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Lateral Analysis of The Oceanic Subsurface Thermal Component in Accordance to The Remote Sensing Post the Covid Pandemic

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Abstract:

As society develops so does the nature of incidents surrounding it societal. This progress in technology & medicine is limited to a certain scope of incidents. Safety of society& financial aspects against certain natural incidents cannot be avoided, however can be hedged by applying certain estimation tools influenced by other scientific purposes. Oceans / Seas are significant Earth elements impacted by worldwide heating & atmospheric variation. Past analysis has revealed that this subterranean water body is accountable for Weather divergence by altering an eco-classification of the Earth; hence, it is critically essential to evaluate them. Remote sensing can give high spatial / temporal resolution sea surface information & big spatial exposure, enabling notable ocean science findings. However, satellite remote sensors cannot directly detect the profound coatings of the ocean / sea. Extreme thermal components, including warm and cool periods, may effect socially. However, periodical thermal component alterations stand usual & certainly vital towards various social factors (i.e.travel industry, agriculture, others.), farthest warm / cool winds may effect abruptly in a bad manner. IT remains ' natural' towards a single area, critically, can become severe towards another part that is found least adjusted among thermal components.

Today's climate &air condition cause a key aspect for society's routine flows of system. Cyclic marvels can become beneficial & dependent on factors like the agriculture and also vacation industry. Subsidiary incidents, particularly thrilling parts, may at instances has religiously cynical effects that present threats for time & structure & substantial economic costs. The ecological diversities that occur over a period of time vary with the effect on its subsidiaries and thereby cause an overall change in its surroundings. The main focus of the work is to relate climate change model considered as in the form of a mathematical expression and also study its effects into the elements of nature that are eventually affected during a particular event.

Keywords: Climate Change, Global Warming, Seasonal Changes, mathematical analysis & relation with atmospheric humidity.

Literature Review

Mekonnen H Daba (2018) :-Assessing Local Community Perceptions on Climate Change and Variability and It’s Effects on Crop Production in Selected Districts of Western Oromia, Ethiopia. This paper deals with the peoples cognizance towards environmental changes occurred in given period of time. The perception of small holder farmers taken into consideration, their viewpoint , their strategies of various variability happen when climate change. Moreover, primary data has been used of almost 204 respondents at the basic level of quantitative and qualitative approach. The most impressive thing about this paper, Author has used some statistics tool such as Stratified sampling frame and Cluster sampling frame. After completion of experiment, farmers has able to perceived all kind of changes which happened in environment such as strong wind that led to inflate farming problem for instance, soil abrasion, loss of soil potency, reduction in crop yields and high rate of disease occurrence was shown in the paper.

Hamid, Seyed, Amir Hosen, MohamadNajim & Saeed Shojaei (2016):-Comparison of Delphi and Analytic Hierarchy Process (AHP) techniques in locating flood spreading. In this article, Delphi & AHP techniques have compared predominantly and explain the importance substantially well. Since Iran comes in the dessert area of earth space so the major factor which is highly significant and has great impact is water scarcity. Moreover, maximum part of Iran falls in to the desiccated and semi desiccated therefore due to water scarcity controlling the catastrophic floods is the most significant activity and hence the study of Delphi & AHP techniques are the need of present time. For this study, some statistical tool have been used such as Questionnaires were taken and filled by the target group and it has distinguish between three different criteria such as 4 main, 8 sub and 24 indices of flood spreading and it is examined by AHP in expert point of view followed by GIS (Geographic Information System) were used to do mapping then for alluvium volume and unemployment rate, results of AHP and views of expert panel the highest and lowest degree and its importance were recorded. Similarly in Delphi techniques some important factor for location flood spreading for Ivar watershed such as indices of soil permeability, flood quality, soil texture, slope, aqueduct and sub-criteria of water.

Ozabor and Nwagbara (2018):- Identifying Climate Change Signals from Downscaled Temperature Data in Umuahia Metropolis, Abia State, Nigeria. This research article shows that there are very significant evidence that temperature have change drastically and it is very much evident from downscaled data of Umuahia in Abia state. Notwithstanding GHGS exhalations propagation and escalation of population, uncontrolled urbanization are the factors advocated by HadGCM3. Neverthless with incertitude in forecast the temporal patterns of temperature suggested that there are changes from normal to normal for current and future temperature pattern. Due to this, there will be some impeccable changes and drastic effect on environmental impact and there will be irreparable damages if necessary steps were not taken in given period of time. Moreover in this research article some important statistics tools have been used such as ANOVA and p-value method.

Introduction

Oceans / Seas are significant Earth elements impacted by worldwide Global warming and climate change. Recent studies have shown that the deeper oceans are accountable for climate variability by altering the ecosystem of the Earth ; therefore, it has become more essential to evaluate them. Remote sensing can provide high spatial / temporal resolution sea surface information and big spatial coverage, enabling notable ocean science findings. However, satellite remote sensors can not directly detect the profound layers of the ocean / sea.

Researchers have therefore examined the relationship between oceans / seas salinity, height and temperature to assess their underwater temperature using dynamic models and model- based information assimilation (numerical and statistical) methods that mimic these parameters by using remote sensed information and in situ measurements.

Because of the demands of extensive perception and the significance of global warming in decision making and science research, this review offers extensive information on techniques used to assess the temperature of the ocean / sea subsurface water from remote and non-remote sensed data.

The challenges, constraints and views of the current techniques are also explored in order to clarify the underground procedures.

Due to the dominant favorable forcing of growing greenhouse gases, further temperature rises and climate change are expected for the future. Most of the climate change threats are linked to warming in many areas of the planet, droughts, floods, food production, adverse effects on aircraft efficiency, sea level rise, etc. Climate change also involves indirect threats to government health through damaging modifications in air quality, disease spread, food insecurity and under-nutrition, mental illness, and death from cardiovascular and respiratory illness.

Since the most severe challenge facing water today is worldwide warming, it seems necessary to predict these possible changes in ecosystem function. The temperature of the ocean surface water has risen owing to climate change, impervious surface runoff and industrial process heat effluents. Several parts of profound oceans below 2000 m have warmed up since 1990. Simultaneously, several scientists proposed global ocean warming. In coastal procedures such as biological activity, thermal momentum and exchange, interaction with the surround-

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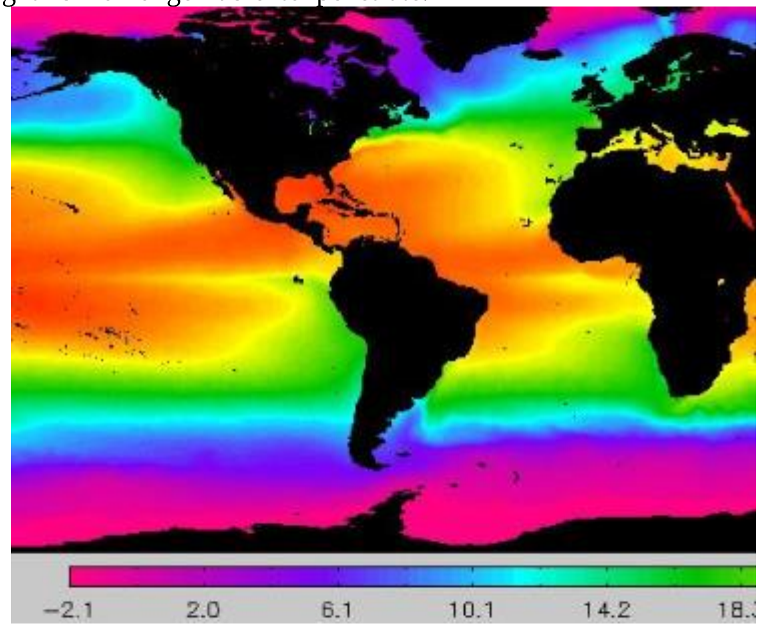
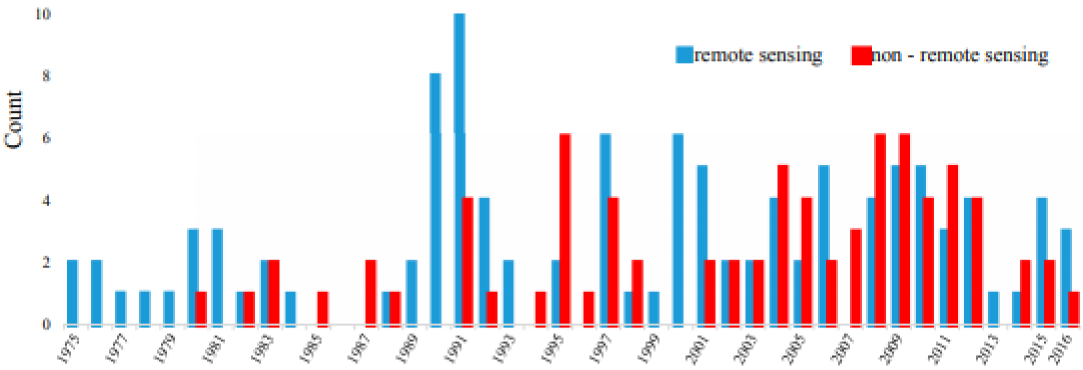
ing water, and climate change, temperature is an significant variable. The evaluation of ecosystem modifications by remotely sensed satellite information is another important problem in oceanography. Reliable global ocean coverage of marine surface temperature, sea surface height, surface temperature. Visible light comprises of different wavelengths of violet to red light. Violet light has the greatest energy and is more deeply penetrated than other wavelengths. In ocean surface temperature (SST) and thermal transfer, penetration of the visible part of the spectrum in the upper layers of the oceans plays a vital role. Violet light penetrates into greater depths and is eventually absorbed ; this mechanism, together with more efficient procedures such as vertical movement, horizontal transport and mixing, can affect the temperature of the subsurface waters. Scientists classified the subsurface of the seas into five primary layers / zones. Their development is the most extreme depths from the ground where light is no longer able to penetrate.

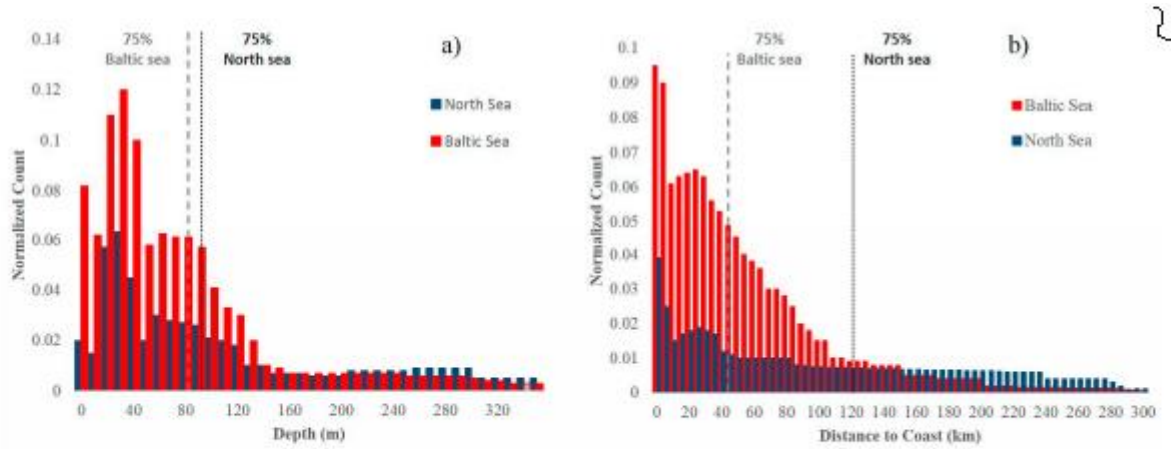


In the present research, we segregated the remote sensing and non-remote sensing techniques used to assimilate and measure sub-surface ocean / sea temperature level. In order to understand the further proficiencies over this criteria, we involve the historic data over similar graphical forms.



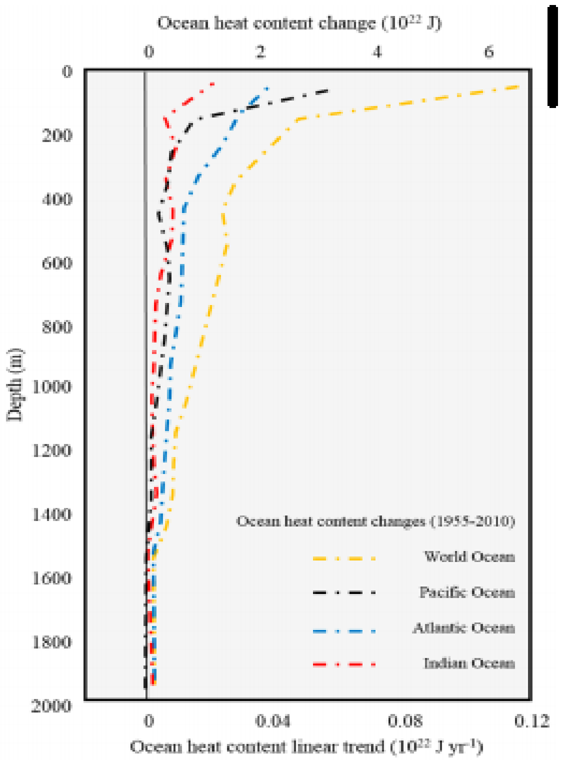
Anomalies in the vertical and horizontal sea / ocean surface temperature

Since more proof has shown the extensive warming of the deeper oceans of the world, it is essential to estimate correctly the subsurface heat composition of the worldwide oceans Oceanographers predicted the subsurface flow areas and calculated the horizontal and vertical advection in the interior of the ocean. Figure above shows comparisons of vertical and horizontal anomalies between the Baltic and the North Sea. Karagali et al. stated that it was possible to see most anomalies at depths of up to200m. Diurnal heating occurrences occur mostly between 20 m and 40 m depth. Moreover, most observations are registered in the North Sea (blue color) within the first 5 km from the shoreline, reducing 300 km from the shore to zero observations. No anomalies are detected in the Baltic Sea (red color) beyond 120 km offshore ; however, most anomalies are found in the first 10 km from the shoreline. In general, Both statistics show the coastal and shallow sea circumstances, where 75% of the anomalies occur at depths of less than 90 m (80 m) in the North Sea (Baltic Sea) and 125 km (45 km) from the coast.



Distribution of anomalies greater than 2 K by (a) depth and (b) distance to the North Sea and the closest coast

Because global warming has accelerated, the role of the oceans is essential because they are enormous reservoirs of heat and water. It is therefore useful to know what has happened over the last century in the worldwide oceans. Levitus and others. It has been shown that more surface warming has happened in all basins. The biggest overall rise in the Pacific layer was subjected to 0–100 m From the Pacific region. The Atlantic shows the biggest rise of all ocean basins in all layers above 2000 m at depths of more than 100 m. The writers also showed that the layer of 700–2000 m is accountable for One-third of the 0–2000 m layer complete warming. Kawano et al. estimated that about 5 percent of the Pacific Ocean's heat was below 3000 m and rose extensively between 1999 and 2007.



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Linear trends and complete rises in sea basin thermal content based on worldwide and individual basin linear trends as a function of depth (0–2000 m) up to 100 m

❖ . Impacts of Different Dynamics on Ocean/Sea Subsurface Water Temperature Profile

The underwater temperature of the ocean / sea is profoundly influenced by water turbulence. Both vertical movement and horizontal transport interfere with some easy roles in altering the temperature of their sub-surface water by depth. Considering vertical motion and horizontal transport, therefore, it appears necessary to estimate the temperature of the sea / ocean subsurface water and simulating these movements can lead to more accurate estimates of the temperature of the sea / ocean subsurface water. Interestingly, the dynamics of the ocean and the temperature of the subsurface water have causes and effects, which means that one impacts the other and at the same time. Wu et al explored the impact of Golf Stream on the monthly underground temperature anomaly (STA) and temperature profiles. Wu et al researched monthly underground temperature anomaly (STA) and temperature profiles.

Sea surface height

The variability of SSH is triggered by four classifications of events, including dynamic / non-dynamic reactions to forcing processes. Integrated parameter measurements must correct the variability of SSH. After correcting the impacts of tidal and atmospheric pressure, steric effects such as modifications in density from heating / cooling or changes in salinity and wind forcing continue to affect the SSH. SSH variability is mostly used to infer changes in the heat sub-surface or density composition and often to represent the thermocline's relative motion. You can also apply this variation to assess absolute differences in the depth of the surface layer. Dipper and more diffuse thermocline and strong surface buoyancy fluxes decrease the correlation between SSH and thermocline depth. If temperature changes predominantly and creates fluctuations in surface density, SST information can infer MLD or thermocline depth. Several solutions can retrieve SSH information, such as localized direct wind gage readings, XBT profiles and approximate calculation by modelling the relationship between SSH and temperature, salinity, and pressure measurements, and this data has been monitored by remote sensing satellites since 1992. These accessible and useful altimetry information for satellites include Topex / Poseidon, Jason products, ERS, Envisat altimeters, and all AVISO grid-level products with very excellent space and time coverage.
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Mixed Layer Depth:

The blended depth of the layer (the near-uniform surface area) that connects the atmosphere to the deep ocean and plays a critical part in the variability of the climate. The layer's heat and mechanical inertia in direct atmospheric contact. Determining the MLD and its variability is essential for understanding and interpreting the upper ocean heat and velocity areas, parameterizing mixed-layer procedures, and studying the relationships between air and sea, acoustic propagation, ocean biology, long-term climate change, vehicle.

There has been a decline in the frequency of cool nights in India over the period 1970-2009, where data are available, an increase in the number of warm nights as well as a decline in cool days and an increase in hot days.

A general rise in the average seasonal temperatures in the country has been reported as a result of human climate influence, resulting in hot seasonal teas.

Climate change projections

The expected temperature increases from COUPLED MODEL are lower in southern India for the A1B emissions scenario, up to 3 ° C compared to the north, where shifts of up to 4.5 ° C are predicted. The consensus is strong across nearly the entire country between the COUPLED MODEL versions.

• Increases in precipitation are expected in India across most of the region.

There could be rises of up to 20 percent or higher in western regions with a rise of 5-10 percent more common than the rest of the country. Agreement is medium to weak throughout the COUPLED MODEL ensemble.

Climate change impacts projections

Crop yields

In their forecasts for India, global and regional studies included here differ, but declines are typically expected for wheat and rice, two of India's major crops.

Climate Observations

Rationale

Today's weather and climate play a key role in society's day-to-day running. Seasonal phenomena can be beneficial and dependent on sectors such as agriculture or tourism. Other incidents, particularly extreme ones, can sometimes have serious negative impacts that present threats to life and infrastructure and substantial economic costs. Knowing the intensity and extent of these phenomena may significantly improve social resilience when they present threats and when they can be beneficial for which sectors of society. In a changing climate, knowing possible future changes in both potentially hazardous activities is extremely valuable. Recurring seasonal events dependent on sectors such as agriculture and tourism. The emphasis will then be on extremes of temperature, precipitation and storms identified from 2000 onwards, as stated in the World Meteorological Organization (WMO) Annual Statement on Global Climate Status and/or State of the climate reports by the American Meteorological Society (BAMS) Bulletin. A discussion of changes in moderate extremes from 1960 onwards is followed by an updated version of the HadEX extremes database (Alexander et al. 2006), which categorizes extreme temperature and precipitation. These are the core variables of climate Significant efforts have been made by the climate research community in terms of data acquisition and storage and for which long high-quality monitoring records can be generated. No new storm analyzes are included (see the following section on methodology for background). For high seasonal weather, An attribution analysis then places the seasons with highlighted extreme events in the context of the recent climate versus the hypothetical climate without anthropogenic emissions (Christidis et al, 2011). It is important to note that we perform our seasonal allocation analyzes mean temperatures over the entire country.

Climate overview

India is a large country from 8 ° to 33 ° N. The landscape diversity, varying from the Himalayan high mountains in the north to the tropical coastlines in the south, produces a wide range of climatic conditions. Winters are cool at lower levels in the northern mountain regions and cold at higher altitudes. In the summer, intermediate levels are comfortably cool about 2000 m above sea level, but at lower levels it can get very dry. The Himalayas act as a barrier to Central Asia's cold winds. Northern inland areas have a continental climate with a high temperature variation of seasonal and diurnal. Intermediate levels about 2000 m above sea level in the summer are pleasantly warm, but at lower levels it can get very dry. The Himalayas act as a barrier to Central Asia's cold winds flowing down. Northern inland areas have a continental climate with a high range of seasonal and diurnal temperatures. Here, the hottest months are April and May, before the monsoon begins. Inland at Hyderabad, with an average daily high of 39 ° C, the mean temperature reaches 33 ° C in May. Throughout the year, particularly in the hot season, and the monsoon season from June to September, heat and humidity can be very oppressive in coastal regions. The Indian climate is dominated by the great Asian monsoon wind system that is completely unlike the prevailing wind system of any other country. Most of India's driest period is from December to February when light north-eastern winds bring clear skies and almost dry weather. The dry conditions continue from March to May, but the intense summer heat causes the winds to reverse in order for India to be influenced from June to October by the moist rain-bearing moonsoon from the south-west and some mountain ranges facing the sea, the rainfall may be very severe. Usually during late May or early June, the monsoon reaches the south and reaches the north about six weeks later. The amount of rainfall received has a great spatial variability. The west coast is the wettest region (along with north-eastern India). This is a narrow coastal plain supported by the Western Ghats, a steep mountain barrier. Mangalore has an average annual rainfall of 3760 mm, 90% of which occurs during the period from June to October. Inland Hyderabad, by contrast, receives only 830 mm a year In north-western India there is the Rajasthan Desert where annual average precipitation levels are as low as 250 mm. On the south-eastern coast, the main rains come later from October to December and are often associated with tropical storms or cyclones forming in the Bay of Bengal. Chennai, for example, has an average annual rainfall of 1320 mm, with 60% falling between

October and December. Coastal parts of Orissa and West Bengal's north-eastern Indian states are also severely affected by tropical cyclones, causing destruction due to strong winds and flooding.
The rains are torrential in some years, but they are only light in other years. This inter-annual variation in the onset and intensity of the moonsoon has a significant impact on the country. The El Niño Southern Oscillation (ENSO) cycle may influence the rains, with the warm phase (El Niño) leading to lower rainfall rates for most of India, both during and outside the moonsoo.

Temperature extremes
Extreme temperatures, both hot and cold, can place many demands on society. While seasonal temperature changes are normal and indeed important for a number of sectors of society (e.g. tourism, agriculture, etc.), extreme heat or cold can have serious negative impacts. What is' natural' for one area, critically, may be severe for another region that is less well adjusted to such temperatures.
Selected extreme events recorded in WMO Statements on the Status of Global Climate and/or BAMS State of the Climate Reports since 2000 are shown in Table 1. Two events, the May / June 2003 heat wave and the January 2006 cold spell as examples of extreme temperature events for India are listed below.

Recent extreme temperature events
Heat wave, May/June 2003
In many parts of India, temperatures rose to high 40 °C in late May and early June 2003, with maximum temperatures at some locations above 50 °C. As a result of the heat wave, which also affected neighboring Pakistan and Bangladesh, more than 1500 people were reported to have died (WMO, 2005; Kolli, 2004). Media reports indicate that the heat wave, where bush fires occurred in almost every district damaging homes and belongings, especially hit Andhra Pradesh's state (Relief Web Report, 2003).
Cold spell, January 2006
During the early part of 2006, a severe cold spell affected several parts of South Asia and temperatures fell to several degrees below freezing at some stations in the Pakistan / North India area. The cold in North India resulted in more than 150 deaths. On 8 January, New Delhi saw its first frost falling to 0.2 ° C in 70 years (Rajeevan and Revadekar, 2007). Media reports show that Uttar Pradesh's Indian state was particularly badly hit, with 145 deaths associated with cold. The articles even point out that the cold spell caused damage to water pipes and crops (up to 15% in some regions) and disruption of travel, with some schools closed for several days. (Web Report on Relief, 2006).

Attribution of changes in likelihood of occurrence of seasonal mean temperatures
The weather of today covers a range of possible extremes. Recent research has shown that in the absence of anthropogenic emissions, the temperature distribution of seasonal means will likely be different (Christidis et al., 2011). Here we discuss the seasonal means in which the highlighted extreme temperature events take place in the context of the recent climate and the impact of anthropogenic emissions on that climate. The methods are fully described in the methodology section.

Spring and summer 2003
In the presence and absence of anthropogenic forcings, the March-April-May (MAM) cycle means local temperature for 2000-2009 is shown using distributions in Figure 4. Figure 5 reveals similar June-July-August (JJA) mean distributions. Two independent coupling models of atmosphere and general ocean circulation(HadGEM1 and MIROC) analyzes Say that human climate changes have changed distributions to higher temperatures than natural causes alone would have predicted. Considering the region-wide average, the mean temperature of the 2003 MAM is not unusually hot as it lies in the central field of the anthropogenically mediated seasonal temperature zone (red distribution). It is significantly cooler than the 2010 MAM temperature, which in the CRUTEM3 dataset is the warmest and most compatible with the distribution affected by anthropogeny. The 2003 season, in the absence of human influences (green distributions), lies close to the warm tail of the temperature distribution and would therefore be a warmer season. Also in a climate affected by anthro-

pogenic forcings, the JJA mean temperature in 2003 is not unusually cold, but becomes a much more intense season in the cycle without the impact of human factors on the environment. It should be noted that the results of the attribution shown here refer to averaged temperature anomalies throughout the region and throughout the whole season. As such, they do not rule out the occurrence of a short-lived extreme event that affects a smaller region.

Winter 2005

Winter averages mean local temperature for 2000-2009 in the presence and absence of anthropogenic forcings are shown using Figure 6 distributions. Like the previous section, analyzes with both models suggest that human climate influences have shifted the distribution to higher temperatures. Considering the region's average, winter 2005/06 is dry, Because it lies close to the warm tail of climate temperature distributions influenced by anthropogenic forcings (red plotted distributions). The season lies further in the warm tail of the temperature distribution in the absence of human influences on the climate (green distributions) and would therefore be a more rare warm season. It is also much warmer than the 1904/05, the coldest in the CRUTEM3 dataset.

Storms

To all sectors of society, storms can be very dangerous. These can be tiny and distributed through large regions, or even globally, with regional impacts. There is no comprehensive observational analysis included for storms since, despite recent improvements (Peterson et al. 2011; Cornes and Jones 2011), wind data are still not adequate for rigorous research around the world (see section on methodology).

Further progress is anticipated through the latest 20th Century Reanalysis (Compo et al., 2011) and its proposed successors to research the more accurate barometric pressure results.

Selected extreme events recorded in WMO Statements on the Status of Global Climate and/or BAMS State of Climate Reports since 2000 are shown in Table 3. The 2008 Tropical Storm Nisha is shown below as an example of a recent storm event that affected India.

Recent storm events

Tropical Storm Nisha, November 2008

recorded in several locations, with totals of 990 mm recorded in 48 hours in Orathanadu, Tamil Nadu, and 280 mm in 24 hours at Chennai airport (Rajeevan and Revadekar, 2009) Chennai airport (Rajeevan and Revadekar, 2009).

Conclusion

The main features seen from this study in the observed weather over India are:• Since 1960, India has had a widespread warming trend.

• In the period 1970-2009, where data are available, the frequency of cool nights across India has decreased, the number of warm nights has increased, the number of cool days has decreased and the number of hot days has increased.

• Seasonal average seasonal temperatures have generally increased over the country as a result of human climate influence, making hot seasonal temperatures more frequent and cold seasonal temperatures less frequent.

Studies on climate change Included in this report are the results of recent studies using weather forecasts from Global Climate Models (GCMs) to crop yield models to determine the global impact of climate change on crop yields, including national impact estimates for India. (Avnery et al., 2011, Masutomi et al., 2009, Iglesias and Rosenzweig, 2009). Some crops ' CO2 fertilization cycle is typically included in yield studies of climate impact. Other gases, however, may affect crop growth and are not always included in model impact projections.

Since the current era, climate models have continued to be developed and improved, and many models have been expanded to include the representation of biogeochemical cycles that are important for climate change.

The mathematical development of the psychrometrics theory gives a brief overview of the various parameters involved along with basic climate change model.

The certain results from the psychrometics are key pointers to understand the humudity ratio over storm surge moments mathematically.
Results observed over the mathematical overview of the psychrometer collate to give association among the heat parameters and the other similar aspects related to climate change.
Storm surge is an ideal event that formulates the covariance of the differential function of the specific heat over the mathematical estimation.

References

1. Domingo, N. D. S., Paludan, B., Madsen, H., Hansen, F., & Mark, O. (2010). Climate Change and Storm Surges: Assessing Impacts on Your Coastal City through Mike Flood Modeling: DHI Water. *Environment & Health, Denmark. Available at http://www. dhigroup. com/upload/publications/mikeflood/domingo12010.*
2. Grim, R. E., & Rowland, R. A. (1944). Differential thermal analysis of clays and shales, a control and prospecting method. *Journal of the American Ceramic Society*, *27*(3), 65-76.
3. Wypych, A., Bochenek, B., & Różycki, M. (2018). Atmospheric moisture content over Europe and the Northern Atlantic. *Atmosphere*, *9*(1), 18.
4. Şahan, N., & Paksoy, H. (2017). Determining influences of SiO2 encapsulation on thermal energy storage properties of different phase change materials. *Solar Energy Materials and Solar Cells*, *159*, 1-7.
5. Ponraj, R., Narayanan, S. S., & Kala, R. (2013). Difference cordial labeling of corona graphs. *J. Math. Comput. Sci.*, *3*(5), 1237-1251.Ponraj, R., Narayanan, S. S., & Kala, R. (2013). Difference cordial labeling of corona graphs. *J. Math. Comput. Sci.*, *3*(5), 1237-1251.
6. Gadouleau, M., & Riis, S. (2011). Graph-theoretical constructions for graph entropy and network coding based communications. *IEEE Transactions on Information Theory*, *57*(10), 6703-6717.
7. Guo, B., Wang, X., Zhang, X., Yang, J., & Wang, Z. (2016). Research on the temperature & humidity monitoring system in the key areas of the hospital based on the internet of things. *International Journal of Smart Home*, *10*(7), 205-216.
8. Dunn, R. J., Willett, K. M., Ciavarella, A., & Stott, P. A. (2017). Comparison of land surface humidity between observations and CMIP5 models. *Earth System Dynamics*, *8*(3), 719-747.
9. Ramachandra, T. V., Aithal, B. H., & Sanna, D. (2012). Land surface temperature analysis in an urbanising landscape through multi-resolution data. *Research & Reviews: Journal of Space Science & Technology*, *1*(1), 1-10.
10. Zhang, W., Ma, H., & Yang, S. X. (2016). An inexpensive, stable, and accurate relative humidity measurement method for challenging environments. *Sensors*, *16*(3), 398.
11. Vaidya, S. K., & Barasara, C. M. (2011). Product cordial labeling for some new graphs. *Journal of mathematics Research*, *3*(2), 206-211
12. Pijpers, M., & Mathot, V. (2008). Optimization of instrument response and resolution of standard-and high-speed power compensation DSC: Benefits for the study of crystallization, melting and thermal fractionation. *Journal of thermal analysis and calorimetry*, *93*(1), 319-327
13. Yan, L., Yantek, D., Klein, M., Bissert, P., & Matetic, R. (2016). Validation of temperature and humidity thermal model of 23-person tent-type refuge alternative. *Mining engineering*, *68*(9), 97.