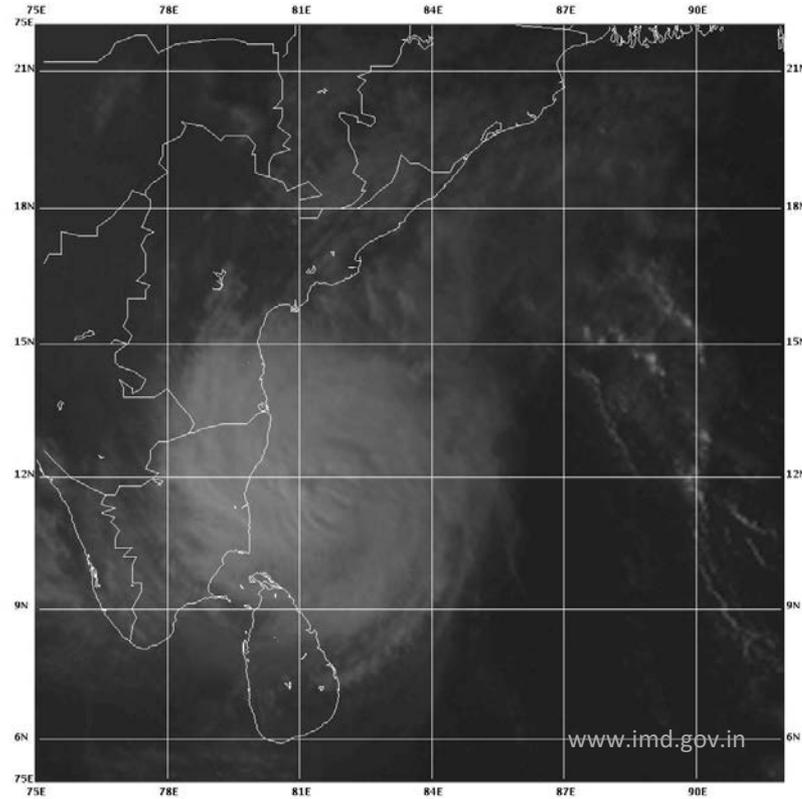


3e. Genesis of weather forecast in India and abroad

29DEC2011 1100UTC	Sensor : VHRR	SAT : KALPANA-1
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Dr. R. Nagarajan

Genesis of weather forecast in India and abroad

PART I

- Historically the science meteorology in India was written in **Upanishadas** early 3000 B.C., which provides the information such as processes of cloud formation, rain and seasonal cycles as caused by the movement of earth around the sun.
- **Brihatsamhita**, written around 500 A.D., provides a clear evidence that a deep knowledge of atmospheric processes by Varahamihira's
- Kautilya's **Arthashastra** contains records of scientific measurements of rainfall and its application to the country's revenue and relief work.
- Kalidasa has written **Meghdoot** during 700 AD and this provides the information on onset of monsoon over central India and traces the path of the monsoon clouds.

Genesis of weather forecast in India and abroad

- The scientific meteorology was began in Europe between 15th and 16th centuries with the **inventions of barometer, thermometer, hygrometer and wind measuring instruments.**
- In India, the **meteorological observatory** was established by The British East India Company at Calcutta during 1785; and at Madras (now Chennai) during 1796 to study the weather and climate
- **The Asiatic Society of Bengal** was founded in 1784 at Calcutta, and in 1804 at Bombay (now Mumbai) and it promoted scientific studies in meteorology in India.

Genesis of weather forecast in India and abroad

- In the year 1875, **India Meteorological Department** was established to bring all meteorological work in the country under a central authority
- **Mr. H. F. Blanford** was appointed as Meteorological Reporter to the Government of India.
- **Sir John Eliot** was appointed as Director General of Observatories in May 1889 at Calcutta headquarter.
- The headquarter of IMD was later shifted to Shimla, then to Poona (now Pune) and finally to New-Delhi.

PART II

- In view of the importance of forewarning of monsoon seasonal rainfall for the agricultural economy of the country, **Blanford** initiated the system of Long Range Forecasting (LRF).
- The system of LRF of monsoon forewarning improved through several evolutionary phases by eminent pioneers like **Sir John Eliot and Sir Gilbert Walker** (Directors-General of Observatories)
- **Sir Gilbert Walker** has identified a phenomena of linking monsoon with global meteorological situations and discovered **Southern Oscillation phenomenon**.
- IMD has continuously improved into new areas of application and service, and steadily built upon its infra-structure in its history of 139 years.

Genesis of weather forecast in India and abroad

- First weather service viz., '**Farmers Weather Bulletin**' was issued by the India Meteorological Department in collaboration with All India Radio on daily basis (afternoon) and broadcasted in 26 regional languages
- The main limitations are the forecast issued for a large scale and does not meet the requirements of crop cultural operations at block level
- There was no advisory given to crop planning and agricultural operations
- To overcome this problem, IMD has introduced ***Agricultural Meteorological Advisory Services*** to prepare special weather charts on small area on weekly, monthly and seasonal basis

Genesis of weather forecast in India and abroad

- Based on the crop stage and rainfall data '**Agrometeorological Advisory Bulletin**' was issued for a week or twice a week
- The other services include '**Tentative Crop Outlook**' for the country to benefit the agricultural planners and policy planners
- **Crop Yield Forecast** was also issued by the Drought Research Unit based on the statistical empirical formulae for rice and wheat growing area

Current Activity of IMD

Part III

- 1. National Centre for Medium Range Weather Forecasting (NCMRWF)** was established at New Delhi to issue medium range forecast along with agro advisory at agro climatic resolution level and later forecast is issued for five days at district resolution level
- 2. Numerical Weather Prediction (NWP)** is being used to generate medium range weather forecast by using Global Forecast System (GFS) at 35km resolution scale at IMD Delhi

Genesis of weather forecast in India and abroad

3. **Now casting**

Now casting is one kind of weather forecasting provided for very short duration (up to 6 hours) by using the Doppler Weather Radar Observation and it was implemented during Delhi Commonwealth Games 2010.

4. **RADAR Meteorology** is being adopted for Now casting using Doppler Weather Radar (DWR). Which also provides various meteorological, hydrological and aviation products to be useful for the forecasters to locate the storm's center, fixing its position and predicting its future path

5. **Monsoon Monitoring & Forecasting** is also issued by the IMD during pre and early monsoon season