

India Geospatial Forum

Weather Services :Bridging Gap



Rahul saxena,

India Meteorological Department
Mausam Bhavan, Lodi Road, New Delhi-1100 03.
E-Mail : rahulsaxena.imd@gmail.com

Meteorological Services



STORM SURGE WARNING

- Storm Surge
- Astronomical tide
- Coastal bathymetry effects



Meteorological Services for Pilgrimage

- Amarnath Yatra
- Kumbh mela etc



METEOROLOGICAL SERVICES FOR DEFENCE

- Troop & logistic movements
- Upper air observations



Agro Meteorological Advisory

- Crop Management Advisories
- Pest & Disease Advisories
- District Level_Meteorological Forecast



METEOROLOGICAL SERVICES TO ANTARCTIC EXPEDITIONS

- Comprehensive weather services



Navigational Advisory

- Adverse Weather
- Sea State (High Seas)



ENVIRONMENTAL MONITORING

- Environmental clearances for industries etc
- Aerosol, Acid rain, Ozone, Atmospheric radiation



EARTHQUAKE DETECTION

- Location & Magnitude
- Seismic Zonation / Microzonation
- Seismic risk Assessment



METEOROLOGICAL SERVICES TO MOUNTAINEERS

- Warning for hazardous weather en-route



METEOROLOGICAL SERVICES FOR SPACECRAFT LAUNCHING

- Identification of favorable time window for launching



POSITIONAL ASTRONOMY

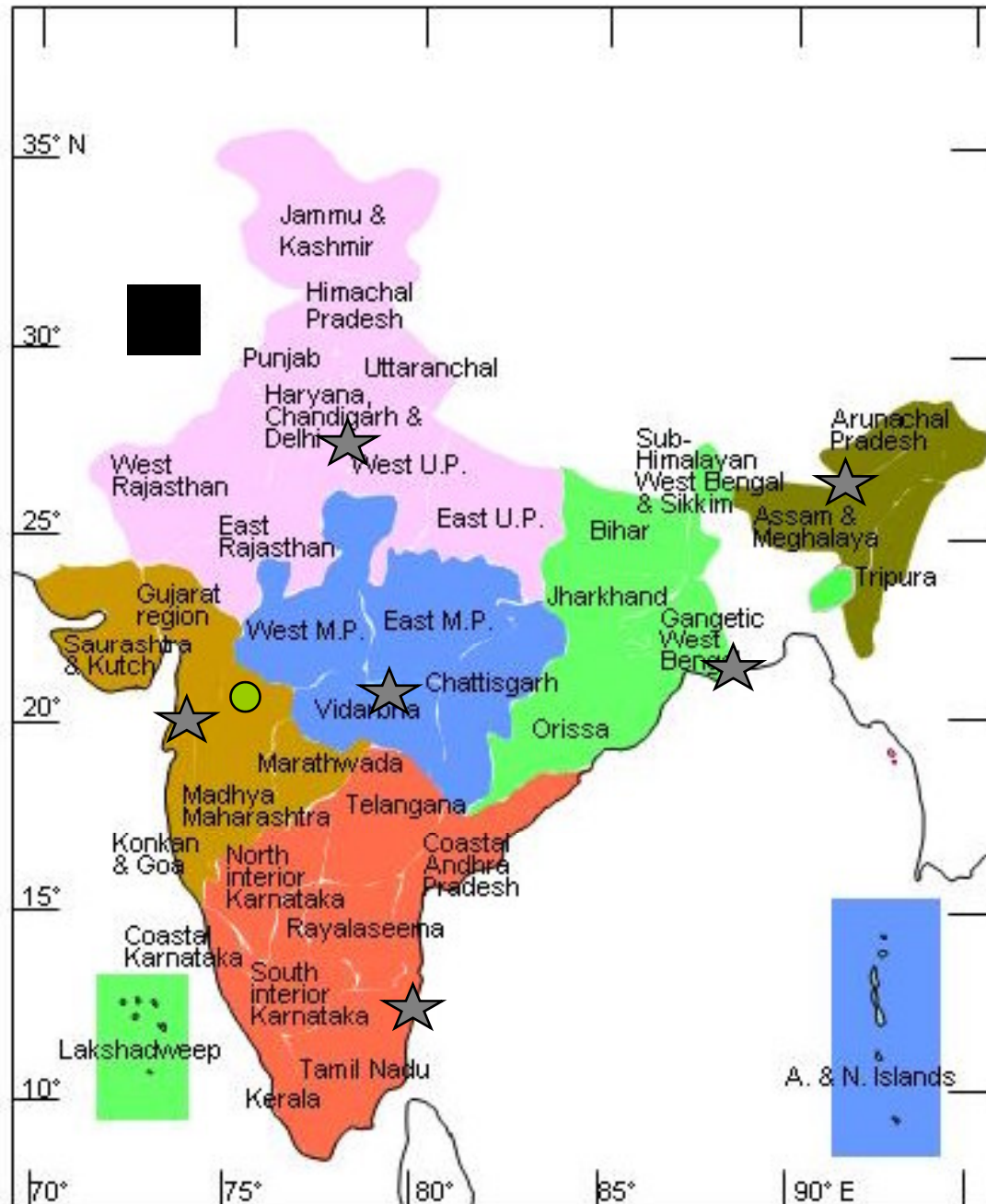
- Astronomical ephemeris
- Indian calendar & Rashtriya Panchang
- Eclipses & Astronomical phenomena









AVIATION METEOROLOGICAL FORECAST

- Route & Terminal Aerodrome Forecast
- Weather Hazards Warning
- Flight Planning Information

6 Meteorological Regions



Regions are identified for assigning jurisdiction of disaster warning responsibility and for administrative and logistic control

-  North Region
-  East Region
-  North East Region
-  Central Region
-  West Region
-  South Region

★ Regional Centres

Delhi, Kolkata,
Guwahati, Nagpur,
Mumbai, Chennai

● Pune Centre for Research
/ Training and surface
instrumentation

Surface Observations

- [ACAR](#) (2 datasets, 2 categories)
- [AIREP](#) (2 datasets, 2 categories)
- [AMDAR](#) (2 datasets, 2 categories)
- [BATHY](#) (2 datasets, 2 categories)
- [BUOY](#) (2 datasets, 2 categories)
- [BUOYOMM](#) (2 datasets, 2 categories)
- [ERS1URA](#) (2 datasets, 2 categories)
- [ERS1UWI](#) (2 datasets, 2 categories)
- [GEOWIND](#) (2 datasets, 2 categories)
- [JASON](#) (2 datasets, 2 categories)
- [METAR](#) (2 datasets, 2 categories)
- [METARBUFR](#) (2 datasets, 2 categories)
- [PILOT](#) (2 datasets, 2 categories)
- [PILOTMOBIL](#) (2 datasets, 2 categories)
- [PILOTSHIP](#) (2 datasets, 2 categories)
- [PSEUPILOT](#) (2 datasets, 2 categories)
- [PSEUTEMP](#) (2 datasets, 2 categories)
- [SATOB](#) (2 datasets, 2 categories)
- [SHIP](#) (2 datasets, 2 categories)
- [SIGMET](#) (2 datasets, 2 categories)
- [SPECI](#) (2 datasets, 2 categories)
- [SPECIBUFR](#) (2 datasets, 2 categories)

Models

- [Arpege \(French NWP\)](#) (1 product, 1 category)
- [Arpege for Tropical areas](#) (1 product, 1 category)
- [ECMWF Op Model / code table standard](#) (3 datasets, 3 categories)
- [GFS Analysis files from NCRMWF](#) (1 product, 1 category)
- [GFS Forecast files from USA](#) (1 product, 1 category)
- [GFS from IMD HQ](#) (1 product, 1 category)
- [GFS from NCRMWF](#) (1 category)
- [Japanese Operational Model](#) (1 product, 1 category)
- [Japanese Operational Model id 4](#) (1 product, 1 category)
- [UKMO Operational Model](#) (8 datasets, 8 categories)
- [WRF Operational at IMD HQ](#) (1 product, 1 category)
- [WRF Operational at IMD HQ](#) (1 category)

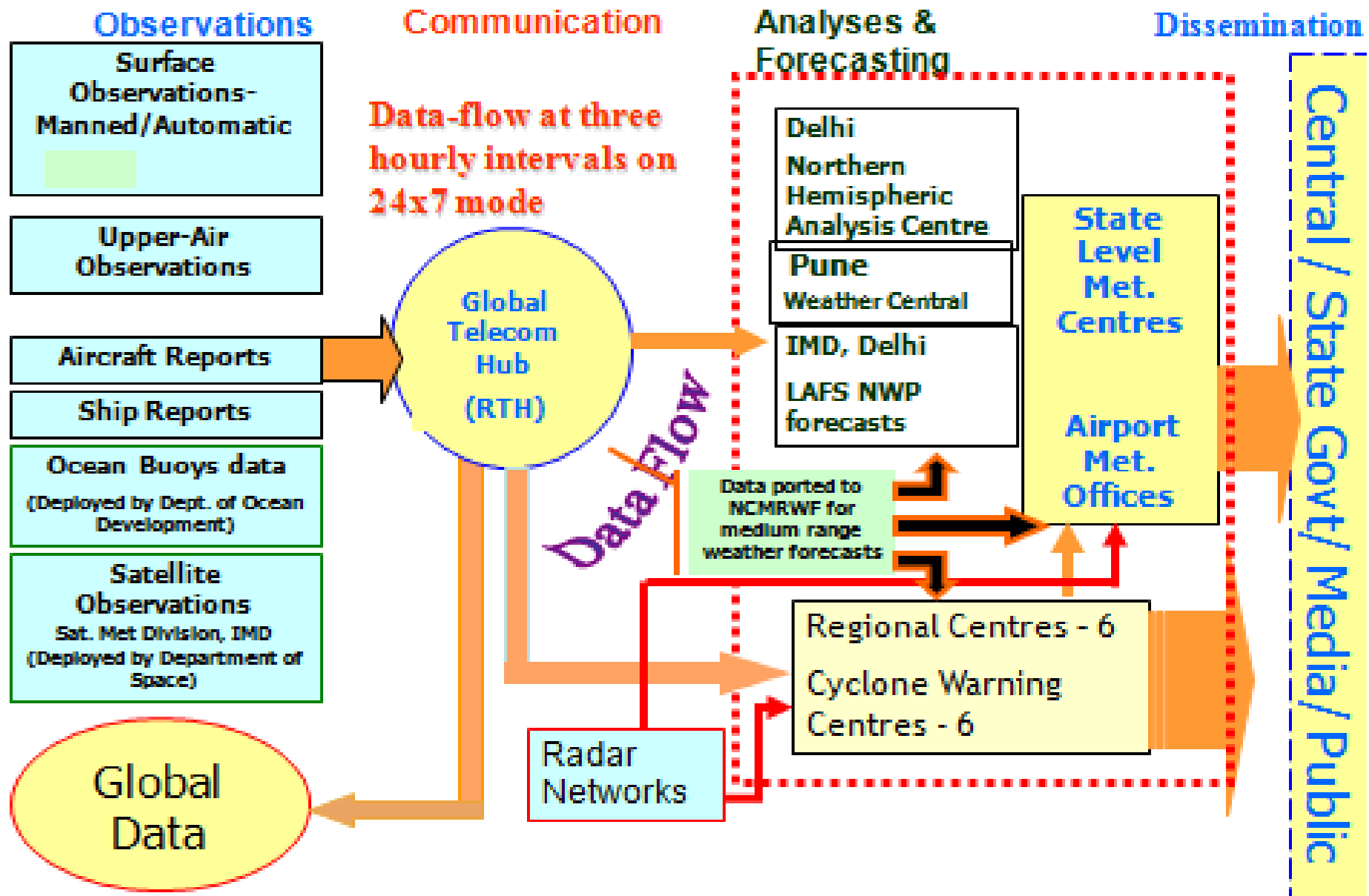
Imageries

- Doppler Weather Radar (*1 category*)
- INSAT3A Geostationnary Satellite (*2 categories*)
- Kalpana Geostationnary Satellite (*9 categories*)
- Meteosat Geostationnary Satellite (*1 category*)

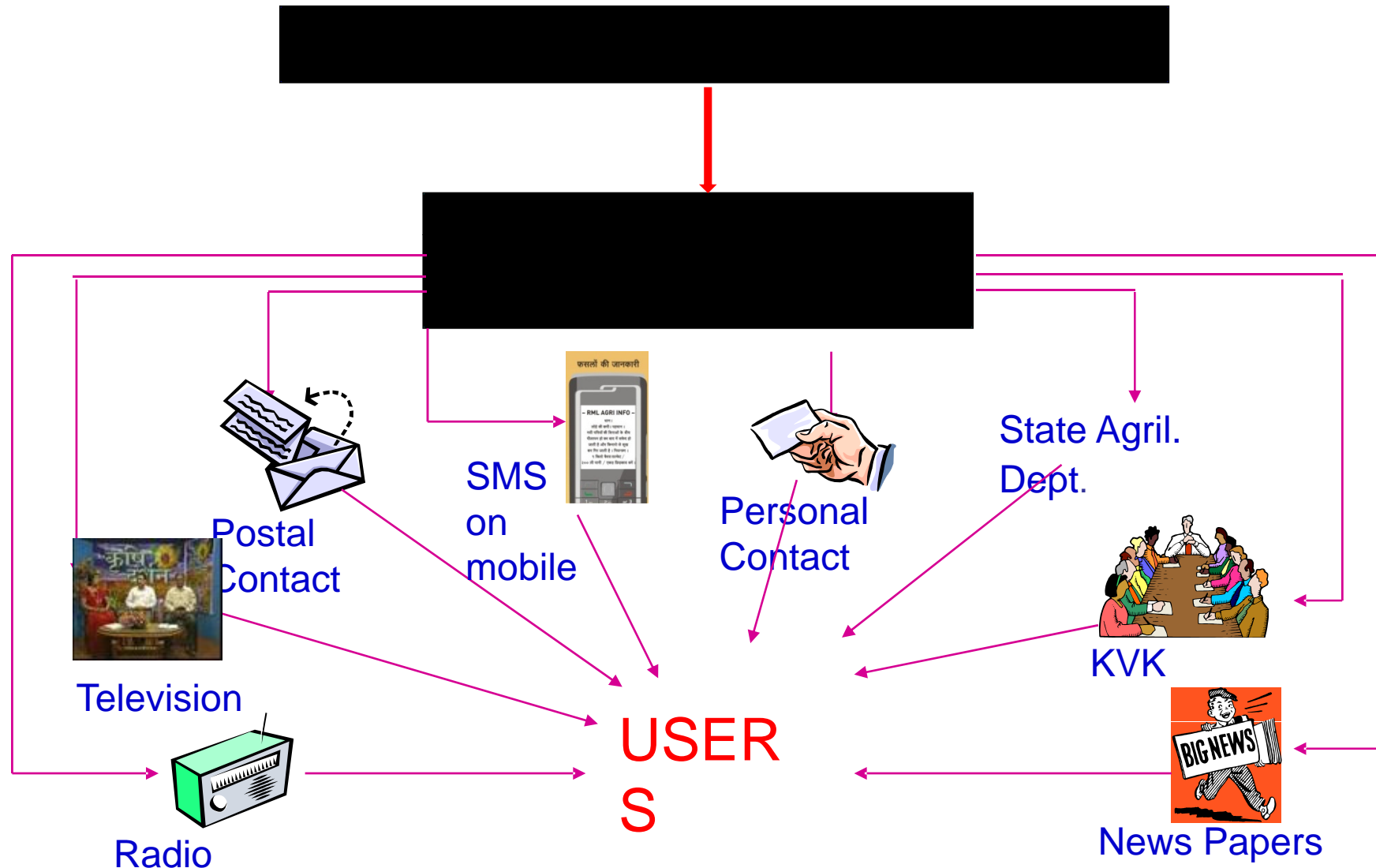
IMD's Forecast Spectrum

- Public Weather Local Forecast
- Sub-Divisional short range Forecast
- Tropical Cyclone Forecast & Warnings
- Forecasts related to all other Natural Disasters
- Long Range Forecast of Monsoon
- Climate Forecast services/ Regional Forum
- Sea State Forecast -Shipping & Fisheries
- Coastal Zone Forecasts
- Forecasts to Aviation
- Forecasts for Agriculture- Agro-advisory Services,
Crop-Yield forecast
- Flood & Drought Forecasts
- Customized Forecasts to different Sectors- Power,
Tourism, Defense, Adventure, Road/Railway transports, Public
Utility, VIP functions, Strategic operations, Space, etc

IMD's Operational Weather Forecasting System

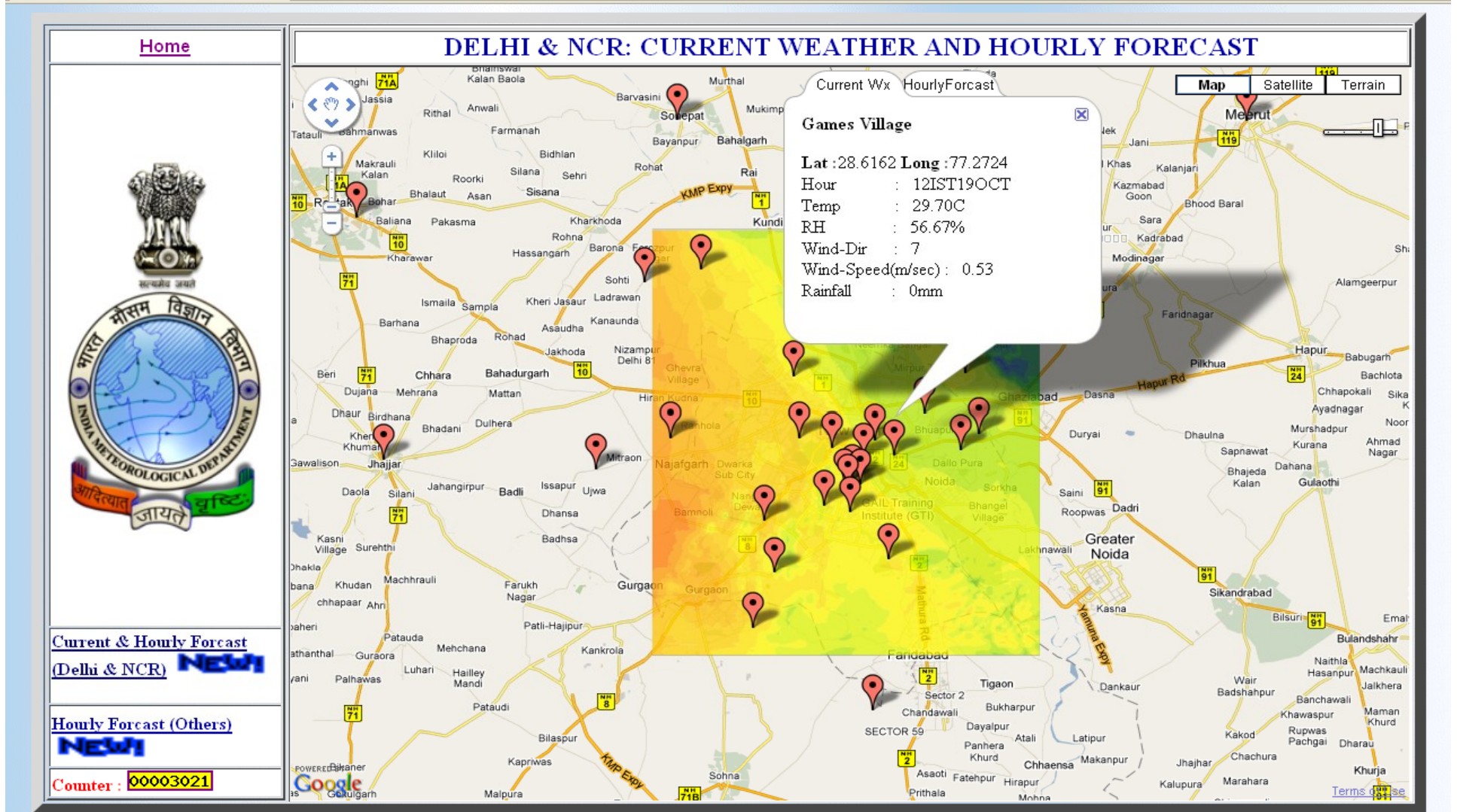


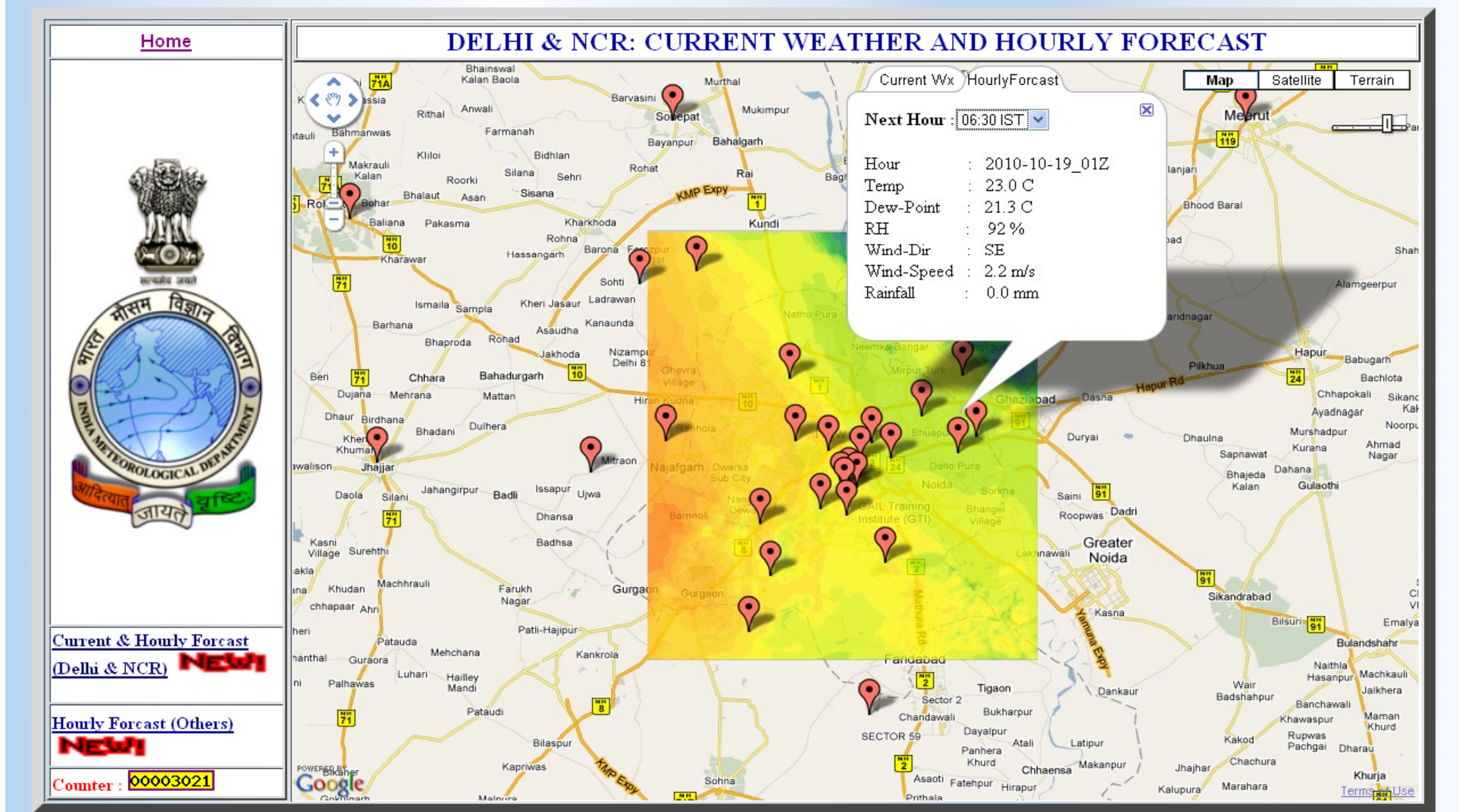
Operational communication linkage between IMD and end-users for effective communication.

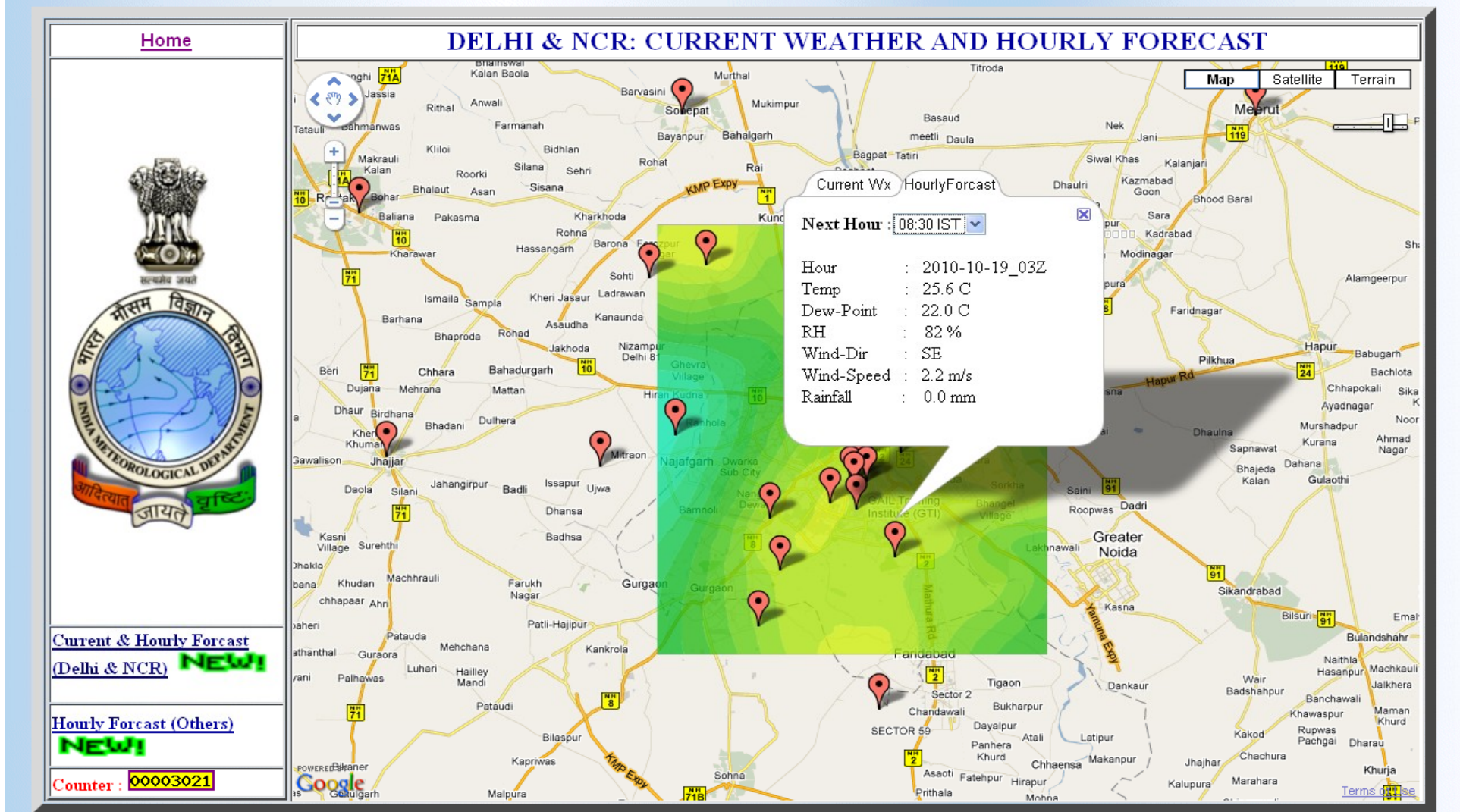


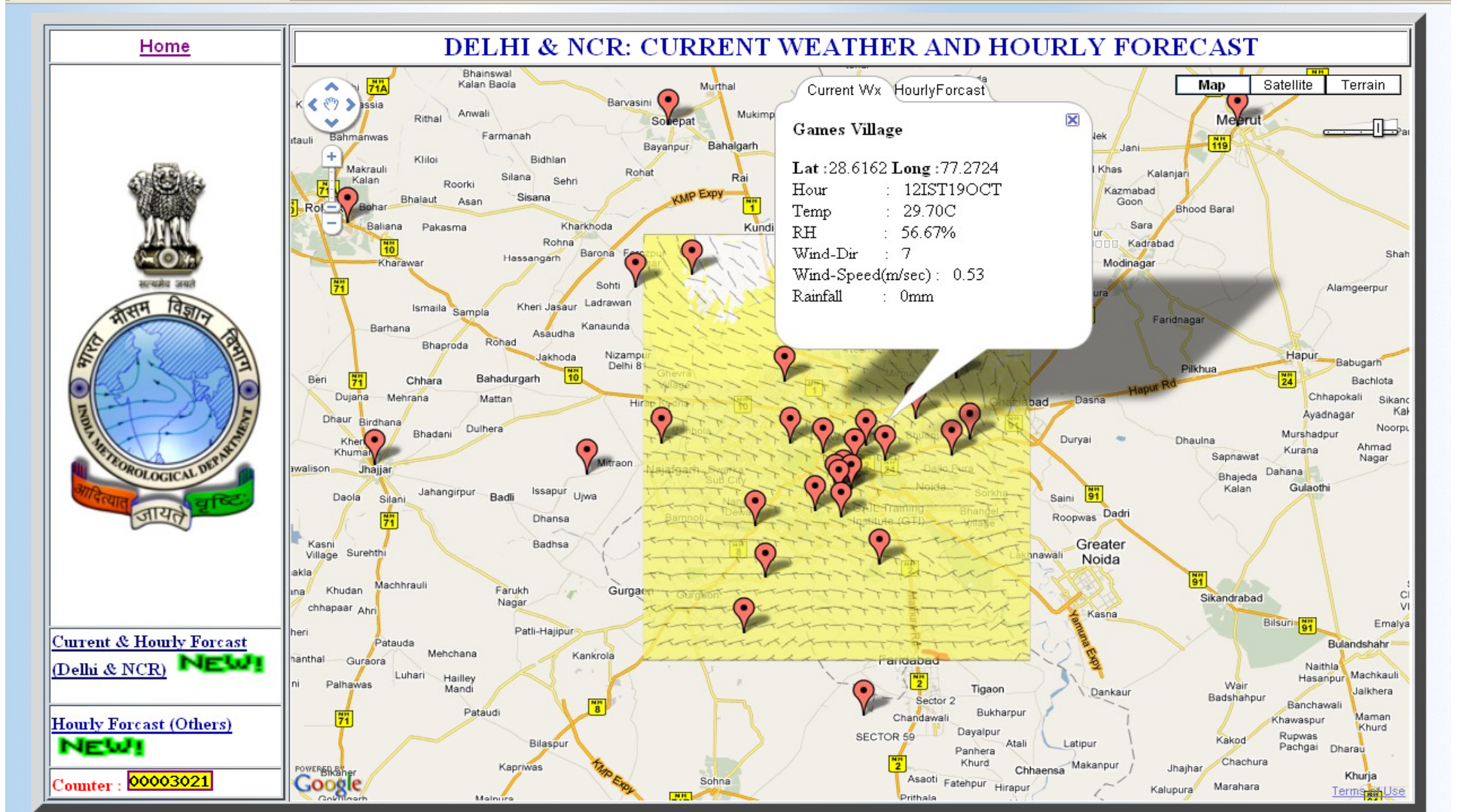


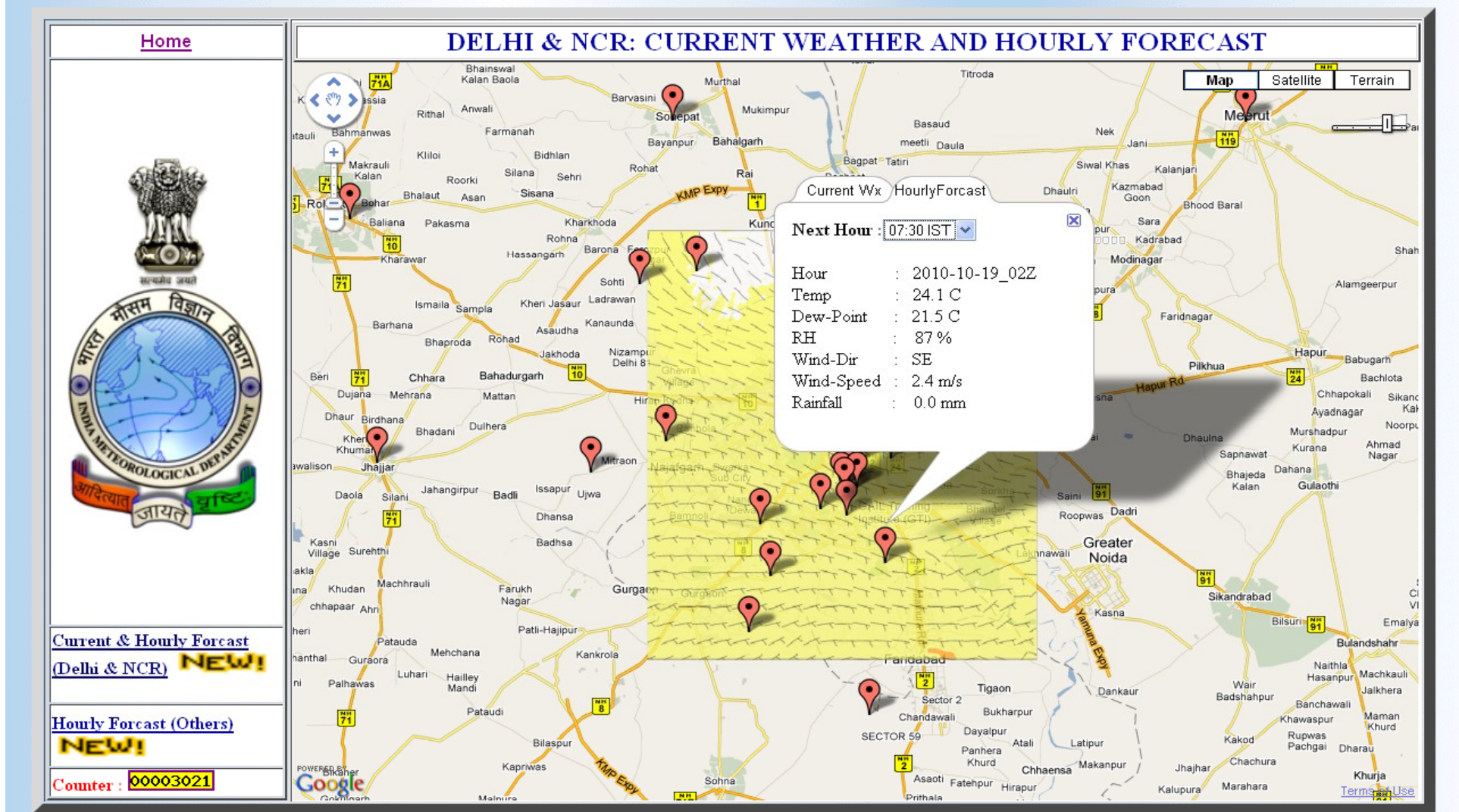
Geospatial Activities in IMD

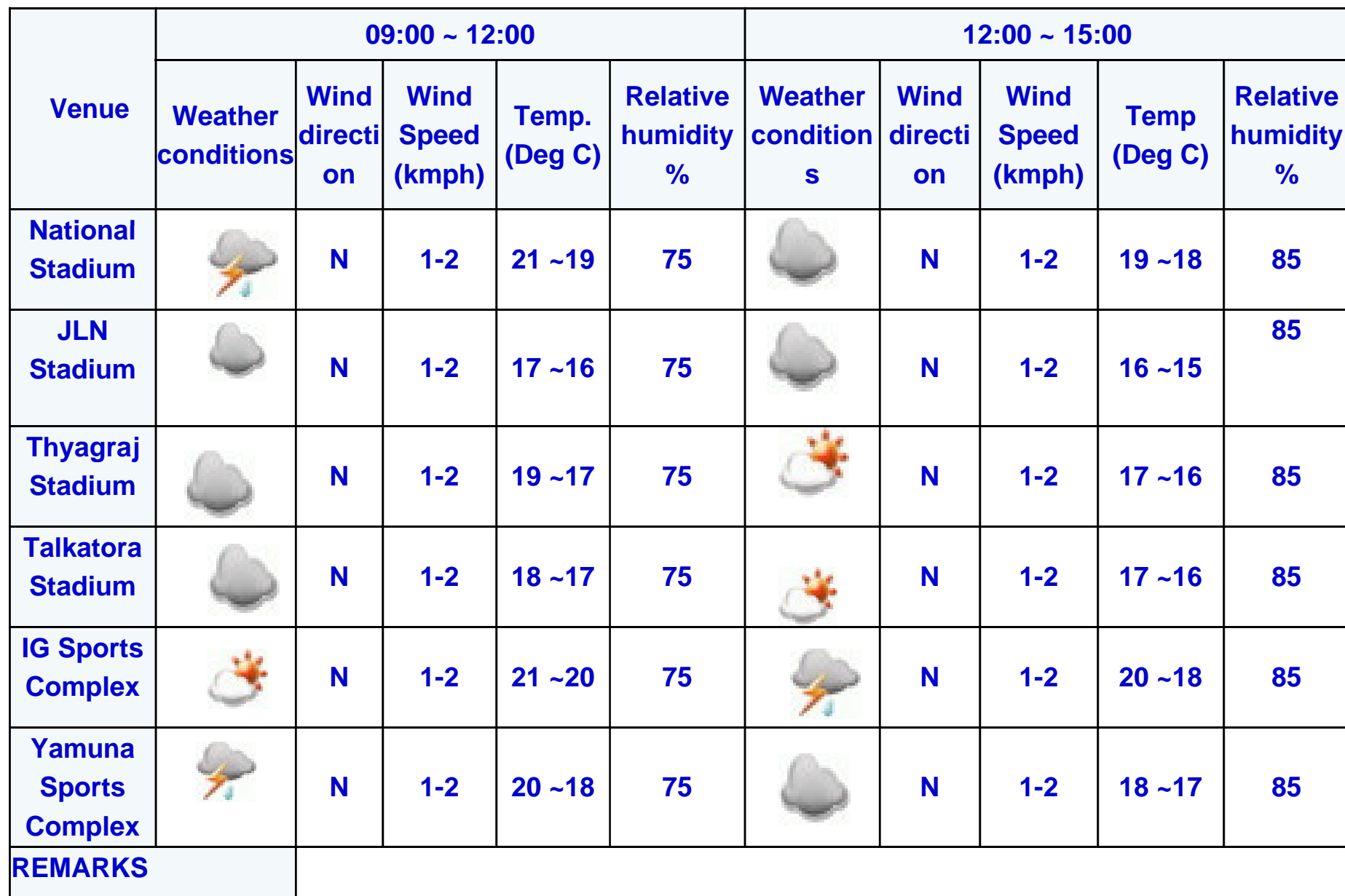














[Back to HOME](#)

National Mosaic

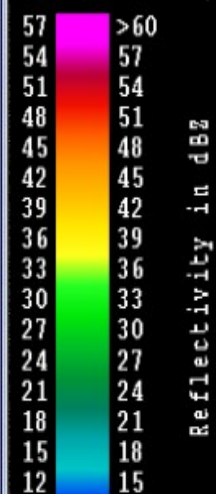
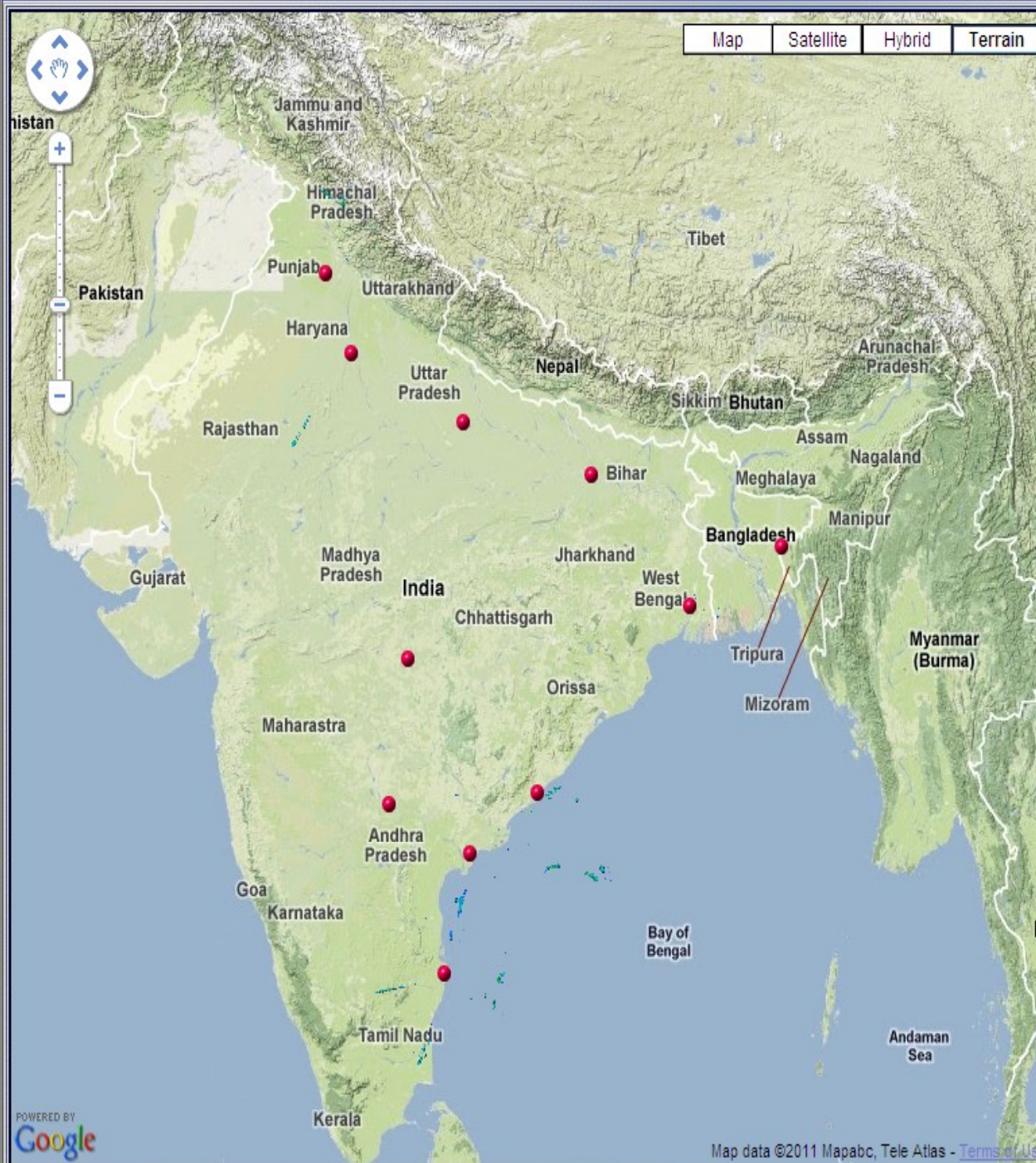
- ☒ PCAPPI
☐ PPIZ
☐ SRI

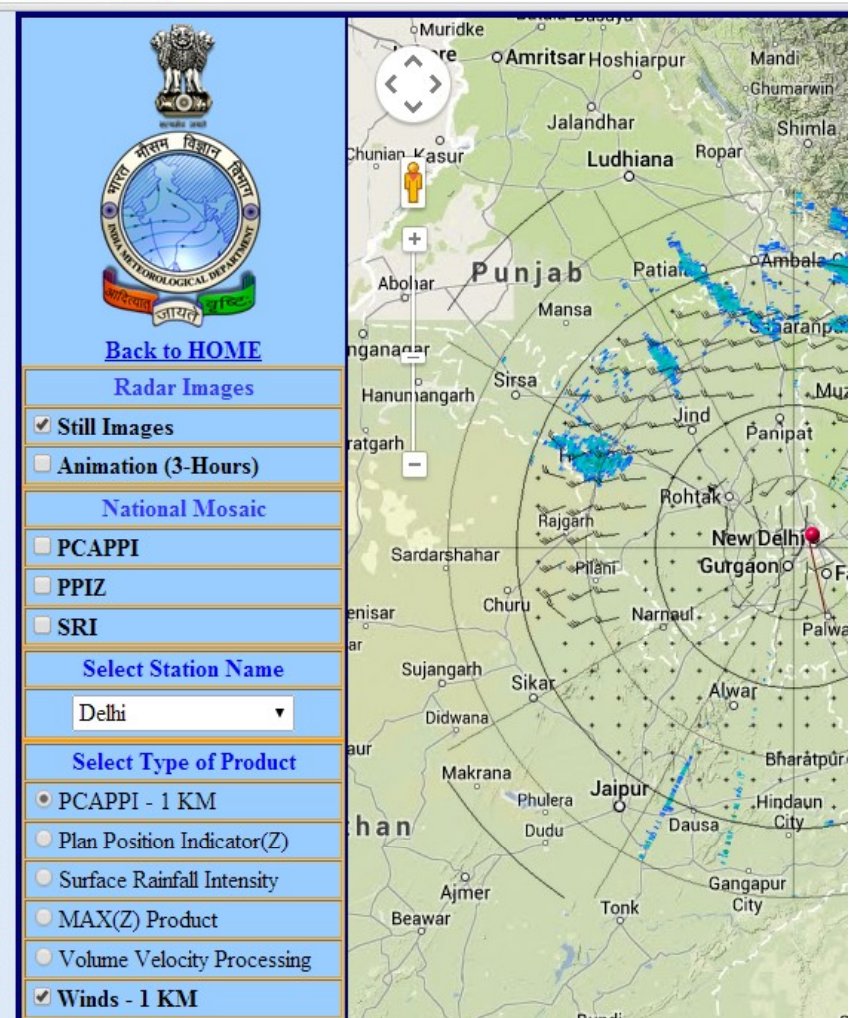
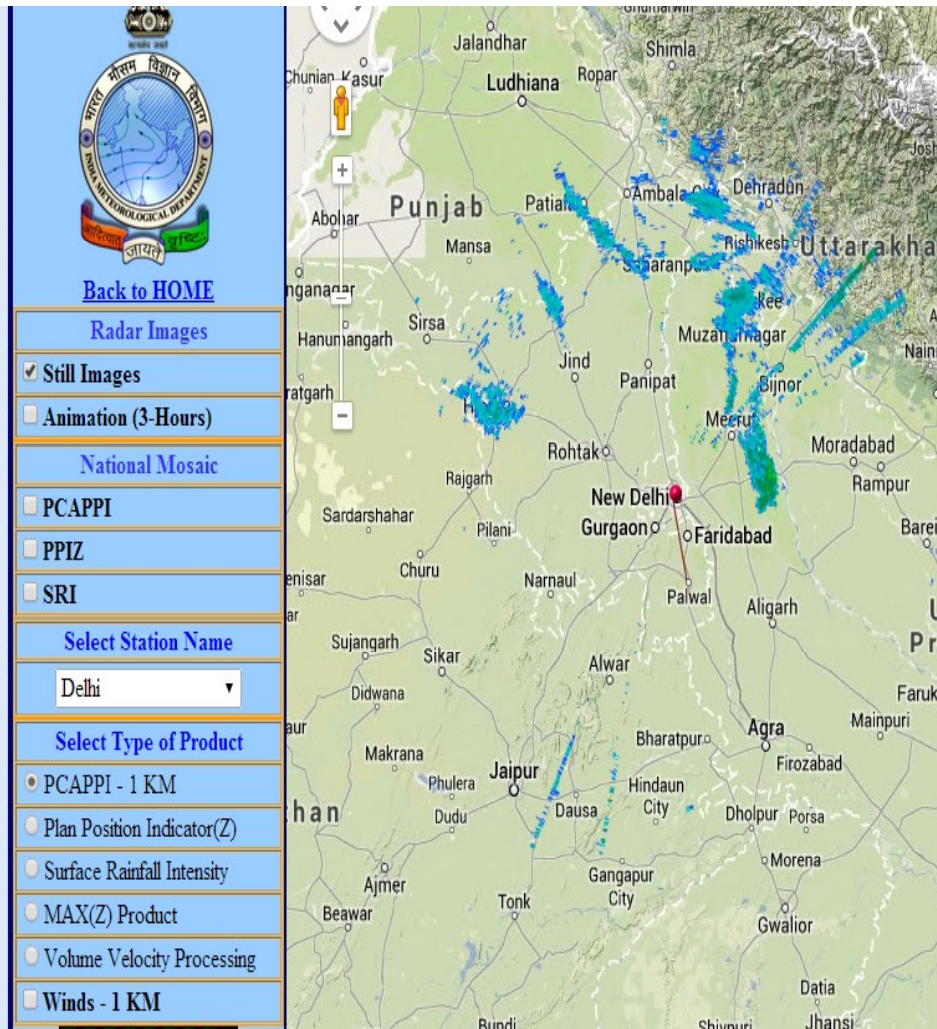
Select Station Name

Agartala

Select Type of Product

- ☐ PCAPPI - 1 KM
☐ Plan Position Indicator(Z)
☐ Surface Rainfall Intensity
☐ MAX(Z) Product
☐ Volume Velocity Processing
☐ Winds - 1 KM







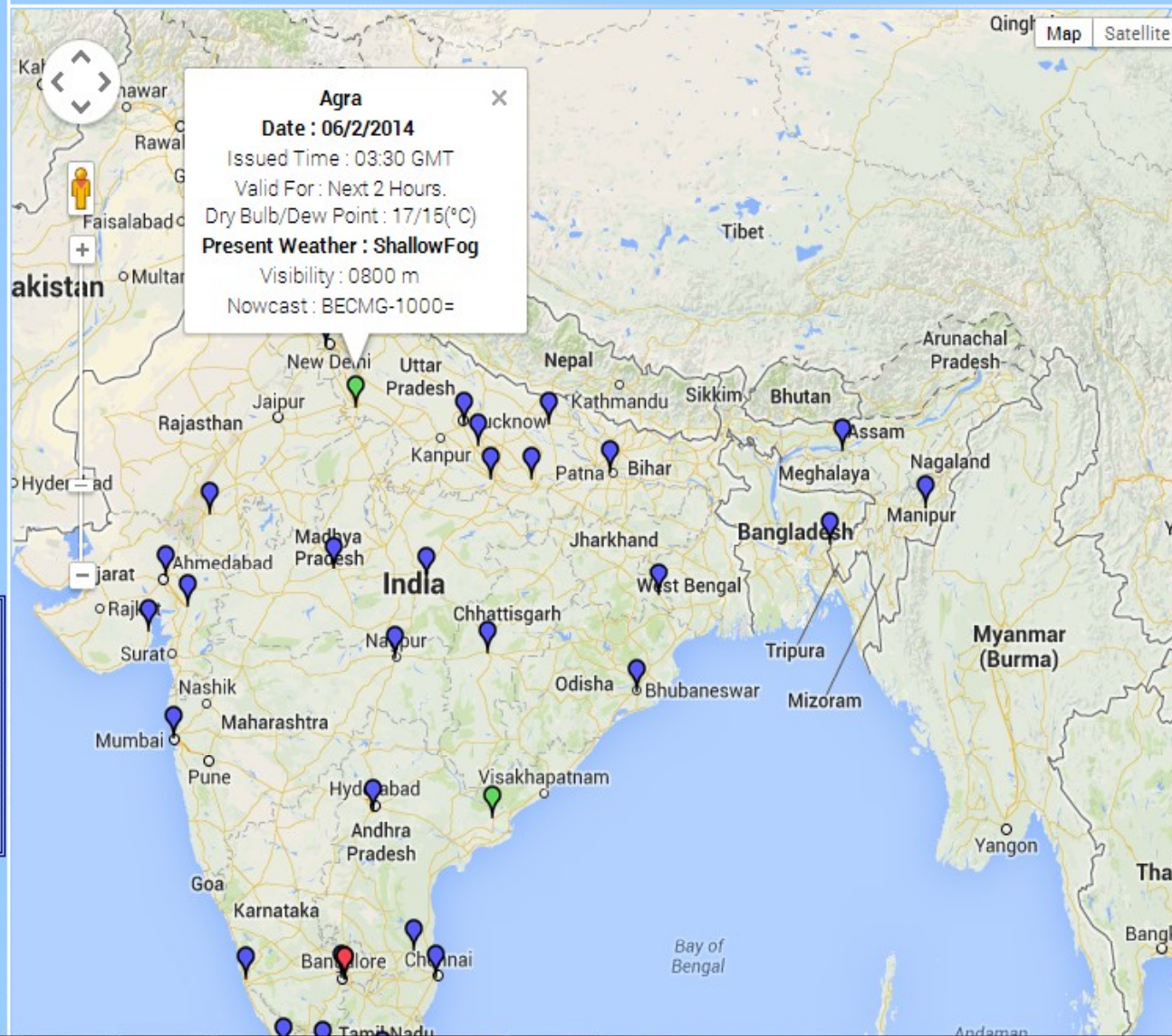
[Back to HOME](#)

Visibility Range for FOG

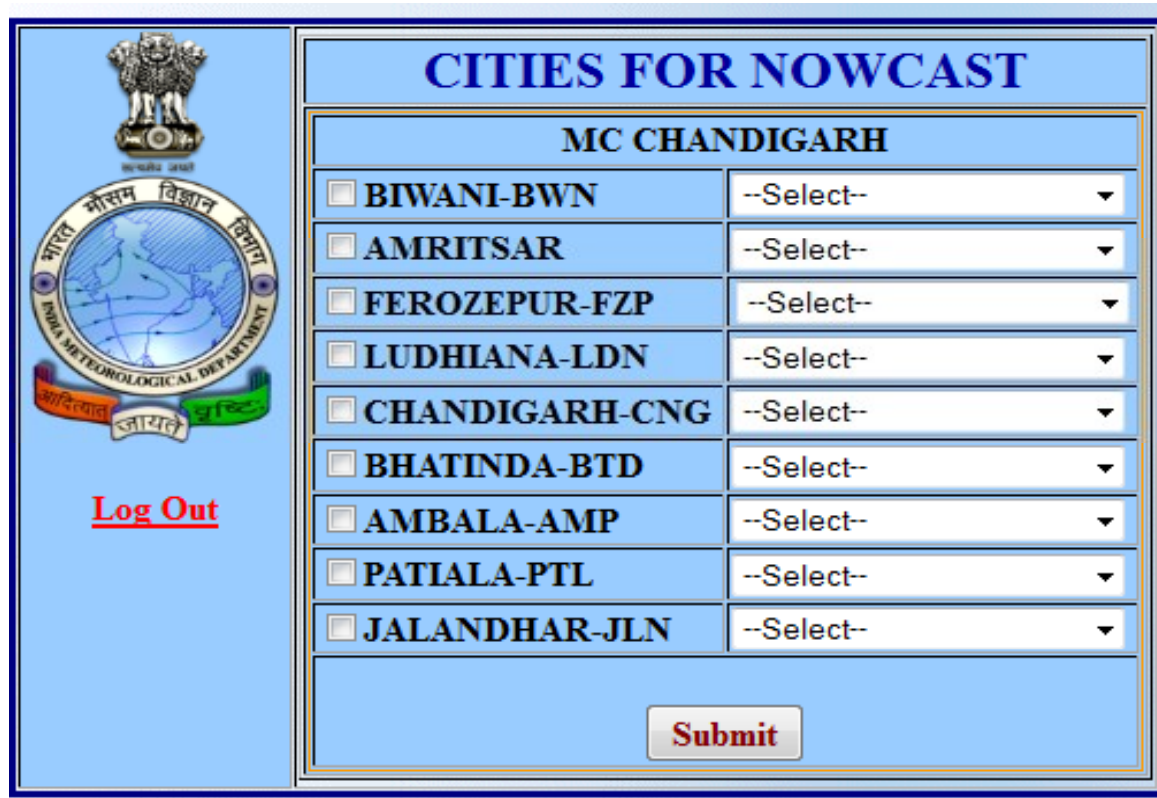
No Fog (>1000 m)
Shallow Fog (500-1000 m)
Moderate Fog (500-200 m)
Dense (200-50 m)
Very Dense (<50 m)

IST (Hrs) = GMT + 5:30

ALL INDIA NOWCAST



Step 2 :- Nowcast Report Generation



CITIES FOR NOWCAST

MC CHANDIGARH

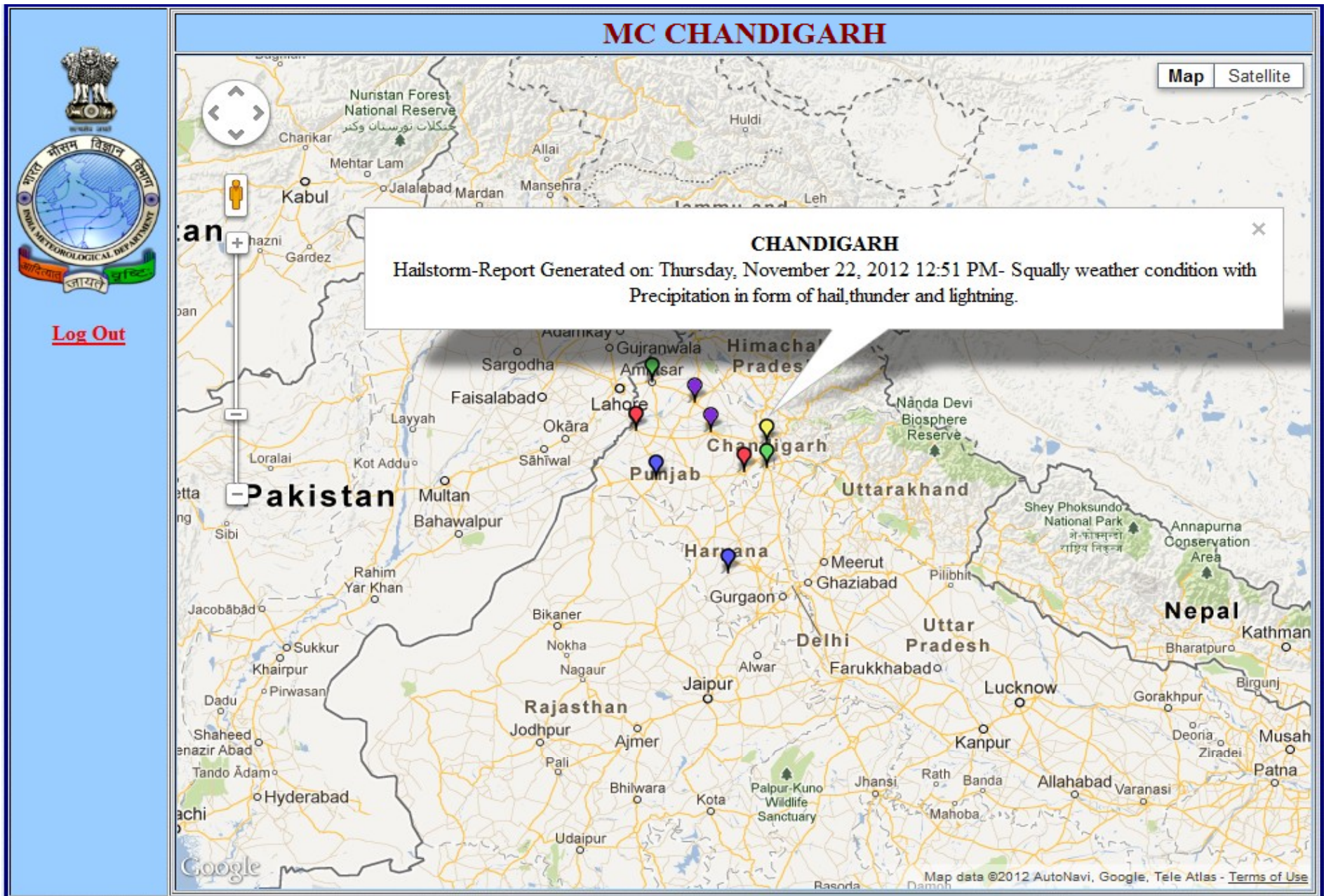
<input type="checkbox"/> BIWANI-BWN	--Select--
<input type="checkbox"/> AMRITSAR	--Select--
<input type="checkbox"/> FEROZEPUR-FZP	--Select--
<input type="checkbox"/> LUDHIANA-LDN	--Select--
<input type="checkbox"/> CHANDIGARH-CNG	--Select--
<input type="checkbox"/> BHATINDA-BTD	--Select--
<input type="checkbox"/> AMBALA-AMP	--Select--
<input type="checkbox"/> PATIALA-PTL	--Select--
<input type="checkbox"/> JALANDHAR-JLN	--Select--

[Log Out](#)

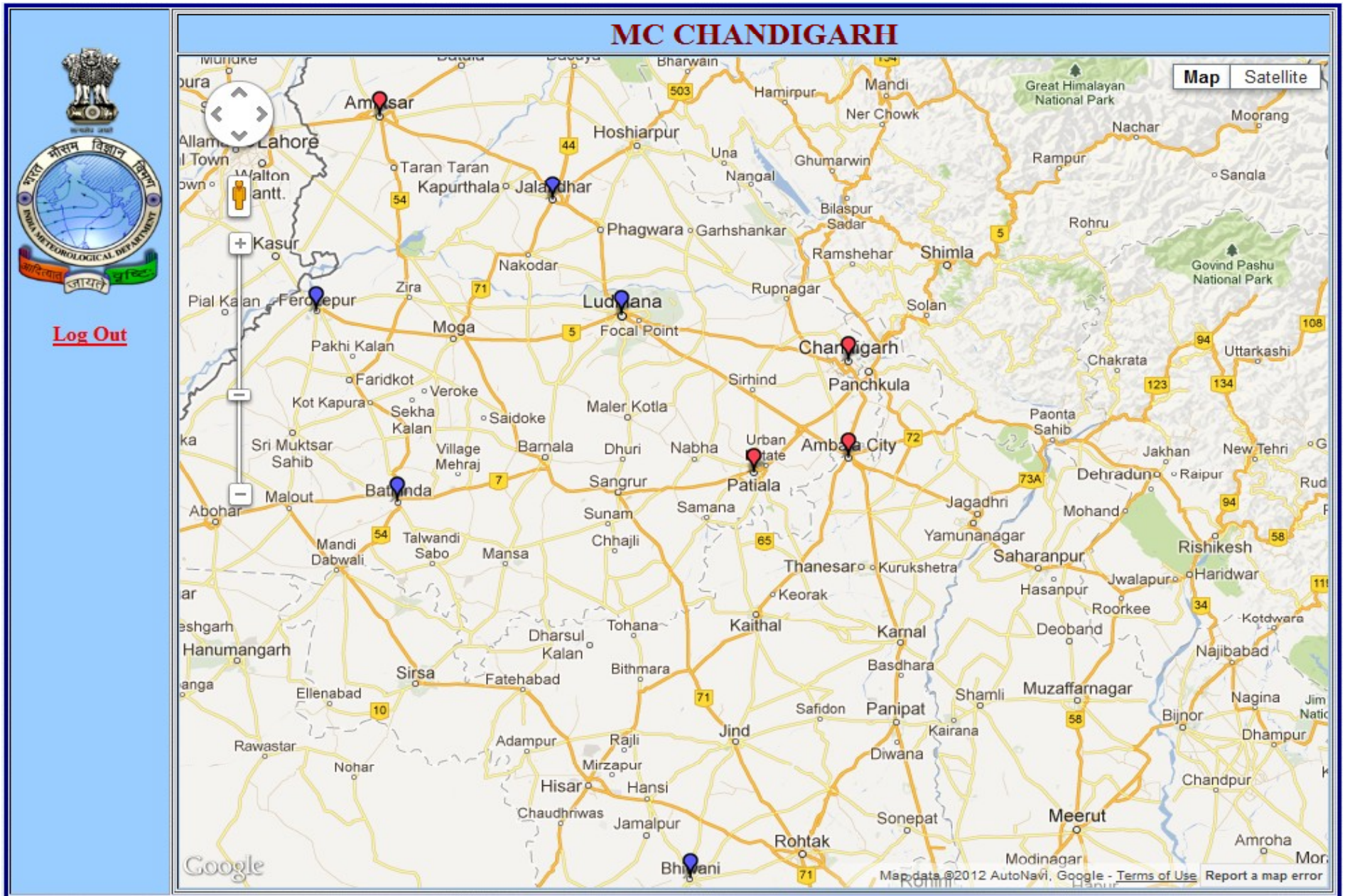
Submit

Note :- There are four warning in the dropdownlist. User can check any city and select warning with respect to that city and submit the record. This record will be saved in My SQL Database and one XML file will be generate with respect to this record. This XML file will be read with Google Map in Step 3.

Step 3 :- Nowcast Admin View



Step 3 :- Nowcast Admin View



IMD launches mobile application for v

Tuesday, January 15, 2013 - 20:06 IST | Agency: IANS

IMD launched a mobile application 'Indian-Weather' for android-based smart phones and tabs to provide latest weather information to users.

The India Meteorological Department (IMD) on Tuesday launched a mobile application 'Indian-Weather' for android-based smart phones and tabs to provide latest weather information to users.

The service was launched by Science and Technology Minister S Jaipal Reddy on IMD's 138th Foundation Day.

The application can be freely downloaded through google play available on the home screen of android-based smart phones and tabs.

Reddy asked IMD to use information technology tools and social networks extensively for smart information dissemination.

bleclick.net... for more precise prediction, particularly for severe



Wind Speed : 010 kmph

BHIWANI



Min : 21°C
Max : 37°C

Clear

Rainfall : 0 mm

Cloud Cover : 0 octa

Humidity : 37.5



10, Thu

11, Fri

12, Sat

13, Sun

14, Mon

January, 2013

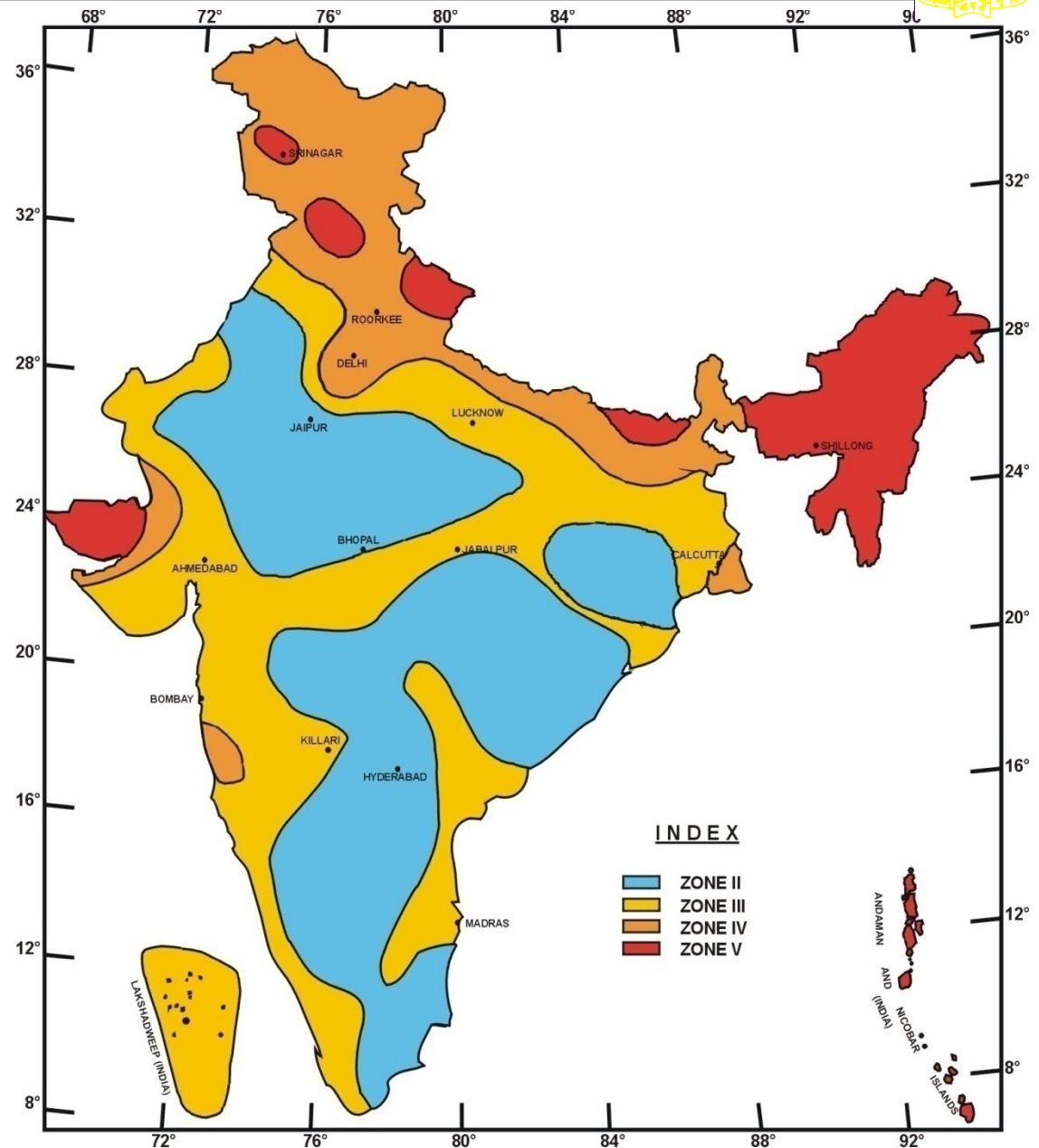


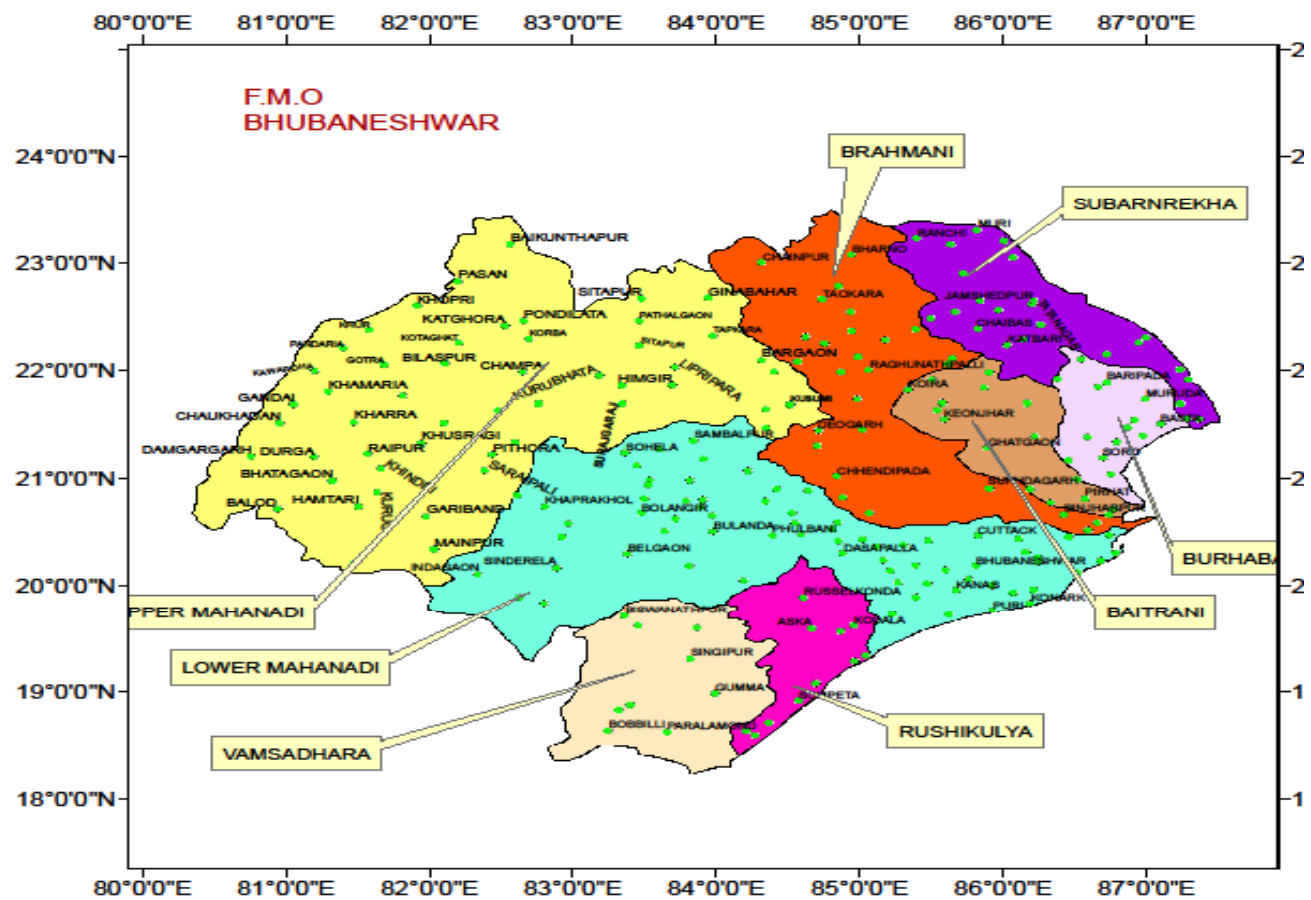
Seismic zones based

on

- seismotectonics
- incidences of seismicity
- intensity experienced

Zone	Area(%)
V	12
IV	18
III	27
II	43

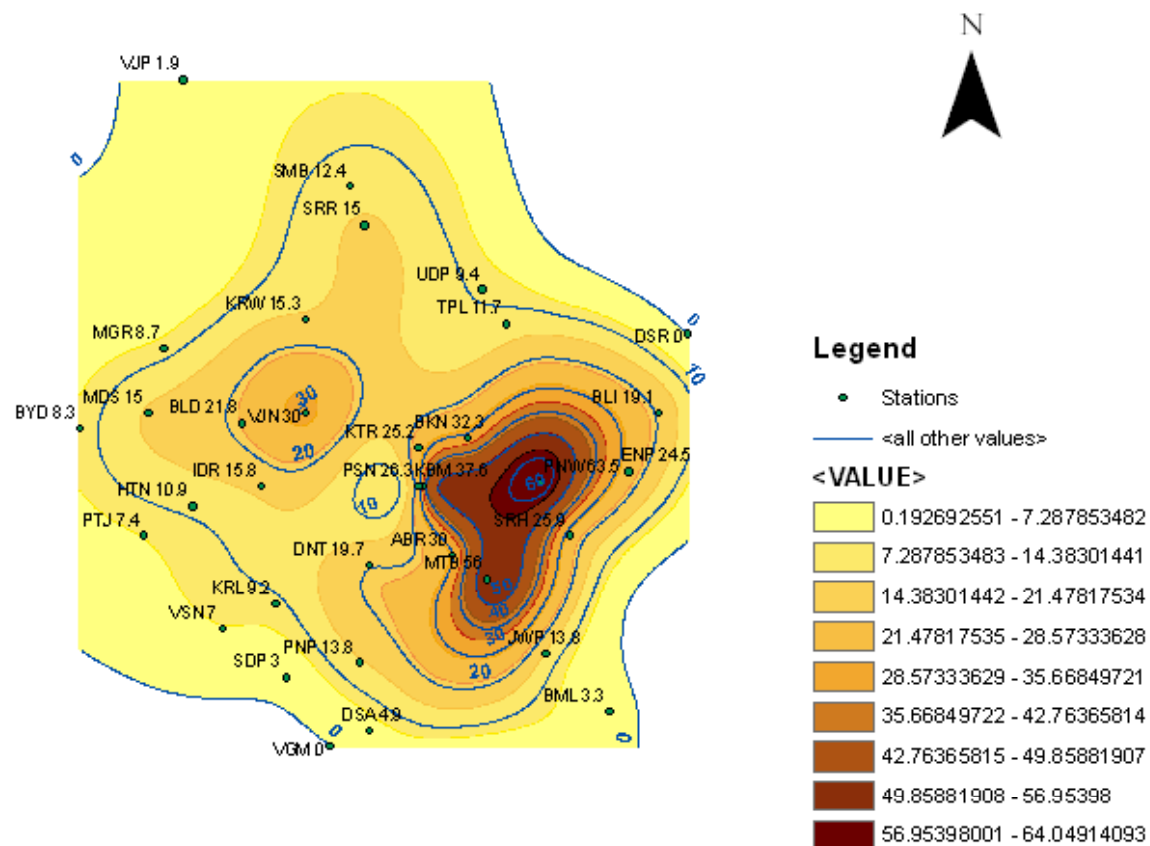






INDIA METEOROLOGICAL DEPARTMENT Rainstorm of September 1, 1973 (Rainfall in Cm.)

Isohytal Analyses



Dissemination of Agro advisory bulletin through mKRISHI platform



Vision ahead

Create a seamless system of generating and issuing forecasts at time scales of

- Nowcasting
- Very shortrange and Shortrange forecasting
- Medium range forecasting
- Extended range forecasting
- Seasonal scale

Complete integration with sub offices, Disaster management authorities, Media etc

An interactive system for assessment of needs and customization

A system for incorporating modern research and technology

THANK YOU



Need to convert to Metadata Standards

- It is a problem for customers outside the meteorological community.
- Rapid growth of new meteorological products which consequently results in the growth of metadata.
- Uniform and standardized metadata descriptions will help to deal with this amount of metadata for the purpose of exchange, discovery, and selection.

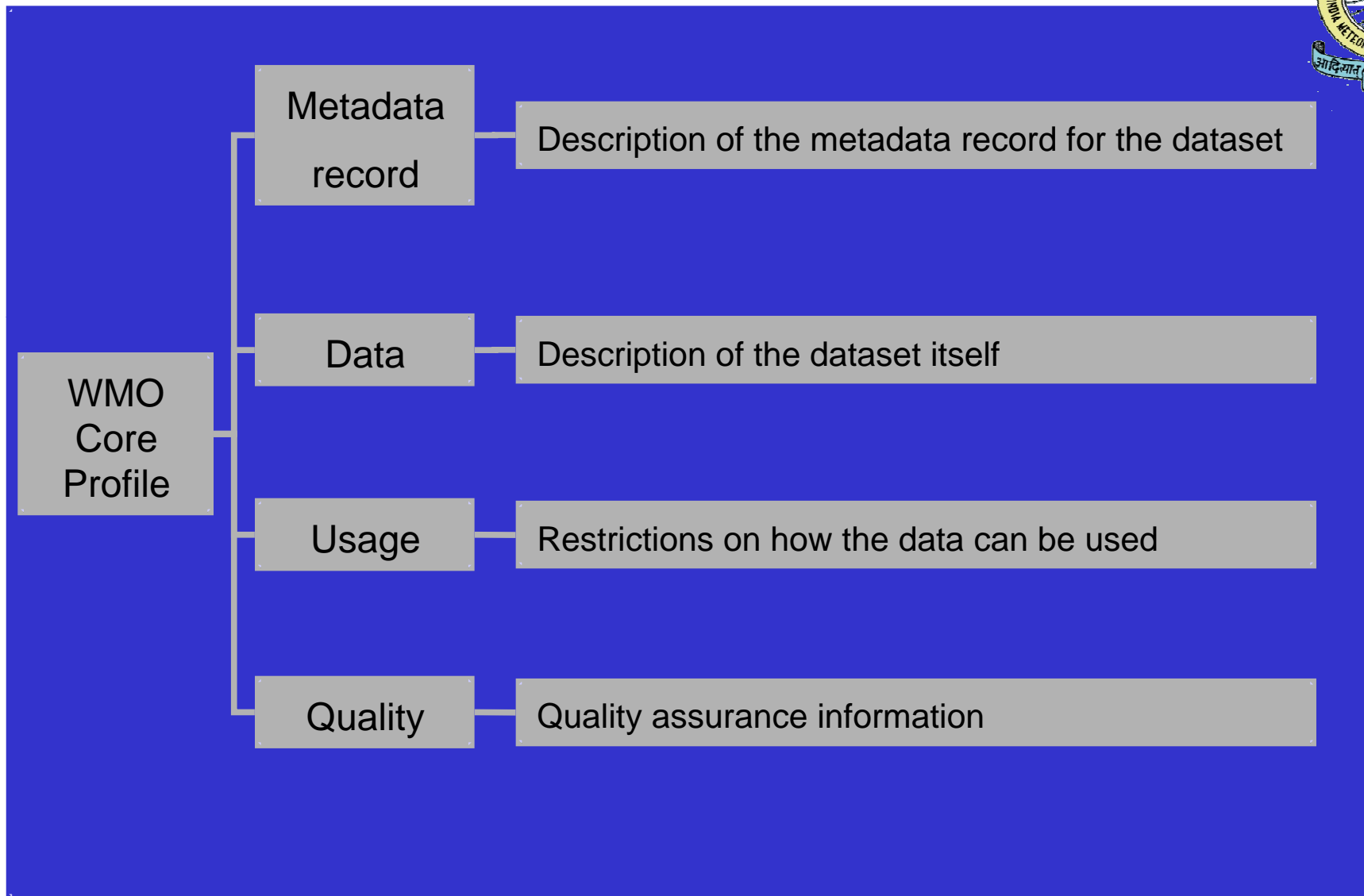
Present State of Metadata



WMO's need for fast exchange of information forced it to develop its own standards. The WMO Information system (WIS) is the single coordinated global infrastructure responsible for the telecommunications and data management functions.

WMO Metadata Standard Version 0.2 is as per ISO 19115 standards .

Key Components of the WMO profile of the ISO 19115 Metadata Standards



SIMDAT



A web interface developed to provide fast discovery and Data access to numerous datasets hosted by CIPS .Main functions of SIMDAT are

- Search with keywords and criterion over the datasets.**
- Display Metadata.**
- Submit a request.**
- Download the result of the request.**

Access is provided to the user through the internet (using Mozilla firefox)

Enter the address of the simsdat portal (<http://wis-portal.imd.gov.in>) ,



1.4 User interface


1.4.1 Main screen

User identification | Simdat-VGISC

Menu bar | You are logged in as user **IMDUser**. | Logout Home Search Directory Requests | Keyword search

Navigation bar | Metadata > Metadata > | Retrieve Data | Show XML

Sub-menu panel | **Please note:**
The access to this dataset is restricted.
Your current credentials allow you to access it.

Working area | **Title:** IMD GPS Global 1 degree of 20090207. Run 00H
Abstract: Run 20090207_00H of the Global Forecast System on grid Global 1 degree (3795 lines received in CPS at 10h39)
Period: 2009-02-07
Bounding Box: 30°N-0°W 90°E 30°E

Policies: [simdat_demo_public](#)
Categories: India Meteorological Department (IMD) > Model > Global Forecast System > Global 1 degree >
Keywords: Model CPS India Meteorological Department (IMD) Global Forecast System GFS Global 1 degree GLOS10
Version: 0.2
Date stamp: 2009-07-21 16h39



1.4.2 Access to functions

Select a function in the menu bar:

[Login](#) [Home](#) [Search](#) [Directory](#) [Requests](#)

or

Select a function in the sub-menu panel:

Metadata
Retrieve Data | 
Show XML | 
Please note:
The access to this dataset is restricted.
Your current credentials allow you to access it.



CIPS V2.1 Data Access guide

SIMDAT portal
Search using keywords and criteria



Navigation into the result list	Home > Search Results >
Reminder of the search	Search results for from 2009-05-05 to 2009-05-10 1-10 of 16 First Previous Next Last (0 seconds)
One dataset	IMD GFS Global 1 degree of 2009/05/06, Run 06H <ul style="list-style-type: none">• India Meteorological Departement (IMD) > Model > Global Forecast System > Global 1 degree > <p>Access: simdat_demo.public</p> <p>Run 2009/05/06, 06H of the Global Forecast System on grid Global 1 degree (1989 lines received in CIPS at 16h46)</p> IMD WRF China 0.2 degree of 2009/05/07, Run 00H <ul style="list-style-type: none">• India Meteorological Departement (IMD) > Model > Weather Research and Forecasting > China 0.2 degree > <p>Access: simdat_demo.public</p> <p>Run 2009/05/07, 00H of the Weather Research and Forecasting on grid China 0.2 degree (17793 lines received in CIPS at 07h50)</p> IMD GFS Global 1 degree of 2009/05/07, Run 00H <ul style="list-style-type: none">• India Meteorological Departement (IMD) > Model > Global Forecast System > Global 1 degree > <p>Access: simdat_demo.public</p> <p>Run 2009/05/07, 00H of the Global Forecast System on grid Global 1 degree (3765 lines received in CIPS at 16h46)</p>
Link to the metadata	
Link to the directory	



The WMO Profile is based on ISO 19100 standards. By adopting standards such as ISO 19100, through the WMO Profile and XML , the data will be usable by the standard applications of the future.

Metadata Used in IMD

- Imagery (4 categories)
- Model (12 categories)
- Observation (34 categories)

XML for Satellite imagery

XML Metadata Record >

```
<metadata>
  <v:vgisc>
    <v:access>
      <v:policies>
        <v:policy>simdat_demo.public</v:policy>
      </v:policies>
    </v:access>
    <v:location>gov.imd.cips</v:location>
    <v:id>gov.imd.cips.img.KALPANA.INDIAXL-74E.CC_CIPS.latest</v:id>
    <v:inherit>gov.imd.cips.img.KALPANA.INDIAXL-74E.CC_CIPS</v:inherit>
    <v:request>
      <database>imgdb</database>
    </v:request>
    <v:variables>
      <v:product title="Product" multiple="0" type="enum" >
        <v:value title="KALPANA (Kalpana Geostationary Satellite)" >KALPANA</v:value>
      </v:product>
      <v:domain title="Domain" multiple="0" type="enum" >
        <v:value title="INDIAXL-74E (Large India Area centered on 74E)" >INDIAXL-74E</v:value>
      </v:domain>
      <v:parameter title="Parameter" multiple="0" type="enum" >
        <v:value title="CC_CIPS (Multispectral channel on CIPS)" >CC_CIPS</v:value>
      </v:parameter>
      <v:timestamp title="Timestamp" multiple="0" type="enum" >
        <v:value title="00H00" >20101216000000</v:value>
        <v:value title="00H30" >20101216003000</v:value>
        <v:value title="01H00" >20101216010000</v:value>
        <v:value title="01H30" >20101216013000</v:value>
        <v:value title="02H00" >20101216020000</v:value>
        <v:value title="02H30" >20101216023000</v:value>
        <v:value title="04H00" >20101216040000</v:value>
      </v:timestamp>
      <v:format title="Format" multiple="0" type="enum" >
        <v:value title="tiff" >tiff</v:value>
        <v:value title="png" >png</v:value>
      </v:format>
    </v:variables>
  </v:vgisc>
```

Contd.

```
<metadataContact>
  <organisationName>India Meteorological Department (IMD)</organisationName>
  <individualName>xxxxxxxxxx</individualName>
  <contactInfo>
    <phone>
      <voice>+33 5 6143 2940</voice>
      <facsimile>+33 5 6143 2941</facsimile>
    </phone>
    <address>
      <deliveryPoint>Mausam Bhawan, Lodhi Road</deliveryPoint>
      <city>New Delhi</city>
      <postalCode>110003</postalCode>
      <country>India</country>
      <electronicMailAddress>xxxxxx.imd@gmail.com</electronicMailAddress>
    </address>
  </contactInfo>
</metadataContact>
<identificationInfo>
  <citation>
    <resourceTitle>Latest CC_CIPS on KALPANA over INDIAXL-74E (2010/12/16)</resourceTitle>
  </citation>
  <dataExtent>
    <temporalElement>
      <beginDateTime>2010-12-16</beginDateTime>
      <endDateTime>2010-12-16</endDateTime>
    </temporalElement>
  </dataExtent>
  <abstract>Imagery CC_CIPS (Multispectral channel on CIPS) on KALPANA (Kalpana Geostationnary Satellite) over INDIAXL-74E
  (Large India Area centered on 74E) for the 2010/12/16</abstract>
  <topicCategory> India Meteorological Department (IMD) > Imagery > Kalpana Geostationnary Satellite > Large India Area centered on 74E
</topicCategory>
  <descriptiveKeywords>latest</descriptiveKeywords>
</identificationInfo>
<metadataLanguage>en</metadataLanguage>
<metadataCharacterSet>utf8</metadataCharacterSet>
<metadataDateStamp>2010-12-16 09h31</metadataDateStamp>
<metadataStandardName>WMO19115_metadata_v0_2</metadataStandardName>
<metadataStandardVersion>0.2</metadataStandardVersion>
</metadata>
```


XML for Doppler Weather Radar imagery

```
<metadata>
  <v:vgisc>
    <v:access>
      <v:policies>
        <v:policy>simdat_demo.public</v:policy>
      </v:policies>
    </v:access>
    <v:location>gov.imd.cips</v:location>
    <v:id>gov.imd.cips.img.VECC.VECC_AREA.RADAR_IO.latest</v:id>
    <v:inherit>gov.imd.cips.img.VECC.VECC_AREA.RADAR_IO</v:inherit>
    <v:request>
      <database>imgdb</database>
    </v:request>
    <v:variables>
      <v:product title="Product" multiple="0" type="enum" >
        <v:value title="VECC (Doppler Weather Radar)" >VECC</v:value>
      </v:product>
      <v:domain title="Domain" multiple="0" type="enum" >
        <v:value title="VECC_AREA (Indian Local Radar)" >VECC_AREA</v:value>
      </v:domain>
      <v:parameter title="Parameter" multiple="0" type="enum" >
        <v:value title="RADAR_IO (RADAR_IO)" >RADAR_IO</v:value>
      </v:parameter>
      <v:timestamp title="Timestamp" multiple="0" type="enum" >
        <v:value title="07H20" >20101119072000</v:value>
      </v:timestamp>
      <v:format title="Format" multiple="0" type="enum" >
        <v:value title="tiff" >tiff</v:value>
        <v:value title="png" >png</v:value>
      </v:format>
    </v:variables>
  </v:vgisc>
```

```
<metadataContact>
  <organisationName>India Meteorological Department (IMD)</organisationName>
  <individualName>Claude Berthou</individualName>
  <contactInfo>
    <phone>
      <voice>+33 5 6143 2940</voice>
      <facsimile>+33 5 6143 2941</facsimile>
    </phone>
    <address>
      <deliveryPoint>Mausam Bhawan, Lodhi Road</deliveryPoint>
      <city>New Delhi</city>
      <postalCode>110003</postalCode>
      <country>India</country>
      <electronicMailAddress>claude.berthou@mfi.fr</electronicMailAddress>
    </address>
  </contactInfo>
</metadataContact>
<identificationInfo>
  <citation>
    <resourceTitle>Latest RADAR_IO on VECC over VECC_AREA (2010/11/19)</resourceTitle>
  </citation>
  <dataExtent>
    <temporalElement>
      <beginDateTime>2010-11-19</beginDateTime>
      <endDateTime>2010-11-19</endDateTime>
    </temporalElement>
  </dataExtent>
  <abstract>Imagery RADAR_IO (RADAR_IO) on VECC (Doppler Weather Radar) over VECC_AREA (Indian Local Radar) for the 2010/11/19</abstract>
  <topicCategory> India Meteorological Department (IMD) > Imagery > Doppler Weather Radar > Indian Local Radar
</topicCategory>
  <descriptiveKeywords>latest</descriptiveKeywords>
</identificationInfo>
<metadataLanguage>en</metadataLanguage>
<metadataCharacterSet>utf8</metadataCharacterSet>
<metadataDateStamp>2010-11-20 21h30</metadataDateStamp>
<metadataStandardName>WMO19115_metadata_v0_2</metadataStandardName>
<metadataStandardVersion>0.2</metadataStandardVersion>
</metadata>
```

XML for GFS model output

```
<metadata>
  <v:vgisc>
    <v:access>
      <v:policies>
        <v:policy>simdat_demo.public</v:policy>
      </v:policies>
    </v:access>
    <v:location>gov.imd.cips</v:location>
    <v:id>gov.imd.cips.model.GFSHQ.GLOB0500.latest</v:id>
    <v:inherit>gov.imd.cips.model.GFSHQ.GLOB0500</v:inherit>
    <v:request>
      <database>moddb</database>
    </v:request>
    <v:variables>
      <v:date title="Date" multiple="0" type="enum" >
        <v:value title="2010-12-15" >2010-12-15</v:value>
      </v:date>
      <v:model title="Model" multiple="0" type="enum" >
        <v:value title="GFSHQ" >PGFSHQ</v:value>
      </v:model>
      <v:run title="Run" multiple="0" type="enum" >
        <v:value title="12H" >12</v:value>
      </v:run>
      <v:grid title="Grid" multiple="0" type="enum" >
        <v:value title="GLOB0500" >GLOB0500</v:value>
      </v:grid>
      <v:range title="Range (hours)" multiple="1" type="enum" >
        <v:value title="0H" >0</v:value>
        <v:value title="6H" >6</v:value>
        <v:value title="168H" >168</v:value>
      </v:range>
      <v:level title="Level" multiple="0" type="enum" >
        <v:value title="ALL" >ALL</v:value>
      </v:level>
      <v:parameter title="Parameter" multiple="0" type="enum" >
        <v:value title="ALL" >ALL</v:value>
      </v:parameter>
      <v:format title="Format" multiple="0" type="enum" >
        <v:value title="grib" >grib</v:value>
        <v:value title="ascii" >ascii</v:value>
        <v:value title="png" >png</v:value>
      </v:format>
    </v:variables>
  </v:vgisc>
</metadata>
```

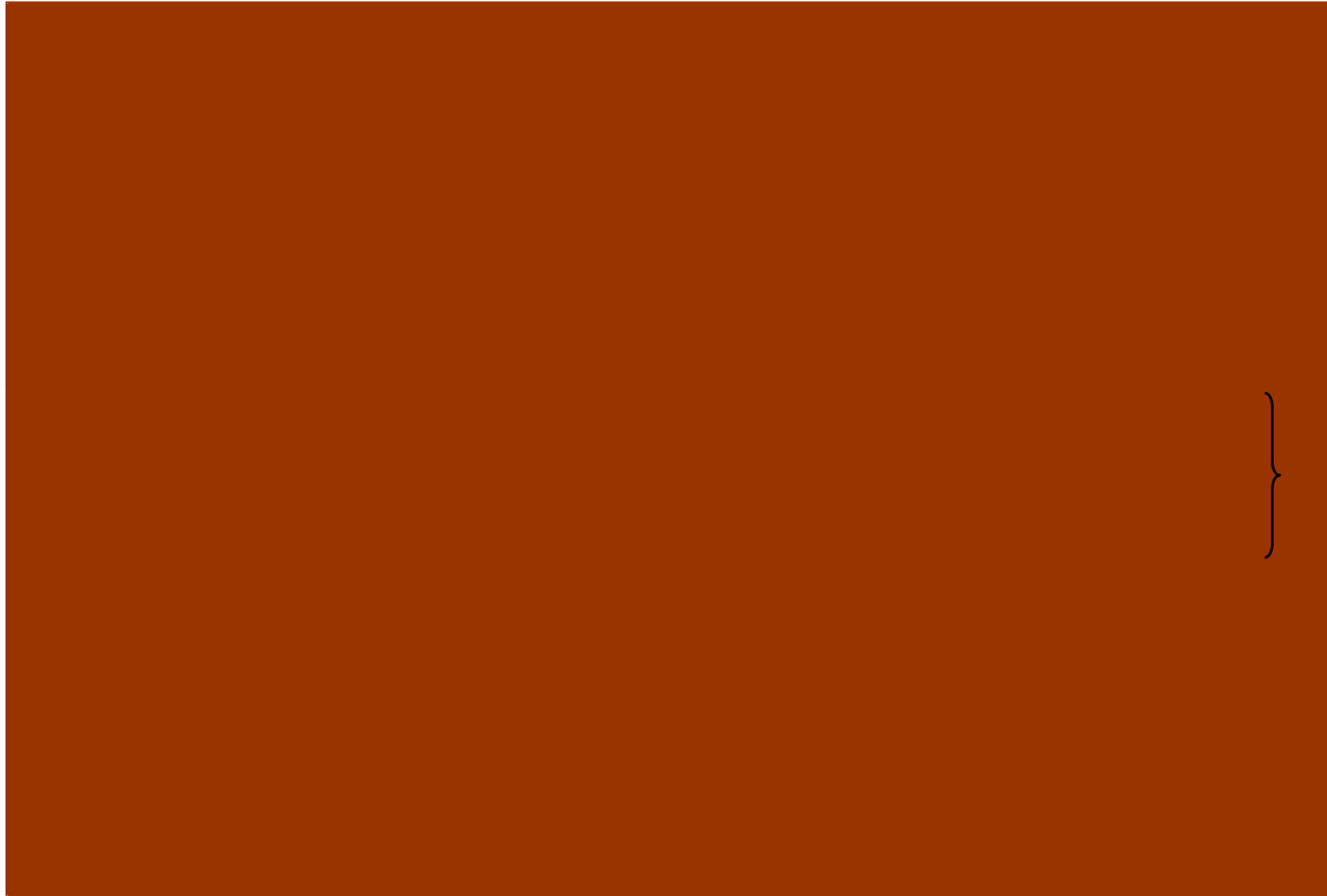
```
<metadataContact>
  <organisationName>India Meteorological Department (IMD)</organisationName>
  <individualName>Claude Berthou</individualName>
  <contactInfo>
    <phone>
      <voice>+33 5 6143 2940</voice>
      <facsimile>+33 5 6143 2941</facsimile>
    </phone>
    <address>
      <deliveryPoint>Mausam Bhawan, Lodhi Road</deliveryPoint>
      <city>New Delhi</city>
      <postalCode>110003</postalCode>
      <country>India</country>
      <electronicMailAddress>claude.berthou@mfi.fr</electronicMailAddress>
    </address>
  </contactInfo>
</metadataContact>
<identificationInfo>
  <citation>
    <resourceTitle>Latest run of IMD GFSHQ Global grid 0.5 degree ( 2010/12/15 , Run 12H )</resourceTitle>
  </citation>
  <dataExtent>
    <geographicElement>
      <boundingBox>
        <westBoundLongitude>0.00</westBoundLongitude>
        <eastBoundLongitude>359.50</eastBoundLongitude>
        <southBoundLatitude>-90.00</southBoundLatitude>
        <northBoundLatitude>90.00</northBoundLatitude>
      </boundingBox>
    </geographicElement>
    <temporalElement>
      <beginDateTime>2010-12-15</beginDateTime>
      <endDateTime>2010-12-15</endDateTime>
    </temporalElement>
  </dataExtent>
  <abstract>Run 2010/12/15, 12H of the GFS from IMD HQ on grid Global grid 0.5 degree ( 6984 lines received in CIPS at 09h30 )</abstract>
  <topicCategory> India Meteorological Department (IMD) > Model > GFS from IMD HQ </topicCategory>
  <descriptiveKeywords>latest</descriptiveKeywords>
</identificationInfo>
  <metadataLanguage>en</metadataLanguage>
  <metadataCharacterSet>utf8</metadataCharacterSet>
  <metadataDateStamp>2010-12-16 09h30</metadataDateStamp>
  <metadataStandardName>WMO19115_metadata_v0_2</metadataStandardName>
  <metadataStandardVersion>0.2</metadataStandardVersion>
</metadata>
```


Synop Data XML

```
XML Metadata Record >
<metadata>
  <v:vgisc>
    <v:id>gov.imd.cips.obs.SYNOP.INDIA.latest</v:id>
    <v:location>gov.imd.cips</v:location>
    <v:request>
      <database>obsdb</database>
      <timeDepth>24H</timeDepth>
    </v:request>
    <v:variables>
      <v:dateRef title="Date" multiple="0" type="enum" >
        <v:value title="2010-12-16" >2010-12-16</v:value>
      </v:dateRef>
      <v:obsType title="Observation type" multiple="0" type="enum" >
        <v:value title="SYNOP" >SYNOP</v:value>
      </v:obsType>
      <v:domain title="Domain" multiple="0" type="enum" >
        <v:value title="INDIA" >INDIA</v:value>
      </v:domain>
      <v:format title="Format" multiple="0" type="enum" >
        <v:value title="csv" >csv</v:value>
        <v:value title="bufr" >bufr</v:value>
        <v:value title="png" >png</v:value>
      </v:format>
    </v:variables>
    <v:access>
      <v:policies>
        <v:policy>simdat_demo.public</v:policy>
      </v:policies>
    </v:access>
  </v:vgisc>
  <metadataLanguage>en</metadataLanguage>
  <metadataCharacterSet>utf8</metadataCharacterSet>
  <metadataContact>
    <organisationName>India Meteorological Department (IMD)</organisationName>
    <contactInfo>
      <phone>
        <facsimile>+011-24615815</facsimile>
      </phone>
      <address>
        <deliveryPoint>Mausam Bhawan, Lodhi Road</deliveryPoint>
        <city>New Delhi</city>
        <postalCode>110003</postalCode>
        <country>India</country>
        <electronicMailAddress>claude.berthou@mfi.fr</electronicMailAd
```

Contd.

```
</metadataContact>
<metadataDateStamp>2010-12-16 09h30</metadataDateStamp>
<metadataStandardName>WMO19115_metadata_v0_2</metadataStandardName>
<metadataStandardVersion>0.2</metadataStandardVersion>
<identificationInfo>
  <citation>
    <resourceTitle>Latest SYNOP on INDIA (2010/12/16)</resourceTitle>
  </citation>
  <abstract>Observation reports of SYNOP over INDIA for the 2010/12/16</abstract>
  <topicCategory> India Meteorological Department (IMD) > Observation > SYNOP </topicCategory>
  <descriptiveKeywords>CIPS India Meteorological Department (IMD) SYNOP INDIA</descriptiveKeywords>
  <dataExtent>
    <description>Observation reports of SYNOP over INDIA for the 2010/12/16</description>
    <geographicElement>
      <boundingBox>
        <westBoundLongitude>62.60</westBoundLongitude>
        <eastBoundLongitude>100.00</eastBoundLongitude>
        <southBoundLatitude>3.00</southBoundLatitude>
        <northBoundLatitude>40.00</northBoundLatitude>
      </boundingBox>
    </geographicElement>
    <temporalElement>
      <beginDateTime>2010-12-16</beginDateTime>
      <endDateTime>2010-12-16</endDateTime>
    </temporalElement>
  </dataExtent>
</identificationInfo>
</metadata>
```



6 RMC's
+
Pune
+
Hyderabad

IMD's Operational Weather Forecasting System

