Distribution
New Developments for Data
and
Sharing of Data Products from
CPTec/Inpe

1994-2006

Meteorology
Technology
Science
The CPTEC/INPE: Center for Weather Forecast and Climatic Analysis

- A Brazilian operational, education and research institution under:
  - the National Institute for Space Research (INPE)
  - the Science and Technology Ministry
- Runs the fastest supercomputer in the South America
- Is a pioneer in global and regional numerical weather forecasting in South America
- The main installations are in Cachoeira Paulista, midway São Paulo and Rio de Janeiro cities.
CPTEC’s datasets

- Numerical models output
- GTS data
- Observations from the “PCDs” network
- Satellite Imagery
- Satellite-derived products
Some Models run at CPTEC:

- Global model COLA/CPTEC:
  - T126 L28 (ensemble 15 members)
  - T213 L42

- Regional model ETA for South America:
  - 40 Km resolution (Operational since 1996)
  - 20 Km resolution (Operational in 2006)

- Regional Environmental Model for South America

- CATT-BRAMs

- Several other models:
  - Coupled model
  - Sea waves model
  - Hydrologic Model for Brazil
CPTEC’s ETA Regional Model

- Coverage for almost all South America.
- Horizontal resolution of the 40 Km (grid regular) and 38 vertical levels.
- Operational outputs at 00:00 and 12:00 UTC.
- Interface for GEMPAK visualization
- The new CPTEC ETA model has 20x20 Km resolution.
ETA Model in GEMPAK
Ensemble T126

A Dataset to be distributed for TIGGE/THORPEX project with the LDM software.
Data Collecting Platforms

- More than 524 automatic stations from INPE and cooperating Institutions.
- Several types of stations: Meteorological, Agrometeorological, Hydrological and Buoys.
- 50 Stations reporting Atmospheric Pressure.
- Historic data available through web-page.
- The first new data shared through the IDD-Brasil.
- This year the dataset was added to MADS/FSL/NOAA.
- Soon they will be also on GTS (in BUFR format).
Position of all data collecting platforms (PCD)
Satellite Facilities for Data acquisition

Cuiabá Satellite Facilities Center

CPTEC – Satellite Division

Satellites:

GOES-12
Meteosat-7
NOAA 14, 15, 16, 17
EOS-AM Terra
EOS-PM Aqua
GOES and METEOSAT – Cachoeira Paulista

TERRA and AQUA – Cuiabá

CUIABÁ (2 NOAA)
CUIABÁ (1 AQUA/TERRA)
CACHOEIRA PAULISTA (1 NOAA)
CACHOEIRA PAULISTA (3 GOES)
CACHOEIRA PAULISTA (1 Meteosat)
Present Data Dissemination:

- Home-Page
- Access to products, forecasts, imagery, and some data.
- FTP
- Access to outputs of CPTEC's global and regional models.
- Direct request
- Some data can be provided by direct request.
- IDD-Brasil
- Some datasets ingested in the IDD-Brasil network.
- New developments for more data sharing:
  - More about this soon. In this presentation 😊
The IDD-Brasil

- Began as a collaboration under Meteoforum project.
- Inaugurated in January of 2004 with 4 nodes.
In the IDD-Brasil page there is:

- A guide for LDM and GEMPAK installation in Portuguese.
- How to request CPTEC's data in LDM servers.
- How to configure GEMPAK for CPTEC's data
- How to configure GEMPAK for Brazilian regional settings.
CPTEC’s Data ingesting in IDD-Brasil

- ETA regional Model, 40 Km resolution. *(operational)*
- Automatic data-collecting Network. *(operational)*
- GOES satellite imagery, full-resolution for South America. *(under testing)*
- Global T213 model *(under testing)*
- Ensemble T126 Global model – 15 members. *(under testing for TIGGE)*
More datasets to be ingested in IDD-Brasil:

Satellite-derived products:

- Clouds Classification
- Precipitation from Satellite and Radar
- Convective Systems - FORTRACC
- Sea Surface Temperature
- Sounding: TOVS from NOAA
- Satellite Winds
New Developments for data distribution

- Some datasets and databases of CPTEC/INPE still don’t have external access.
- With the PROTIM (Program for Information Technology Applied to Meteorology), several developments are under way to open internal databases for free external access.
- The PROTIM project is supported by a Brazilian governmental foundation (FINEP).
PROTIM Projects:

- **New web interface and new relational databases:**
  - Satellite imagery (BDI).
  - Numerical models (BDG).

- **Web interface to internal databases:**
  - Brazilian stations climatic data (BDC)
  - Meteorological data from GTS (BDM).

- **Improvements in present processes:**
  - New database and quality control for PCD’s data (in cooperation with FSL/NOAA).
  - New GTS data decoding system (in cooperation with the ECMWF and unidata).
  - DODs server to data distribution.
The web and databases:

- Through the web the user will be able to search the database statistics and submit requests.
- The data will be delivered by FTP.
- The data more recent will be available for immediate access.
Databases under development:

- **BDG (Database for Grids)**
  - For the CPTEC's models run (global and regional models, among others)
  - Some models have about 10 years of data.

- **BDI (Database for Satellite Imagery)**
  - For the imagery from NOAA, GOES, Meteosat and other satellites received in CPTEC's facilities.
Present Databases:

- **BDC** (Database for climatic data)
  - Brazilian Stations from several networks and institutions.
  - Some stations have more than 100 years of data.

- **BDM** (Database for GTS observations)
  - The CPTEC has 10 years of GTS data.
  - Synop, Ship, Temp, Airep, Buoy, Pilot, Metar.
Concluding Remarks:

- The INPE is a traditional provider of data, software and services for researchers, forecasters and decision makers.
- The institution is a reference for space science, satellite imagery, and environmental studies.
- Several of the INPE’s departments and centers, like the CPTEC, have a variety of valuable datasets, many of them freely available.
- Currently the politics of “free data and software” is being strengthened, as the INPE’s administration has stated it as a priority for the following years, and the Brazilian government is supporting it.
- All these data freely available are improving technological innovation and services and strengthening research and education.
Concluding Remarks about IDD:

- The IDD extension to Brazil (IDD-Brasil) is changing the way of Brazilian Meteorology with:
  - Easier access to Global Data
  - Free availability of good analysis tools
  - Spreading *ideas and practices about Free Data Sharing and Cooperation and mutual support*
- The IDD-Brasil shows a sharply growing rate
- Now The Brazil is the largest international IDD-user community.