.6	21.1	22.2	22.0	22.8	21.5	22.1	21.8	20.5	20.6	20.9	21.2	20.8	21.0	23.1	22.0	21.1	22.2	20.0	19.8	19.1	17.0	18.0	18.6	19.4	20.4	19.2	19.6	19.7
2005	11	17.5	12.0	18.0	17.9	19.0	18.5	18.6	19.5	17.9	17.2	17.0	16.4	15.0	17.2	17.7	17.5	19.1	17.2	17.6	18.9	17.1	18.3	17.5	16.6	15.6	19.2	16.0	16.1	16.2	15.0	
2005	12	14.2	14.4	14.1	14.5	15.1	15.2	14.6	14.0	13.5	13.4	14.1	13.7	13.2	13.1	13.0	13.2	13.3	13.5	13.4	14.0	13.6	14.0	15.5	14.5	14.5	15.1	14.5	13.5	14.2	12.9	12.7
2006	1	12.5	12.5	12.8	12.2	12.4	12.5	12.9	12.5	13.0	12.8	12.6	12.5	12.2	13.2	13.2	12.5	12.2	14.1	13.7	12.6	12.5	15.1	13.4	14.5	14.9	13.4	13.0	13.1	13.4	13.5	14.1
2006	2	15.2	16.1	16.7	16.5	14.4	13.8	15.2	16.0	16.4	17.3	16.5	16.1	18.6	18.1	15.2	15.1	14.7	16.7	18.0	19.6	17.7	17.9	17.4	17.7	17.7	17.7	16.6	17.2			
2006	3	17.2	16.7	18.4	18.5	18.1	16.5	17.7	17.2	18.4	19.1	21.4	18.0	15.1	17.1	16.2	18.1	15.6	16.4	17.2	17.8	17.7	17.2	17.2	18.2	17.9	18.5	18.2	19.0	19.6	19.5	18.5
2006	4	19.4	19.2	18.0	17.7	15.7	17.2	17.8	18.7	18.4	19.6	19.2	19.4	19.5	19.7	19.2	19.4	18.7	18.1	18.8	17.7	20.0	19.0	20.1	19.0	20.4	21.9	20.0	17.5	21.2	21.6	
2006	5	23.4	24.4	22.0	20.9	20.8	19.9	19.0	21.1	22.4	24.2	22.9	22.0	21.7	18.8	19.2	20.7	21.1	24.8	23.7	19.7	23.2	24.3	25.5	25.2	25.8	26.0	22.6	21.6	21.5	21.3	21.3
2006	6	22.5	22.1	23.5	24.1	24.4	24.4	24.2	24.1	23.6	22.8	22.5	21.7	21.2	21.6	21.4	20.4	22.3	23.5	24.9	26.2	24.2	24.1	23.5	24.5	23.6	24.3	23.7	23.2	23.8	25.5	
2006	7	25.5	26.5	27.1	24.3	24.0	23.1	23.5	24.0	25.0	25.1	24.6	25.5	24.7	24.7	25.1	25.2	26.3	24.5	24.4	24.4	24.9	24.6	23.2	23.5	23.8	24.0	24.4	25.2	26.0	26.8	25.8
2006	8	26.0	25.9	26.2	23.5	24.5	23.2	24.0	23.8	24.6	27.4	27.8	25.9	26.4	23.5	27.0	27.0	27.5	23.9	23.1	25.3	23.5	25.9	24.0	23.7	23.5	23.7	23.7	25.7	26.0	24.7	24.9
2006	9	24.3	23.0	25.7	25.0	24.1	23.4	23.0	22.9	23.0	22.5	23.1	22.1	21.7	22.3	23.0	24.3	24.5	24.0	24.9	25.0	23.5	22.0	23.0	23.8	22.5	23.6	23.4	25.3	25.5	23.8	
2006	10	23.5	23.3	24.2	23.8	22.6	22.7	22.5	22.4	22.8	23.1	21.2	22.6	25.3	22.9	22.0	22.6	22.2	22.7	21.1	21.7	21.7	19.4	19.7	20.6	21.0	19.9	20.9	19.4	18.8	18.3	18.3
2006	11	17.4	19.0	18.6	19.5	20.5	19.2	19.6	20.5	20.0	20.0	19.7	17.6	18.5	18.4	19.1	18.2	17.9	17.0	17.0	15.3	13.4	16.2	16.4	14.1	14.7	14.0	15.0	15.1	14.8	13.9	
2006	12	14.0	14.1	13.1	15.0	14.7	14.9	14.6	15.4	16.8	15.2	15.0	14.8	14.0	13.8	13.3	13.5	15.0	14.8	15.0	15.0	14.5	13.7	13.5	13.0	13.4	13.3	13.2	14.3	13.0	13.5	13.1
2007	1	14.9	15.0	10.6	12.0	15.5	15.8	14.4	15.6	14.2	13.9	15.6	15.0	15.3	13.0	13.6	12.1	13.0	10.6	10.2	12.4	12.6	13.4	12.0	12.9	13.0	12.8	13.2	13.8	15.2	15.4	16.8
2007	2	15.4	15.8	15.2	15.0	14.1	13.5	13.5	14.8	13.6	13.8	16.2	16.1	14.1	14.8	13.2	11.0	11.8	12.0	12.9	12.0	14.0	14.4	15.5	16.8	17.9	17.0	15.0	14.8			
2007	3	15.4	16.3	14.6	14.5	16.2	17.8	15.5	16.7	16.2	17.5	18.4	19.6	18.2	19.4	16.1	15.4	14.2	14.4	16.8	17.1	18.2	19.3	15.4	19.2	19.4	17.5	19.6	18.4	19.6	20.4	20.3
2007	4	22.6	21.7	19.1	18.6	18.9	18.5	18.9	17.8	17.9	17.0	17.0	16.5	18.8	19.8	21.4	21.8	22.8	21.9	22.9	20.1	19.7	19.3	18.5	18.1	18.2	18.8	18.1	16.4	19.6	21.8	
2007	5	22.7	23.6	23.9	23.3	24.4	24.8	24.7	22.8	25.0	22.8	24.7	24.5	24.6	23.4	20.5	19.9	21.7	24.0	25.5	22.5	23.5	23.6	23.1	22.4	21.0	21.5	22.5	22.5	23.6	24.0	22.4
2007	6	21.5	21.7	21.4	23.0	23.8	23.5	23.9	23.1	22.3	23.0	22.2	23.1	24.8	22.6	21.5	23.2	22.4	23.2	23.6	25.2	24.0	24.0	23.6	23.0	22.0	24.6	25.6	23.9	25.5	24.5	
2007	7	25.2	25.6	25.0	26.9	26.6	26.6	25.0	25.5	24.7	24.3	24.1	23.6	24.4	24.6	24.5	25.5	24.9	23.4	23.5	23.5	23.0	22.5	22.1	22.6	22.0	21.1	22.3	22.2	22.1	22.3	22.0
2007	8	22.5	23.2	24.0	24.4	25.9	26.9	26.4	23.9	24.9	26.6	26.0	26.3	24.6	24.4	24.5	24.4	24.0	23.9	26.1	24.6	25.0	24.5	23.5	25.0	24.3	25.1	25.5	24.0	24.5	24.6	24.5

2007	9	24.5	25.1	23.6	22.5	20.6	21.5	22.2	22.0	22.4	22.6	23.5	24.0	24.5	25.2	22.8	22.6	22.4	24.5	24.9	24.4	24.0	23.5	22.1	22.0	22.9	23.4	22.6	24.0	23.1	23.4	
2007	10	23.7	23.5	25.0	25.3	25.6	25.4	26.1	25.0	22.6	22.8	20.5	21.4	23.3	23.9	22.4	22.1	21.0	21.5	20.6	20.6	20.3	19.9	20.5	19.3	20.0	19.4	18.1	19.0	20.8	21.3	20.8
2007	11	21.7	21.4	20.0	19.6	19.3	20.4	17.0	19.5	20.0	20.2	20.0	18.2	17.3	17.5	18.6	17.4	16.5	16.1	17.0	18.0	17.0	17.0	16.5	16.3	16.0	15.4	15.1	15.0	15.0	14.5	
2007	12	14.6	15.6	15.8	14.5	10.6	13.0	13.5	13.5	13.3	13.5	13.2	12.6	13.0	13.1	13.4	12.1	13.3	12.7	12.1	11.9	11.5	11.8	12.4	12.5	12.9	13.8	14.2	15.7	15.8	15.3	13.2
2008	1	13.4	15.1	14.0	13.0	13.6	13.0	12.6	12.5	12.8	12.9	13.9	14.1	14.1	11.7	13.7	14.1	14.6	14.5	15.0	15.2	14.0	11.6	13.6	11.4	11.5	13.5	13.0	11.0	10.4	10.2	10.0
2008	2	9.6	7.6	9.0	11.5	12.6	12.0	13.0	15.3	13.0	14.0	13.4	14.0	11.8	12.3	11.6	13.8	12.0	14.4	14.4	13.8	12.8	13.0	14.3	16.4	15.2	14.0	15.3	13.5	13.8		
2008	3	16.0	15.1	18.5	17.5	14.4	13.9	16.1	17.3	16.0	17.1	17.8	19.0	19.1	18.5	16.3	16.5	17.6	18.5	16.9	16.6	15.6	16.4	16.5	18.2	16.8	17.8	17.4	16.9	16.6	17.2	17.5
2008	4	19.0	16.1	16.6	16.8	18.3	19.0	19.3	19.8	20.0	20.6	21.4	21.2	18.5	17.9	18.6	20.0	20.9	19.5	20.0	20.5	22.2	20.6	22.5	22.6	20.5	20.5	19.0	17.0	17.2	18.6	
2008	5	21.6	20.1	20.0	21.0	22.4	23.0	21.5	23.2	21.5	23.4	22.2	23.4	21.4	23.5	23.5	24.0	24.9	22.5	24.0	20.0	20.6	22.1	21.4	22.1	22.8	23.5	22.8	23.6	23.6	24.0	22.4
2008	6	23.3	23.5	23.8	23.2	22.9	22.6	23.4	23.4	24.2	22.8	22.5	22.2	23.2	22.2	23.7	26.0	26.0	23.0	22.3	22.7	22.6	22.2	23.7	25.0	25.6	24.0	23.3	25.1	25.7	25.7	
2008	7	23.8	23.0	23.8	23.3	22.5	25.0	24.7	25.4	25.6	25.4	23.5	23.4	23.9	24.6	23.3	24.3	24.4	24.9	23.6	24.1	23.4	22.3	22.6	23.2	22.9	23.8	24.4	24.4	24.9	24.8	23.9
2008	8	24.5	25.6	24.6	24.4	22.7	23.2	23.1	25.6	26.7	26.3	24.4	23.1	23.6	24.6	24.0	22.9	22.5	22.6	22.6	25.1	23.9	24.9	25.5	24.2	23.9	23.0	22.3	22.2	22.5	22.4	22.2
2008	9	23.2	21.6	20.7	21.8	21.9	23.0	23.7	25.2	23.9	23.5	24.2	22.7	20.2	24.9	25.2	25.9	23.0	22.9	23.5	24.2	24.4	23.2	23.6	24.1	24.0	23.7	25.2	24.9	23.1	23.4	
2008	10	23.0	22.0	23.2	22.8	22.6	22.6	20.7	22.5	22.5	21.6	22.4	22.7	22.0	22.0	21.8	21.4	19.8	20.0	21.5	20.0	20.8	20.3	19.5	19.7	21.3	20.5	17.7	18.5	17.5	17.4	18.2
2008	11	18.9	18.5	18.4	18.3	19.9	17.6	16.0	15.6	16.4	16.4	16.3	16.2	16.3	16.1	15.4	15.2	14.4	14.7	14.6	16.1	17.2	16.0	14.7	14.7	14.6	14.7	15.5	15.1	15.2	15.7	
2008	12	15.4	15.3	15.8	15.2	17.2	16.2	15.4	15.4	15.0	14.0	14.2	16.4	13.3	14.4	12.9	15.0	15.2	14.8	14.3	14.2	14.0	15.2	16.7	16.1	15.9	15.5	13.4	12.0	12.8	13.1	13.2
2009	1	14.3	14.2	12.3	11.9	12.4	13.5	13.1	13.0	12.0	12.3	13.3	12.5	12.8	13.0	12.6	13.5	12.5	13.4	14.4	14.5	15.0	14.2	14.6	16.1	18.3	17.0	17.1	16.0	14.6	14.4	14.1
2009	2	14.9	14.4	14.1	14.0	14.2	14.7	14.5	15.6	16.0	16.0	16.3	16.5	16.1	15.1	14.7	16.9	17.0	16.6	17.5	17.8	17.2	14.0	14.1	13.3	13.0	13.7	13.6	13.1			
2009	3	12.8	15.1	15.2	16.5	15.4	16.5	17.6	17.5	18.4	19.7	18.2	15.2	18.7	16.9	17.4	17.5	16.2	17.4	18.1	17.2	18.4	18.3	17.9	20.6	19.5	19.8	17.6	16.8	17.3	17.2	17.0
2009	4	16.1	14.7	19.0	19.5	17.6	19.4	19.3	17.6	18.0	17.9	16.5	18.9	19.4	21.4	20.5	21.9	21.0	19.9	20.5	21.2	19.5	20.3	20.1	19.3	20.9	21.9	22.2	23.0	23.2	23.0	
2009	5	20.1	21.0	22.4	20.5	22.6	22.5	22.3	21.0	20.0	19.0	19.2	21.1	22.2	19.5	20.9	21.4	23.4	20.9	19.0	23.5	23.9	23.7	23.6	24.3	25.6	24.2	21.5	23.0	24.5	22.3	24.0
2009	6	23.0	21.0	23.2	23.9	24.8	23.2	24.7	25.1	23.6	21.6	21.6	22.6	23.0	22.8	22.5	23.5	24.3	24.9	24.9	23.9	23.1	24.6	24.9	26.0	25.9	25.9	24.0	23.5	23.2	23.0	
2009	7	23.1	22.6	22.7	22.3	22.5	23.0	23.6	23.2	23.5	23.4	23.6	24.6	26.1	26.7	25.3	25.5	25.3	25.5	25.4	27.1	25.8	24.9	25.2	24.8	24.3	23.7	23.5	24.3	23.4	23.5	23.1
2009	8	24.0	24.1	24.8	25.2	25.1	24.5	26.1	23.2	25.9	24.7	24.7	24.3	23.0	23.9	24.2	23.0	22.9	22.9	23.0	23.0	22.3	22.5	23.1	24.0	25.1	24.8	24.7	23.2	22.9	23.4	24.5
2009	9	25.5	22.9	23.8	25.0	25.2	24.7	25.7	24.6	25.9	23.6	23.4	24.0	24.3	24.5	23.6	24.5	24.4	23.3	22.2	22.1	22.0	21.6	22.2	22.6	23.2	22.2	25.7	22.9	24.8	23.9	
2009	10	21.3	24.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21.1	20.7	20.7	20.7	19.9	19.8	19.1	19.3
2009	11	19.2	19.4	20.0	18.9	19.4	18.1	16.9	17.9	17.7	15.8	17.9	17.9	17.3	16.2	19.1	18.3	18.3	17.3	16.4	15.6	15.5	15.2	14.7	14.8	14.7	14.9	15.3	15.5	15.5	15.2	
2009	12	15.3	16.0	15.9	15.5	15.0	16.2	15.6	14.5	14.2	13.2	14.4	14.7	14.7	14.8	15.0	14.5	16.4	15.7	14.6	13.7	13.8	13.3	13.9	14.4	14.6	12.6	12.0	11.5	11.9	12.2	12.2
2010	1	12.3	11.8	11.1	11.8	11.7	11.7	12.1	12.4	12.5	12.7	12.6	12.3	10.6	10.4	9.8	7.8	8.3	10.6	11.7	13.1	12.9	12.8	12.8	13.2	13.2	12.5	13.7	13.6	12.8	14.2	15.6

2010	2	15.4	15.0	14.6	15.3	13.4	12.2	12.4	13.6	14.5	17.0	16.7	14.6	15.5	14.5	14.7	14.4	15.2	13.9	15.1	13.4	14.2	15.0	16.4	15.1	14.8	15.0	15.9	16.8			
2010	3	15.7	16.8	15.3	15.6	14.6	15.3	16.8	17.2	18.4	18.6	19.8	18.9	18.9	18.3	15.7	15.6	17.0	18.5	18.5	19.2	20.1	20.3	18.2	18.0	18.3	18.8	17.6	16.5	16.8	17.7	16.8
2010	4	16.7	17.2	18.1	17.8	18.1	18.9	17.7	20.3	20.0	19.2	19.2	20.2	20.7	19.5	19.2	20.6	21.2	19.7	20.3	19.4	19.6	19.8	18.3	18.0	17.8	18.3	17.3	16.3	19.1	20.4	
2010	5	20.0	22.3	21.2	20.0	21.8	23.2	22.5	22.1	20.6	19.3	20.5	18.9	19.3	19.3	19.3	19.1	19.0	20.8	21.4	21.7	21.1	20.3	22.3	23.2	22.6	22.5	24.3	22.7	24.0	23.6	22.6
2010	6	21.0	21.0	21.8	21.6	22.0	20.3	21.5	20.2	21.2	21.6	22.4	23.7	22.8	22.9	23.0	24.7	23.5	23.3	24.4	23.2	23.3	23.7	23.1	25.2	24.1	23.7	23.2	23.2	22.6	23.4	
2010	7	24.6	24.8	24.5	23.8	24.0	24.9	23.3	23.0	22.7	22.6	22.7	23.8	23.6	24.8	24.8	24.5	23.9	23.7	22.2	23.9	23.1	23.3	24.1	24.9	25.2	23.0	25.7	25.0	25.3	24.5	23.8
2010	8	24.0	24.0	24.5	23.3	26.1	26.0	23.4	25.0	24.9	25.5	25.1	25.5	24.7	23.5	25.6	25.0	24.4	24.0	24.8	24.5	24.4	23.6	23.2	24.0	25.2	24.9	24.7	24.7	25.4	23.6	25.2
2010	9	23.8	24.0	24.6	23.0	22.6	22.9	22.8	23.3	22.0	22.0	22.0	24.0	24.0	23.8	23.5	23.5	23.8	24.9	22.4	23.0	22.5	22.4	24.0	22.0	23.0	22.6	22.2	21.7	23.1	23.1	
2010	10	23.5	23.9	24.8	24.4	22.1	20.0	23.0	21.8	20.3	21.4	22.5	21.4	23.1	23.1	23.1	22.2	21.3	21.1	22.7	22.9	21.3	21.3	21.8	21.7	22.3	21.2	21.8	19.0	19.9	19.1	20.4
2010	11	19.8	19.0	19.4	19.5	19.3	18.7	18.4	18.0	18.0	18.0	18.2	19.4	18.8	19.1	18.5	18.3	20.1	18.1	18.2	17.1	16.2	15.2	15.1	15.4	16.6	18.0	18.7	18.7	19.1	16.8	
2010	12	15.0	16.3	15.5	14.2	13.6	13.8	13.8	14.4	16.1	15.3	16.2	15.8	13.6	13.1	12.5	14.0	13.2	12.6	12.9	12.5	12.2	11.8	11.6	12.8	12.6	12.6	12.0	12.0	12.5	12.8	13.5
2011	1	12.1	13.0	12.3	12.2	12.8	13.4	12.8	12.7	12.9	14.2	12.5	11.4	11.2	12.1	9.9	13.2	9.9	10.4	10.7	11.2	8.7	11.4	12.2	12.5	12.8	13.4	13.5	13.2	13.6	13.4	14.1
2011	2	12.6	12.6	13.1	13.4	13.6	13.8	13.6	14.5	15.2	14.1	15.2	15.7	15.0	16.0	16.5	16.1	15.8	14.5	14.9	14.3	13.5	14.8	14.4	15.2	15.5	15.9	16.0	16.1			
2011	3	15.2	15.5	16.4	17.6	16.2	16.8	16.5	18.0	17.2	15.7	17.0	16.7	16.2	16.2	16.8	15.2	15.6	16.5	14.8	15.0	17.8	17.1	18.1	18.1	17.2	15.4	15.7	16.9	18.0	17.7	18.7
2011	4	16.8	16.8	18.8	19.2	18.2	19.5	18.2	17.0	17.0	18.2	19.5	20.1	20.2	19.0	19.0	19.3	19.4	21.8	21.2	19.0	19.5	18.8	19.2	18.6	20.3	18.9	20.7	19.9	22.8	22.2	
2011	5	20.2	20.0	19.2	19.1	19.8	21.0	22.2	22.3	23.3	23.0	22.9	23.2	21.4	23.0	22.7	24.1	22.9	23.3	20.5	22.0	22.1	22.0	21.9	21.0	21.1	23.0	24.8	24.8	24.7	23.7	22.3
2011	6	22.2	22.8	22.9	21.6	22.3	23.9	23.3	22.2	24.2	23.5	22.0	24.9	25.2	25.4	25.2	26.4	26.2	25.8	26.0	25.2	24.8	24.6	25.1	24.9	26.3	24.0	25.3	23.5	23.5	23.1	
2011	7	23.3	23.1	24.0	23.6	24.2	23.2	24.0	22.7	23.1	23.8	24.6	25.7	23.3	23.8	21.5	23.7	24.1	22.9	22.3	25.3	26.3	24.0	24.0	24.1	23.7	25.3	23.5	23.7	24.4	24.3	24.2
2011	8	25.5	25.2	26.3	24.9	23.2	26.6	25.2	23.4	24.3	24.3	24.9	25.0	25.5	23.3	22.5	22.6	22.6	22.9	29.8	23.5	24.0	24.6	24.0	22.2	22.8	34.3	25.2	25.1	25.1	25.8	24.7
2011	9	23.2	23.8	24.4	25.0	26.0	24.4	22.8	24.0	24.4	24.4	24.3	25.6	24.8	25.9	24.1	22.8	23.2	23.2	23.8	24.5	24.1	25.0	25.0	22.8	22.3	22.6	23.2	22.3	24.0	24.5	
2011	10	24.1	22.2	24.2	23.2	22.9	23.0	23.1	22.0	23.1	22.9	22.7	22.4	22.0	20.9	23.8	21.8	21.8	20.5	22.1	22.7	22.0	20.0	19.6	19.6	19.5	20.0	20.2	19.1	19.0	18.9	19.1
2011	11	19.5	18.0	16.9	16.5	16.3	17.0	17.0	16.2	15.0	15.2	15.0	15.5	15.8	16.0	17.6	16.0	16.4	15.1	15.0	15.9	16.2	16.2	16.4	16.3	16.1	15.9	15.4	15.2	16.9	18.9	
2011	12	13.9	16.0	15.6	18.0	16.8	17.5	18.6	18.0	18.0	15.8	14.9	14.0	13.0	14.0	13.5	15.1	16.1	12.9	12.4	12.5	12.5	12.2	11.8	12.1	12.8	12.4	13.0	14.7	13.7	13.6	13.2
2012	1	13.0	15.6	13.6	12.7	12.5	13.0	13.0	13.0	14.0	13.0	14.0	11.7	12.0	8.5	9.0	10.5	11.0	11.1	11.0	11.8	11.9	12.0	11.8	13.2	13.7	10.9	13.5	13.5	13.2	12.4	12.3
2012	2	12.0	13.0	11.6	12.4	13.4	15.3	13.8	14.5	15.7	14.3	14.0	14.6	14.9	15.1	14.8	15.5	15.9	15.1	13.8	15.9	16.1	16.5	17.0	16.6	17.2	16.4	15.3	16.2	14.9		
2012	3	13.0	12.5	11.9	13.0	14.0	16.0	15.6	15.0	14.3	16.1	16.8	16.3	17.0	17.1	15.0	14.5	13.2	14.9	16.2	17.4	20.2	18.2	18.1	18.3	20.2	19.2	17.4	17.4	17.4	17.0	16.2
2012	4	19.2	19.3	20.0	19.9	19.0	17.9	17.2	16.9	17.0	16.1	19.5	18.2	18.2	17.8	17.6	18.4	16.5	16.8	17.2	16.5	21.6	20.0	19.2	18.5	18.5	18.7	19.0	18.2	17.2	17.5	
2012	5	17.6	17.8	19.1	19.4	19.1	20.5	21.8	22.0	22.5	22.4	22.9	23.5	21.0	21.5	19.8	20.0	20.3	20.0	22.0	23.6	24.2	24.7	22.1	21.7	21.8	24.1	24.8	25.6	25.9	24.0	25.4
2012	6	25.6	24.0	23.0	22.1	21.5	20.5	22.7	24.0	25.2	23.9	24.0	23.2	22.4	23.0	23.4	23.2	24.0	24.5	25.2	24.0	23.8	23.5	22.4	22.9	23.3	22.0	22.1	24.6	24.0	25.5	

2012	7	24.7	25.6	24.1	22.7	22.6	23.4	24.0	24.8	24.0	24.0	22.9	23.0	23.3	23.5	23.5	23.0	22.5	23.5	24.0	24.7	24.4	23.0	23.1	23.4	23.2	25.2	22.9	23.9	24.2	25.1	24.3
2012	8	24.7	23.6	24.4	26.3	25.0	24.5	24.0	24.9	26.0	23.0	26.5	24.6	24.5	25.0	24.5	26.0	25.8	26.5	24.4	23.9	23.1	23.1	22.9	23.3	25.1	25.4	23.0	24.7	25.0	24.9	23.5
2012	9	22.7	23.0	22.5	22.4	24.1	24.5	24.1	25.4	25.9	24.0	24.4	23.0	21.3	23.0	21.0	21.8	22.2	22.9	22.7	22.0	21.2	22.2	22.2	20.8	21.9	23.4	23.1	23.3	23.2	23.4	
2012	10	22.9	21.9	21.7	21.3	21.0	21.3	23.1	23.0	21.4	22.0	21.4	20.5	20.5	19.0	20.0	19.6	18.8	19.2	19.4	20.0	19.0	18.9	20.0	19.6	20.0	18.9	18.5	18.5	18.0	17.6	17.1
2012	11	17.0	17.9	16.5	16.5	16.7	16.3	17.9	17.3	16.9	15.6	16.1	16.0	16.1	16.0	16.0	15.6	15.6	14.7	15.0	15.7	16.2	16.4	16.1	15.1	15.5	15.9	17.1	15.0	15.1	17.5	
2012	12	16.5	15.0	15.0	14.5	14.5	15.1	15.0	15.0	17.0	16.4	14.3	16.3	13.7	13.5	14.0	13.2	13.5	14.0	14.3	14.9	14.0	14.1	13.5	12.9	12.1	12.3	11.5	11.1	12.0	11.6	12.2
2013	1	12.1	12.1	13.1	13.7	14.1	13.0	12.9	11.2	11.5	9.0	9.0	9.7	10.5	10.3	10.1	10.9	13.0	13.2	13.3	13.2	13.5	13.0	11.6	11.4	12.0	11.5	11.9	12.4	12.9	12.9	12.5
2013	2	13.5	16.3	15.0	13.3	14.1	14.1	14.9	16.5	17.0	14.6	15.5	15.5	16.0	16.7	16.7	16.5	16.4	14.6	15.5	14.0	16.1	15.2	15.6	16.1	17.4	17.0	17.5	19.0			
2013	3	20.4	18.8	19.9	22.1	18.3	20.2	20.0	22.0	17.8	19.8	19.0	16.1	18.7	19.1	22.4	19.0	18.4	16.1	14.9	16.1	18.1	15.9	15.9	18.0	20.6	17.6	18.4	18.2	20.6	17.8	16.4
2013	4	18.1	18.5	20.0	17.2	17.0	16.5	19.0	18.5	19.4	20.1	18.6	19.1	18.5	19.1	17.4	17.0	18.0	18.2	18.1	19.6	19.5	21.1	18.5	20.9	21.1	20.6	22.6	21.0	22.1	22.7	
2013	5	21.7	21.0	20.9	17.3	17.1	18.4	20.1	20.8	20.1	22.0	22.5	21.0	20.8	19.5	20.0	23.1	20.0	20.6	20.3	23.2	21.9	25.0	22.5	22.5	23.0	23.0	25.0	22.6	24.0	24.8	24.0
2013	6	23.0	23.3	24.4	25.6	23.5	24.0	24.1	23.9	24.1	24.9	26.2	26.2	24.2	24.0	24.2	26.0	24.8	23.9	24.6	25.5	25.2	25.5	24.7	24.1	23.4	22.8	22.8	22.0	23.5	24.4	
2013	7	24.5	24.4	24.2	23.5	23.1	23.1	23.5	22.4	22.3	22.5	23.2	24.1	24.0	24.8	24.0	24.9	23.8	23.5	23.0	24.1	24.6	25.7	23.8	23.6	23.9	24.5	25.3	24.7	24.9	26.7	23.0
2013	8	25.2	24.4	24.9	26.2	23.1	23.4	23.2	22.8	23.8	23.3	24.8	23.8	22.8	23.6	24.6	24.0	24.3	23.9	26.0	25.3	25.5	24.8	25.1	24.5	25.0	24.5	23.0	24.5	24.0	23.1	23.1
2013	9	23.3	24.1	22.9	22.5	22.3	22.1	22.3	23.9	24.0	23.0	24.1	23.2	24.3	24.7	23.1	24.1	25.5	25.9	25.5	24.3	23.8	23.6	24.0	24.1	23.3	23.0	23.6	23.0	24.7	24.1	
2013	10	23.5	24.1	24.8	23.7	21.4	21.0	19.7	19.3	21.0	21.3	19.9	20.7	20.5	22.2	22.8	21.6	23.1	22.9	21.0	20.7	18.3	19.0	19.7	18.6	18.9	N/A	N/A	N/A	N/A	N/A	N/A
2013	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15.3	15.0	15.2	15.7	15.8	15.8	16.2	17.6	17.0	15.7	15.8	15.7	16.8	18.6	18.5	18.5	
2013	12	17.2	17.8	17.0	16.8	16.4	15.8	16.0	16.5	15.9	17.1	17.4	16.0	14.9	16.4	14.8	11.0	10.4	10.5	10.9	12.1	12.2	13.5	12.9	13.7	13.6	14.7	12.9	13.8	15.4	12.3	13.2
2014	1	13.5	12.4	13.1	13.1	11.9	12.8	12.6	13.3	12.2	13.1	13.4	14.5	13.0	13.0	13.2	13.7	13.5	14.0	14.3	14.0	13.5	13.6	13.5	14.5	15.1	15.0	16.1	15.9	15.2	15.1	14.3
2014	2	14.1	13.9	14.3	14.6	15.9	15.0	14.8	14.9	13.9	13.9	14.5	12.6	14.7	14.2	14.4	12.8	13.0	10.1	12.0	14.1	15.8	16.0	18.3	16.2	16.5	17.4	18.5	16.0			
2014	3	16.2	16.0	16.0	17.1	16.9	16.6	17.2	18.1	17.0	16.5	18.2	20.2	19.9	18.8	19.1	19.0	19.1	20.3	19.4	17.1	14.6	17.6	18.1	16.7	18.8	19.5	20.1	21.2	19.8	19.1	18.8
2014	4	18.4	18.1	19.0	17.7	18.0	19.3	20.9	22.2	19.0	19.4	19.5	20.1	20.2	20.1	20.5	19.8	20.4	19.8	20.2	23.2	21.9	21.8	23.8	22.6	20.8	20.9	22.6	19.4	19.9	22.0	
2014	5	23.4	24.2	21.4	21.5	19.0	22.2	19.8	19.0	20.0	20.7	19.9	20.0	19.7	20.4	20.3	19.0	22.2	21.4	22.6	24.8	20.9	17.0	17.5	19.1	25.7	25.1	17.3	23.0	23.1	22.7	25.1
2014	6	25.8	25.9	26.9	25.5	25.7	23.6	25.4	25.0	24.2	24.2	26.1	24.9	26.3	23.6	26.3	26.5	25.2	26.8	24.5	24.5	23.6	23.7	23.6	24.2	23.7	26.5	24.1	23.1	22.8	23.5	
2014	7	23.4	26.4	24.2	24.0	25.1	25.4	23.9	23.3	24.0	24.6	25.8	27.2	26.6	25.5	24.9	23.8	24.5	25.3	25.5	26.3	27.2	24.3	25.0	24.5	27.1	25.1	25.5	25.0	25.7	26.4	25.0
2014	8	24.8	26.1	24.3	25.1	24.4	24.1	25.2	25.2	25.1	23.1	23.8	23.2	23.6	22.3	22.1	22.9	23.6	24.4	23.4	24.0	24.1	22.7	22.2	21.8	21.6	21.9	23.4	25.0	25.9	25.4	25.4
2014	9	26.5	25.4	25.4	25.8	24.6	25.3	26.2	23.0	24.3	24.0	24.1	24.0	23.7	23.4	24.9	23.6	24.4	24.6	24.9	23.5	23.1	23.0	21.7	21.6	22.5	22.1	21.9	21.3	21.5	23.1	
2014	10	23.1	22.8	22.6	22.2	22.4	23.8	23.7	23.4	23.1	23.9	23.4	23.4	24.3	22.2	22.0	23.0	21.6	20.9	20.6	20.6	20.6	20.1	19.5	19.5	20.1	19.9	18.3	19.0	20.4	19.4	
2014	11	19.3	19.5	21.2	20.5	20.6	20.7	15.7	18.9	18.8	19.8	19.0	21.0	20.7	19.1	19.1	19.0	19.6	19.6	18.7	18.2	17.6	19.5	17.6	17.4	16.5	16.3	16.0	16.6	16.7	15.6	

2014	12	16.0	17.0	18.2	19.6	18.9	18.1	18.4	18.1	18.8	18.2	16.6	15.9	14.6	14.9	16.8	16.3	16.5	14.6	13.7	13.0	12.7	12.9	13.1	14.3	13.9	14.1	14.6	13.9	13.6	13.5	14.4
2015	1	14.8	14.9	15.3	16.0	15.5	14.2	14.6	14.9	15.0	14.1	13.5	13.4	12.6	12.5	13.1	13.9	15.4	14.3	12.8	13.7	13.6	13.6	13.3	16.7	14.9	14.8	14.5	16.2	15.5	15.0	13.1
2015	2	12.5	12.5	13.4	13.6	16.3	15.3	16.5	16.0	16.1	17.2	15.1	15.5	13.9	13.8	14.0	14.5	14.9	15.4	17.3	15.5	16.3	15.8	16.9	18.1	19.9	17.8	17.9	16.9			
2015	3	19.5	19.0	17.7	16.1	15.8	16.5	17.0	16.1	18.6	18.0	19.9	18.8	19.1	19.4	17.6	18.9	18.7	16.4	17.4	18.2	17.3	20.0	19.8	22.2	19.6	20.7	19.0	19.9	16.6	21.2	19.1
2015	4	18.0	17.5	17.5	18.6	17.9	18.2	18.7	19.7	17.4	17.2	19.2	20.2	20.8	22.4	21.3	22.6	20.6	19.3	18.8	17.3	21.6	20.0	19.2	18.6	19.9	19.4	20.4	20.1	21.4	19.8	
2015	5	21.5	21.9	20.6	19.9	21.7	21.6	21.0	21.1	20.5	22.7	24.1	24.3	22.9	22.9	23.4	22.2	21.4	22.0	23.2	23.9	24.7	23.2	20.4	20.6	20.9	21.4	22.2	21.6	20.6	22.1	23.6
2015	6	22.2	21.5	23.2	22.9	24.6	22.9	21.7	21.8	21.6	20.5	21.7	23.6	22.4	22.1	22.0	23.6	23.4	23.8	23.8	24.4	25.9	24.4	24.5	23.8	26.1	27.1	27.3	25.6	23.4	23.0	
2015	7	23.1	23.5	24.9	23.6	23.0	24.5	25.7	26.5	26.8	24.9	25.8	25.2	25.2	24.0	23.6	24.9	25.7	25.5	25.0	28.8	24.0	24.7	24.8	23.1	22.4	24.9	26.3	25.2	26.6	26.3	26.4
2015	8	26.6	25.7	23.9	23.6	23.3	23.3	24.1	25.1	25.2	25.5	26.5	26.4	25.5	25.4	24.0	23.9	23.5	22.5	23.1	22.8	22.7	24.7	24.0	24.6	23.4	25.9	26.0	23.4	22.8	22.7	22.8
2015	9	22.9	23.0	23.9	24.7	24.7	24.4	24.7	26.4	24.6	26.0	24.2	23.6	24.1	25.8	25.3	21.8	24.7	26.2	26.9	23.5	23.0	23.1	23.9	23.3	23.0	23.0	24.0	23.9	24.5	23.2	
2015	10	23.5	24.1	24.5	24.0	23.5	23.4	23.6	24.2	23.1	21.0	22.4	22.4	21.8	22.2	22.6	21.6	21.3	20.6	21.9	21.1	21.1	20.9	21.2	20.2	19.2	20.4	20.0	20.1	19.4	19.4	19.7
2015	11	20.0	19.4	19.6	19.7	18.9	17.4	18.1	17.7	17.6	17.2	17.0	16.9	17.1	17.1	17.7	18.9	18.1	19.0	18.0	17.7	17.5	17.1	16.6	16.2	15.6	15.8	17.3	18.1	16.9	16.8	
2015	12	16.6	17.6	17.6	16.4	14.2	16.2	16.0	15.6	15.4	15.5	16.9	15.8	15.6	15.2	14.3	13.1	13.4	13.6	12.5	11.9	14.1	12.2	13.6	12.9	12.0	11.4	11.9	12.9	13.6	13.0	16.7
2016	1	15.9	14.7	13.9	13.9	13.3	13.8	13.2	14.9	13.4	12.2	13.1	13.0	12.4	14.1	12.2	13.9	11.9	12.6	12.8	15.3	13.9	14.3	13.5	13.0	14.2	13.8	12.5	11.4	12.4	12.5	13.9
2016	2	15.4	14.1	15.7	15.0	14.9	17.5	18.5	18.9	15.4	15.1	14.5	14.2	15.3	15.6	15.9	17.6	18.9	16.9	18.1	18.6	17.8	18.1	16.7	16.0	15.7	14.9	15.7	16.4	16.9		
2016	3	17.1	18.1	18.4	18.4	18.3	18.8	18.8	17.8	16.9	17.7	18.9	19.0	19.8	18.7	18.4	17.9	17.1	17.1	19.1	18.6	18.8	16.0	16.1	17.0	18.5	19.2	20.8	19.5	17.6	16.1	20.8
2016	4	19.6	19.5	19.9	23.0	21.8	19.4	19.9	19.3	18.3	20.0	21.4	19.6	18.4	18.8	17.4	19.9	16.9	20.4	19.3	19.9	19.3	18.4	19.0	19.2	18.9	21.2	21.1	20.7	20.4	19.5	
2016	5	19.9	21.3	21.9	20.5	21.4	22.9	22.2	22.8	23.2	23.0	23.6	22.4	21.6	21.5	21.4	20.5	20.3	20.5	19.5	22.3	22.2	21.2	22.3	24.5	22.4	23.0	22.0	23.0	24.1	24.5	22.1
2016	6	23.0	23.9	24.4	25.6	25.7	24.4	25.3	24.1	23.1	25.9	25.9	24.1	23.2	24.1	24.7	26.4	25.8	25.2	23.5	23.4	22.4	23.0	22.5	22.8	25.4	25.5	25.4	26.8	26.1	24.5	
2016	7	23.5	24.8	23.0	23.9	24.4	24.6	26.3	26.5	26.2	25.8	24.9	25.4	24.4	24.9	24.0	24.8	23.7	23.4	23.4	23.5	23.8	23.5	22.3	22.2	22.3	21.6	23.5	23.6	24.3	24.9	26.2
2016	8	26.7	26.8	26.7	26.7	27.0	25.4	25.0	25.1	26.7	24.5	25.6	25.1	25.0	26.1	27.0	25.9	26.7	25.6	26.3	25.9	26.0	26.5	24.8	26.2	26.5	25.4	26.9	25.5	24.8	25.0	24.7
2016	9	22.8	23.2	23.5	24.7	24.3	24.1	24.1	23.5	23.2	24.8	24.5	25.6	25.6	25.5	24.2	24.4	24.7	24.5	24.0	23.5	23.9	22.4	23.0	22.4	23.2	23.7	23.4	24.4	25.2	25.5	
2016	10	25.4	24.7	25.4	24.0	25.6	26.3	24.2	23.1	22.6	22.8	22.9	21.7	21.1	22.5	22.6	22.7	22.5	22.1	21.1	20.7	20.4	20.8	20.6	20.5	20.7	21.1	25.7	20.9	22.3	21.2	20.0
2016	11	20.0	19.6	20.0	19.8	20.4	19.4	19.5	19.3	19.5	20.0	19.6	20.8	19.6	19.5	19.4	19.9	18.8	17.4	16.7	16.4	15.6	15.4	15.3	15.1	16.4	17.0	17.3	16.9	16.4	17.0	
2016	12	18.8	14.5	20.3	17.3	16.1	15.4	14.9	15.2	15.0	14.9	14.6	14.4	14.1	13.9	14.3	14.5	15.3	15.1	15.1	15.2	15.3	15.5	17.8	18.0	17.4	15.9	14.9	12.9	14.1	13.8	13.2
2017	1	14.3	14.8	15.3	15.4	14.9	14.5	13.5	14.1	14.3	15.2	14.6	13.9	12.3	13.0	12.5	11.9	12.2	12.6	13.4	13.6	13.7	14.1	14.0	14.1	14.3	14.7	15.1	15.5	14.6	14.9	15.2
2017	2	15.5	15.7	15.4	15.7	15.6	15.8	17.1	15.9	16.1	17.1	16.4	15.5	16.5	16.6	16.5	16.4	16.3	16.5	17.1	17.5	15.5	16.4	15.9	15.6	15.7	16.1	16.9	16.7			
2017	3	17.2	17.9	16.2	16.7	15.9	15.4	15.6	17.3	17.6	15.4	15.1	15.5	14.9	16.7	16.4	17.4	17.6	16.2	13.8	15.7	15.7	15.9	17.5	20.2	19.2	18.7	19.4	19.4	20.6	18.7	18.2
2017	4	19.7	19.3	18.0	19.6	18.9	19.8	21.1	22.0	20.9	18.7	18.3	19.5	20.2	20.4	21.5	19.3	19.2	21.0	21.8	21.5	20.0	21.7	22.8	21.0	20.0	20.0	19.3	19.1	18.0	19.8	

2017	5	20.2	20.0	20.0	22.4	17.5	18.5	19.6	21.0	22.3	21.6	23.5	22.2	23.5	22.2	23.0	21.0	22.4	22.8	22.0	22.0	21.8	22.8	24.0	23.5	22.0	21.2	23.5	24.2	25.2	23.5	21.8
2017	6	21.8	22.5	21.6	19.7	23.0	24.4	24.9	26.1	25.9	24.9	24.5	24.6	24.5	23.9	24.7	24.9	23.9	22.8	22.5	24.0	24.4	24.5	24.2	25.6	23.4	25.0	25.0	24.7	24.2	23.6	
2017	7	23.0	22.3	23.5	24.0	23.9	24.2	24.2	24.0	23.0	22.5	21.6	22.9	24.4	24.9	24.9	26.5	23.4	25.7	4.1	23.7	24.0	26.0	26.1	23.3	24.0	24.5	24.9	24.9	24.4	26.0	25.3
2017	8	24.0	24.0	25.2	26.0	26.5	24.6	25.0	24.5	23.6	23.2	22.2	22.4	24.0	24.4	24.0	24.0	25.0	24.8	24.0	25.9	26.0	24.0	26.0	25.6	24.5	25.8	27.2	27.1	24.5	24.8	24.0
2017	9	23.2	24.0	23.5	23.5	24.0	23.8	25.0	24.2	23.0	22.2	26.6	25.0	25.0	24.8	25.0	26.0	27.5	26.5	27.0	24.8	23.8	23.5	23.0	24.6	25.5	25.0	25.2	25.4	24.6	24.0	
2017	10	22.0	22.8	23.4	25.4	25.4	25.2	24.0	25.0	24.2	22.9	25.1	25.5	25.0	22.5	22.0	22.4	23.4	22.6	26.8	22.6	20.6	20.4	21.0	21.4	21.2	20.4	19.9	20.0	21.0	20.5	19.0
2017	11	19.5	19.0	19.5	19.2	19.0	18.8	18.5	18.8	19.4	18.9	18.4	19.0	16.5	16.7	17.5	19.0	18.0	19.7	19.5	20.0	18.8	19.4	19.4	18.2	19.0	17.0	16.8	17.0	17.8	16.6	
2017	12	16.1	17.4	16.0	15.5	16.0	15.5	15.4	15.5	15.6	15.5	16.0	16.7	18.0	16.5	16.5	15.0	16.5	15.5	15.1	15.5	16.0	15.7	15.7	16.0	17.2	12.4	13.6	13.2	12.5	11.0	10.0
2018	1	9.5	13.0	13.0	9.0	13.0	14.0	12.8	12.6	12.0	12.0	12.5	12.2	14.5	15.4	14.0	14.0	14.0	14.1	15.5	16.0	15.5	15.0	14.8	15.5	15.0	13.7	13.0	12.5	14.0	13.2	13.4
2018	2	14.5	16.6	15.9	14.6	14.7	15.6	16.7	15.6	14.5	14.9	14.2	14.5	15.3	15.6	14.4	13.1	15.0	17.5	14.5	14.7	15.8	17.5	16.5	15.5	17.5	17.2	15.0	16.8			
2018	3	19.0	20.0	17.5	16.1	16.5	16.6	14.9	16.9	17.5	20.5	19.1	16.3	17.5	18.0	18.5	18.0	17.0	15.5	15.1	17.0	17.7	18.7	19.0	18.5	18.1	21.5	16.1	16.6	19.5	18.4	19.1
2018	4	18.5	19.5	20.3	20.3	19.0	19.8	19.4	22.4	22.0	22.0	21.0	18.5	19.3	18.1	19.9	18.5	20.8	21.5	18.5	20.3	20.8	20.6	19.3	20.9	21.0	20.0	21.6	21.3	21.6	20.6	
2018	5	20.5	20.0	21.9	22.4	19.4	20.9	27.4	21.9	21.0	20.1	20.5	20.1	19.3	20.3	21.0	20.3	22.8	23.6	23.2	24.0	24.5	24.7	22.6	22.5	22.4	23.0	22.0	22.5	23.2	23.0	21.4
2018	6	23.8	24.8	24.5	24.8	25.4	25.8	22.1	25.0	26.1	26.0	26.6	25.2	25.0	23.8	22.8	22.5	23.0	23.0	24.0	25.5	24.9	23.6	23.2	23.8	23.1	24.5	25.4	25.2	24.2	23.4	
2018	7	23.0	23.2	23.0	23.0	22.8	24.6	24.9	24.5	24.4	24.0	24.0	23.5	24.9	24.8	25.9	24.6	24.6	26.5	27.6	27.0	27.4	26.6	25.0	24.0	24.8	25.4	25.0	25.3	24.4	25.1	24.1
2018	8	24.1	24.8	24.0	23.6	25.1	25.5	27.5	26.4	24.2	25.5	25.5	26.0	24.8	25.5	24.8	26.2	25.2	27.3	24.9	27.7	24.6	24.8	25.0	26.5	25.6	25.0	25.2	25.8	24.0	23.8	25.2
2018	9	25.5	24.2	23.6	24.4	26.2	26.6	25.5	24.2	23.5	23.0	22.6	22.0	22.1	22.1	23.0	24.8	24.4	25.0	25.4	25.4	25.8	23.2	23.0	23.0	22.4	22.4	23.0	22.7	24.0	23.4	
2018	10	23.6	22.5	20.4	21.6	22.6	22.5	22.2	20.2	20.5	24.0	21.4	20.0	19.6	20.0	21.2	20.2	20.0	21.2	21.0	21.3	21.1	20.4	20.0	24.8	19.8	19.3	19.8	19.1	19.2	18.9	18.2
2018	11	18.2	19.0	21.0	18.5	18.0	17.2	17.4	17.0	16.9	17.0	16.6	16.6	18.9	18.9	18.0	15.7	15.7	17.5	17.3	17.0	16.9	16.5	16.3	15.3	15.9	15.6	15.4	15.2	15.4	15.0	
2018	12	14.5	14.4	16.7	16.5	15.4	15.8	14.9	14.0	13.8	14.8	13.7	13.2	14.0	15.3	15.4	14.8	14.8	15.2	14.1	13.4	14.4	15.8	14.8	13.8	13.7	15.0	14.3	13.0	12.9	12.0	11.1
2019	1	11.7	11.7	12.4	12.3	12.0	11.4	12.8	12.8	14.0	14.1	12.3	13.3	13.0	12.8	13.9	12.6	12.5	12.4	13.0	12.7	12.9	13.4	15.9	15.0	15.4	15.6	17.1	15.4	16.1	13.1	13.4
2019	2	13.3	13.0	15.0	16.1	14.5	15.3	16.4	15.0	16.5	15.5	14.6	14.9	15.6	15.5	17.1	17.8	15.3	13.2	13.0	13.6	13.0	15.4	17.4	16.5	17.4	14.9	14.0	14.5			
2019	3	14.0	12.9	13.9	16.6	15.5	14.9	14.1	14.0	15.4	16.8	16.2	18.4	18.8	19.0	20.8	19.4	18.9	21.5	16.3	16.0	17.0	18.2	17.0	17.8	19.6	20.9	17.5	17.3	18.3	20.4	19.6
2019	4	18.3	17.5	16.6	18.0	18.4	19.1	20.1	19.6	19.0	18.5	19.5	20.8	21.6	21.8	20.9	22.0	20.5	21.5	19.6	20.9	19.6	21.4	21.2	20.6	22.4	23.0	23.0	22.9	21.4	20.3	
2019	5	19.2	20.0	20.5	21.5	21.3	20.2	20.4	20.5	19.9	19.5	20.5	20.3	19.6	20.4	21.9	20.9	21.4	21.1	21.9	22.4	23.5	23.7	21.5	21.0	22.1	21.9	21.6	23.0	23.5	23.1	23.4
2019	6	22.4	23.2	23.5	22.6	24.0	25.2	25.8	23.0	23.1	23.0	23.9	25.4	26.3	27.6	25.4	23.5	23.7	22.9	25.8	25.4	26.2	24.9	24.6	24.3	24.0	23.6	23.6	22.3	22.9	25.9	
2019	7	26.1	25.0	26.3	25.0	27.0	26.2	28.1	23.8	23.2	22.4	22.1	21.7	22.1	22.5	22.6	21.6	23.2	24.6	25.2	24.1	23.6	23.6	23.6	23.8	23.6	24.8	25.6	25.5	24.0	24.2	24.0
2019	8	23.0	25.6	25.3	25.3	26.4	26.7	27.4	26.8	25.2	26.3	26.6	27.4	26.3	25.0	23.5	24.0	24.2	25.5	23.8	24.5	25.0	25.4	26.2	25.5	26.7	27.0	26.6	24.4	26.0	26.1	26.4
2019	9	26.3	27.4	26.9	26.5	26.9	24.5	25.0	26.0	23.4	23.5	24.2	24.6	23.7	22.8	23.4	23.0	23.5	24.4	25.1	24.4	24.9	25.6	22.4	20.8	20.9	22.9	22.1	22.8	21.6	23.8	

2019	10	21.8	23.8	22.1	23.5	23.2	23.1	23.7	21.8	21.9	21.5	21.4	22.7	22.7	22.8	22.6	22.4	22.5	21.9	23.1	21.6	23.4	20.0	20.4	21.4	18.0	18.5	18.8	20.2	20.3	20.4	22.0
2019	11	21.6	20.1	19.5	19.8	21.2	20.4	19.6	20.5	20.6	20.0	19.4	19.9	20.1	21.4	20.2	19.9	19.1	19.2	18.3	20.2	18.6	18.9	18.7	18.4	18.4	18.4	19.2	19.8	18.4	16.9	
2019	12	17.7	16.6	16.1	15.1	14.4	13.6	13.0	13.3	13.4	13.5	14.9	14.5	14.8	16.1	16.6	17.0	15.4	14.6	13.6	15.2	15.0	15.5	14.3	13.9	15.0	13.8	13.8	12.9	12.3	12.2	12.3

Station: Namsai (District: Lohit)
Parameter: Daily rainfall in mm
Period: 01-01-1987 to 31-12-2018 (with some data gap)

Year	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1984	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	10.0	4.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	5.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0		
1984	3	0.0	2.1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.4	1.5	0.0	6.4	0.0	5.0	0.0	0.0	0.0	8.3	0.4	0.0	0.0	0.0	0.0	2.0	7.4	23.4	12.2	0.0	0.0	6.0
1984	4	38.3	42.4	26.0	80.0	67.3	27.6	11.4	17.3	2.1	0.0	0.0	0.4	1.1	2.1	6.4	12.8	42.6	28.0	28.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	0.0	0.4	
1984	5	0.2	7.4	40.0	35.0	0.0	0.0	60.0	55.0	42.0	25.2	13.0	0.0	0.0	12.8	40.0	2.5	42.6	12.4	35.2	30.0	28.0	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984	6	1.0	0.0	0.0	26.5	20.0	0.0	0.0	0.0	12.3	11.2	0.0	20.0	0.4	25.3	30.0	0.0	10.0	17.0	6.0	0.0	0.0	0.0	70.0	12.2	7.3	0.0	6.1	0.0	0.0	29.3	
1984	7	8.0	17.1	0.0	12.0	21.0	30.0	40.3	35.5	15.2	25.2	20.0	15.0	12.0	0.7	0.0	0.0	0.0	0.0	40.0	30.0	11.3	4.1	25.0	18.3	27.1	13.2	0.0	5.2	0.0	0.0	0.0
1984	8	0.0	53.0	34.1	7.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	8.1	0.0	23.0	0.0	0.0	24.3	11.0	24.1	0.0	0.0	0.0	0.0	10.0	0.0	5.4	0.0	5.4	0.0	38.1	7.2
1984	9	0.0	0.0	0.0	3.5	10.0	18.5	0.0	40.0	0.4	0.0	0.0	15.0	61.0	65.0	53.0	40.0	72.0	20.2	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1984	10	0.0	0.0	0.0	0.0	0.0	15.1	10.0	0.0	0.0	0.0	3.0	0.0	5.0	3.2	0.0	17.2	12.0	19.3	27.0	25.0	40.0	13.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	
1984	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.6	29.8	4.3	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1985	1	0.0	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	1.6	0.0
1985	2	0.0	12.5	0.0	0.0	0.0	7.1	0.0	4.1	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.2	0.0	0.0			
1985	3	0.0	1.3	5.1	0.0	0.0	10.0	3.2	31.2	6.2	2.3	0.0	0.0	0.0	0.0	2.1	0.0	9.0	2.1	30.0	0.2	0.3	1.1	0.4	1.0	9.1	3.1	0.0	0.0	0.0	10.0	41.1
1985	4	5.0	0.0	2.1	4.0	3.1	0.0	5.0	20.0	17.0	22.0	30.0	3.1	10.2	13.2	5.0	60.0	9.0	0.0	0.0	0.0	0.0	0.0	40.0	25.0	5.2	10.2	17.1	0.0	0.0	0.0	
1985	5	5.1	3.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	10.4	21.2	15.4	2.0	3.2	11.4
1985	6	14.8	5.2	10.2	14.1	0.0	4.2	5.3	20.1	6.0	5.3	0.0	10.0	3.1	25.2	5.0	11.2	36.1	0.0	0.0	0.0	1.0	7.2	0.0	53.0	40.4	10.0	40.0	18.0	0.0	0.0	
1985	7	0.0	36.3	60.0	20.0	40.4	35.0	5.0	15.0	0.0	30.0	40.0	17.2	15.0	33.0	62.2	70.0	20.0	45.3	21.0	0.0	20.3	30.0	60.0	43.2	51.0	0.0	0.0	15.2	0.0	0.0	0.0
1985	8	0.0	0.0	0.0	0.0	20.2	35.0	41.1	16.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	20.1	24.0	7.0	0.0	20.1	9.0	25.0	9.1	4.0	3.2	0.0	5.1	3.0	17.0	20.0

1985	9	20.0	11.1	15.0	21.1	0.0	0.0	0.0	0.0	10.2	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	7.1	21.2	9.2	2.0	6.2	10.0	30.1	27.2	3.1	0.0	9.0	
1985	10	4.1	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	1.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0
1985	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1985	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.0	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	2.0	0.0	0.0
1986	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0	3.1
1986	2	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	30.0	17.2	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0			
1986	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	20.0	32.2	37.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	10.2
1986	4	10.0	15.0	9.0	7.2	3.1	0.2	0.0	4.0	12.0	6.8	6.0	9.2	3.4	6.2	18.2	20.0	14.5	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	24.6	16.5	13.2	9.0	
1986	5	0.0	0.0	20.0	25.0	30.2	8.1	0.0	3.2	0.0	0.0	0.0	6.3	0.0	0.0	15.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1986	6	23.0	5.2	3.0	0.0	0.0	0.0	0.0	0.0	15.0	0.0	0.0	0.0	0.0	10.1	73.3	6.0	0.0	2.3	75.2	0.0	35.1	25.0	0.0	5.4	0.0	65.2	1.0	0.0	0.0	0.0	
1986	7	0.0	35.0	27.2	40.3	0.0	0.0	0.0	9.1	0.0	7.1	0.0	0.0	8.6	0.0	4.1	18.5	33.4	18.4	7.2	0.0	0.0	42.2	59.0	37.2	0.5	0.6	0.0	17.8	28.6	35.2	7.8
1986	8	27.8	13.0	0.0	0.0	0.0	0.0	0.0	40.4	0.0	0.0	9.2	2.0	0.0	65.7	11.0	1.0	0.0	7.0	0.0	23.8	0.0	12.6	13.2	1.5	20.8	0.0	30.0	0.0	0.0	31.3	2.9
1986	9	0.0	20.0	47.1	0.8	0.5	0.0	0.0	0.0	2.8	0.0	18.2	22.2	10.2	49.0	10.8	5.0	0.0	9.0	0.0	0.0	0.0	0.0	3.8	5.0	1.2	0.0	0.0	0.0	1.8	0.0	
1986	10	16.2	5.0	30.4	5.6	2.0	13.0	11.6	13.8	3.2	5.0	0.0	0.0	0.0	0.0	6.8	4.2	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1986	11	0.0	0.0	0.0	0.0	0.0	0.0	8.2	0.0	4.0	20.0	24.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1986	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0
1987	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1987	2	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	3.2	3.1	0.0	0.0	0.0	0.0	0.0	4.2	2.0	0.0			
1987	3	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	23.0	16.0	20.0	6.2	3.0	0.0	0.0	0.0	7.0	9.2	10.4	5.2	0.0	0.0	0.0	0.0	0.0	0.0	9.0	11.2	0.0	0.0	23.0
1987	4	20.0	18.0	45.4	113.0	0.9	0.0	10.0	15.0	35.0	30.0	45.4	40.2	13.5	85.0	27.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0	20.2	0.0	0.0	0.0	0.0	3.4	0.0	
1987	5	10.0	0.0	60.0	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	20.2	29.0	6.5	6.4	0.0	0.0	2.8	3.4	23.2	0.0	0.0	0.0	3.4	0.0	0.0
1987	6	9.2	3.2	0.0	0.0	2.3	22.9	5.1	61.4	1.2	0.0	1.0	2.0	0.0	1.4	0.0	0.0	1.0	1.2	2.0	9.0	0.0	30.0	18.0	14.6	1.4	20.8	10.0	5.5	0.8	11.0	
1987	7	20.0	10.0	17.6	2.0	24.2	33.0	0.0	47.0	7.0	10.2	3.0	0.0	0.0	5.0	45.8	10.4	0.0	0.0	53.8	17.4	62.0	6.0	77.2	60.4	7.2	3.0	0.0	12.0	67.2	37.8	12.6
1987	8	0.0	4.0	0.0	12.0	78.2	16.2	8.2	45.4	34.6	63.0	85.3	57.4	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	14.2	0.0	55.0	2.6	2.4	12.4
1987	9	23.0	2.6	0.0	2.5	2.0	13.2	50.0	0.0	4.0	0.0	0.0	4.0	2.0	5.0	8.2	6.8	2.0	3.3	1.8	0.0	4.8	0.0	0.0	20.4	6.2	7.6	9.2	11.2	0.0	20.0	
1987	10	5.0	0.0	18.8	3.6	0.0	0.4	0.0	4.2	1.4	11.6	0.0	0.0	0.0	0.0	0.0	0.0	5.0	3.2	5.0	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1987	11	0.0	19.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1987	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1988	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	1.2	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	7.2	0.0	0.0	0.0	0.0	0.0	0.0

1988	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	5.1	0.0	12.0	0.0	0.0	0.0	2.0	14.0	10.2	8.4	0.4	1.0	4.0	0.0		
1988	3	20.0	13.1	3.0	1.4	15.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	57.0	0.0	0.0	0.0	0.0	18.0	10.0	4.8	0.0	0.0	0.0	0.0	0.0	17.0	3.0	0.0	0.0
1988	4	0.0	5.2	0.0	0.0	0.0	25.0	15.0	4.0	10.4	3.8	22.4	3.8	0.0	13.0	0.0	15.2	11.4	20.0	22.2	0.0	0.0	15.0	10.2	3.0	7.5	0.0	17.2	6.4	0.0	0.0	
1988	5	0.0	0.0	0.0	10.0	2.0	0.0	0.0	0.0	20.0	40.2	65.4	4.6	33.6	0.0	0.0	0.0	1.0	0.0	11.0	13.6	8.8	10.2	40.4	11.2	4.4	13.2	14.1	32.8	25.6	9.2	0.0
1988	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	63.0	3.6	5.3	11.0	0.0	4.6	7.2	0.0	3.6	1.4	0.0	11.6	16.6	15.4	1.0	0.4	0.0	0.0	0.0	23.6	0.0	
1988	7	10.4	0.0	25.0	27.0	25.2	38.0	14.2	25.6	6.2	12.2	19.5	0.0	0.0	0.0	0.0	10.2	0.0	13.0	26.2	92.2	11.2	123.2	13.2	11.0	15.0	33.2	6.8	1.4	4.2	24.2	0.0
1988	8	0.0	0.0	0.0	34.6	23.3	0.0	0.0	0.0	2.2	50.2	35.4	24.6	31.6	0.0	0.0	3.0	0.0	4.2	0.0	29.2	40.0	121.0	97.2	53.4	37.4	36.6	28.8	26.2	10.8	2.6	0.0
1988	9	0.0	0.0	58.4	45.0	44.5	8.0	2.6	0.0	57.4	0.0	2.8	2.4	4.2	0.0	0.0	0.0	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	74.2	0.0	0.0	0.0	
1988	10	0.0	0.0	58.4	66.8	16.4	10.2	15.0	0.0	0.0	3.0	0.0	0.0	16.2	11.0	9.0	3.0	8.2	5.4	4.0	19.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1988	11	0.0	0.0	0.0	0.0	16.2	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	11.4	
1988	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1989	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
1989	2	0.0	0.0	0.0	0.0	0.0	30.2	25.0	31.0	4.0	0.0	0.0	0.0	0.0	0.0	4.2	9.0	5.0	2.4	0.0	9.4	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
1989	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	15.2
1989	4	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	16.2	0.6	0.0	0.0	0.0	19.6	11.2	10.0	16.2	20.3	9.5	17.2	20.0	7.2	11.0	15.5	19.7	21.4	9.6	7.2	
1989	5	5.2	0.3	0.0	0.0	0.0	97.2	9.2	7.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	0.5	0.0	0.0	0.0	2.5	0.5	4.7	1.6	0.0	8.3	0.0	0.0	6.7	6.0	2.3	0.0
1989	6	8.5	23.3	19.0	0.0	4.9	0.8	5.5	2.5	1.5	0.0	2.5	0.0	12.0	19.2	9.7	7.2	9.2	0.0	2.4	29.5	0.0	0.0	5.0	10.0	0.5	0.0	6.0	16.7	7.0	29.2	
1989	7	15.2	9.5	5.0	10.1	17.2	18.5	4.3	20.0	2.2	20.0	2.0	0.5	7.0	0.0	46.7	14.0	9.0	12.0	0.0	2.0	0.0	0.0	8.7	1.0	0.0	80.6	18.7	20.5	1.0	0.0	0.0
1989	8	0.0	0.6	30.8	0.3	37.6	14.0	5.1	1.6	2.6	3.1	0.6	0.0	15.9	60.8	0.0	7.1	0.3	40.8	16.1	0.4	0.0	0.0	0.0	40.3	2.8	3.3	0.0	1.2	0.0	7.4	11.6
1989	9	10.6	5.2	18.2	28.3	3.1	18.6	0.0	0.0	0.0	0.0	0.0	18.3	1.8	0.0	0.0	3.1	8.3	8.5	7.2	0.0	3.8	5.3	0.0	0.0	0.0	1.8	28.0	0.0	7.7	20.2	
1989	10	1.1	0.0	0.0	0.4	0.0	0.0	5.7	9.4	5.0	2.1	0.0	0.0	0.0	0.0	2.1	4.1	8.2	0.0	0.0	0.0	0.0	0.0	0.0	13.3	4.5	1.8	0.0	0.0	0.0	1.6	0.0
1989	11	1.6	2.1	6.8	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1989	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	5.9	3.7	0.0	0.0	0.0	0.0	0.0
1990	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.5	4.6	11.4	10.3	7.1	6.3
1990	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	0.0	9.6	0.0	0.0	0.0	8.6	18.1	17.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	8.1	3.4			
1990	3	12.3	2.3	3.0	0.0	0.4	0.7	0.0	0.0	0.3	1.2	0.0	4.6	1.3	0.6	10.2	0.0	4.1	0.0	0.6	2.1	4.1	0.0	20.3	25.5	25.1	10.4	30.2	15.2	12.1	16.0	12.0
1990	4	44.3	1.8	4.8	7.7	0.0	0.0	2.1	16.7	20.6	1.0	0.0	0.4	16.6	30.1	6.3	16.5	15.6	4.7	15.5	21.2	17.6	0.0	12.8	3.1	0.0	1.1	7.1	10.6	14.1	0.0	
1990	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1	21.1	7.6	0.0	0.0	0.0	8.8	26.7	0.7	0.0	2.6	0.0	1.3	13.0	1.6	4.4	0.0	0.0	1.3	0.0
1990	6	3.6	65.6	30.5	15.6	8.3	24.6	18.6	11.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	15.8	15.8	9.6	0.6	28.8	28.6	112.6	16.5	0.0	0.0	0.0	46.7	10.5	28.5	5.5	

1990	7	0.0	0.0	10.2	5.6	30.2	1.8	8.6	2.4	65.3	50.6	0.6	43.3	9.6	0.3	29.6	14.6	35.5	10.1	21.1	6.6	3.0	0.0	24.5	61.8	39.5	0.5	1.0	6.2	9.8	0.0	3.9
1990	8	0.0	7.4	4.4	11.8	2.6	0.0	0.0	10.4	2.6	18.3	7.6	0.0	0.0	76.4	0.5	0.0	0.0	0.0	0.0	2.1	25.3	38.8	25.7	6.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
1990	9	0.0	0.0	0.0	19.6	0.0	1.2	14.8	20.1	2.4	0.0	30.6	0.0	14.2	0.0	72.1	16.8	0.0	50.2	0.0	0.0	32.8	0.0	12.3	130.6	2.1	1.2	36.2	18.2	23.8	8.1	
1990	10	19.7	3.6	9.1	1.2	0.4	0.0	10.2	9.0	16.8	18.4	7.2	0.0	0.0	0.0	3.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1990	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	
1990	12	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6	0.0	0.0	0.0	0.0
1991	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.1	0.0	0.0	0.0	0.0	0.5	4.1	0.6	0.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1991	2	0.0	12.6	9.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4	16.9	27.6	22.8	30.5			
1991	3	39.2	40.5	0.5	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	15.2	0.7	0.0	0.0	0.0	0.0	0.0	0.4	0.0	17.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.0	0.0	1.0
1991	4	9.4	10.5	19.2	12.4	0.6	0.7	16.0	0.0	0.0	7.0	15.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	7.1	
1991	5	16.8	15.2	1.2	4.1	32.2	5.3	10.1	57.4	48.5	87.6	19.6	5.6	99.6	18.5	1.6	0.0	4.1	0.6	10.1	0.4	0.0	0.0	0.8	25.0	5.4	0.0	0.0	22.8	0.0	0.0	6.1
1991	6	1.0	22.8	55.6	9.1	0.0	4.6	3.5	1.2	7.1	15.8	3.1	107.5	22.5	15.8	22.5	18.2	41.8	2.6	3.6	0.9	2.2	40.5	77.4	49.6	0.0	0.0	0.0	0.6	5.1	6.3	
1991	7	17.6	11.1	2.3	28.6	10.6	5.8	9.2	40.1	54.8	46.8	10.1	12.8	0.0	0.0	0.0	2.5	27.6	7.8	16.3	0.0	55.1	0.0	3.6	0.0	24.6	48.8	30.1	38.3	11.8	17.8	20.1
1991	8	20.1	9.3	8.6	42.1	19.1	0.0	0.0	9.9	21.4	8.4	0.0	0.0	13.4	7.8	3.6	11.3	1.9	0.0	0.0	0.0	0.0	0.0	0.0	10.6	0.0	1.2	1.1	0.0	0.5	0.0	0.0
1991	9	0.0	1.4	0.0	0.0	0.0	49.6	2.1	0.0	5.2	0.0	0.0	4.2	5.8	0.0	0.0	0.0	2.4	2.9	8.6	2.9	0.0	0.0	1.3	54.8	61.6	8.6	3.7	0.0	0.0	0.0	
1991	10	0.0	0.0	0.0	27.4	1.1	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.9	39.4	4.1	0.0	0.5	0.0	5.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1991	11	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1991	12	0.0	8.6	0.7	0.4	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	7.3	3.6	12.1	14.9	0.0	0.3	3.6	0.0
1992	1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	5.3	0.0	0.0	0.0	1.1	1.0	0.6	0.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1992	2	17.7	11.7	13.4	7.3	0.0	0.0	0.0	5.5	8.1	1.6	4.3	0.0	0.0	0.6	3.1	6.8	2.1	1.7	2.1	0.6	3.6	11.6	0.6	0.6	6.9	0.6	0.0	0.0	0.0		
1992	3	0.0	0.6	0.3	4.1	0.3	8.9	8.1	2.6	0.0	0.0	14.6	0.0	0.0	0.0	14.6	3.1	0.0	0.0	12.2	4.1	13.6	20.1	62.8	46.7	8.6	0.0	2.2	0.6	0.5	10.6	2.1
1992	4	1.7	10.5	0.0	0.0	0.6	0.0	20.4	5.1	7.9	0.3	4.6	33.8	3.6	1.1	9.6	0.5	3.6	5.1	8.6	3.7	0.0	0.0	39.0	16.3	7.1	1.1	12.6	1.1	0.0	0.0	
1992	5	0.0	0.0	0.0	4.0	7.1	0.6	9.3	10.1	0.0	0.0	8.8	0.0	0.0	0.0	0.5	28.7	8.2	18.1	7.4	0.0	25.6	1.6	0.0	1.0	0.0	1.0	25.8	0.0	0.0	0.0	4.6
1992	6	0.5	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	84.3	0.6	0.0	4.1	0.0	0.0	0.0	0.0	14.1	4.6	5.3	2.9	5.8	16.2	13.1	20.2	10.6	3.1	2.6	0.0	
1992	7	0.0	0.0	14.6	13.1	17.6	0.0	0.0	8.5	2.1	0.6	0.0	13.7	70.9	11.5	23.4	40.1	0.5	17.4	0.0	21.9	3.3	14.8	6.6	0.0	0.0	2.0	0.0	48.3	1.1	9.6	0.0
1992	8	0.0	0.9	1.4	24.1	3.6	26.6	0.0	32.8	22.6	1.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	20.1	5.4	0.0	10.1	12.4	0.7	0.0	3.5	0.6	0.0	19.3
1992	9	0.0	0.0	39.6	7.4	0.0	0.0	0.0	0.0	0.6	0.0	2.4	3.9	8.6	6.1	8.8	1.4	0.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0	4.1	14.8	3.6	21.6	12.4	0.0	
1992	10	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	22.6	120.1	39.8	4.2	25.2	0.0	0.0	1.0	0.3	0.0	0.0	4.1	0.0	0.6	0.0	0.0	0.0	0.0	0.0
1992	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5	0.0	0.0	0.0	0.0	0.0	

1992	12	0.0	0.0	0.0	7.6	9.3	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1993	1	0.0	0.0	0.0	4.7	4.7	3.3	4.3	2.6	4.4	5.1	2.6	6.3	10.6	6.6	1.0	0.0	0.0	0.0	0.0	0.6	0.8	1.5	1.2	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0
1993	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	46.8	0.6	2.7	20.1	9.8	26.8	15.4	4.8	0.4	7.6	0.0	0.0	0.0	0.0	0.0			
1993	3	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	12.1	5.6	7.6	0.0	1.1	0.0	25.5	1.1	4.1	0.0	24.5	5.1	12.6	0.0	0.0	0.0
1993	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6	16.1	2.1	2.6	0.0	3.1	0.0	1.6	4.3	3.6	5.6	8.4	0.0	3.1	0.0	0.0	0.0	37.8	0.0	0.0	0.0	0.0	
1993	5	0.0	0.0	24.6	26.8	92.3	17.1	0.2	0.0	0.0	16.6	0.3	10.8	70.5	30.7	32.5	10.4	16.2	17.3	6.2	12.6	7.8	0.6	0.0	0.0	0.0	4.1	15.3	25.4	0.0	1.1	0.6
1993	6	0.0	106.6	53.8	41.8	50.8	17.1	7.8	9.1	3.1	8.6	30.6	6.1	0.0	0.0	0.0	0.0	12.6	0.6	1.6	9.1	11.6	0.0	0.0	0.0	1.1	9.6	10.0	12.6	11.1	7.9	
1993	7	15.7	6.8	24.6	24.6	56.6	119.1	0.0	0.0	0.0	92.8	0.0	0.0	0.4	17.6	2.6	10.9	26.4	10.6	6.3	13.8	18.1	4.6	8.1	0.8	4.8	0.0	9.4	0.0	0.0	6.8	6.9
1993	8	0.0	0.6	5.8	10.5	18.8	15.1	7.1	16.6	19.2	1.6	0.6	31.0	4.6	0.0	30.1	10.1	20.1	20.1	0.0	33.6	0.6	3.8	1.6	3.1	17.1	3.1	9.6	7.8	14.1	4.1	0.0
1993	9	0.6	31.3	32.1	0.0	0.0	0.0	0.0	27.6	1.3	4.6	0.0	0.0	0.0	0.0	42.6	3.1	5.8	0.0	0.0	0.0	0.0	0.0	0.6	0.0	31.3	14.3	15.1	46.5	9.9	6.4	
1993	10	6.5	0.0	3.6	1.1	3.1	0.0	0.3	15.3	0.0	0.0	0.0	0.0	0.6	23.3	17.6	0.3	0.8	0.4	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1993	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1993	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1994	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	12.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1994	2	10.1	0.0	6.1	5.1	0.3	0.0	0.0	0.0	0.0	0.0	15.3	0.0	1.1	10.1	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.6	2.6	1.1	0.0	0.0	9.6			
1994	3	5.1	4.1	0.0	0.0	0.0	1.5	1.8	1.4	3.6	0.0	0.0	0.0	1.8	4.6	4.6	2.4	9.3	70.3	0.0	10.1	20.2	10.2	20.1	7.1	10.6	10.1	9.8	2.1	2.6	0.0	0.0
1994	4	20.2	10.1	10.1	13.6	0.0	0.0	0.0	0.0	15.6	0.0	0.0	0.0	0.0	0.0	0.0	5.6	16.4	2.1	31.1	20.6	9.8	9.8	20.1	31.2	12.8	0.4	0.0	0.0	0.0	0.0	
1994	5	0.0	0.0	0.0	0.0	30.1	23.1	34.1	0.6	1.6	0.0	0.0	1.4	0.0	0.0	15.9	8.3	2.6	0.0	0.0	0.0	2.1	0.0	8.1	1.1	0.8	3.8	1.4	1.0	1.0	14.1	24.1
1994	6	2.1	0.0	12.5	8.0	27.1	0.0	0.0	0.0	0.0	0.0	34.3	0.6	12.1	11.1	2.6	1.9	22.8	11.6	15.8	6.1	32.1	0.0	19.1	9.6	15.7	0.0	0.0	3.3	60.1	9.7	
1994	7	1.1	10.8	3.1	14.1	60.8	50.1	0.0	0.0	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	1.1	65.3	0.5	23.2	3.1	15.6	2.6	1.6	0.0	14.4	0.0	0.0	0.0
1994	8	0.0	0.0	28.6	9.6	5.3	0.5	51.6	0.0	11.3	30.1	40.5	18.6	21.6	2.8	0.0	2.6	10.6	0.0	9.1	1.1	1.1	23.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1994	9	0.0	0.0	72.4	0.0	70.1	1.6	2.3	0.0	0.0	12.1	5.1	0.0	0.0	9.6	0.0	26.1	8.1	2.2	18.9	1.7	0.0	0.0	0.0	0.0	6.8	0.6	0.0	0.0	0.0	1.6	
1994	10	12.6	21.3	25.6	65.3	0.4	0.5	2.2	2.8	36.8	9.1	3.8	1.2	0.3	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1994	11	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	4.6	2.1	0.4	
1994	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1995	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.3	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.4	1.1	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1995	2	0.0	0.0	0.6	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	30.5	8.8	4.3	2.8	0.0	2.1	1.3	2.1	3.1	14.3	0.0	0.6	2.6	5.8			
1995	3	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1	2.6	0.0	0.0	0.0	0.0	0.0	0.0	5.6	3.4	1.4	3.8	31.9	0.0	14.2
1995	4	4.9	0.3	0.0	0.0	1.6	1.1	0.0	4.5	0.0	0.0	16.9	12.2	0.6	4.8	5.6	3.1	0.0	0.0	8.1	4.6	8.6	0.0	11.6	38.8	0.0	26.1	7.4	4.1	8.7	93.8	

1995	5	100.8	18.2	36.1	62.2	2.0	1.6	1.1	0.0	0.0	0.0	0.0	0.3	7.6	8.4	25.6	6.8	14.4	5.8	3.1	3.8	7.1	3.6	10.1	8.4	11.8	13.6	0.0	0.0	0.0	4.7	1.4
1995	6	3.6	30.1	11.6	0.0	37.6	0.0	5.8	36.9	5.8	0.0	0.0	72.6	13.1	17.9	7.1	0.6	53.6	40.1	23.2	5.1	5.8	22.6	25.6	0.3	3.6	4.8	10.1	15.6	12.7	10.8	
1995	7	29.1	20.1	5.6	14.6	8.9	20.8	12.6	17.9	0.5	3.6	57.1	0.6	12.1	9.6	30.4	9.6	22.8	0.4	0.0	44.3	11.1	0.3	31.3	18.4	3.8	1.8	10.6	10.8	4.1	5.3	0.0
1995	8	1.1	1.1	8.8	8.6	4.8	6.1	8.6	9.9	4.1	30.9	140.3	9.6	64.1	11.6	0.0	8.6	87.3	140.3	1.6	0.0	0.0	4.2	0.3	0.0	0.0	1.7	0.0	30.6	0.0	0.0	0.0
1995	9	0.0	2.5	1.6	38.1	0.0	26.1	0.0	0.0	26.1	13.2	0.0	0.0	0.0	0.0	0.0	3.6	92.4	24.6	92.6	21.7	76.7	106.9	4.9	0.0	16.1	32.7	15.5	4.3	1.6	0.0	
1995	10	0.0	0.0	0.0	1.3	0.0	9.3	0.0	0.0	0.0	14.3	1.8	1.6	0.0	0.0	0.0	0.0	2.1	43.6	1.1	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1995	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	17.7	8.1	1.1	0.0	0.0	0.0	0.0	11.6	0.0	0.4	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	
1995	12	2.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.6	0.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0	0.0	0.0	1.6	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
1996	1	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	13.6	12.2	0.0	0.0	0.0	3.5	5.6	0.0	1.1	1.6	0.0	0.0	4.1	1.1	0.6	3.6	0.0	0.0	0.0	0.0	0.0
1996	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	2.1	6.6	11.6	10.1	0.0	0.0	0.6	3.0	28.6	0.0		
1996	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.0	49.7	10.0	27.0	26.7	3.8	0.0	0.0	0.2	0.0	6.4	0.0	0.0	8.4	16.2	0.0	0.0	0.0	24.2
1996	4	28.0	5.5	0.0	0.0	0.0	0.0	0.0	24.0	6.2	0.0	3.5	0.0	0.0	0.0	0.0	0.0	4.4	12.1	9.4	0.0	62.3	26.8	8.7	5.2	3.8	2.0	0.9	0.0	0.0	0.0	
1996	5	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	19.0	29.5	58.6	19.5	22.0	3.9	29.5	7.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	71.0	30.5	47.0	22.6	0.5
1996	6	0.4	0.6	3.9	2.5	0.0	6.5	0.0	1.0	1.0	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	8.0	8.2	7.6	1.4	4.7	36.7	18.6	34.5	
1996	7	1.0	28.0	3.2	0.0	0.8	1.5	0.5	16.0	29.0	30.2	18.4	41.8	0.0	14.3	25.0	33.5	46.7	8.3	40.7	10.4	0.0	2.3	15.7	0.0	0.0	0.0	62.1	30.0	13.4	0.0	2.5
1996	8	1.1	0.0	0.0	2.0	2.0	0.0	1.4	4.7	15.4	0.0	0.2	0.0	47.0	14.0	0.0	0.0	14.7	70.6	0.7	26.2	10.2	0.0	90.6	2.0	0.0	0.0	0.0	0.0	40.2	9.5	19.4
1996	9	6.1	0.5	0.5	0.0	0.6	40.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0	49.4	0.7	0.0	2.2	30.0	2.6	0.0	0.0	10.0	0.0	1.6	0.6	
1996	10	2.5	0.0	12.0	0.0	18.3	42.0	16.1	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	36.1	40.0	30.1
1996	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1996	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1997	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1	0.2	0.0	1.3	0.0	0.0	0.0	0.0	0.0	3.5
1997	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.9	3.2	0.0	0.0	15.3	0.5	1.1	0.0	0.0	0.0	0.0	7.4			
1997	3	17.3	0.0	0.0	1.8	11.2	6.6	0.0	0.0	0.0	0.0	1.6	0.0	5.2	5.1	21.8	17.8	25.2	17.8	2.8	17.0	57.0	21.6	11.2	41.2	1.2	0.0	0.6	0.0	0.0	7.2	2.6
1997	4	2.4	1.6	3.5	0.0	1.3	1.6	3.6	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.9	0.5	30.4	15.6	0.0	0.4	0.0	4.7	1.2	0.0	0.0	0.0	0.0	0.0	0.0	
1997	5	0.0	0.0	0.0	3.7	0.0	11.8	1.7	25.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	0.0	0.0	17.0	23.5	1.0	12.5	12.0	15.5	10.5	1.5	0.7	0.0	0.0	0.7
1997	6	8.3	36.5	18.2	6.0	13.0	47.5	0.0	4.4	0.0	40.5	2.0	6.0	10.0	1.8	1.7	2.8	9.6	51.0	0.0	0.0	9.2	3.3	0.0	0.6	0.0	0.0	0.0	140.0	12.0	21.0	
1997	7	17.2	17.4	26.6	1.6	11.8	31.0	14.8	68.8	55.6	37.8	10.0	2.1	0.0	0.8	0.0	2.8	0.0	55.0	0.0	0.0	0.0	1.2	0.0	8.0	0.0	0.0	0.0	0.0	2.5	1.0	4.8
1997	8	0.2	2.4	0.0	0.0	0.0	0.0	10.3	30.6	0.0	16.2	9.0	24.6	6.0	6.4	70.4	6.2	5.4	2.2	1.2	12.0	3.0	0.0	0.0	0.0	0.0	0.2	0.0	24.0	3.6	0.1	2.5
1997	9	33.0	16.0	0.2	0.0	25.0	1.2	0.0	17.8	0.0	15.8	5.8	5.2	2.2	4.6	0.0	20.9	1.0	24.4	27.0	52.8	0.0	17.0	17.0	42.0	18.6	3.6	0.0	6.8	2.6	24.8	

1997	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	91.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	0.0	0.0	0.0	0.0	0.0	0.0
1997	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	6.0	5.3	0.5	2.4	0.0	0.0	
1997	12	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	2.4	4.2	0.0	0.0	0.0	34.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1998	1	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	2.4	1.1	0.0	0.0	0.0	1.2	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	3.0
1998	2	1.4	0.0	0.0	18.6	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	10.2	25.4	10.0	7.0	2.0	0.0	3.6	0.0	0.0	0.0	12.4	2.0			
1998	3	0.0	0.0	0.0	0.0	0.0	5.6	9.0	10.6	1.2	0.0	5.2	0.0	0.0	24.2	10.6	0.0	0.0	0.0	0.0	17.8	0.0	7.6	42.8	19.0	2.2	65.8	0.3	0.0	0.0	0.5	21.0
1998	4	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	23.8	3.4	12.4	4.2	2.6	0.0	0.0	7.8	0.0	0.0	0.0	3.4	0.4	2.6	0.5	13.8	0.0	0.0	2.8	6.0	10.0	
1998	5	3.8	0.0	0.0	0.5	3.0	4.4	0.0	2.6	7.0	28.6	2.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	5.6	0.0	0.0	32.6	19.6	49.6	0.0	0.0	1.0	20.0	4.4	36.2	54.2
1998	6	0.6	0.0	0.0	0.0	22.6	48.0	86.2	141.5	40.6	33.5	28.0	26.4	10.4	4.2	6.4	45.5	58.4	7.6	2.0	17.6	1.2	13.2	1.0	32.0	26.2	5.4	8.5	4.1	2.6	0.0	
1998	7	4.2	3.8	2.0	3.0	21.3	9.4	9.4	2.8	2.4	27.0	80.0	33.4	0.0	2.0	4.0	17.0	64.0	65.6	75.0	34.4	21.0	6.0	2.0	0.0	2.4	2.0	0.0	8.2	1.2	16.0	9.2
1998	8	29.2	3.8	16.6	6.8	0.0	2.0	17.6	0.0	16.0	1.0	3.4	20.0	7.4	36.2	34.0	65.2	40.0	8.6	2.2	2.2	0.0	2.0	0.0	0.0	5.6	4.0	17.2	27.0	18.4	18.0	28.0
1998	9	36.4	18.0	35.8	45.6	18.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	10.2	0.0	3.2	8.0	1.6	3.2	0.0	0.0	0.0	0.0	22.2	0.0	0.0	
1998	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	13.6	3.8	104.6	23.6	0.0	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0
1998	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1998	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1999	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.8
1999	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
1999	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	2.8	0.0	2.0	3.3	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	10.2	27.4	0.0	0.0	0.0
1999	4	0.0	13.9	2.6	5.5	11.0	0.0	8.9	2.3	0.0	28.0	0.0	0.0	0.0	0.0	0.0	2.7	7.3	0.0	0.0	0.0	0.0	0.0	1.9	18.5	8.0	0.0	12.0	5.8	0.0	0.0	
1999	5	50.0	21.2	18.4	35.1	16.5	0.0	6.4	0.0	0.0	6.3	3.2	0.0	0.4	0.0	1.2	1.4	0.0	0.0	0.0	0.0	0.8	26.0	16.8	6.6	2.9	0.0	3.8	13.2	7.8	2.0	11.0
1999	6	11.7	0.7	2.6	0.0	0.0	0.0	2.5	3.0	0.0	0.0	6.0	1.7	13.0	30.2	4.2	32.0	0.0	70.7	0.0	34.1	27.3	12.5	12.0	20.2	11.8	1.5	1.3	10.8	22.9	11.2	
1999	7	25.0	18.0	4.6	2.0	72.0	16.5	3.4	14.3	25.5	116.2	7.4	2.2	3.0	4.0	5.4	0.0	17.0	14.2	32.2	12.5	2.1	1.2	38.8	1.4	0.0	0.0	6.2	0.0	32.4	0.9	0.0
1999	8	37.0	1.0	22.3	0.0	0.9	0.0	1.0	18.8	8.5	19.5	2.6	11.5	0.0	19.2	1.2	0.0	0.0	9.4	5.8	9.4	5.8	13.0	56.6	35.0	106.5	1.2	1.3	7.2	10.2	0.6	0.0
1999	9	3.0	16.5	1.0	8.3	0.0	0.0	0.0	20.8	0.0	38.2	77.6	19.8	4.0	0.0	0.0	0.7	0.0	8.5	0.0	0.0	6.7	0.0	6.6	0.0	0.0	0.0	23.1	0.0	0.0	0.0	
1999	10	0.0	0.0	0.0	1.8	0.0	61.6	7.6	8.4	18.2	0.9	0.5	0.0	0.0	0.0	5.2	5.8	0.0	11.8	22.3	14.5	4.0	0.4	0.0	2.0	0.0	0.0	0.0	0.0	0.0	46.6	2.6
1999	11	5.8	0.0	4.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1999	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2000	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.6	1.7	0.0	0.0	0.0	0.0	1.0	17.0	1.0	1.1	0.0	0.4	0.0	0.0	7.6	9.7	0.5	0.0
2000	2	2.7	7.5	0.6	0.0	0.0	2.5	2.4	1.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

2000	3	0.0	1.1	10.1	10.0	3.4	7.5	1.2	8.0	12.0	9.5	1.7	0.8	11.6	10.0	18.8	2.6	1.2	0.7	5.2	8.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2000	4	4.0	9.2	24.6	38.0	40.0	48.3	31.5	35.0	29.5	5.5	9.0	0.0	0.0	0.0	0.0	0.8	23.2	5.7	2.0	0.0	7.0	9.0	73.0	12.0	7.0	19.5	1.5	16.0	6.0	40.5	
2000	5	55.0	20.0	3.0	1.9	0.0	3.2	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	24.0	4.6	2.5	0.0	0.0	10.5	6.5	6.9	2.5	18.0	21.0	10.7	37.0	0.0
2000	6	3.8	3.0	0.0	0.0	0.0	0.0	10.0	6.0	52.8	23.0	21.0	2.0	6.0	45.0	6.0	0.0	6.2	4.3	0.0	25.2	44.2	40.0	12.2	35.2	6.2	14.2	0.0	0.0	8.1	0.0	
2000	7	10.3	0.2	0.0	2.2	1.8	0.0	7.2	0.0	12.5	0.0	1.5	0.0	56.3	21.1	0.0	0.0	0.0	18.0	19.0	10.5	6.5	1.5	32.0	20.4	2.5	43.0	5.5	6.5	17.7	11.2	50.9
2000	8	37.0	23.8	11.6	4.0	6.9	0.0	0.0	0.5	36.7	4.2	6.7	31.2	13.0	28.0	52.8	1.7	0.0	9.1	0.8	64.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	28.0	10.5	0.0	13.0
2000	9	0.0	0.5	0.0	13.5	162.8	0.0	5.8	26.7	2.4	18.5	7.0	8.6	0.0	11.8	6.4	53.1	31.2	16.0	0.0	0.0	0.0	0.0	1.7	22.5	2.2	24.3	0.0	0.0	0.0	0.0	
2000	10	0.0	1.9	1.8	1.8	0.0	0.0	0.0	22.0	4.5	0.0	0.0	0.6	0.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	1.8	0.0	0.0	0.0	2.2	11.3	0.9	0.0
2000	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	8.4	0.0	0.0	0.0	3.2	25.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2000	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2001	1	0.0	0.0	0.0	0.0	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2001	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	0.0	6.2	12.6	7.0	0.0	0.0	4.1	5.1	0.0			
2001	3	0.0	0.7	0.0	0.0	0.0	0.9	1.5	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	1.5	1.4	1.4	5.9	0.0	0.0	0.0	16.5	0.6	23.2	0.3	0.0	20.5	5.4	25.5	16.6
2001	4	11.6	2.2	5.0	1.7	0.5	0.0	1.3	0.0	0.0	7.2	17.4	10.3	0.0	0.9	26.0	0.0	13.8	7.2	9.8	4.2	1.2	8.6	1.2	0.0	0.0	14.2	6.0	23.0	0.0	1.0	
2001	5	0.0	0.0	0.0	0.0	10.3	3.4	0.0	26.8	0.4	23.2	3.6	0.0	0.0	0.0	0.0	35.3	3.6	12.7	3.4	0.3	6.0	4.7	26.3	2.7	0.0	0.3	0.0	0.0	0.0	0.0	1.7
2001	6	32.8	4.8	0.0	59.5	29.6	18.2	10.6	7.8	12.0	0.0	0.0	0.0	0.0	0.0	49.3	0.0	0.6	0.0	38.3	25.0	24.5	1.8	14.4	0.5	0.0	0.3	16.0	5.5	44.0	1.5	
2001	7	2.4	2.3	0.0	0.0	0.0	5.2	1.7	2.0	8.6	24.8	2.0	2.0	16.2	0.6	0.0	0.0	0.0	10.4	4.6	5.6	38.8	6.0	18.0	41.2	0.0	6.5	14.2	64.6	17.7	1.6	4.8
2001	8	7.0	6.6	37.0	0.0	0.0	0.0	2.7	0.9	0.0	45.9	0.0	5.3	0.6	0.0	0.0	0.0	1.6	0.8	0.0	0.0	0.0	20.3	57.5	20.3	28.7	51.2	7.2	1.6	0.0	5.2	2.9
2001	9	0.0	17.0	21.0	48.6	0.0	0.0	0.0	5.8	40.6	2.0	0.0	2.1	5.1	0.0	14.6	0.0	13.0	1.3	38.0	0.0	0.0	0.0	0.7	3.3	26.0	1.3	0.0	3.5	0.0	4.3	
2001	10	32.5	34.6	39.4	12.2	22.6	16.4	20.4	1.5	0.0	0.0	2.4	0.0	0.0	10.3	6.4	1.0	0.0	1.3	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2001	11	2.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2001	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2002	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	5.6	27.0	16.5	13.0	3.4	5.0	16.2	6.4	0.0	0.0	0.0	0.0	0.0	0.0
2002	2	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	4.8	0.0	0.0	0.0	7.0	3.8	0.0			
2002	3	0.0	0.0	0.0	20.0	5.8	2.5	0.0	0.0	0.4	0.0	0.0	7.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.8	1.2	13.5	0.7	15.7	9.0	7.5	0.0	0.0
2002	4	0.0	0.0	3.0	4.2	0.0	0.0	0.0	0.0	14.6	39.0	25.0	0.0	0.0	0.0	0.2	4.6	5.2	37.0	72.0	11.0	0.0	12.0	5.4	3.3	0.0	0.0	24.0	24.2	7.0	7.0	
2002	5	8.1	0.0	6.4	0.7	0.0	12.5	0.0	0.0	0.0	0.0	4.2	62.0	0.0	0.0	13.2	0.0	0.0	0.0	0.0	29.0	81.0	28.6	0.0	0.0	0.0	2.8	4.2	0.3	0.0	1.3	0.0
2002	6	21.6	0.0	0.0	0.0	0.0	0.3	6.4	20.4	14.2	0.0	0.7	43.0	9.0	6.5	0.5	2.4	0.0	55.0	17.0	0.0	15.5	0.4	0.0	0.0	4.2	92.0	28.4	0.5	0.0	11.4	
2002	7	19.0	0.0	38.2	25.2	4.2	11.2	8.2	10.2	3.0	0.5	36.8	34.6	20.6	7.8	0.2	0.0	2.1	103.8	17.5	73.5	43.0	12.7	55.5	25.7	0.0	3.6	5.0	2.2	0.0	0.0	23.0

2002	8	81.6	1.8	0.0	2.6	17.0	0.0	30.4	0.0	0.0	1.5	26.4	80.8	0.6	5.8	0.0	0.0	31.0	11.0	3.7	0.2	0.0	0.0	0.0	47.0	0.0	13.8	0.0	0.0	0.0	6.2	0.0
2002	9	0.0	0.0	52.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	18.0	0.0	0.0	58.0	1.2	0.0	0.0	0.0	0.0	0.0	14.4	41.6	15.4	5.0	0.2	9.4	46.0	13.0	
2002	10	10.0	11.2	0.6	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	0.0	0.0	0.0	0.2	0.0	11.1	20.6	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2002	11	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	28.5	2.2	0.0	0.0	0.0	0.0	0.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2002	12	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2003	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	23.1	0.0
2003	2	0.0	0.0	0.0	0.0	0.0	2.0	2.8	0.5	5.8	4.6	0.0	0.0	10.6	12.6	1.3	0.0	0.0	0.0	0.0	3.0	13.8	6.5	0.0	0.0	0.0	5.5	3.0	0.0			
2003	3	0.0	0.0	0.0	12.8	5.8	0.0	0.0	0.0	0.0	0.0	0.0	6.2	3.7	13.7	0.0	1.5	3.5	4.0	7.8	6.4	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8
2003	4	12.0	15.0	11.0	3.5	2.2	0.0	0.0	7.2	6.6	0.0	5.6	14.5	8.5	0.0	0.0	11.5	11.0	32.0	0.0	8.7	21.8	29.0	16.0	0.0	0.0	10.4	0.8	0.0	0.5	10.5	
2003	5	0.0	5.0	3.8	1.0	34.8	15.0	8.0	14.7	6.4	22.0	3.0	0.0	0.0	0.0	0.0	40.8	7.0	11.8	0.0	0.0	14.2	4.0	0.0	0.0	73.5	22.0	80.0	15.6	0.3	0.0	0.0
2003	6	0.0	0.0	5.7	0.0	9.0	39.0	6.8	0.0	1.9	1.5	0.0	41.5	11.0	17.3	3.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	3.3	16.0	55.3	17.0	123.0	13.2	26.5	2.3	
2003	7	4.3	10.4	35.2	17.0	46.0	6.2	84.7	144.8	40.3	1.4	25.0	36.8	14.2	2.8	0.0	3.2	0.7	12.6	4.0	54.2	41.4	0.0	0.0	0.0	0.7	0.0	0.0	11.2	54.6	10.7	4.5
2003	8	105.6	1.3	15.0	0.0	0.0	0.0	0.5	0.0	15.0	7.9	10.8	0.0	0.0	52.0	2.3	1.8	15.8	12.0	5.3	1.4	0.7	0.0	8.5	14.8	0.0	0.0	5.5	5.5	38.0	0.0	56.1
2003	9	12.2	12.7	10.1	4.5	4.2	0.0	13.2	16.5	0.0	0.0	4.4	1.6	0.0	0.0	6.7	3.6	0.0	6.5	3.0	5.8	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.0	
2003	10	11.5	2.5	0.0	0.5	2.2	2.2	0.0	0.0	3.8	25.8	32.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	1.8	28.5	5.3	0.0	0.0	0.0
2003	11	1.6	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	5.2	0.0	0.0	0.0	
2003	12	0.0	0.0	0.0	0.0	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	0.0	0.0
2004	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.3	0.0	0.0	0.0	8.8	2.0	0.0	1.4	0.0	1.5	6.3	0.6	0.0	0.5	0.0	0.0	0.0
2004	2	0.0	0.0	1.1	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	48.6		
2004	3	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	6.0	7.2	20.9	19.0	4.8	0.0	1.4	38.6	33.0	16.7	14.0
2004	4	1.8	0.8	1.1	1.0	0.0	0.0	0.0	8.2	0.0	17.1	1.0	5.1	39.4	40.9	40.6	33.4	5.4	4.2	9.8	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	9.9	0.0	0.0	
2004	5	0.0	47.2	6.9	0.0	0.0	3.5	2.1	0.0	4.1	10.7	73.9	64.2	41.3	63.1	48.3	12.2	0.6	3.8	8.6	1.2	0.3	20.3	0.7	21.5	13.2	2.4	0.0	0.0	0.0	1.2	13.8
2004	6	0.0	19.3	25.2	6.3	0.6	0.0	0.0	0.0	2.7	0.0	11.2	0.5	1.1	2.4	0.0	0.0	34.2	9.3	14.0	12.8	15.2	20.1	24.7	5.6	0.0	10.5	4.7	1.5	7.3	35.6	
2004	7	0.0	0.0	6.1	46.6	16.5	6.2	37.2	33.2	38.9	170.1	42.2	3.5	1.5	0.1	0.0	20.2	27.8	23.9	60.2	25.8	2.2	2.3	0.0	12.4	1.3	1.1	0.0	13.6	0.5	2.9	0.0
2004	8	0.0	0.4	5.4	8.4	10.9	3.1	10.2	0.0	3.8	0.8	10.3	0.2	0.0	84.2	0.2	19.2	0.0	0.4	13.9	0.0	22.4	0.4	0.7	0.2	5.2	12.7	46.2	9.3	0.0	0.0	3.8
2004	9	1.8	1.4	38.0	25.0	0.0	0.9	75.3	85.5	34.1	0.0	0.0	0.7	8.1	0.0	0.0	0.0	0.0	7.5	2.6	24.3	0.5	52.0	2.0	3.0	1.2	0.0	1.4	3.9	7.0	4.6	
2004	10	2.0	4.4	3.4	7.4	24.5	19.0	18.5	13.5	18.1	2.0	0.0	0.0	0.3	0.0	63.5	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.0	0.0	0.0
2004	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	
2004	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	8.5	0.0	1.7	0.0	2.3	0.0	0.0	0.0	0.0	0.0

2005	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	7.1	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	4.6	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2005	2	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	24.0	39.5	0.7	23.7	20.1	3.4	4.3	2.8	2.7	0.0	1.9	2.9	0.6	7.6	1.6	0.0			
2005	3	0.0	18.5	5.5	1.9	11.5	31.8	51.2	10.9	10.2	6.4	3.8	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	12.5	18.5	2.6	49.1	1.3	17.7	4.8	1.4	5.4	13.7	13.9	12.5
2005	4	14.7	0.2	0.0	0.2	0.4	0.0	5.2	8.5	46.2	8.5	5.2	1.5	3.7	0.0	0.0	3.2	14.0	27.2	7.5	0.0	0.0	0.0	0.0	6.2	16.3	0.0	18.7	18.9	8.5	1.3	
2005	5	0.0	0.0	0.0	6.4	0.5	10.0	1.8	0.5	0.0	0.0	5.8	0.0	1.1	0.7	2.1	9.4	23.0	0.6	1.5	7.3	1.6	5.1	0.0	9.9	0.0	0.0	2.2	6.7	29.0	0.4	0.4
2005	6	66.0	51.7	0.7	2.4	0.0	11.2	0.0	10.2	0.0	0.0	0.0	1.7	2.5	0.0	25.6	0.2	0.0	42.6	0.2	0.5	7.9	6.2	7.7	3.1	18.3	0.0	0.0	5.7	6.0	56.0	
2005	7	2.3	3.5	54.6	2.4	0.0	0.0	0.0	4.3	44.6	59.6	70.0	78.5	70.1	3.1	0.0	25.3	6.7	7.7	31.0	6.0	5.6	0.0	3.5	0.0	0.0	1.8	2.5	18.5	39.5	0.0	0.0
2005	8	24.0	0.0	2.6	51.9	4.9	22.5	10.8	7.4	0.0	2.2	0.0	0.0	0.0	49.3	0.7	32.9	6.5	30.7	24.2	56.2	8.0	11.0	22.7	20.0	11.0	14.8	11.8	0.0	15.0	0.0	0.0
2005	9	0.0	0.0	133.3	0.0	0.1	0.5	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.5	13.6	11.4	0.4	0.0	0.0	0.0	16.0	2.0	
2005	10	0.5	52.7	1.2	0.0	0.0	0.0	0.0	26.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2.2	36.5	12.9	21.3	3.0	0.0	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0
2005	11	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	8.5	0.0	0.0	0.0	0.0	0.0	1.2	0.5	0.0	0.0	0.0	0.0	0.0	
2005	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	15.2	0.0	0.0	0.0	0.0
2006	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2006	2	0.0	0.0	0.0	0.0	16.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.5	27.7	49.0	5.5	0.0	0.0	2.2	11.9	12.3	5.9	8.5	0.0	1.7	3.5			
2006	3	0.0	0.0	0.0	0.0	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.3	12.3	0.6	5.6	0.5	0.7	4.1	0.0	0.0	0.0	0.2	10.5	1.6	0.3	1.9	36.2	0.0	0.0	0.0	0.0
2006	4	0.0	0.5	15.3	1.0	11.3	2.7	3.0	5.7	0.5	1.4	21.9	29.3	25.0	0.0	36.3	7.5	7.3	16.1	0.2	22.8	0.0	0.0	0.0	0.5	0.0	0.0	0.0	5.7	0.0	0.0	
2006	5	0.0	0.0	0.0	1.9	5.5	6.6	6.5	0.0	0.0	0.0	0.5	5.7	1.8	6.7	0.0	0.0	0.0	0.0	0.0	7.2	0.0	0.0	0.0	0.0	0.0	1.3	25.2	35.5	31.5	8.6	48.3
2006	6	39.0	2.2	1.1	14.7	0.0	41.6	2.1	2.6	34.0	2.3	16.5	15.2	34.6	24.6	17.1	8.5	0.0	0.0	0.0	0.0	0.2	0.0	0.0	19.7	7.5	40.5	5.5	3.6	29.0	0.0	
2006	7	12.7	0.0	0.0	5.3	24.6	22.7	8.6	28.1	0.2	15.5	28.5	18.5	4.5	10.3	38.4	3.5	0.8	2.6	28.2	1.8	0.2	53.8	24.9	1.5	4.1	2.5	0.0	0.0	0.0	0.0	0.0
2006	8	0.0	2.0	0.0	12.0	0.0	39.0	2.1	4.5	0.0	0.0	0.0	0.0	0.2	20.4	0.0	0.0	0.0	22.3	12.6	0.0	5.2	0.0	18.0	6.5	0.5	0.4	1.5	0.0	0.0	41.0	
2006	9	2.0	11.7	0.0	22.3	49.6	1.0	7.3	17.8	8.1	33.4	14.8	10.6	8.8	1.1	0.6	0.0	0.5	0.0	0.0	0.0	28.8	31.8	1.6	0.0	18.9	0.0	0.0	0.0	0.0	1.7	
2006	10	0.0	0.3	0.0	2.5	7.7	28.4	0.0	0.0	0.0	0.0	50.3	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2006	11	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9	0.4	0.0	0.6	2.6	15.2	4.4	2.1	0.0	0.0	0.0	
2006	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0
2007	1	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	2.9	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2007	2	0.0	0.0	0.0	4.1	5.3	14.2	6.3	0.4	8.5	0.0	0.0	0.0	12.4	2.4	10.6	8.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8			
2007	3	0.0	3.8	6.7	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	8.5	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
2007	4	0.0	1.6	10.5	12.3	1.6	8.7	7.9	29.3	22.0	3.0	9.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.7	20.5	23.9	34.5	38.0	7.4	3.1	14.1	0.4	0.0	0.0	
2007	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.5	0.0	0.0	0.0	2.0	15.5	34.4	0.0	0.0	0.0	2.2	2.1	22.9	0.0	12.3	1.8	2.5	10.7	0.2	0.0	0.0	0.0

2007	6	2.1	1.5	1.9	0.0	0.0	6.1	0.0	18.4	82.0	9.7	17.0	0.0	0.0	22.0	36.0	6.4	38.9	14.6	4.0	0.2	18.2	0.9	3.2	0.8	8.9	0.0	0.0	3.0	0.0	0.0	
2007	7	0.0	0.0	0.0	0.0	0.0	0.0	11.2	0.4	38.9	18.3	2.0	4.9	0.0	36.7	0.4	20.6	12.4	40.8	47.3	8.7	0.5	35.7	30.0	0.0	33.3	39.0	11.3	77.8	50.6	3.9	30.8
2007	8	21.9	3.0	0.0	14.0	0.0	0.0	0.0	45.2	1.7	0.0	0.5	60.0	45.0	1.1	1.1	1.2	14.8	0.9	0.0	6.9	3.6	0.0	0.0	10.9	0.0	5.7	6.6	16.6	83.0	0.3	0.0
2007	9	0.9	51.2	112.0	86.7	26.0	17.2	22.5	14.2	39.7	13.6	0.0	0.0	0.0	0.0	39.7	60.9	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.5	0.0	
2007	10	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.4	0.0	3.0	0.5	0.0	0.0	44.5	0.4	6.5	0.0	1.7	3.5	2.6	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2007	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.1	1.8	16.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2007	12	1.0	0.0	0.0	40.4	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2008	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.2	2.8	0.2	0.0	0.0	0.0	0.0	0.0	2.0	17.7	10.1	0.0	7.5	2.3	2.3	10.2	6.7	3.8	0.6	7.4
2008	2	10.1	0.0	0.0	0.0	0.6	0.0	0.2	0.0	13.8	8.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.4	7.4	5.4	1.2	0.0		
2008	3	0.0	0.0	0.0	0.0	6.5	1.0	0.0	0.0	0.8	0.0	0.0	0.0	0.5	3.2	17.5	0.0	0.0	0.0	2.6	5.3	7.5	10.6	0.5	3.0	15.2	10.2	50.0	17.1	3.3	7.4	8.5
2008	4	5.8	18.0	6.3	2.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1	11.2	9.3	0.0	0.4	32.0	39.6	3.1	0.6	0.0	0.0	0.0	9.1	2.5	20.0	40.6	10.2	11.6	
2008	5	1.6	4.5	10.5	0.3	0.0	0.0	17.7	2.4	0.6	0.0	0.6	0.0	0.6	0.0	12.3	0.0	0.0	3.1	2.1	8.0	6.2	0.5	0.0	1.0	0.7	0.0	0.5	0.0	0.0	0.0	0.0
2008	6	0.0	1.0	2.8	1.0	0.0	70.6	1.7	4.1	0.0	0.7	4.0	91.6	7.0	59.5	0.0	0.0	0.0	14.5	3.2	8.5	24.5	14.5	18.7	0.1	0.0	16.4	10.8	2.2	0.0	20.0	
2008	7	35.5	2.5	0.0	15.0	37.4	6.1	0.0	0.0	0.0	0.0	41.5	22.2	9.0	0.0	45.8	12.8	3.1	0.0	8.4	8.2	50.2	36.5	41.0	0.5	12.5	2.2	1.8	0.0	0.0	46.1	28.6
2008	8	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.5	53.5	0.0	1.0	7.0	9.4	21.2	13.8	5.5	0.0	15.8	0.0	0.0	0.4	0.0	17.0	11.2	2.2	9.7	5.5	18.5
2008	9	0.1	0.9	26.5	6.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.0	0.0	0.0	0.0	46.0	12.4	
2008	10	0.0	21.2	26.4	0.0	1.0	0.0	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2008	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2008	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009	1	0.0	0.0	0.0	0.0	0.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	4.5	2.5	0.0	0.0	0.0
2009	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	32.2	24.5	2.0	7.0			
2009	3	5.3	0.0	0.0	0.5	0.0	2.6	3.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	2.4	9.5	19.2
2009	4	15.0	2.4	0.0	3.4	20.6	0.3	0.0	37.2	11.4	4.0	15.4	0.0	0.0	0.0	0.0	0.0	11.3	5.3	0.2	0.0	10.6	2.0	19.0	23.2	8.4	0.0	0.0	0.0	0.0	1.2	
2009	5	2.0	1.7	0.0	3.0	0.0	3.6	4.0	2.6	2.8	7.6	5.2	1.2	1.7	7.2	1.0	0.0	0.0	9.0	6.4	0.0	0.0	5.8	0.0	0.0	0.0	2.4	13.6	0.0	0.0	4.0	0.0
2009	6	13.6	7.2	0.0	0.0	6.6	1.8	0.0	0.0	26.4	0.0	13.8	1.2	24.5	0.0	0.0	3.0	1.5	0.0	0.0	2.2	23.6	0.0	0.8	0.0	3.0	0.0	9.0	12.6	20.2	12.6	
2009	7	6.6	48.2	29.3	13.2	8.0	9.8	1.2	34.8	2.6	0.8	0.0	0.0	0.0	0.0	0.0	22.0	0.0	1.6	2.2	0.0	0.0	14.8	0.0	0.0	4.2	14.6	14.2	0.0	32.2	25.8	17.3
2009	8	0.0	1.8	4.2	2.4	7.8	23.5	0.0	25.2	0.0	0.0	74.5	8.2	30.6	1.6	0.0	79.2	24.2	12.0	12.5	12.4	22.3	7.0	31.0	0.0	0.0	0.0	0.0	16.2	12.4	2.6	0.4
2009	9	0.0	12.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	7.8	15.6	1.0	0.0	0.0	0.0	6.1	126.0	1.6	19.2	25.4	9.6	3.2	6.2	0.0	16.3	2.0	0.0	0.0	0.0	0.0	
2009	10	0.0	0.0	4.6	0.0	7.4	1.4	0.0	49.0	21.0	9.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	16.6	9.4	28.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2009	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	5.2	17.8	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2009	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2010	1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2010	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	2.6	0.0	0.0	2.5	0.0	0.0	0.0	0.0	2.2	4.4	5.0	0.0	4.8			
2010	3	0.0	0.0	18.4	37.6	36.2	6.5	16.2	6.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	7.2	9.2	3.6	4.2	20.4	18.4	3.8	0.3	35.2
2010	4	46.3	33.8	54.5	27.4	11.0	5.3	6.8	0.0	1.2	6.2	49.3	2.8	6.6	86.0	0.0	0.0	0.0	63.6	22.4	42.0	107.0	106.4	48.2	9.8	18.2	28.8	1.0	0.0	0.0	2.1	
2010	5	0.0	0.0	19.8	27.0	12.1	0.0	1.0	0.8	19.0	25.4	84.0	58.0	55.8	7.4	4.5	10.5	15.8	0.0	21.8	67.2	3.0	17.3	0.0	0.0	11.2	1.4	0.0	12.4	0.0	10.2	3.4
2010	6	35.2	30.2	2.7	21.2	20.8	33.8	14.5	21.2	5.1	13.8	16.0	0.0	2.4	5.0	0.3	1.2	6.1	46.8	0.0	32.2	3.3	13.8	5.3	1.0	24.0	2.1	26.0	11.4	3.2	0.0	
2010	7	0.8	25.6	2.0	11.6	7.3	19.0	21.0	5.6	11.9	9.1	6.2	5.3	96.2	0.0	0.0	0.0	0.8	47.8	16.3	18.7	6.4	15.0	3.7	0.0	0.0	11.2	0.0	24.0	3.4	20.0	14.5
2010	8	54.8	1.0	22.2	61.6	0.0	0.5	12.8	0.6	0.0	0.0	45.7	0.6	0.0	23.4	1.0	22.8	3.4	12.3	0.0	3.0	15.6	18.8	8.5	0.0	0.0	15.2	15.5	1.0	0.0	0.0	0.0
2010	9	45.0	0.0	0.0	56.8	34.6	21.6	21.5	0.0	42.6	70.4	1.8	0.0	0.0	1.4	18.9	0.0	3.4	0.0	6.2	14.5	0.0	0.0	0.0	43.6	0.0	12.1	12.5	6.2	0.0	0.0	
2010	10	21.9	0.0	0.0	0.0	0.0	4.1	0.0	0.0	24.9	4.3	0.0	0.0	0.0	1.2	0.0	1.6	6.8	18.2	0.0	0.0	0.0	4.1	1.6	0.0	1.2	0.0	0.0	1.4	0.0	0.0	0.0
2010	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	11.6	21.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	5.0	
2010	12	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	0.0	15.1	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2011	1	0.0	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	11.3	0.0	2.2	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2011	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	2.1	0.0	0.0	0.0	4.1	9.6	3.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
2011	3	0.0	0.0	0.0	0.0	13.8	2.2	0.0	0.0	5.8	3.4	1.6	2.3	6.4	1.4	0.0	0.0	0.0	1.8	23.8	36.0	21.2	28.4	12.4	10.7	37.1	10.0	0.0	0.0	1.1	1.7	1.7
2011	4	15.0	2.2	0.0	0.5	10.8	0.0	0.0	0.0	1.6	0.2	0.0	0.0	0.0	31.2	24.0	1.4	0.0	0.0	16.5	21.6	24.7	16.8	2.5	4.2	0.0	0.0	0.0	13.7	0.0	0.0	
2011	5	0.5	26.0	10.8	4.8	0.0	0.0	0.0	1.7	1.4	0.0	0.0	0.0	0.0	0.0	21.4	0.0	0.0	0.0	0.5	0.2	3.4	1.4	10.9	12.7	0.0	0.0	0.0	0.0	0.0	4.3	25.4
2011	6	16.2	9.7	2.2	42.0	10.0	0.0	0.0	15.0	0.0	6.1	13.1	5.3	0.0	0.0	0.0	0.0	0.0	1.0	1.6	60.2	49.4	2.6	4.5	3.4	0.0	0.0	0.0	28.8	89.8	9.2	
2011	7	24.1	0.7	32.7	4.3	0.8	65.8	17.7	6.7	3.8	0.0	0.0	0.0	37.0	1.8	5.3	4.9	0.0	23.8	28.6	0.0	0.0	36.1	2.1	0.0	35.8	0.0	3.0	0.0	3.1	0.0	0.0
2011	8	0.0	0.0	0.0	7.0	34.2	1.7	9.6	0.6	0.0	0.0	0.0	0.0	0.0	12.3	25.2	2.7	6.4	10.6	1.2	0.0	0.0	0.0	10.8	29.1	8.9	0.0	0.0	0.0	0.0	0.0	33.8
2011	9	3.8	0.0	0.0	0.2	0.0	0.0	17.8	0.8	0.0	0.0	18.2	0.0	0.0	0.0	27.3	25.2	17.0	11.2	0.0	0.0	8.7	2.5	0.0	29.5	25.2	1.2	0.0	0.0	0.0	0.0	
2011	10	27.8	0.0	2.7	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	28.0	0.5	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0
2011	11	0.0	1.1	0.0	0.0	0.0	3.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2011	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2012	1	0.0	0.0	5.2	3.3	2.9	1.7	1.2	0.0	0.0	4.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	3.7	5.5	7.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2012	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.8	1.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0		
2012	3	8.1	3.9	1.3	2.5	0.9	0.0	0.5	10.0	3.8	0.0	0.0	0.0	0.0	0.0	3.8	3.3	0.0	0.0	0.0	0.0	0.0	3.5	9.6	0.0	0.0	0.0	7.5	5.2	3.2	7.3	1.2

2012	4	0.0	0.0	0.0	0.0	5.9	16.8	3.9	7.8	23.7	1.9	0.0	39.0	8.9	14.2	16.3	7.2	9.4	16.3	70.2	3.0	0.0	36.7	15.2	34.8	51.6	8.9	6.7	37.8	31.9	17.1	
2012	5	6.3	0.4	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4	4.6	25.6	62.5	52.5	3.5	0.0	0.0	0.0	0.0	0.0	14.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	10.6	0.0
2012	6	0.0	13.0	14.6	18.8	45.0	23.0	1.5	0.0	0.0	1.4	14.0	3.0	0.2	38.2	12.8	1.9	0.0	0.5	0.0	42.0	9.7	6.8	57.0	61.0	7.3	37.2	22.5	1.0	0.0	0.0	
2012	7	27.5	0.5	66.0	11.4	35.0	14.2	1.2	16.7	31.2	3.6	46.0	15.2	14.2	12.7	21.4	13.2	14.4	27.0	4.0	2.6	4.7	1.2	43.0	37.4	4.6	0.6	37.2	0.0	2.0	2.2	10.4
2012	8	2.1	15.5	0.0	0.0	0.0	2.5	0.0	1.1	0.0	0.5	0.0	13.2	4.3	0.0	0.0	12.9	0.0	0.0	5.0	53.0	11.2	2.2	33.3	1.1	1.2	0.0	0.0	2.5	0.0	0.0	17.5
2012	9	50.5	6.3	7.3	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.4	77.0	0.0	7.6	31.8	16.9	2.4	81.6	42.3	72.5	39.6	2.7	3.5	6.1	0.0	0.0	0.0	0.0	0.0	
2012	10	16.8	16.2	37.8	72.8	4.5	1.2	0.0	0.0	33.3	2.4	0.5	10.1	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
2012	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	
2012	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.0	9.8	3.1	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2013	1	0.0	0.0	0.0	1.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2013	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	9.7	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
2013	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	10.2	0.0	0.0	0.0	3.1	0.6	6.4	1.2	0.0	0.0	14.3	3.1	0.0	0.0	32.2	7.2	0.0	0.7	19.2	32.2
2013	4	9.6	1.9	0.0	10.7	39.0	0.0	0.0	0.0	0.0	5.9	25.8	69.3	15.8	8.2	18.3	12.0	0.5	11.7	7.3	0.0	0.0	0.0	33.8	0.0	0.0	0.0	0.0	11.7	0.0	0.0	
2013	5	4.1	56.2	52.1	14.0	12.7	1.3	0.0	1.4	1.0	0.0	5.4	10.0	4.6	45.6	7.2	0.0	22.2	4.9	39.4	5.6	0.0	0.0	90.5	34.5	3.7	0.0	0.0	5.1	0.0	0.0	0.0
2013	6	36.8	1.0	0.0	0.0	0.0	0.0	2.9	15.2	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	34.8	5.6	0.0	0.0	0.0	1.7	2.5	27.3	22.2	26.1	36.5	24.2	1.4	32.2	
2013	7	4.1	16.0	1.3	6.9	41.1	9.3	17.4	9.5	47.4	29.1	30.0	0.0	0.0	2.3	10.3	0.0	2.9	25.6	2.8	3.6	24.0	0.0	21.4	23.8	3.6	3.4	0.0	11.2	0.0	0.0	6.7
2013	8	0.0	0.0	0.0	2.5	12.1	3.5	12.2	4.3	1.6	1.6	0.0	15.1	9.4	0.0	57.6	4.8	3.0	1.3	0.0	0.0	0.0	0.0	1.6	2.2	2.2	2.2	50.1	10.2	15.8	24.2	3.4
2013	9	20.0	16.2	33.7	37.3	32.2	8.9	1.2	0.0	0.0	0.8	0.0	0.0	0.0	0.0	7.2	0.0	0.0	1.5	0.0	10.2	0.0	0.0	0.0	0.0	7.3	11.9	0.0	0.0	0.0	0.0	
2013	10	0.0	0.0	0.0	1.7	1.8	18.1	15.2	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	1.3	4.8	10.6	0.0	0.0	0.0	0.0	0.0	14.6	42.1	5.6	0.0
2013	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2013	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2014	1	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2014	2	0.0	0.0	0.0	0.0	0.0	12.1	0.8	3.0	9.2	3.5	0.6	3.7	0.4	0.0	0.2	8.5	12.6	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
2014	3	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	20.7	2.7
2014	4	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	10.5	19.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.4	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	3.7	0.0	0.0	
2014	5	0.0	0.0	5.6	7.5	0.0	9.0	8.6	44.0	88.2	91.6	211.2	18.7	26.5	37.3	0.0	7.1	0.0	0.0	0.0	0.0	5.1	2.9	0.0	0.0	0.0	0.0	0.0	57.3	59.0	9.8	0.0
2014	6	0.0	0.0	0.0	13.8	0.0	3.4	0.0	0.0	9.8	2.3	0.0	1.9	1.7	0.0	7.5	0.6	0.0	0.0	30.1	35.9	25.6	0.0	4.7	27.1	6.3	0.0	17.4	34.2	35.1	3.5	
2014	7	4.5	7.2	34.6	1.6	0.0	6.3	2.8	12.1	0.0	0.0	0.0	0.0	0.0	4.7	4.1	4.2	8.8	0.0	0.0	0.0	2.2	5.1	0.0	0.0	14.3	0.0	9.2	93.5	0.0	0.0	6.4
2014	8	2.8	0.0	0.0	1.9	33.2	13.6	0.0	2.2	28.8	19.6	12.2	10.2	48.7	37.2	12.4	12.6	2.2	21.1	9.3	0.0	2.1	4.2	53.9	37.8	69.4	9.2	0.0	0.0	0.0	0.0	0.0

2014	9	0.0	60.0	7.4	0.0	0.0	0.0	0.0	66.5	0.0	16.2	8.9	0.0	0.0	0.0	4.6	0.0	0.0	0.0	34.8	52.8	51.6	15.6	28.2	11.0	8.2	3.2	3.8	3.5	0.0	0.0	
2014	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	5.2	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2014	11	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2014	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2015	1	0.0	0.0	0.0	1.8	6.4	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	12.3
2015	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	2.1	0.8	0.0	0.0	0.0	0.0	0.0	3.1	0.0	1.2	0.0	0.0	0.0	10.5	0.0	0.0			
2015	3	1.4	0.0	1.6	33.2	3.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.1	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	34.8	3.7	26.2	0.0	16.2
2015	4	25.6	33.1	23.5	9.3	25.9	1.9	1.2	0.0	17.2	13.2	0.0	2.2	0.0	0.0	0.0	0.0	5.1	6.5	16.1	3.6	0.9	22.3	38.2	12.2	2.5	1.0	0.0	0.0	0.0	37.2	
2015	5	0.0	0.0	36.8	1.4	3.5	0.0	42.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	17.6	32.2	0.2	0.0	0.0	0.0	0.0	19.6	3.2	5.2	7.5	0.5	6.1	26.4	5.0	20.2
2015	6	98.4	18.6	0.0	5.8	0.0	12.4	32.2	10.8	29.0	108.0	4.2	0.0	6.8	7.5	12.0	2.8	9.1	2.1	0.0	0.0	14.0	4.8	52.6	10.1	6.4	0.0	0.0	0.0	29.7	51.0	
2015	7	6.8	3.6	5.6	17.0	12.7	0.2	0.0	0.0	0.0	16.0	0.0	36.2	20.0	5.8	25.8	0.0	0.0	0.0	0.0	0.0	10.8	11.2	53.2	17.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0
2015	8	0.0	0.0	21.6	13.8	23.0	8.3	2.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	45.4	9.1	7.7	24.4	11.2	25.3	11.7	0.0	0.0	1.5	3.4	0.0	0.0	19.4	52.7	152.6	90.2
2015	9	17.3	6.6	3.0	0.0	3.2	9.4	6.2	0.0	0.0	0.0	9.2	23.8	0.0	0.0	0.0	44.8	0.0	0.0	0.0	30.5	6.1	10.4	5.5	0.0	21.8	11.2	0.0	0.0	0.0	0.0	
2015	10	0.0	0.0	5.0	0.0	0.0	0.0	0.0	4.3	1.2	40.2	7.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2015	11	0.0	0.0	0.0	0.0	6.6	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2015	12	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4	1.0	4.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2016	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	5.8	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	1.6	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2016	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	4.2	4.8	5.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.8	31.8	15.1	1.0	14.8	0.0	0.0	0.0	0.0		
2016	3	0.0	0.2	0.0	0.0	0.0	0.0	8.2	23.0	48.6	29.0	0.4	3.0	0.0	0.0	0.0	2.2	21.2	0.0	0.0	0.0	5.6	22.0	32.0	0.0	0.0	0.0	0.0	20.0	1.0	4.2	0.0
2016	4	6.0	0.0	0.0	0.0	2.8	60.8	40.6	12.2	33.0	11.6	13.4	59.4	5.0	3.6	9.2	0.0	26.0	9.7	54.5	21.2	38.2	69.2	35.0	13.0	46.4	0.6	1.2	9.0	41.2	19.4	
2016	5	40.0	6.0	0.0	4.2	0.8	0.0	0.0	0.0	1.8	0.0	0.0	0.0	25.6	4.0	15.0	66.6	57.0	34.2	8.2	0.0	7.1	25.2	22.4	0.0	9.4	0.0	6.0	0.0	0.0	0.0	7.8
2016	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.6	3.2	4.2	0.0	21.2	23.2	38.6	1.4	0.0	1.8	12.0	2.8	51.0	23.8	8.2	31.0	0.0	1.4	0.0	6.2	4.2	0.0	20.0	
2016	7	9.7	3.4	17.0	2.0	1.2	21.6	0.0	0.0	0.0	3.8	13.4	49.6	2.4	18.0	12.0	2.4	90.4	16.0	11.9	0.0	18.2	68.4	39.2	50.4	45.6	25.4	1.2	0.0	0.0	0.0	0.0
2016	8	0.0	0.0	0.0	0.0	0.0	3.5	1.4	3.0	4.8	2.4	3.6	38.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	6.4	0.0	0.0	0.0	0.0	0.0	1.1	0.0	2.7	50.5	0.0	4.7
2016	9	23.0	17.2	7.4	5.0	22.0	7.4	5.2	28.3	33.0	30.6	0.0	0.0	0.6	1.8	7.6	0.0	0.0	5.8	0.0	0.0	2.4	4.0	11.1	19.6	0.0	0.0	5.1	0.0	0.0	0.0	
2016	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.6	46.4	9.8	10.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2016	11	0.0	0.0	0.0	0.0	0.0	3.8	5.8	7.6	0.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2016	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	12.0	0.0	0.0	0.0	0.0
2017	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0

2017	2	2.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.3	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	24.2	64.0	57.5	2.6	0.0	1.0	0.0	0.0			
2017	3	0.0	0.0	24.8	9.0	26.8	9.1	7.0	0.0	1.4	11.6	6.5	7.4	4.2	0.0	0.0	0.0	0.0	13.0	3.0	3.0	0.0	0.0	0.0	0.0	4.2	0.0	7.4	0.0	3.2	4.3	27.2
2017	4	16.8	32.0	51.2	4.0	0.0	0.0	0.0	2.2	21.5	18.8	1.4	0.0	0.0	0.0	0.0	13.2	1.0	0.0	0.0	1.6	0.0	0.0	0.0	6.8	24.4	26.4	11.6	11.6	15.8	7.0	
2017	5	36.6	3.0	9.2	0.0	2.6	28.8	21.8	0.0	0.0	1.4	0.0	0.0	0.0	5.2	0.0	35.4	0.0	0.0	32.4	16.0	22.4	21.2	0.0	51.0	16.0	17.5	3.2	0.0	0.0	2.2	34.2
2017	6	10.4	16.2	33.5	46.2	0.0	0.0	0.0	0.0	3.2	0.0	6.2	2.1	0.0	6.0	70.6	0.0	29.6	17.8	2.0	4.4	3.0	1.4	51.2	2.5	89.2	2.3	7.4	0.0	35.0	12.2	
2017	7	16.6	21.8	25.5	24.1	18.8	5.4	6.8	0.0	34.2	65.5	7.4	0.0	0.0	0.0	0.0	0.0	52.0	2.0	110.0	21.2	2.6	0.0	0.0	15.4	5.0	4.0	6.5	0.0	1.2	12.6	4.2
2017	8	0.0	2.7	2.2	0.0	0.0	66.2	5.8	16.6	25.0	25.6	69.2	0.0	1.4	0.0	0.0	2.8	0.0	20.0	18.5	20.2	0.0	0.0	0.0	43.8	0.0	0.0	16.2	0.0	0.0	4.8	3.0
2017	9	5.6	64.2	12.2	4.0	21.2	0.0	0.0	0.0	20.0	34.4	1.2	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	24.2	17.6	44.8	0.0	0.0	0.0	0.0	7.2	27.4	4.8	
2017	10	5.0	1.2	0.0	0.0	0.0	0.0	21.0	0.0	3.4	2.6	0.0	0.0	8.4	36.4	1.4	1.9	0.0	0.0	0.0	0.0	178.2	23.1	5.1	12.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2
2017	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	2.0	0.0	0.0	
2017	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2018	1	0.0	0.0	0.5	0.0	0.0	0.0	2.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	0.8	0.7	0.0	0.0	0.0	0.0
2018	2	0.0	0.0	1.0	6.0	1.4	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	1.2	4.2	0.0	0.0	2.0	0.0	0.0	0.0	5.4	0.0	0.0	3.0	10.4	0.0			
2018	3	0.0	0.0	38.2	13.4	37.8	38.0	1.2	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	18.0	30.4	29.6	2.4	0.0	0.0	0.0	5.6	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2018	4	0.0	0.0	0.0	0.0	0.0	24.8	0.0	0.0	0.0	0.0	0.0	2.8	14.0	12.4	6.4	0.0	0.0	0.0	18.8	0.0	28.6	38.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2018	5	3.4	3.2	0.0	0.0	10.0	0.0	0.8	1.3	22.6	18.7	5.8	0.0	3.0	0.0	2.2	1.2	5.7	0.0	0.0	2.2	0.0	0.0	2.0	51.2	5.4	6.0	16.5	9.2	1.0	1.4	2.8
2018	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	1.4	8.4	59.5	2.2	14.0	2.6	1.8	0.0	0.0	0.0	9.0	0.8	18.0	4.6	0.0	0.0	8.8	28.8	43.7	
2018	7	31.0	21.0	0.0	5.0	0.0	0.0	25.0	61.2	1.6	14.4	0.0	17.9	0.0	9.4	15.0	50.2	0.0	0.0	0.0	0.0	0.0	0.0	9.8	12.8	4.2	11.4	4.8		54.0	4.2	5.0
2018	8	4.8	53.0	10.2	1.0	0.0	0.0	0.0	40.0	0.0	0.0	5.8	0.0	0.0	18.4	3.8	0.0	1.6	0.0	0.0	0.0	28.2	1.0	5.2	0.0	3.0	1.0	4.4	0.0	10.6	22.4	1.2
2018	10	2.2	0.0	1.6	0.0	0.0	0.0	0.0	3.6	0.8	0.0	0.0	83.6	8.8	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2018	11	0.0	0.0	0.0	4.0	16.6	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2018	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	23.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.6	0.0	0.0

ANNERXURE-III

GARRETT RANKING CONVERSION TABLE

The conversion of orders of merits into units of amount of "socres"

Percent	Score	Percent	Score	Percent	Score
0.09	99	22.32	65	83.31	31
0.20	98	23.88	64	84.56	30
0.32	97	25.48	63	85.75	29
0.45	96	27.15	62	86.89	28
0.61	95	28.86	61	87.96	27
0.78	94	30.61	60	88.97	26
0.97	93	32.42	59	89.94	25
1.18	92	34.25	58	90.83	24
1.42	91	36.15	57	91.67	23
1.68	90	38.06	56	92.45	22
1.96	89	40.01	55	93.19	21
2.28	88	41.97	54	93.86	20
2.69	87	43.97	53	94.49	19
3.01	86	45.97	52	95.08	18
3.43	85	47.98	51	95.62	17
3.89	84	50.00	50	96.11	16
4.38	83	52.02	49	96.57	15
4.92	82	54.03	48	96.99	14
5.51	81	56.03	47	97.37	13
6.14	80	58.03	46	97.72	12
6.81	79	59.99	45	98.04	11
7.55	78	61.94	44	98.32	10
8.33	77	63.85	43	98.58	9
9.17	76	65.75	42	98.82	8
10.06	75	67.48	41	99.03	7
11.03	74	69.39	40	99.22	6
12.04	73	71.14	39	99.39	5
13.11	72	72.85	38	99.55	4
14.25	71	74.52	37	99.68	3
15.44	70	76.12	36	99.80	2
16.69	69	77.68	35	99.91	1
18.01	68	79.17	34	100.00	0
19.39	67	80.61	33		
20.93	66	81.99	32		

Fig. 3.2.1. Sampling Plan

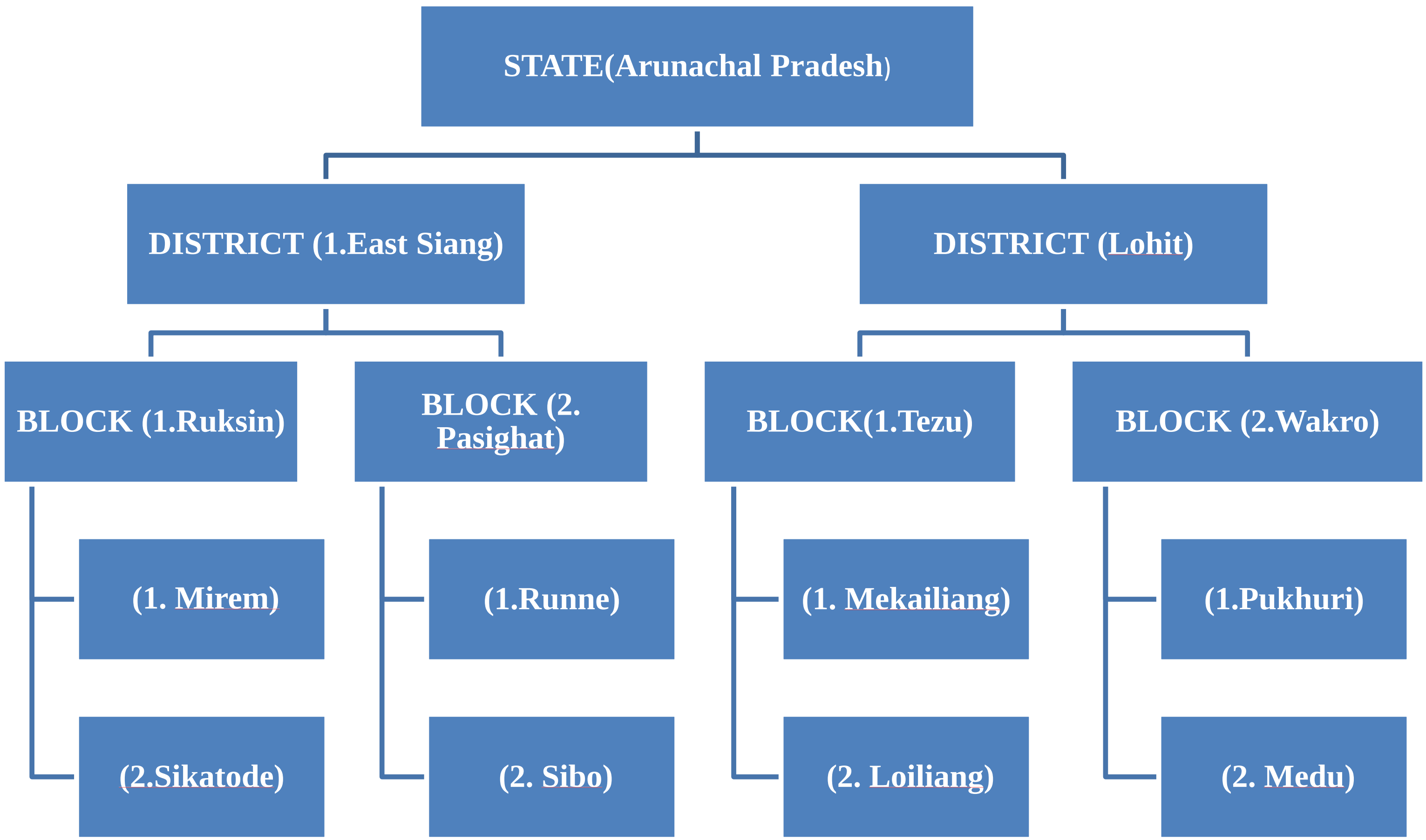
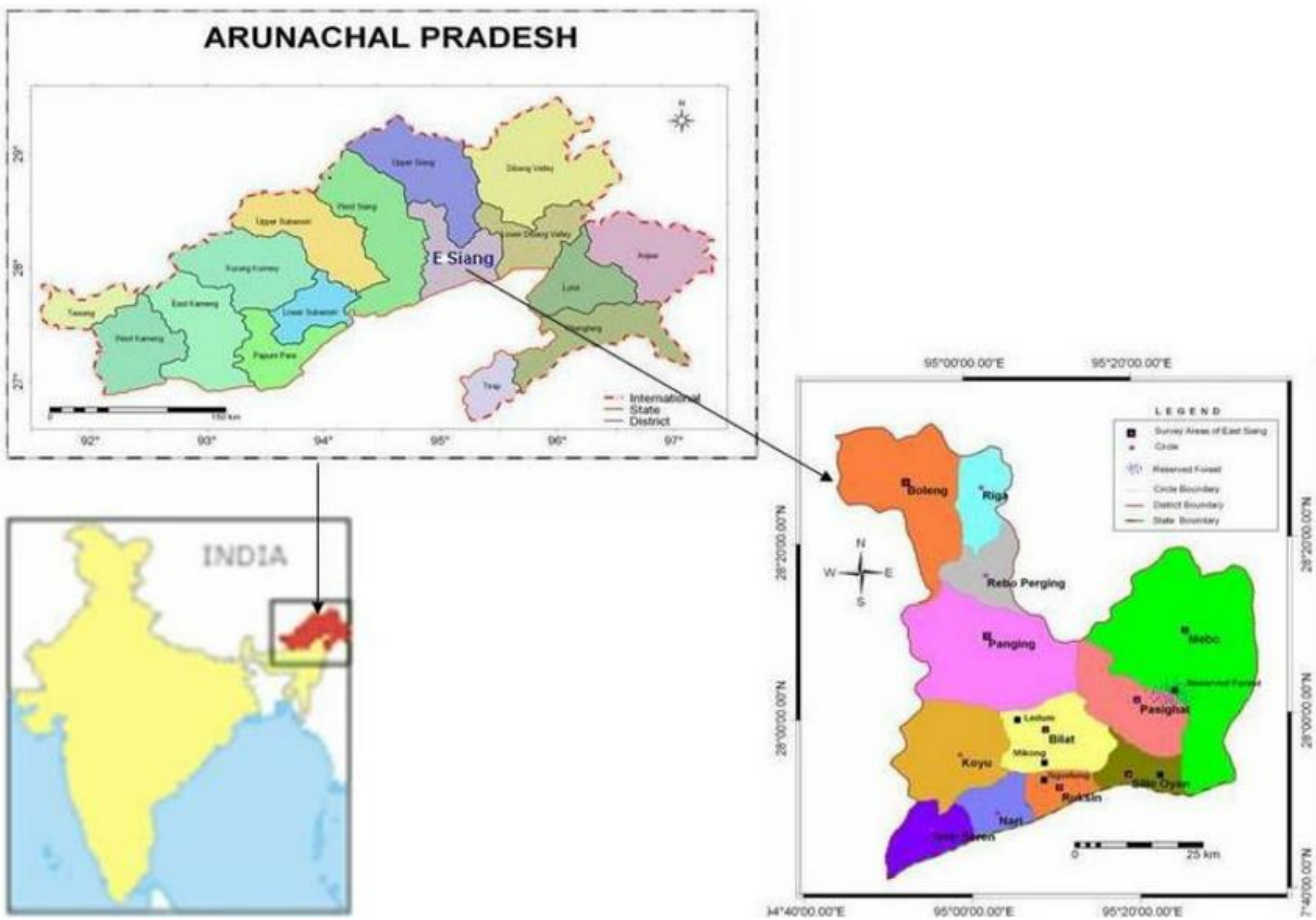
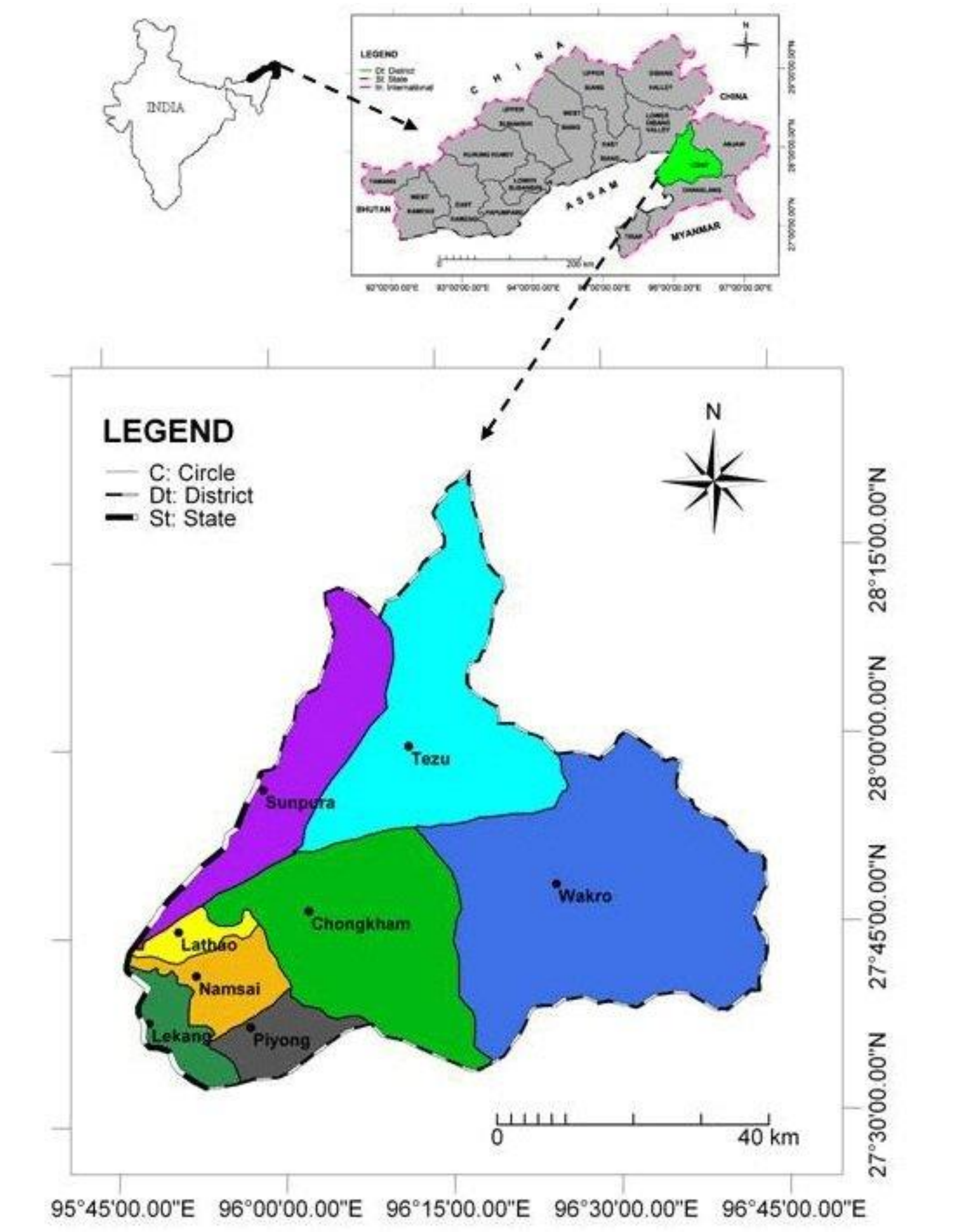


Fig. 3.1.1.1: Map of East Siang (Arunachal Pradesh)



Source: https://eastsiang.nic.in/about-district/

Fig. 3.1.1.2: Map of Lohit (Arunachal Pradesh)



Source: https://eastsiang.nic.in/about-district/

PLATES

Plate 1: Interviewing progressive rice farmers from Pasighat, East Siang.

Plate 2: Interviewing farmers from Ruksin East Siang..

Plate 3: Upland rice cultivation in East Siang.

Plate 4: Grain storage structures in Ruksin, East Siang

Plate 5: 10 months old local rice variety (Itanagar) in storage.


Plate 6: Threshing of rice.


Plate 7: Local rice before threshing.


Plate 8: Rice field in East Siang.

Plate 9: Interviewing maize farmers from Tezu, Lohit

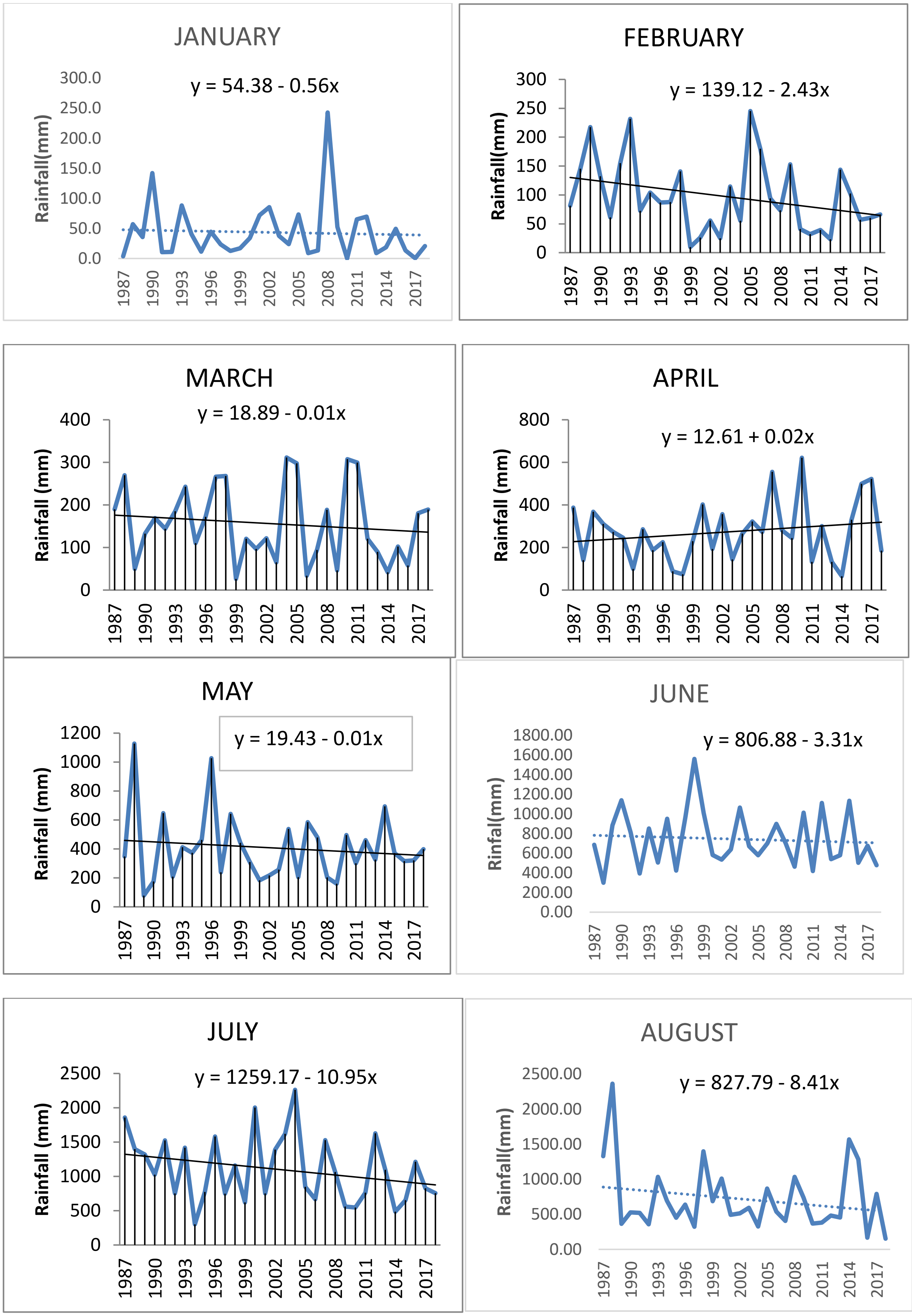
Plate 10: Visiting maize field of respondent in Lohit.

Plate 11: Maize fields in Wakro (Lohit)

Plate 12: Local maize variety in Lohit.

Plate 13: Maize field in Tezu (Lohit).

Fig. 4.2.1. Monthly rainfall trends in East Siang during 1987 to 2018



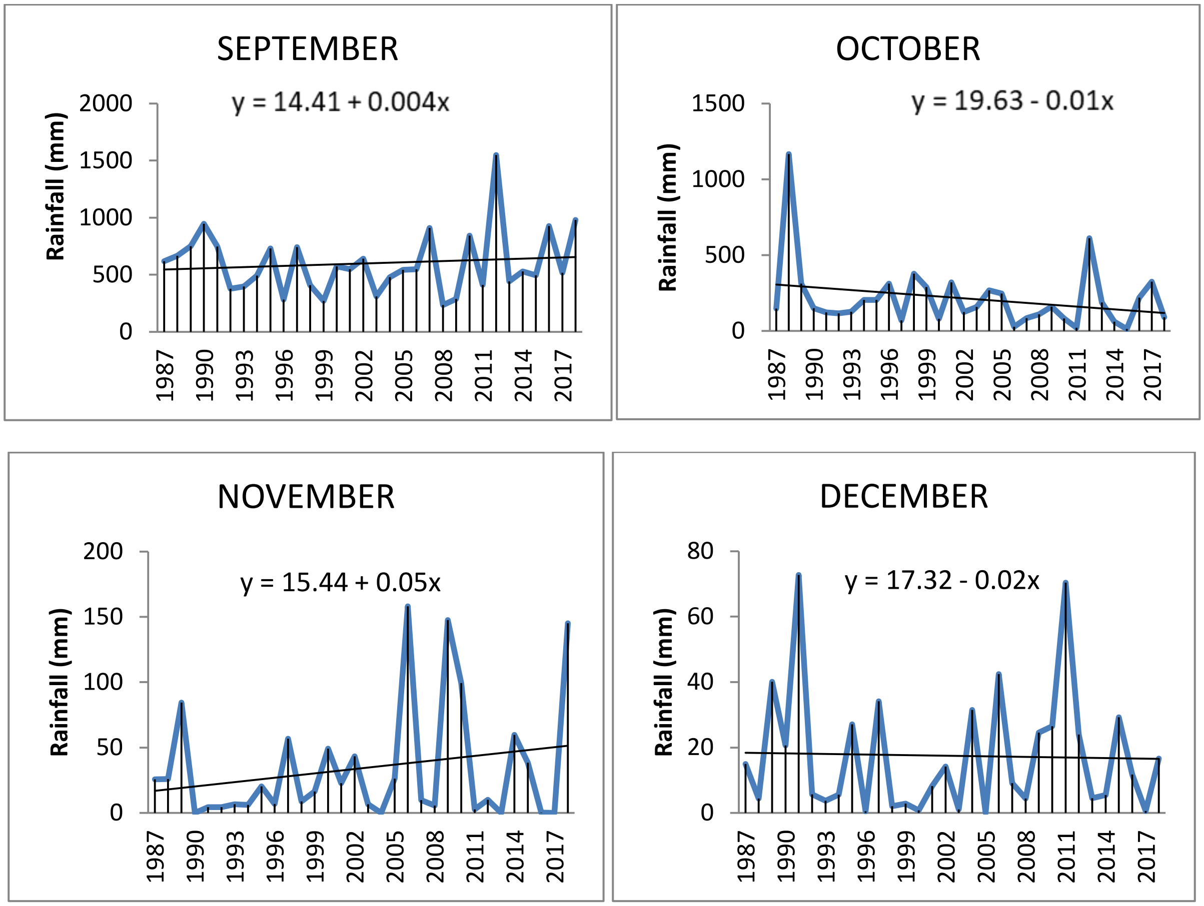
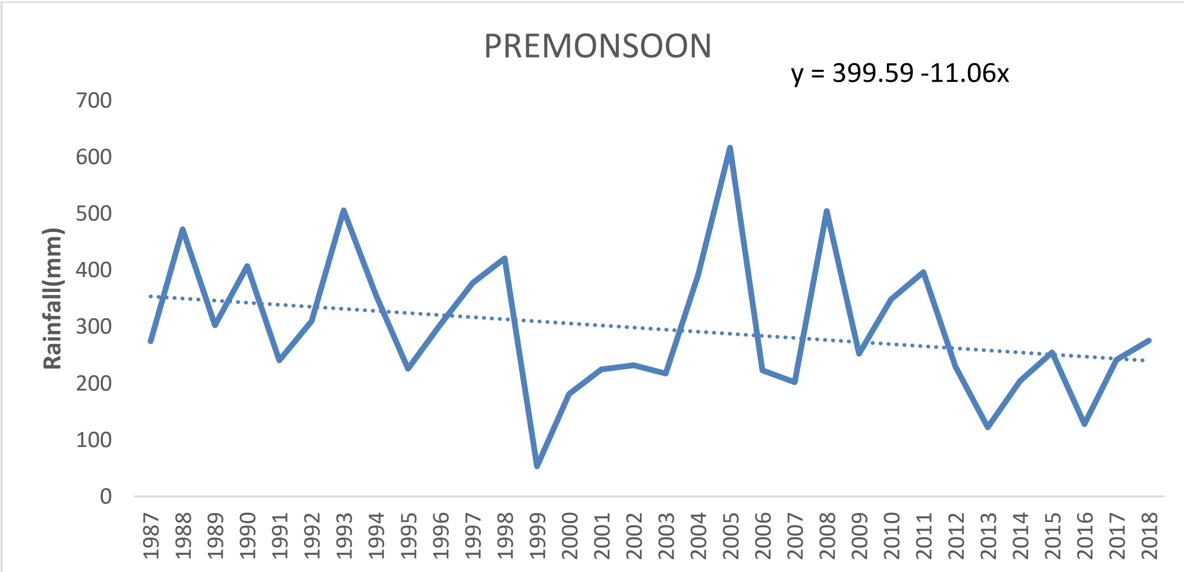
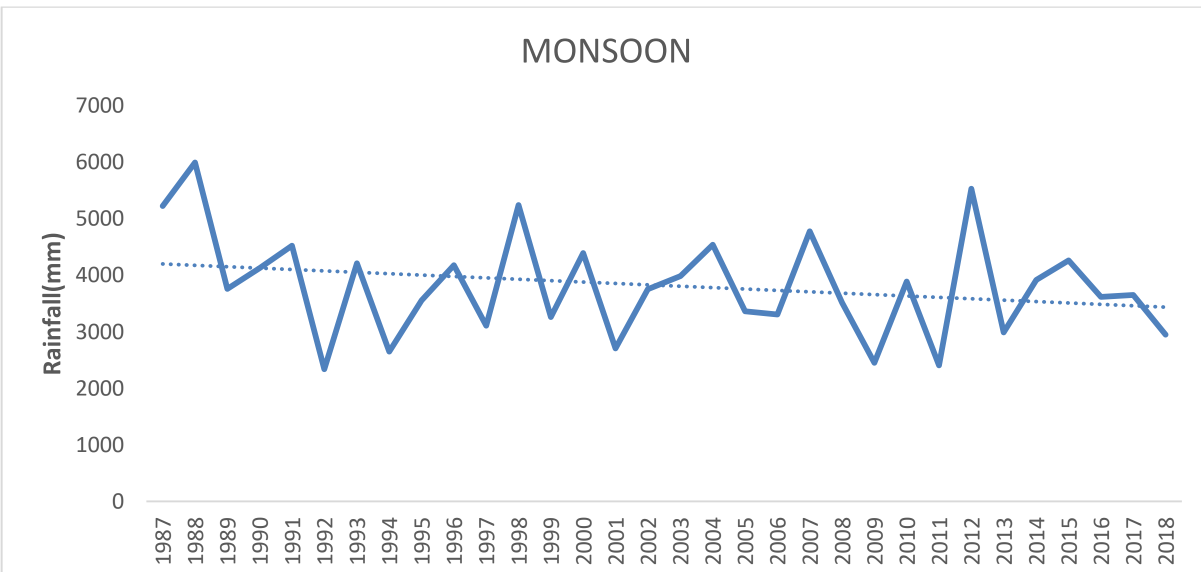
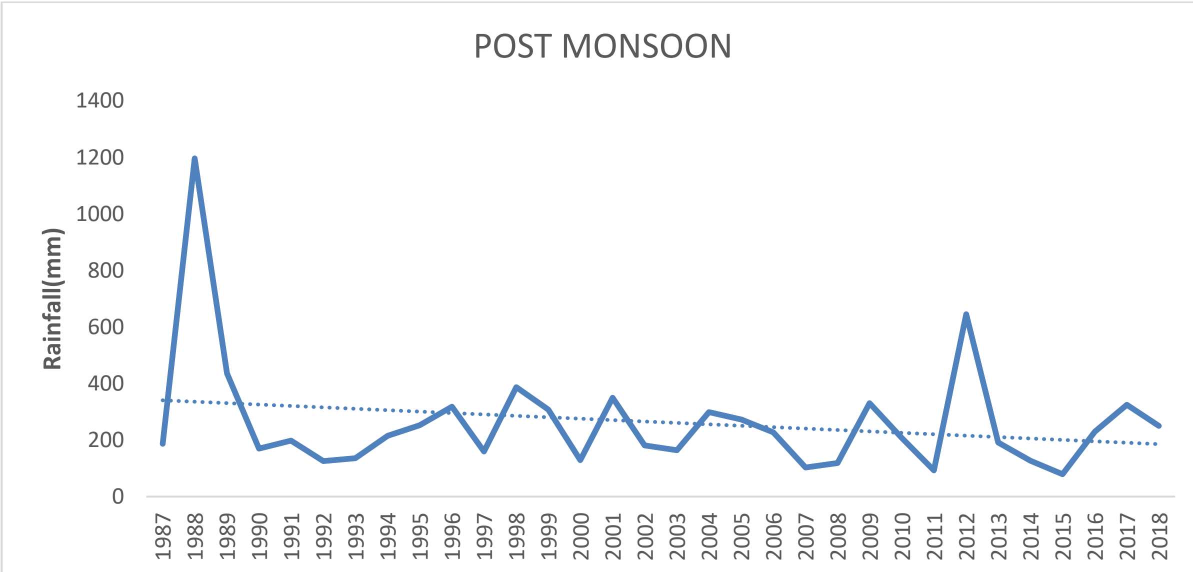

SEPTEMBER
y = 14.41 + 0.004x
Rainfall (mm)
OCTOBER
y = 19.63 - 0.01x
Rainfall (mm)
NOVEMBER
y = 15.44 + 0.05x
Rainfall (mm)
DECEMBER
y = 17.32 - 0.02x
Rainfall (mm)

Fig. 4.2.2. Linear trend graph for seasonal and annual rainfall pattern for East Siang from 1987 to 2018.






POST MONSOON
Rainfall(mm)
0
200
400
600
800
1000
1200
1400
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018

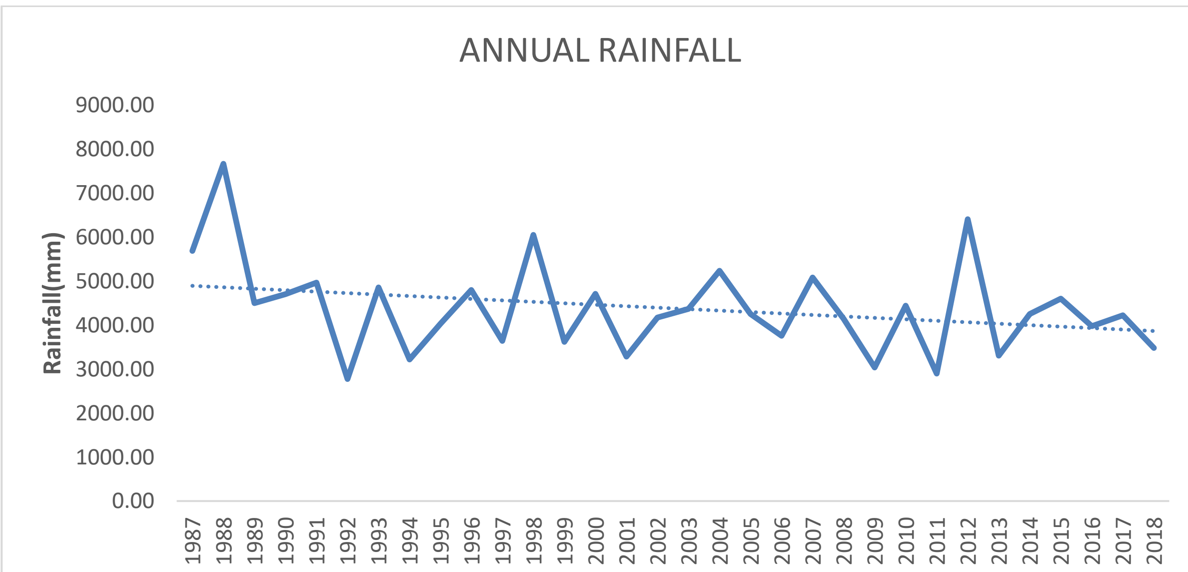

ANNUAL RAINFALL
Rainfall(mm)
0.00
1000.00
2000.00
3000.00
4000.00
5000.00
6000.00
7000.00
8000.00
9000.00
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018

Fig. 4.2.3. Linear trend graph for seasonal and annual rainfall pattern for East Siang from 1987 to 2002.

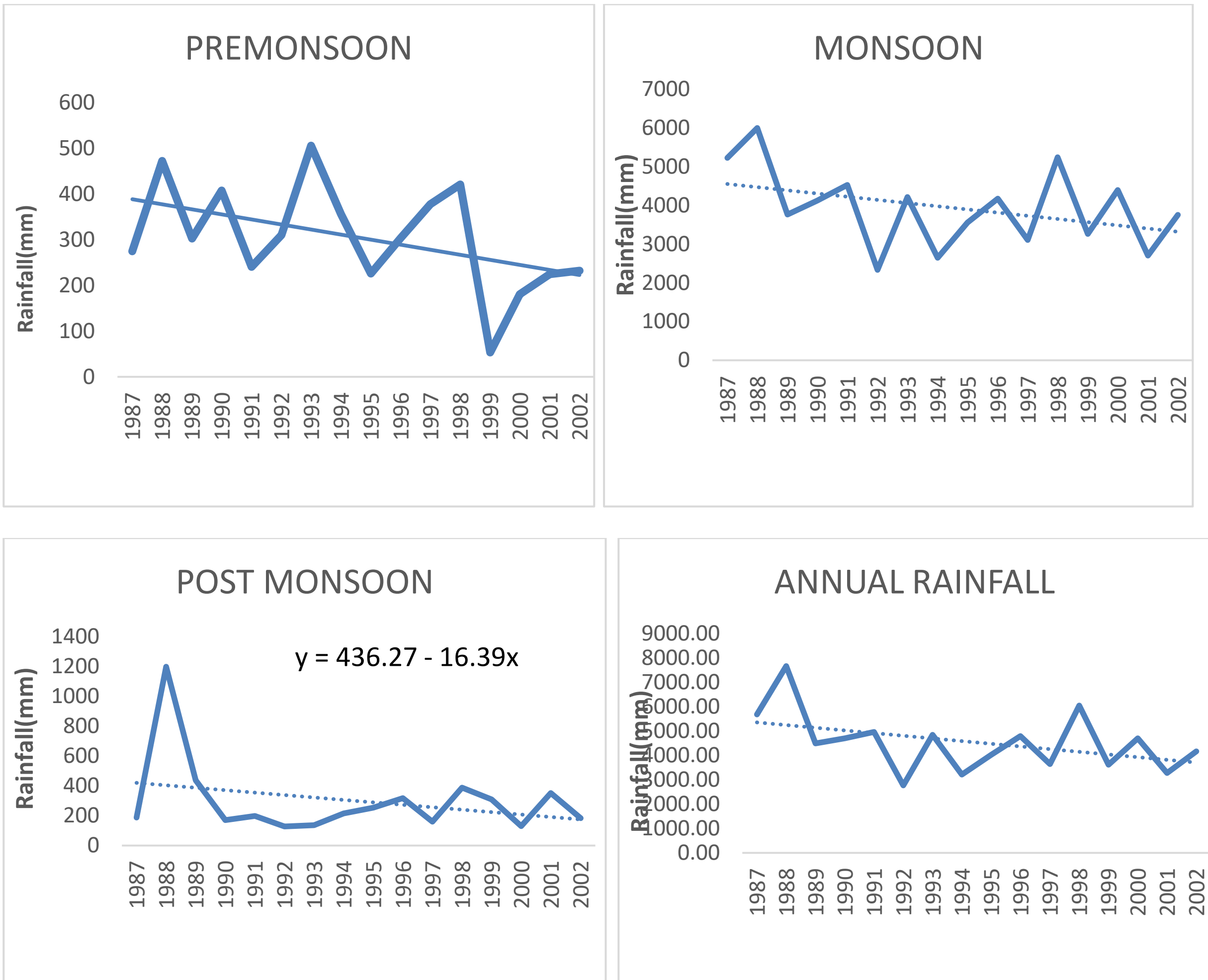


FIG 4.2.4. Linear trend graph for seasonal and annual rainfall pattern for East Siang from 2003-2018.

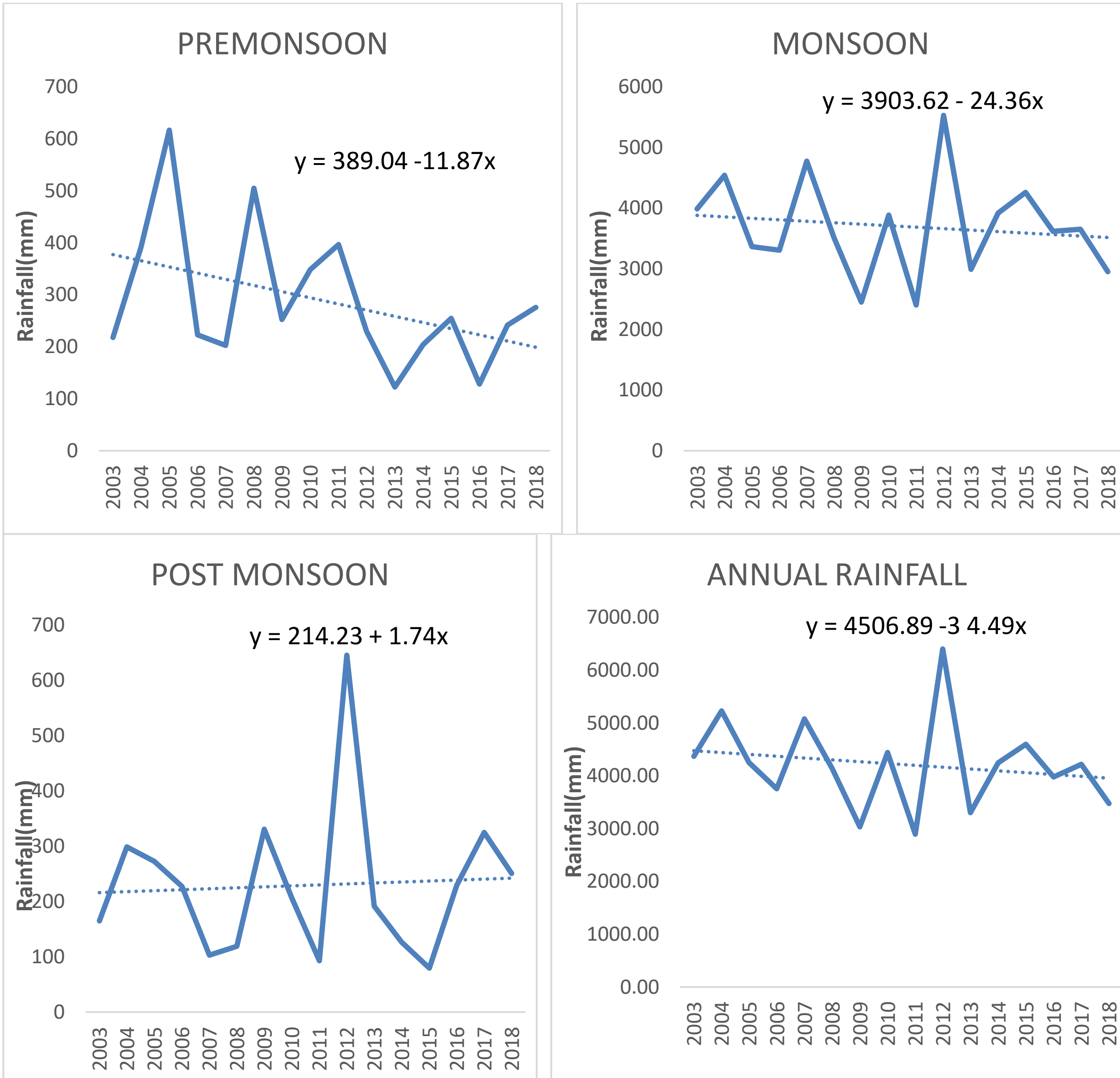
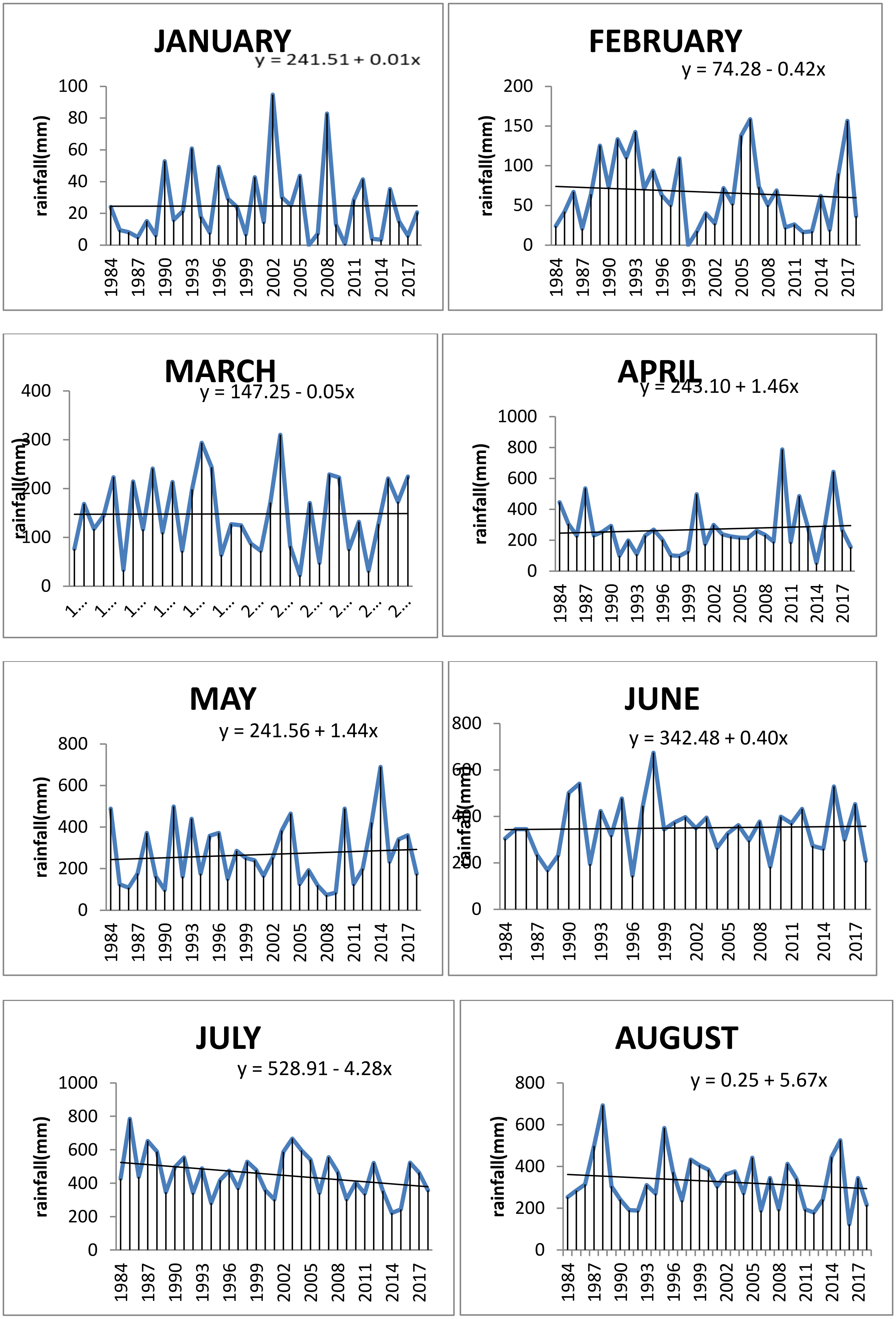
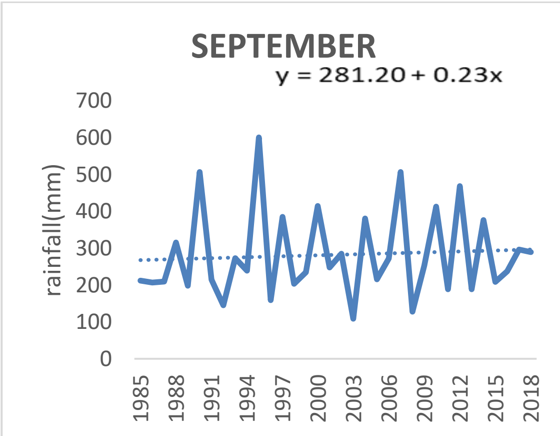
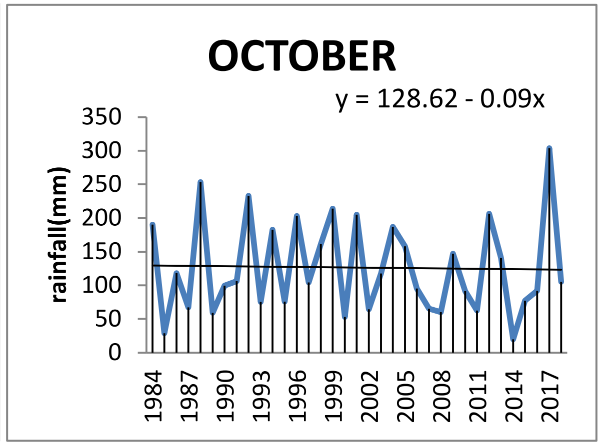
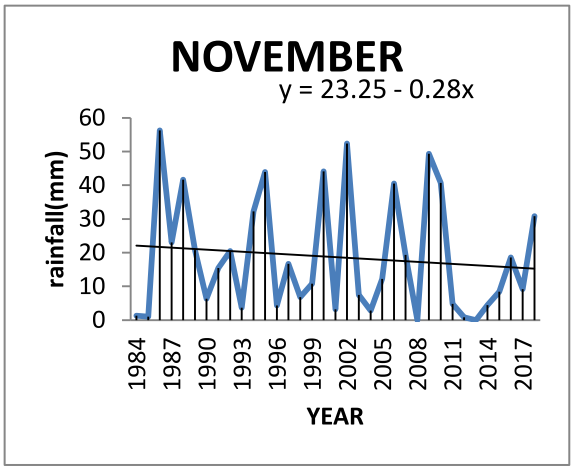


Fig. 4.3.1. Monthly rainfall trends in Lohit district during 1987 to 2018




SEPTEMBER
y = 281.20 + 0.23x
rainfall(mm)
700
600
500
400
300
200
100
0
1985
1988
1991
1994
1997
2000
2003
2006
2009
2012
2015
2018


OCTOBER
y = 128.62 - 0.09x
rainfall(mm)
350
300
250
200
150
100
50
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017


NOVEMBER
y = 23.25 - 0.28x
rainfall(mm)
60
50
40
30
20
10
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
YEAR

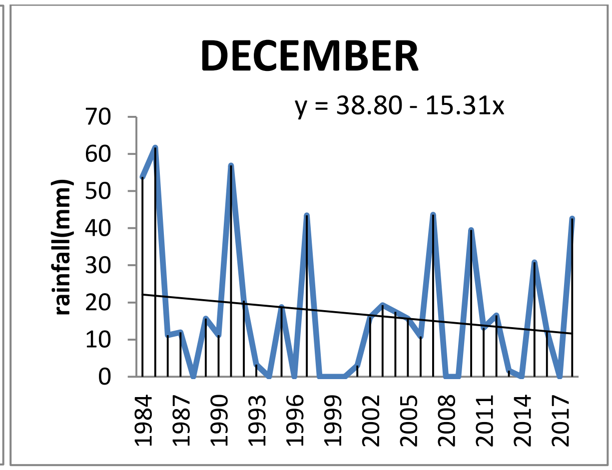

DECEMBER
y = 38.80 - 15.31x
rainfall(mm)
70
60
50
40
30
20
10
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017

FIG. 4.3.2. Linear trend graph for seasonal and annual rainfall pattern for Lohit district from 1987-2002.

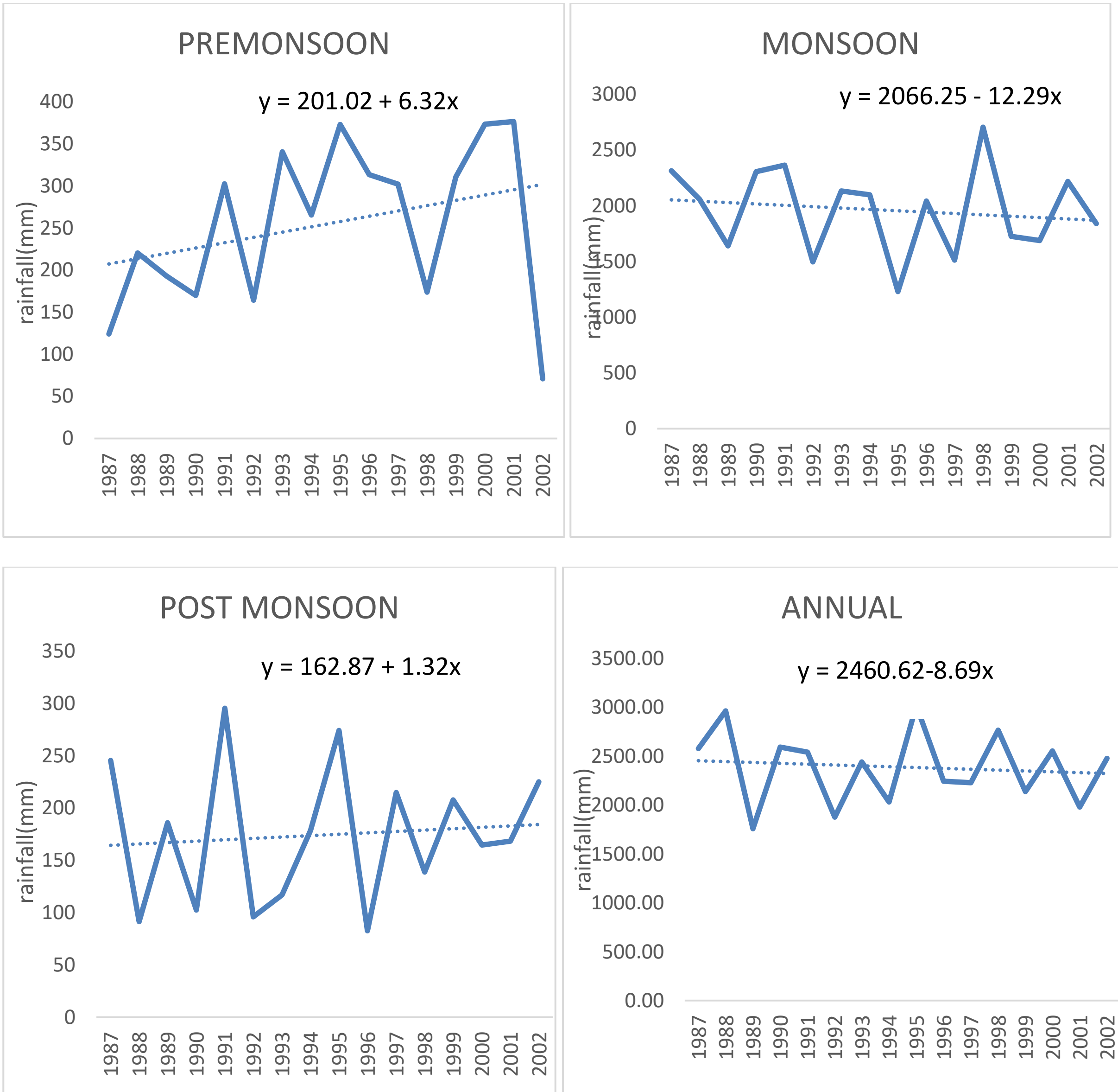


FIG. 4.3.3. Linear trend graph for seasonal and annual rainfall pattern for Lohit district from 2003-2018.

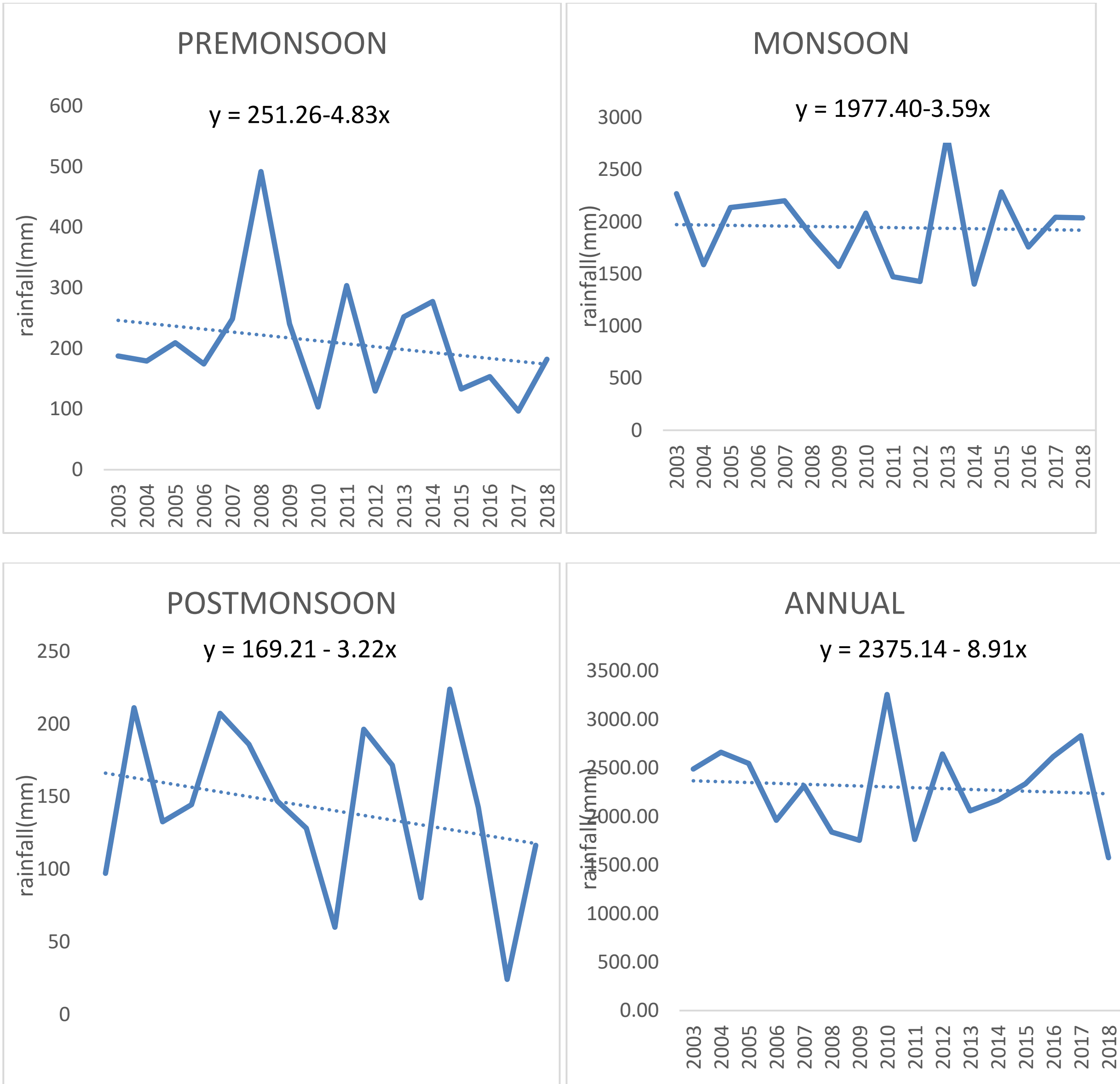
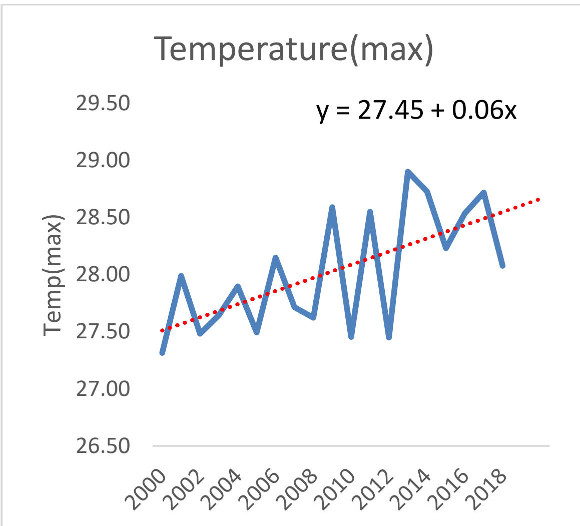


Fig 4.4.1: Annual trend of Temperature of East Siang from 2000-2018



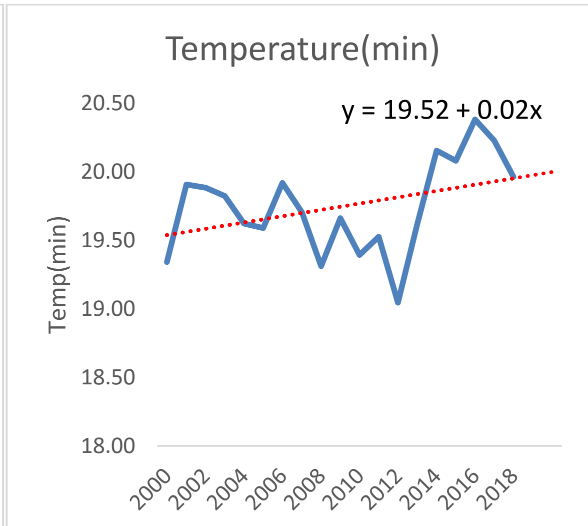


Fig 4.5.1: Annual trend of Relative Humidity of East Siang

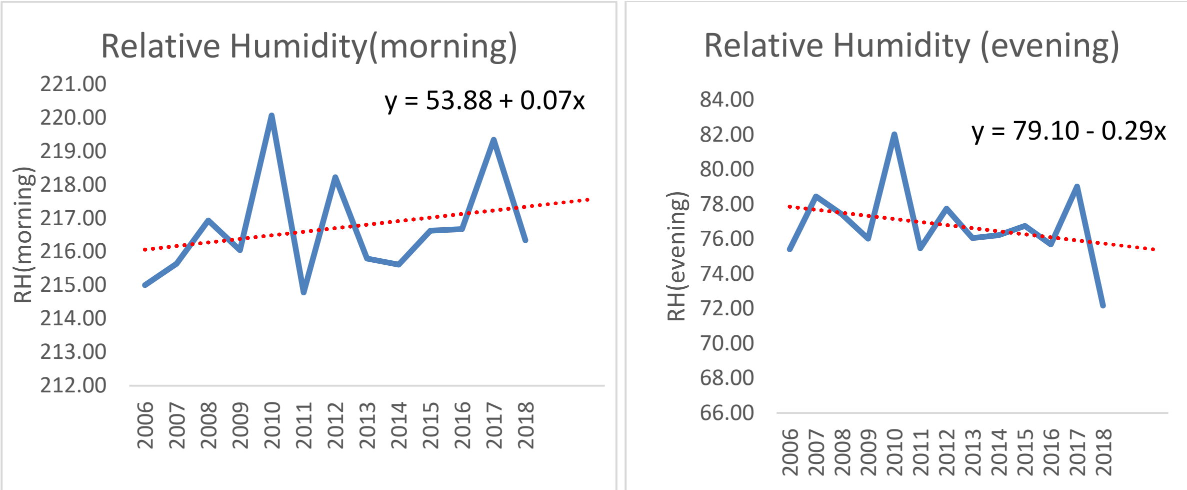


Fig 4.6.1. Productivity of rice in East Siang during 1987-2018.

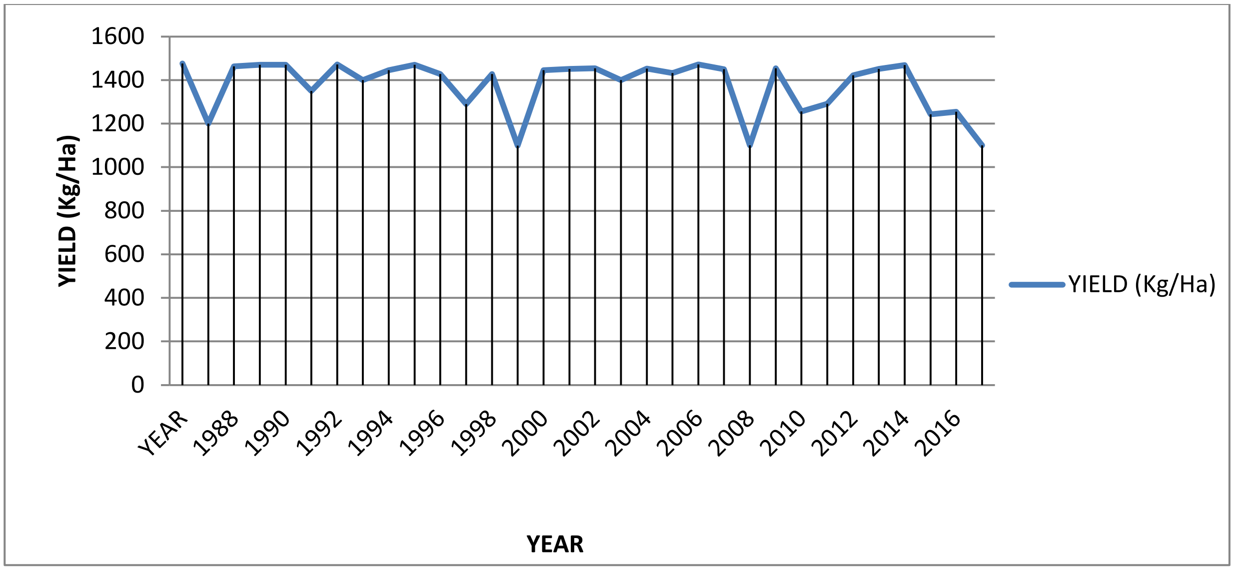


Fig 4.7.1. Productivity of maize in Lohit district during 1987-2018.