

**A Study On The
Geological Hazards & Its Forecasting Methods
(Global Monsoon Time Scale, Indian Monsoon Time Scale, G.R. Irlapati'S Geoscope)**

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Abstract: A natural disaster is a major adverse event resulting from natural process of the earth. A Geological Hazards is one of several types of adverse geologic conditions capable of causing damage or loss of property and life. These hazards consists of sudden phenomena and slow phenomena.

Sudden Phenomena:

01. Avalanches: Snow, Rock or air and snow and its run out.
02. Earth Quakes and earth Quakes – Triggered phenomena such as tsunamis.
03. Forest fires and leading to deforestation.
04. Geomagnetic Storms.
05. Ice Jams on rivers or glacial lake out burst floods below a glacier.
06. Landslides lateral displacement of earth material on a slope or hill slide.
07. Mudflows, avalanche – like muddy flow of soft or wet soil and sediment materials, narrow landslides.
08. Pyroclastic flows.
09. Rock falls, Rock slides, Rock avalanches and debris flows.
10. Torrents like flash floods, rapid floods, heavy current creeks with irregular course.
11. Volcanic eruptions, lahars and ash falls.

Slow Phenomena:

01. Alluvial fans like at the exit of canyons or slide valleys.
02. Caldera development like volcanoes.
03. Geysers deposits.
04. Ground settlement due to consolidation of compressible soils due to collapsible soils.
05. Ground subsidence, sags and sink holes.
06. Liquefaction, settlement of the ground in areas underlain by loose saturated sand / slit during an earthquake events.
07. Sand dune migration.
08. Shoreline and stram erosian.
09. Thermal springs.

Geological Hazards and disasters, however, still inflict a major economic and social cost. I have conducted many studies on the Geological Hazards and invented the Geoscope which can held to predict the Geological Hazards in advance.

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Key Words: G.R. Irlapati Geoscope, Global Monsoon Time Scale, Geological Hazards, Indian Monsoon Time Scale, Geo-scope.

1. Introduction: By establishing the Geo-scope and Global Monsoon Time Scale in accordance with the conditions of a country and maintain, impending Geological Hazards can be studied, estimated and predicted in advance. Observe the geophysical and meteorological changes such as Geological Hazards etc taking place on the ground by study the Global Monsoon Time Scale and the changes taking place in the underground by study the Geo-scope. The onset of Geological Hazards can be guessed by observing the

aforesaid changes in the concerned analyzing departments of the observatory of the Geo-scope and on the Global Monsoon Time Scale. I have proposed some studies to predict the Geological Hazards in advance, here shows some examples of method to study and predict such geophysical and meteorological 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 rainfall and 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 Geological Hazards 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 Geological Hazards of a country. I have invented the following global, regional and sub-regional monsoon time scales.

2.1. Global Monsoon Time Scales

African Monsoon Time Scale
North American Monsoon Time Scale
Asian Monsoon Time Scale
Australian Monsoon Time Scale
European Monsoon Time Scale

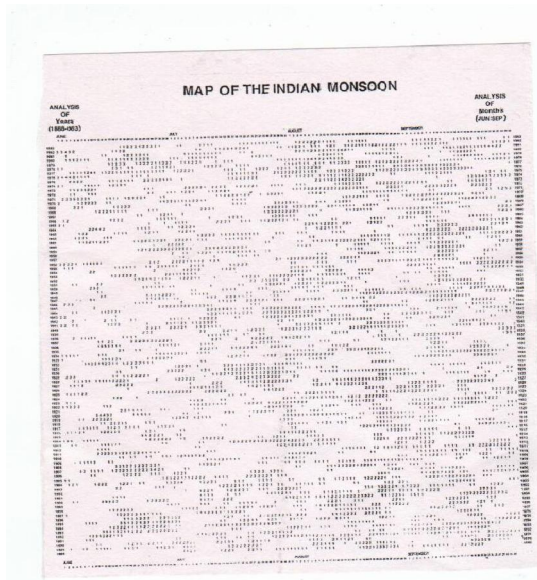
2.2. Regional Monsoon Time Scales

North American Monsoon Time Scale
North African Monsoon Time Scale
Indian Monsoon Time Scale
Western North Pacific Monsoon Time Scale
South American Monsoon Time Scale
South African Monsoon Time Scale
Australian Monsoon Time Scale
East Asian Monsoon Time Scale

2.3. Sub-Regional Monsoon Time Scales

South Asian Monsoon Time Scale
Maritime Continent Monsoon Time Scale
East African Monsoon Time Scale
West African Monsoon Time Scale
Indo-Australian Monsoon Time Scale
Asian-Australian Monsoon Time Scale
Malaysian Australian 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:



For example, I have prepared the Indian Monsoon Time Scale by Preparing 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 presents and future's of the India monsoon and its relationship with rainfall and other weather problems & natural calamities in India.

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.

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 $23\frac{1}{2}$ 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. G.R.Irlapati'S Geoscope: Geo-scope means- a mechanical architecture established in between the underground and observatory with the help of bore-well proposed for conducting geological studies to know the Geological Hazards and mineral and water resources etc.

A borehole having suitable width and depth has to be dug. An observatory having the most modern high-technological research facilities has to be constructed on that well. Most modern mechanical systems like electronic, physical and chemical sensors and apparatus to recognize the rise and fall of the underground water levels, micro-vibrations and waves generated in the underground, differences in pressure, temperature and other seismic activities should be inserted into the underground and linked with the concerned research analyzing departments of the observatory that is above the well to observe the seismic changes taking place in the underground. The results of researches on the quakes like Richter scale etc., also should be setup in the Geo-scope. The apparatus related to the geology and geography such as Richter scale etc also should be set in the observatories of the Geo-scope Many kinds of super high remote sensing technology in the area of sensor physics, signal processing used specially image processing, electromagnetic detection technology etc should be used in the Geo-scope. Geophysical deep underground detectors and mineral exploration equipments, natural gas sensors etc should be used in the Geo-scope. Electromagnetic sensors may also be used in the Geo-scope project. etc. That means relative results of geological & geographical researches & developments of past, present and future should be interposed, coordinated and constantly developed. We

can make many more modern ideas & modifications thus bringing many more improvements & developments in the Geo-scope.

6.1. Seismic Luminescence Study: This is a very easy and simple study in the Geoscope Project. Construct a room over a well having suitable width and depth. Wash the inner walls of the room with white lime. Fix an ordinary electric bulb in the room. (Otherwise by making certain changes and alternations any home or office having a well can be converted into the Geoscope. Wash the inner walls of the house with white lime. Fix an ordinary electric bulb but don't fix fluorescent lamp in the house. This method involves no expenditure).

Observe the colour of the lightning in the Geoscope room daily 24 hours 365 days. When the bulb glows, the lightning in the room generally appears as white (reddish). But before occurrence of an earthquake, the room lightning turns violet in colour.

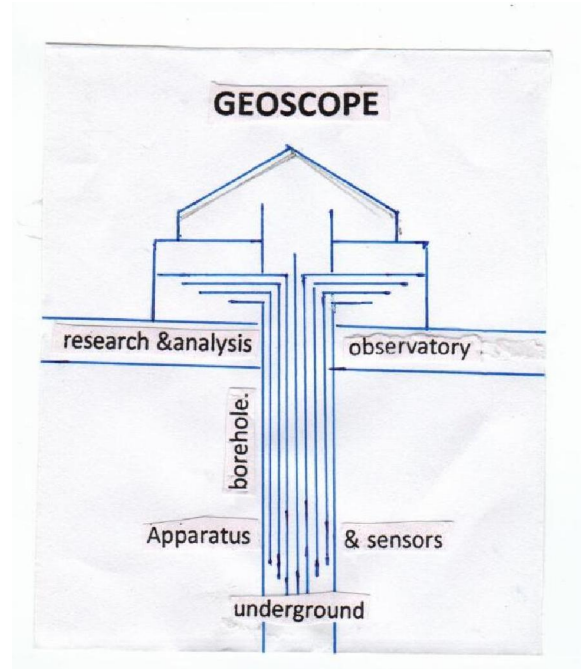
Because, before occurring of an earthquake-gas anomalies such as radon, helium, hydrogen and chemico-mineral evaporations such as sulphur, calcium, nitrogen and other fracto-luminescence radiations show up earlier even at large distances from the epicenter due to stress, disturbances, shock waves and fluctuations in the underground forces. These gas anomalies & fracto luminescence radiations and other chemical evaporations enter into the well through the underground springs. When these anomalies occupy the room above the well, the room lighting turns violet in colour. The light in the room scattered in the presence of these gas anomalies, fracto-luminescence radiations and other chemico-mineral evaporations the ultra violet radiation is emitted more and the room lighting turns in violet colour. Our eye catches these variations in the radiation of the lighting in the room easily since.

- The violet rays having smaller wave length.
- The violet radiation having property of extending greatly.
- The light becoming weak in the violet region.
- The eyes having greater sensitivity to violet radiation.

Due to all reasons the room may appear violet in colour then we can predict the impending earth quakes 12 hours in advance.

6.2. Electro Geopulses Study: This is also easy study to recognize the impending earth quake. A borehole having suitable width and depth has to be dug. An earth wire or rod should be inserted into the underground by the borehole and linked with the concerned analysis section having apparatus to detect, compare measure of the electric currents of the electric circuit of the earth systems. Otherwise by observing the home electric fans etc., We can also study the

electrogeopulses studies to predict the impending earth quake.



Observe the changes in the electric currents of the earth system 24 hours, 365 days. From a power station, the electricity is distributed to the far-off places. Normally the circuit of the power supply being completed through the earth system. Whenever if the disturbances occurs in the layers of the earth's underground, the fluctuation rate will be more due to the earth quake obstructions such as pressure, faults, vibrations, water currents etc., of the earth's underground. So we can forecast the impending earth quake by observing the obstruction of electric currents of circuit of the earth system in the observatory of the Geo-scope and also by the obstruction sounds in the electric fans etc.

7. Hazard Detection Method: And also we can find out many more secrets of the underground by keen study of the Geo-scope.

For example, build Geo-scope in the seismic areas and earthquakes can be predicted by virtue of performing studies as described above.

Another example, build Geo-scope in the coastal areas of the sea and earthquakes and its consequent secondary hazards such as tidal forces, rogue waves, tsunami can be predicted by virtue of performing studies as described above.

Furthermore example, build Geo-scope in the possible areas where landslides are likely to occur and the earthquakes and its secondary consequent hazards such as landslides mud slides, mass movements, sink

holes, coastal erosion, lahars, mud flows, etc can be estimated by virtue of performing studies as described above.

One more example, build Geo-scope in the volcano areas and volcanic activities such as volcanic gases, and steam generated eruptions, explosive eruption of high – silica lava, effusive eruption of low-silica lava, debris flow and carbon dioxide emission etc can be predicted by virtue of performing studies as described above.

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.

8. Conclusion: We can make many more changes in the Geo-scope and Global Monsoon Time Scale thus bringing many more methods can be designed to predict the Geological Hazards in advance.

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