



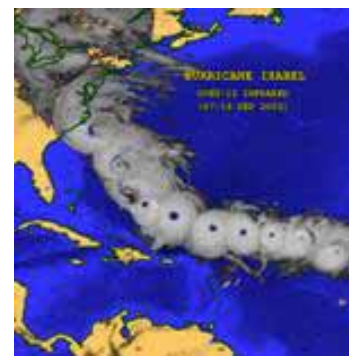
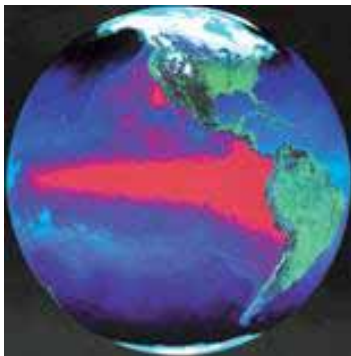
NMHSs Activities contributing to GEOSS Implementation (Case Study of Pakistan)

Dr. Qamar-uz-Zaman Chaudhry
Director General
Pakistan Meteorological Department
<http://www.pakmet.com.pk>



GEOSS Imperative

- Some 30% of our economy is tied to the environment
- Scientific understanding and ongoing knowledge of the Earth system is fundamental for well informed economic decision making
- Sustained Earth observations are critical in understanding the Earth
- A global approach to Earth observation is required





GEOSS Data Sharing Principles

- **Full and Open Exchange of Data**
 - Recognizing Relevant International Instruments and National Policies
- **Data and Products at Minimum Time delay and Minimum Cost**
- **Free of Charge or minimal Cost for Research and Education**



PMD



Meteorology



Hydrology



Seismology

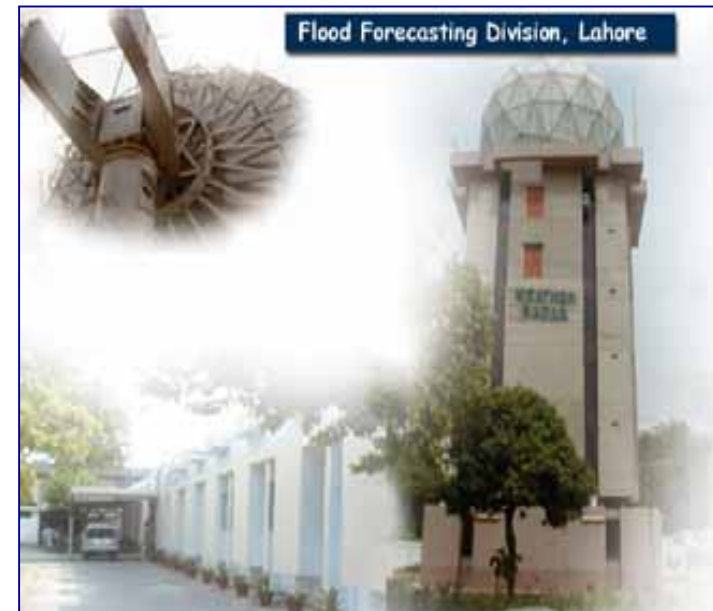
PMD Services to Aviation

- All aviation products (Metars, TAFs, Wind Charts, Height Charts, Sig Wx Charts, Satellite and Radar imageries, Warnings etc) are disseminated through website.
- All products are being supplied free of cost round the clock

Present Services

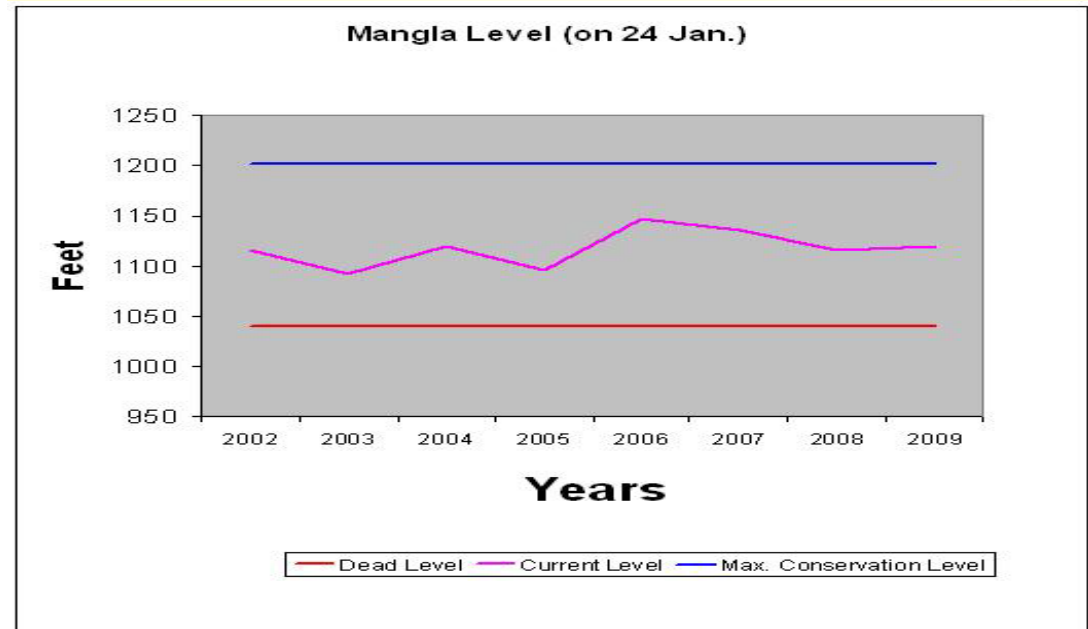
Flood Forecasting Facilities

- Flood Forecasting Division Lahore is a specialized unit of Meteorological Department for this purpose.
- 10-cm Doppler Radar at (FFD) Lahore & Mangla
- QPM Radar at Sialkot
- Satellite Ground Station
- Computer Models
- Meteorological Analysis Centre



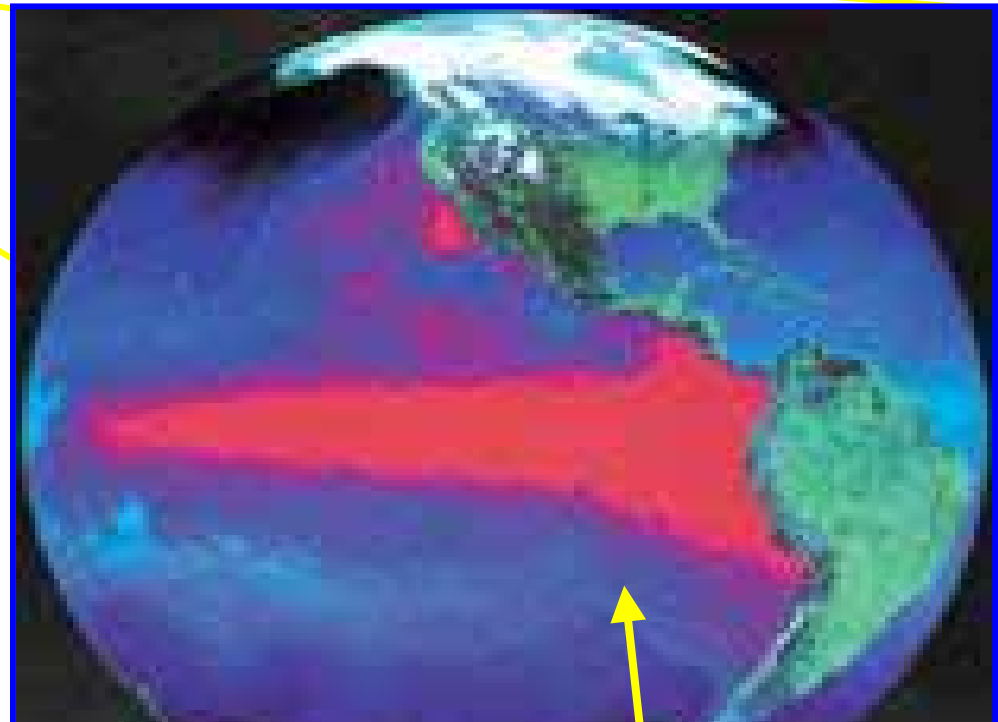
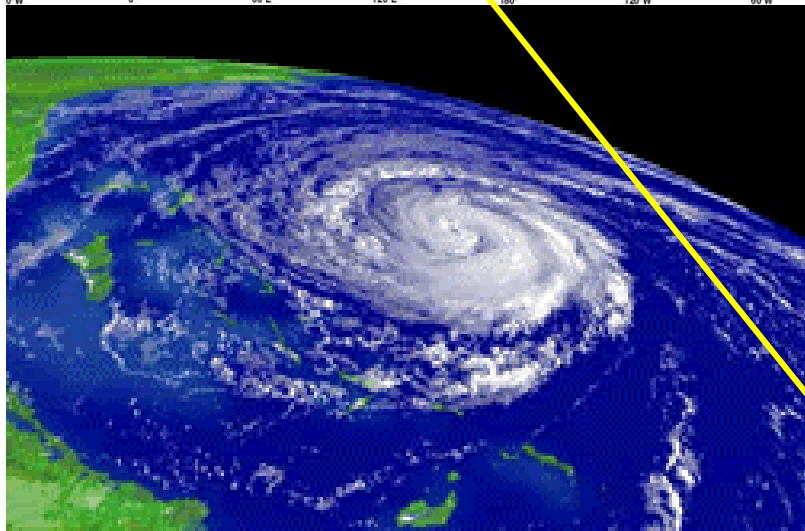
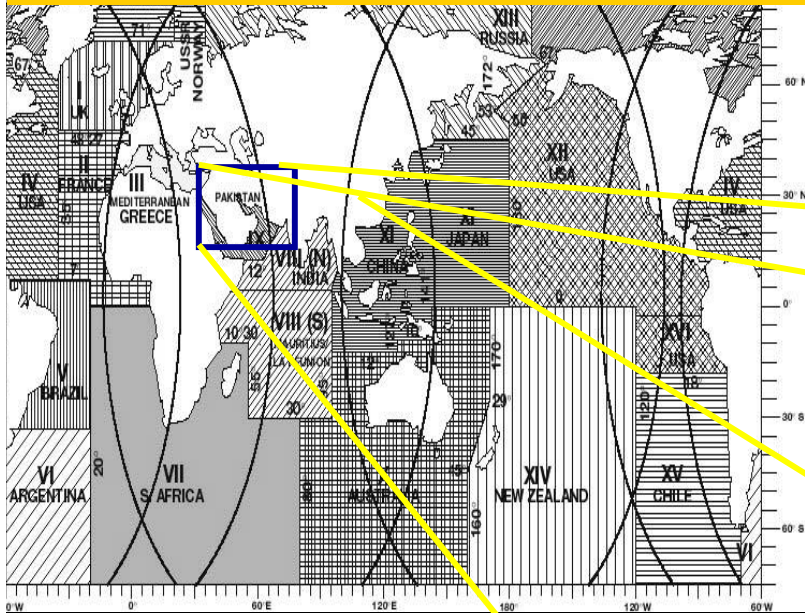
Hydrometeorological Data available on PMD Website

- Dams Flow
- Hydrological Data
- Rainfall
- Historical Peaks
- Weekly Forecasts



GMDSS

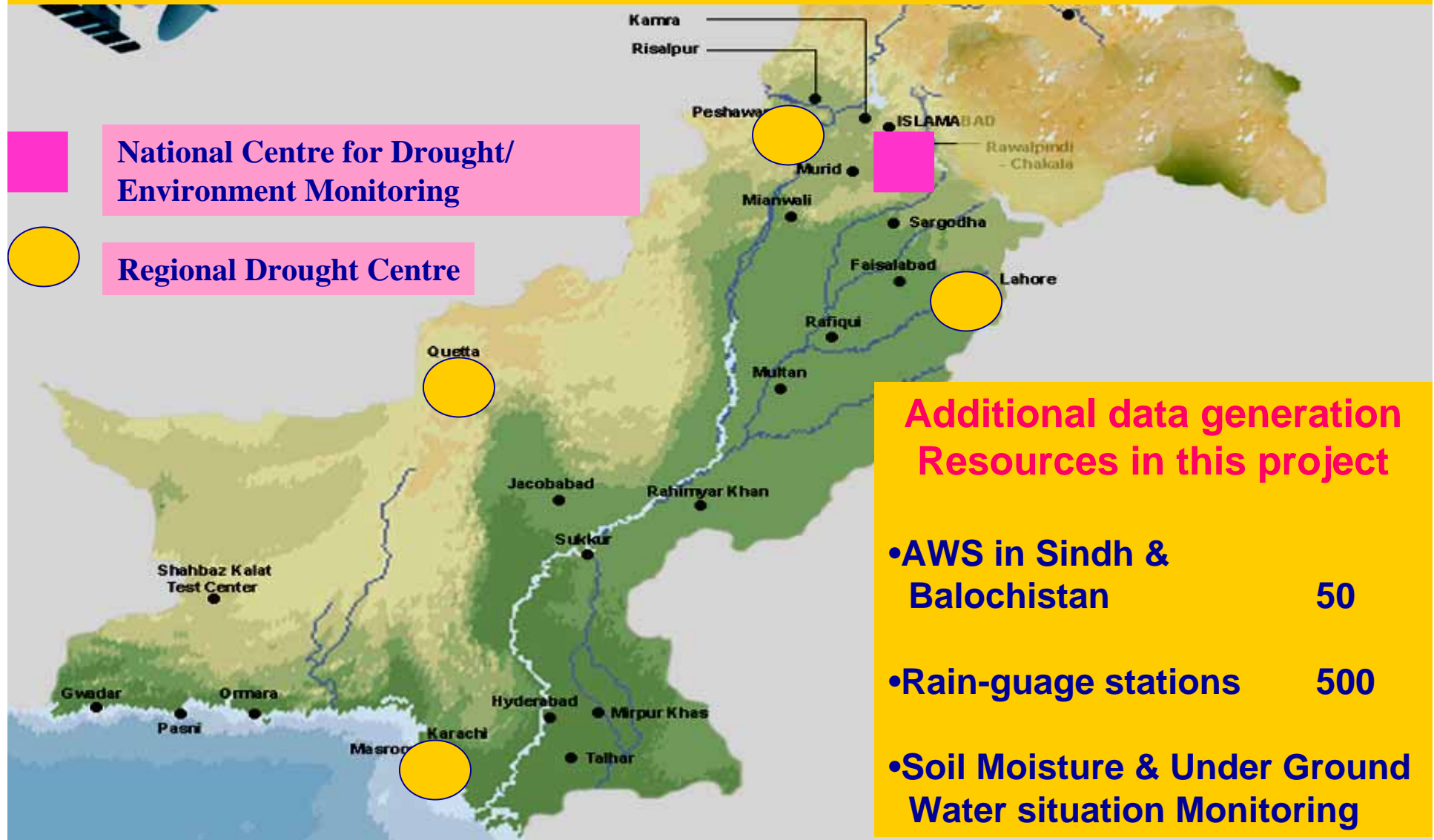
(Global Maritime Distress & Safety System)



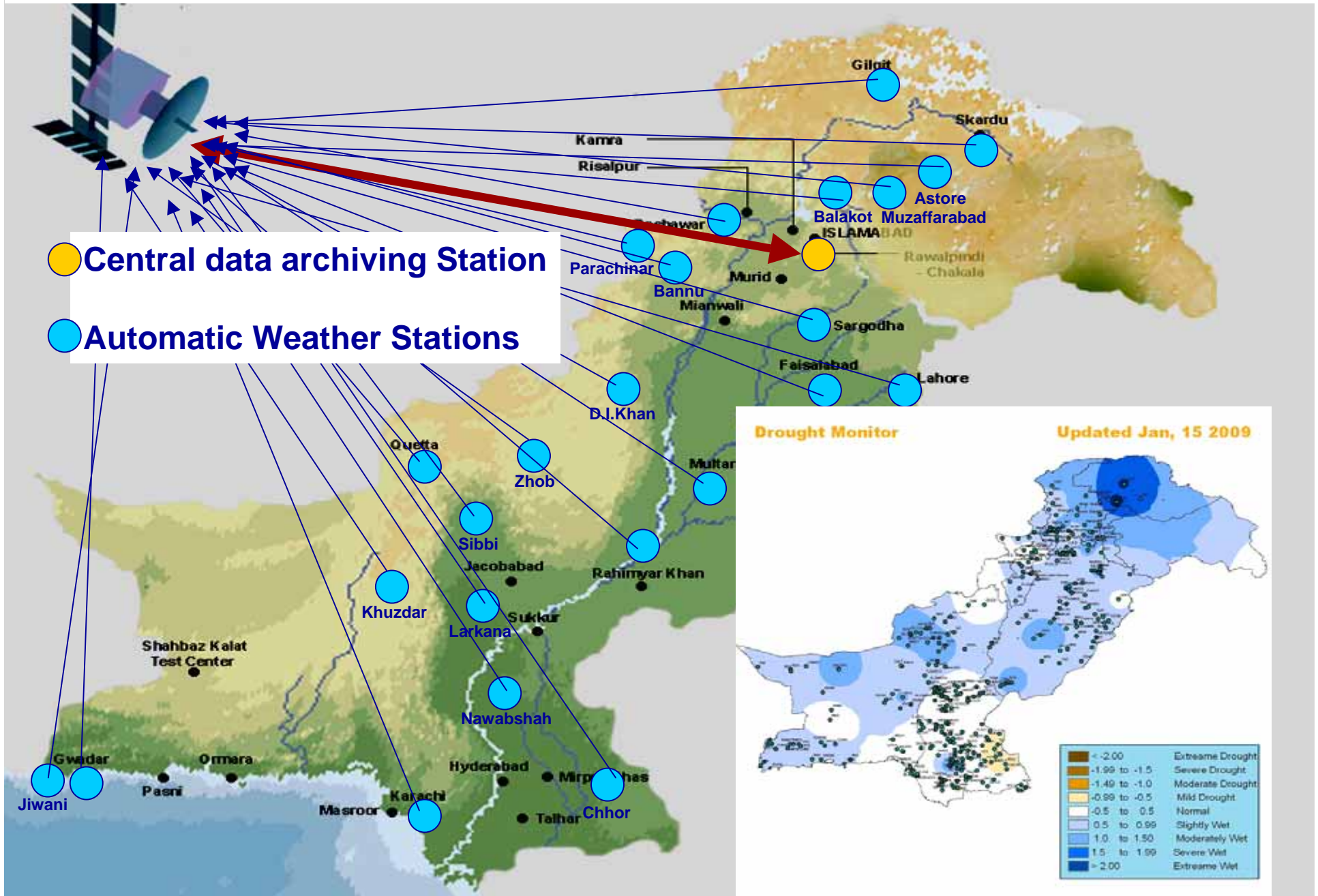
PMD AREA OF RESPONSIBILITY UNDER
GMDSS AS PER WMO CHARTER

Present Free Services

Drought Monitoring Facilities



Automation of Meteorological Observing Network



Present Services

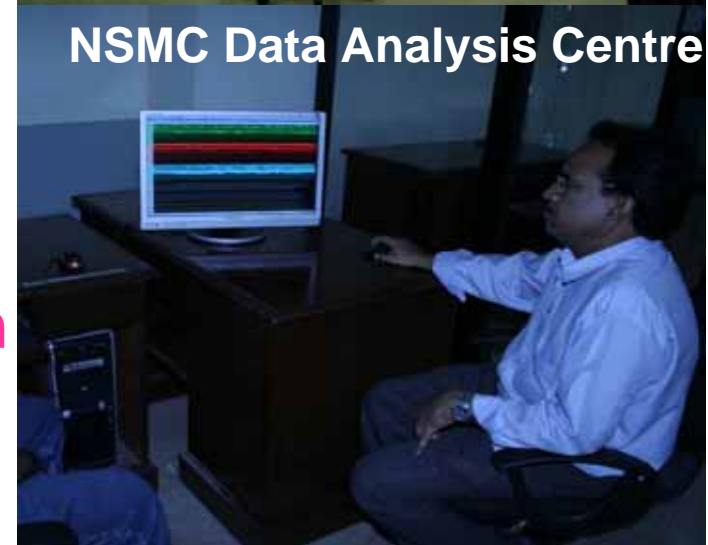
Seismic Monitoring & Tsunami Warning System

- **PMD is focal agency for Tsunami Warning System in Pakistan**
- **10 Digital broadband seismic monitoring stations**
- **30 Short period seismometers**
- **50 Accelerographs for major cities**
- **Speedy data communication System**

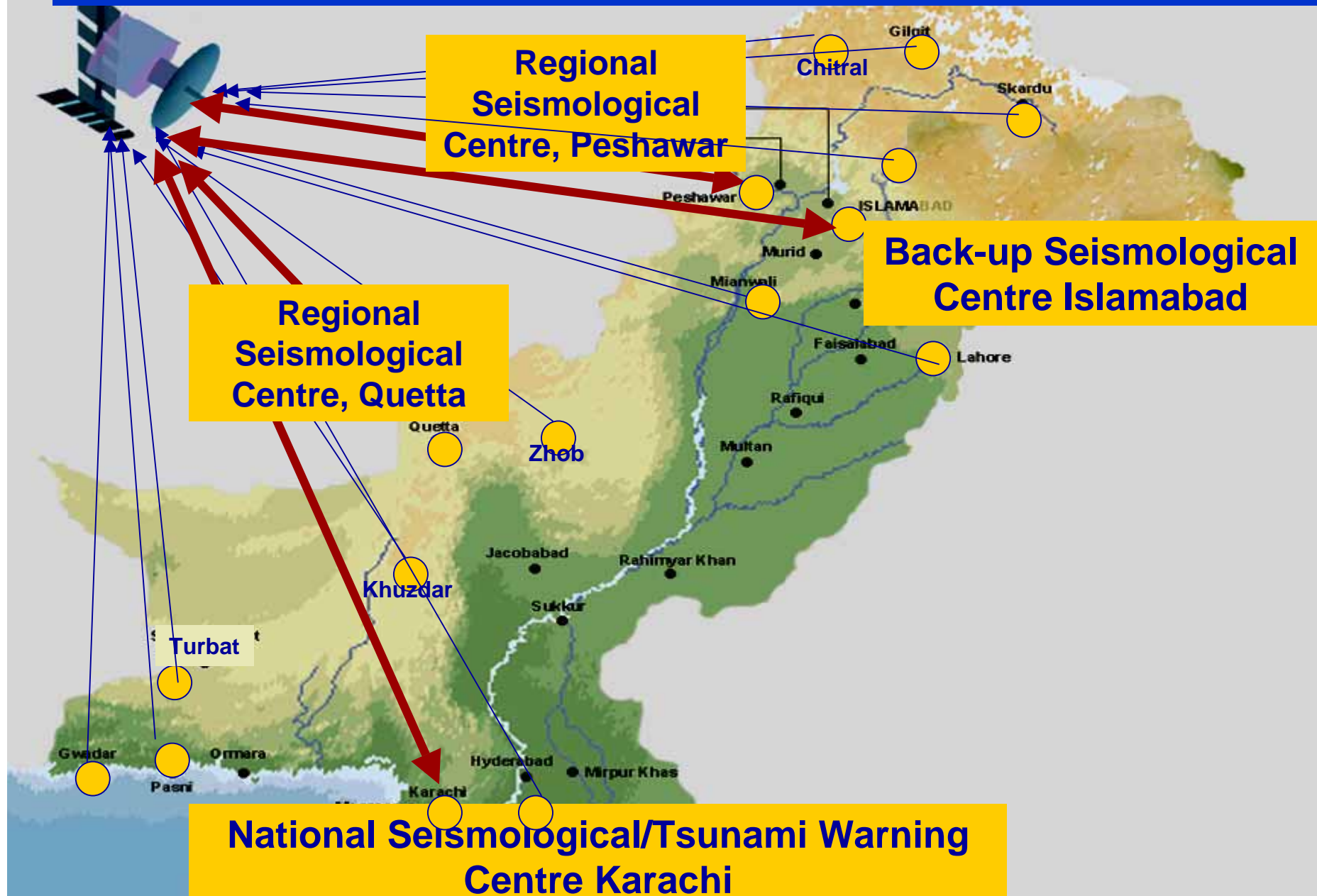
Central Data Collection Hub



NSMC Data Analysis Centre



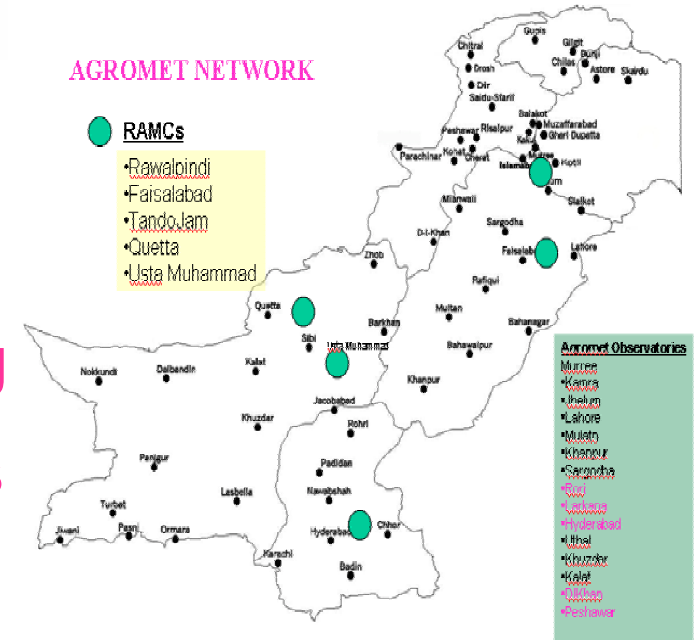
Up-gradation & Strengthening of National Seismological Network for Pakistan



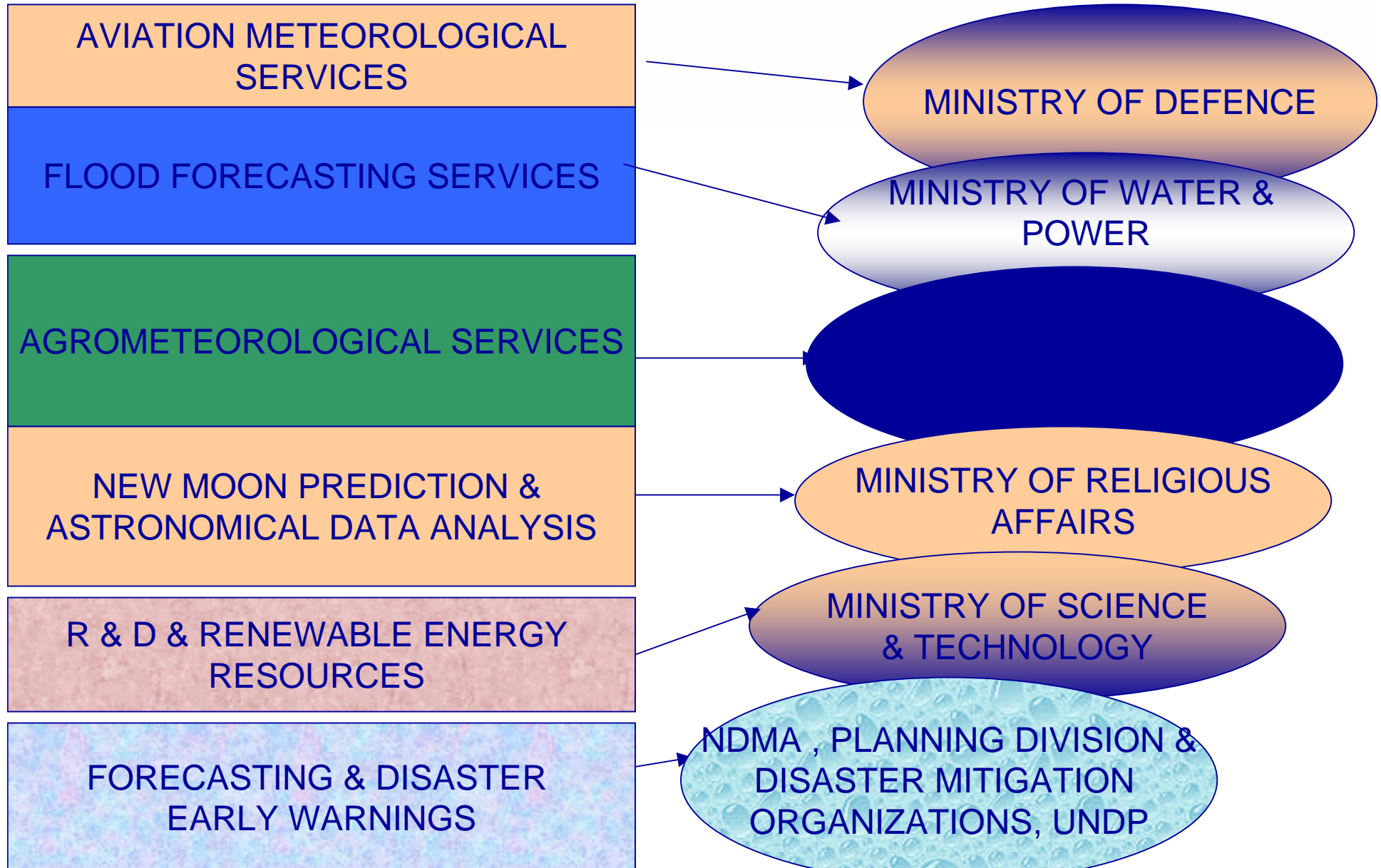
Present Free Services

Agromet Services & Network

- i. Rain Predictions
- ii. Frost Predictions
- iii. Soil Moisture Information
- iv. Time of Crop Sowing/Harvesting
- v. Spraying of Pesticides on Crops
- vi. Water Requirement of Crops
- vii. Heat Wave and Cold Wave Forecast
- viii. Special Weather Advisories for Farmers
- ix. Monthly Agromet Bulletin of Pakistan
- ix. Research on Regional Basis in Collaboration

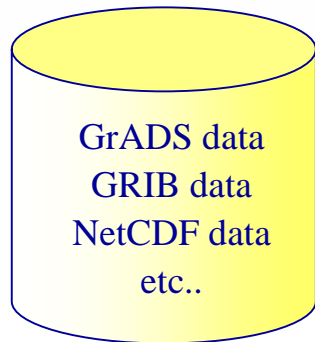


FREE SERVICES TO VARIOUS SECTORS



NWP Facilities

datasets in any format supported by WMO Formats



holds temporary data (uploaded, generated by a previous operation, or transferred directly from another server) for use in remote analysis



PMD High Speed Server

performs analysis operations

manages sessions, translates dataset names

supports extended request types for analysis, upload

internet

data and requests

Client

Encapsulated Analysis Requests

client libraries

data appears to client as local file, in a standard format (i.e, NetCDF, etc.)

GrADS


Matlab


IDL

etc..

Data / Products Sharing through Worldwide Web

File Edit View Favorites Tools Help

Address  http://www.pakmet.com.pk/rnd/rnd_files/hrm.htm



PAKISTAN METEOROLOGICAL DEPARTMENT
Research and Development Division

Numerical Weather Products

High Resolution Regional Model Output (0.20°x 0.20°~ 22KM)

- Home
- Numerical Weather Products
- Satellite Products
- Modeling Activities
- Environmental Monitoring
- Journal of Meteorology
- About Us

24-Hourly NWP Charts

- ◆ [Daily Total Precipitation](#)
- ◆ [Daily Max Temperature](#)
- ◆ [Daily Min Temperature](#)
- ◆ [Daily Snow and Rainfall](#)

3-Hourly NWP Charts

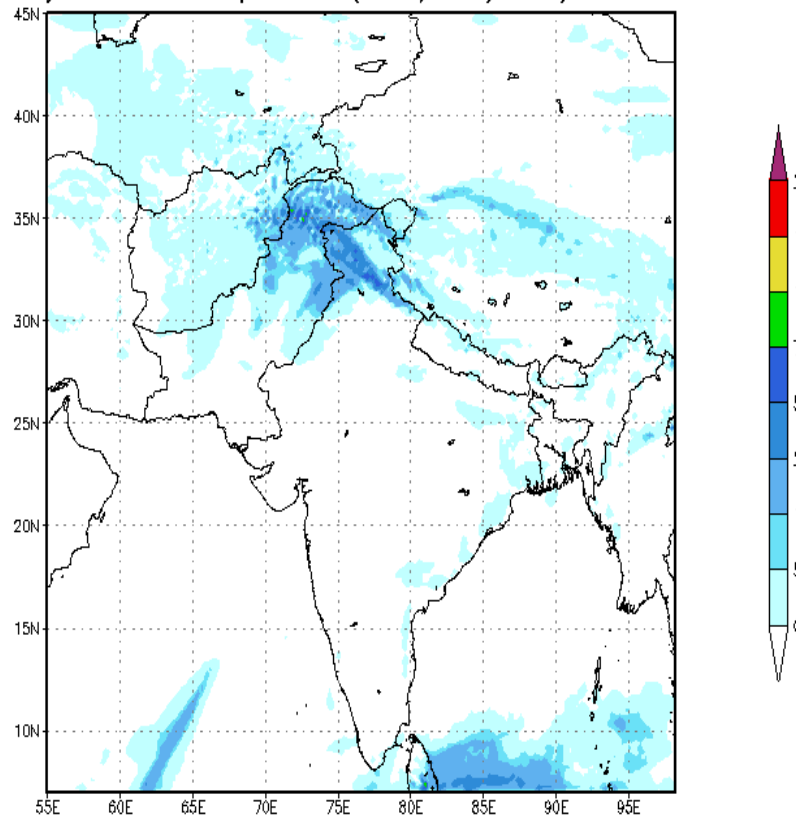
- ◆ [Precipitation](#)
- ◆ [Total Cloud Cover](#)
- ◆ [Mean Temperature](#)
- ◆ [200 mb height & wind](#)
- ◆ [500 mb height & wind](#)
- ◆ [500 mb vorticity](#)
- ◆ [700 mb height & Winds](#)
- ◆ [700 mb vorticity](#)
- ◆ [850 mb height & winds](#)
- ◆ [850 mb vorticity](#)
- ◆ [Sea Level Pressure](#)

Tphigram Charts

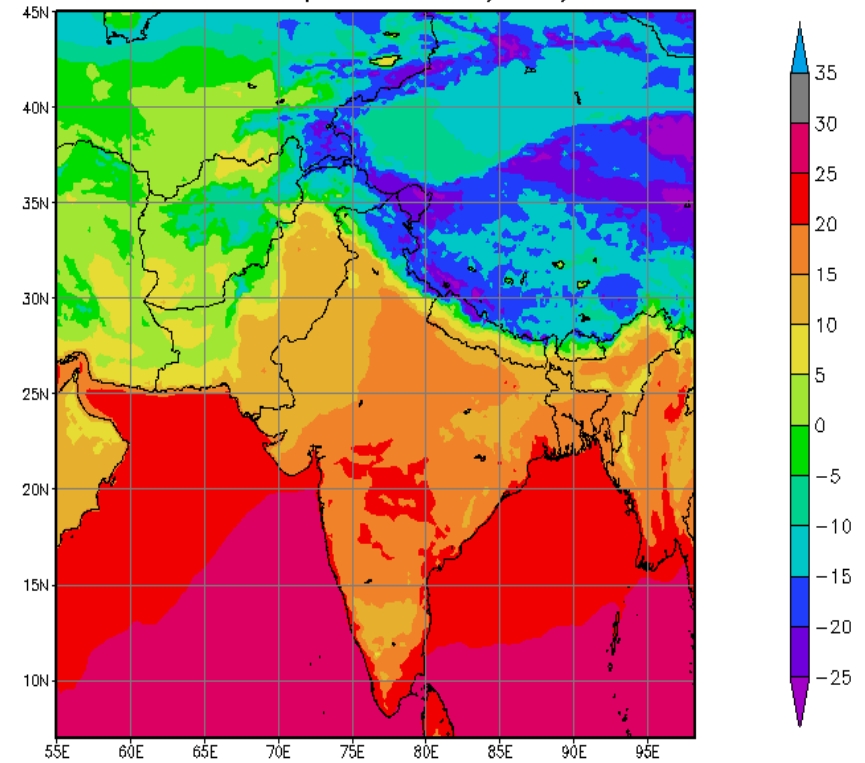
- ◆ [Islamabad](#)
- ◆ [Lahore](#)

Data / Products Sharing through Worldwide Web

Daily Total Precipitation(mm) 26/JAN/2009 00Z



Minimum Temperature 26/JAN/2009



Data / Products Sharing through Worldwide Web

File Edit View Favorites Tools Help

Address  <http://www.met.gov.pk/cp3/metdata.html>

 Go

Pakistan Meteorological Department

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Data / Products Sharing through Worldwide Web

PMD is sharing following products for end users free of cost

- National Met Data Provision
- NWP Products
- Forecasts, advisories and Early Warnings
- Satellite & Radar imageries
- Climate Data & products
- Agrometeorological Data and products
- Research publications



Thank You All