

Climate change prediction and software tool and database development using JAVA Programming Language



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Abstract

Indian media can contribute to increased awareness of climate change and related issues. A qualitative analysis of some mainstream Indian newspapers (particularly opinion and editorial pieces) during the release of the IPCC 4th Assessment Report and during the Nobel Peace Prize won by Al Gore and the IPCC found that Indian media strongly follows the frame of scientific certainty in their coverage of climate change. This is in contrast to the scepticism displayed by American newspapers at the time. Alongside, Indian media highlights frames of energy challenge, social progress, public accountability and looming disaster. This sort of coverage finds parallels in European media narratives as well and helps build a transnational, globalised discourse on climate change. Another study has found that the media in India are divided along the lines of a north-south, risk-responsibility discourse. However, much more research is required to analyse Indian media's role in shaping public perceptions on climate change. The main aim of the research is collect information from the Metrological station of Chennai and to deliver the Novel database and software tool in order to analyze the effect of Climatic Changes in the Environment. The information obtained from the meteorological station is represented statistically.

INTRODUCTION

Most scientists agree that humans are contributing to observed climate change [1] and [2]. A meta study of academic papers concerning global warming, published between 1991 and 2011 and accessible from Web of Knowledge, found that among those whose abstracts expressed a position on the cause of global warming, 97.2% supported the consensus view that it is man made [3]. In an October 2011 paper published in the *International Journal of Public Opinion Research*, researchers from George Mason University analyzed the results of a survey of 489 American scientists working in academia, government, and industry. Of those surveyed, 97% agreed that that global temperatures have risen over the past century and 84% agreed that "human-induced greenhouse warming" is now occurring, only 5% disagreeing that human activity is a significant cause of global warming[4]and [5]. National science academies have called on world leaders for policies to cut global emissions [6].

METHODOLOGY

• DATA COLLECTION

The scientific and metrological climate information is collected from Chennai metrological station through the proper channel in order to perform analysis and produce the statistical report.

• STATISTICAL ANALYSIS

The huge collected data is subjected to specific systematic format and the year /month wise statistical analysis was done using SAS commercial software tool.

• DATABASE DEVELOPMENT

The database for the climate change of Tamilnadu was created using the statistical results and by advanced database tools like MySQL.

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• **SOFTWARE TOOL PREDICTION**

The developed database is combined with the novel designed software tool in order to predict

the climate changes and its effects in the environment graphically.

RESULTS

COMPARATIVE ANALYSIS BETWEEN MONTHLY TOTAL RAINFALL AND MONTHLY HEAVIEST RAINFALL BY T-TEST METHOD

Table 1. Mean and Standard Error for Monthly Mean Wind speed (KMPH)

YEAR	Mean and Std Error	YEAR	Mean and Std Error
1981	7.08 ±0.65	1997	4.91 ±0.35
1982	6.75 ±0.57	1998	6.91 ±0.25
1983	7 ±0.4	1999	7.5 ±0.37
1984	6.91 ±0.6	2000	7.25 ±0.3
1985	6.34 ±0.41	2001	6.83 ±0.42
1986	6.16 ±0.48	2002	6.83 ±0.2
1987	6.5 ±0.26	2003	6.41 ±0.25
1988	5.5 ±0.31	2004	7 ±0.32
1989	5.67 ±0.33	2005	6.91 ±0.28
1990	5.91 ±0.22	2006	6.58 ±0.37
1991	5.34 ±0.41	2007	6.33 ±0.22
1992	5.16 ±0.34	2008	6 ±0.3
1993	5.33 ±0.44	2009	6 ±0.38
1994	5.33±0.43	2010	5.08 ±0.28
1995	4.75 ±0.37	2011	7.83 ±0.97
1996	5 ±0.46		

Table 2. Table showing Upper and Lower Class Intervals of the Mean

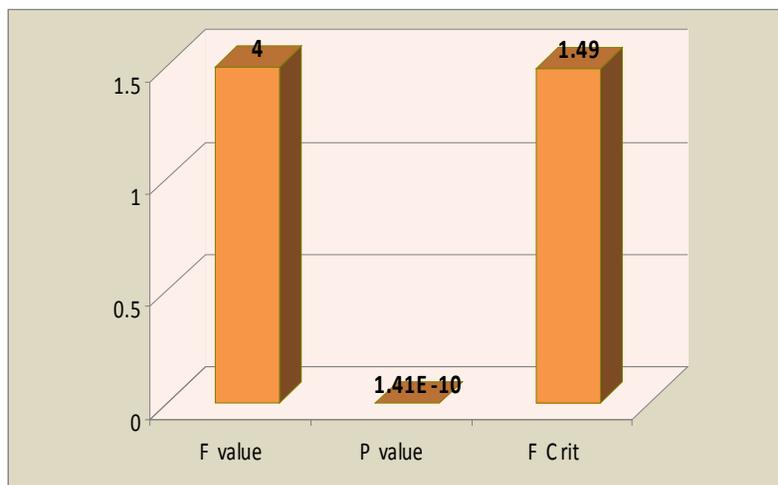
YEAR	Lower 95% CI Of Mean	Upper 95% CI Of Mean
1981	5.63	8.52
1982	5.47	8.02
1983	6.1	7.89
1984	5.57	8.25
1985	5.42	7.24
1986	5.08	7.24
1987	5.92	7.07
1988	4.8	6.19
1989	4.93	6.4
1990	5.41	6.42
1991	4.42	6.24
1992	4.4	5.92
1993	4.34	6.32
1994	4.38	6.28
1995	3.93	5.56
1996	3.98	6.01
1997	4.12	5.7
1998	6.34	7.48
1999	6.66	8.35
2000	6.57	7.92
2001	5.9	7.76

2002	6.37	7.28
2003	5.84	6.98
2004	6.28	7.71
2005	6.28	7.54
2006	5.75	7.41
2007	5.83	6.82
2008	5.33	6.66
2009	5.14	6.85
2010	4.45	5.71
2011	5.68	9.98

Table 3. Table showing Upper and Lower Class Intervals of the Mean

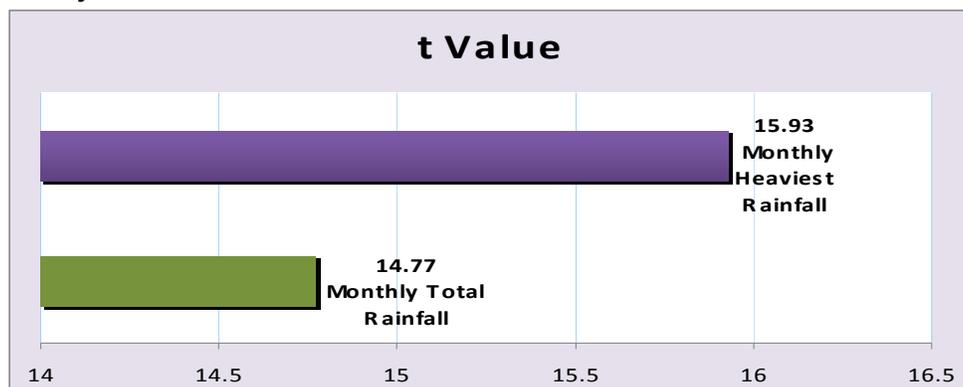
F value	4.00
P value	1.41E-10
F crit	1.49

Fig 1. Table showing Upper and Lower Class Intervals of the Mean



Based on the Analysis of Variance (ANOVA), the F value (4.00) is greater than the F critical value (1.49). So it is difficult to categorize the F value from its level of significance.

Fig 2. T-Test Analysis

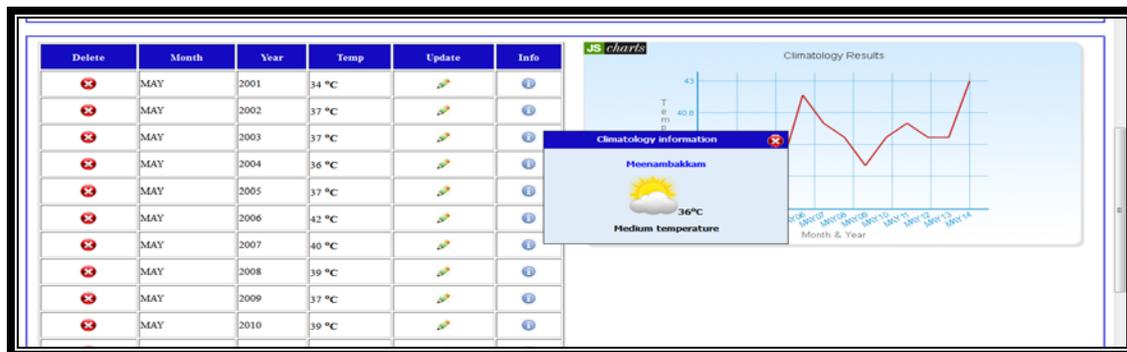


From the t-test analysis, the p value is less than that of the t value. This indicates that there is statistical significance among the two groups. All the above results were discussed.

Fig 3. Environmental Informatics software tool home page



Fig 3. Environmental Informatics software tool output page



DISCUSSION

Climate change is increasingly recognized as a factor to be considered across sectors such as infrastructure, agriculture, water resources, conservation, and biodiversity and disaster risk management. CLIM systems wishes to put the knowledge, capability and climate-proofing capacity in your hands for conducting climate change risk and adaptation assessments.

The algorithm and software tool was developed based on the climate changes and its effects. The software tool was developed using java programming language. The tool represents the seasonal changes in the year and the changes which take place in the earth and its surroundings. It will experimentally and theoretically elucidate the results of global warming and climate changes. In this research investigation we focus on the application of system biology techniques for climate changes. The statistical information related to Global warming and climatic changes are stored in MySql database in order to create a link between Java programming software tool and MySql

database. In this database, various applications can be used simultaneously while running the software tool. This information is represented graphically. This information clearly shows how the Earth gets affected due to Global warming and climatic changes.

CONCLUSION

In this present research work, we primarily focus on the statistical works based on the literature report collected from The Metrological Station, Chennai. Here we have given a few examples of the statistical work based on the effects of climate and global warming on Earth.

The novel developed software can be used to identify the year wise and month wise changes in the climate which are elucidated both statistically and graphically. This software would be very beneficial in Meteorological stations and for those who are willing to carry out research in the field of Global warming and climatic changes.

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