A Study On The
Storm Surges & Its Forecasting Methods
(Global Monson Time Scales, Indian Monson Time Scale)

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Abstract: Storm Surge is an abnormal rise of water generated by a storm, over and above the predicted astronomical tides. Storm Surge should not be confused with storm tide, which is defined as the water level rise due to the combination of Storm Surge and the astronomical tide. This is a coastal flood or tsunami – like phenomena of rising water commonly associated with low pressure weather systems such as tropical cyclones Storm Surge is often the greatest threat to life and property from a hurricane. Storm Surge is one of the main causes of coastal inundation.

Some mathematical models used to predict surge must incorporate the effects of winds, atmospheric pressure, tides, waves and river flows, as well as the geometry and topography of the coastal ocean and the adjacent flood plain. I have conducted many studies on the forecasting methods of Storm Surges and invented the Global Monsoon Time Scale, Astro-climatic weather forecasting study Time Scales, Bio-forecast effect along with the G.R. Irlapati's Geo-scope which may also useful in predicting the storm surges at the time of tsunamis.

Key Words: Global Monsoon Time Scale.

1. Introduction: By establishing the Global Monsoon Time Scales in accordance with the conditions of a country and maintain, impending Storm Surges can be studied, estimated and predicted in advance. Here shows an example of method to study and predict such weather conditions.

2. Global Monsoon Time Scale: The global Monsoon Time Scale – a Chronological sequence of events arranged in between time and weather with the help of a scale for studying the past's, present and future movements of monsoon of a country and its relationship with other weather problem and natural calamities.

Prepare the Global Monsoon Time Scale having 365 horizontal days from March 21st to next year March 20th of a required period comprising of a large time and weather have been taken and framed into a square graphic scale. The main weather events if any of the country such as Storm Surges etc. have been entering on the scale as per date and month of the each and every year. If we have been managing the scale of a country in this manner continuously, we can study the past, present and future movements of Storm Surges of a country. I have invented the following global, regional and sub-regional monsoon time scales.

| **2.1. Global Monsoon Time Scales**	**2.2. Regional Monsoon Time Scales**	**2.3. Sub-Regional Monsoon Time Scales**
African Monsoon Time Scale	North American Monsoon Time Scale	South Asian Monsoon Time Scale
North American Monsoon Time Scale	North African Monsoon Time Scale	Maritime Continent Monsoon Time Scale
Asian Monsoon Time Scale	Indian Monsoon Time Scale	East African Monsoon Time Scale
Australian Monsoon Time Scale	Western North Pacific Monsoon Time Scale	West African Monsoon Time Scale
European Monsoon Time Scale	South American Monsoon Time Scale	Indo-Australian Monsoon Time Scale
	South African Monsoon Time Scale	Asian-Australian Monsoon Time Scale
	Australian Monsoon Time Scale	Malaysian Australian Monsoon Time Scale
	East Asian Monsoon Time Scale	Northern Australian Monsoon Time Scale
		Arizona Monsoon Time Scale
		Mexican Monsoon Time Scale
		South-West Monsoon Time Scale
		North-East Monsoon Time Scale
		South East Asian Monsoon Time Scale

3. Indian Monsoon Time Scale:
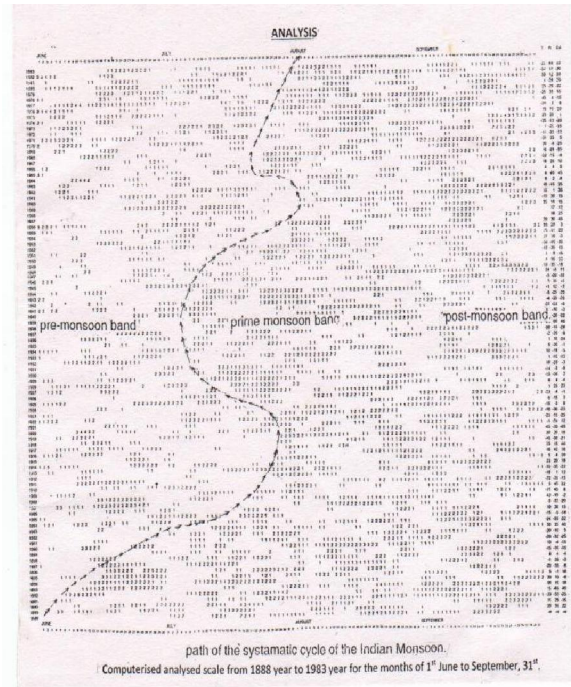**3.1. Constrution:** For example, I have prepared the Indian Monsoon Time Scale for study, estimate and predict the Indian monsoon system. Prepare the Scale having 365 horizontal days from 1st April to next year March 31st of 128 years from 1888 to 2016 for the

required period comprising of large time and weather have been taken and framed into a square graphic scale. The monsoon pulses in the form of low pressure systems over the Indian region have been entering on the scale in stages by 1 for low, 2 for depression, 3 for storm, 4 for severe storm and 5 for severe storm with core of hurricane winds pertaining to the date and month of the each and every year. If we have been managing the scale in this manner continuously, we can study the past's present's and future's of the India monsoon and its relationship with rainfall and other weather problems & natural calamities in India.

MAP OF THE INDIAN MONSOON
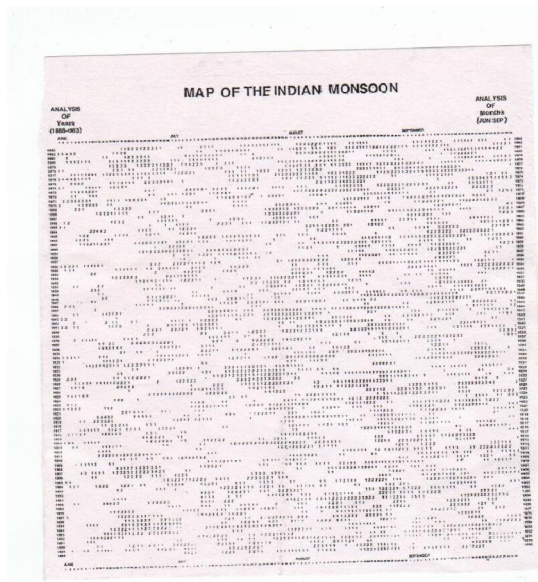
3.2. Analysis: The Indian Monsoon Time Scale reveals many secrets of the monsoon & its relationship with rainfall & other weather problems and natural calamities. For example, some bands, clusters and paths of low pressure systems along with the main paths of the Indian Monsoon (South-west monsoon and north-east monsoon) clearly seen in the map of the Indian monsoon it have been some cut-edge paths passing through its systematic zigzag cycles in ascending and ascending order which causes heavy rains & floods in some years and droughts & famines in another years according to their travel. For example, during 1871-1990's the main path of the Indian Monsoon was rising over June, July, August and creating heavy rains and floods in most years. During 1900-1920's it was falling over August, September and causing low rainfall in many years, During 1920-1965's, it was rising again over July, August, September and resulting good rainfall in more years. During 1965-2004's it was falling over September and causing low rainfall and droughts in many years. At present it is rising upwards over June, July, August,

and will be resulting heavy rains & floods in coming years during 2004-2060.

path of the systamatic cycle of the Indian Monsoon.
Computerised analysed scale from 1888 year to 1983 year for the months of 1st June to September, 31st.

4. Hazard Detection Method: The tracking date of main path & other various paths such as south-west monsoon and north-east monsoon etc., of the Indian Monsoon denotes the onset of the monsoon, monsoon pulses or low pressure systems, storms and its consequent secondary hazard storm surges etc.. And also we can find out many more secrets of the Indian monsoon such as droughts, famines, cyclones, heavy rains, floods, real images of the Indian Monsoon, and onset & withdrawals of south west monsoon and north-east monsoon etc. by keen study of the Indian Monsoon Time Scale.

For example, the date of tracking ridge of path is the sign to the impending cyclone and its secondary consequent hazard cyclone etc.

Another example, the thin and thick markers on the upper border line of the Indian monsoon time scale are the signs to the impending heavy rains & floods and droughts & floods. The thick marking of clusters of low pressure systems on the Indian monsoon time scale is the sign to the impending heavy rains and floods and the thin marking of clusters of low pressure systems on the Indian monsoon time scale is the sign to the impending droughts and famines.

Furthermore example, the main passage of line of monsoon travel from June to September and September to June are also signs to impending weather

conditions of a country. For example, during 1871-1990's the main path of the Indian Monsoon was rising over June, July, August and creating heavy rains and floods in most years. During 1900-1920's it was falling over August, September and causing low rainfall in many years. During 1920-1965's it was rising again over July, August, and September and resulting good rainfall in more years. During 1965-2004's it was falling over September and causing low rainfall and droughts in many years. At present it is rising upwards over June, July, August, and will be resulting heavy rains & floods in coming years during 2004-2060 in India.

These are some examples only. We can find out many more secrets of a country weather conditions by keen study of its monsoon time scale.

5. Principle: This is an Astrogeophysical / Astrometeorological phenomenon of effects of astronomical bodies and forces on the earth's geophysical atmosphere. The cause is unknown however the year to year change of movement of axis of the earth inclined at 23½ degrees from vertical to its path around the sun does play a significant role in formation of clusters, bands & paths of the Indian Monsoon and stimulates the Indian weather. The inter-tropical convergence zone at the equator follows the movement of the sun and shifts north of the equator merges with the heat low pressure zone created by the rising heat of the sub-continent due to direct and converging rays of the summer sun on the India Sub-Continent and develops into the monsoon trough and maintain monsoon circulation.

6. Conclusion: We can make many more changes in the Global Monsoon Time Scale thus bringing many more methods can be designed to predict the Storm Surges in advance.

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