



Science
Technology
for
Meteorology

1994

2006



Sharing of Data Products from CPTEC/INPE and New Developments for Data Distribution

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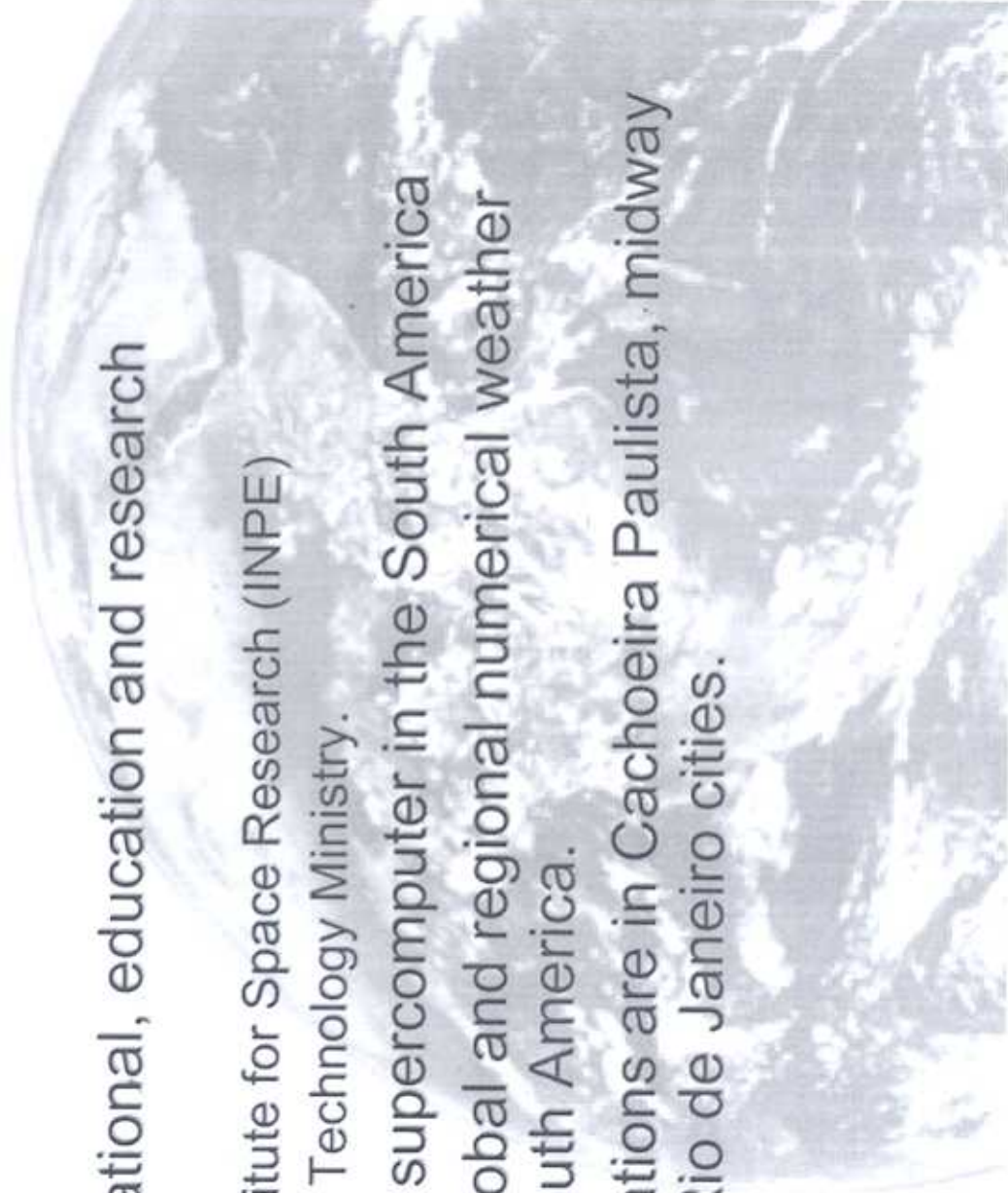


DATA
TRAINING

The CPTEC/INPE:

Center for Weather Forecast and Climatic Analysis

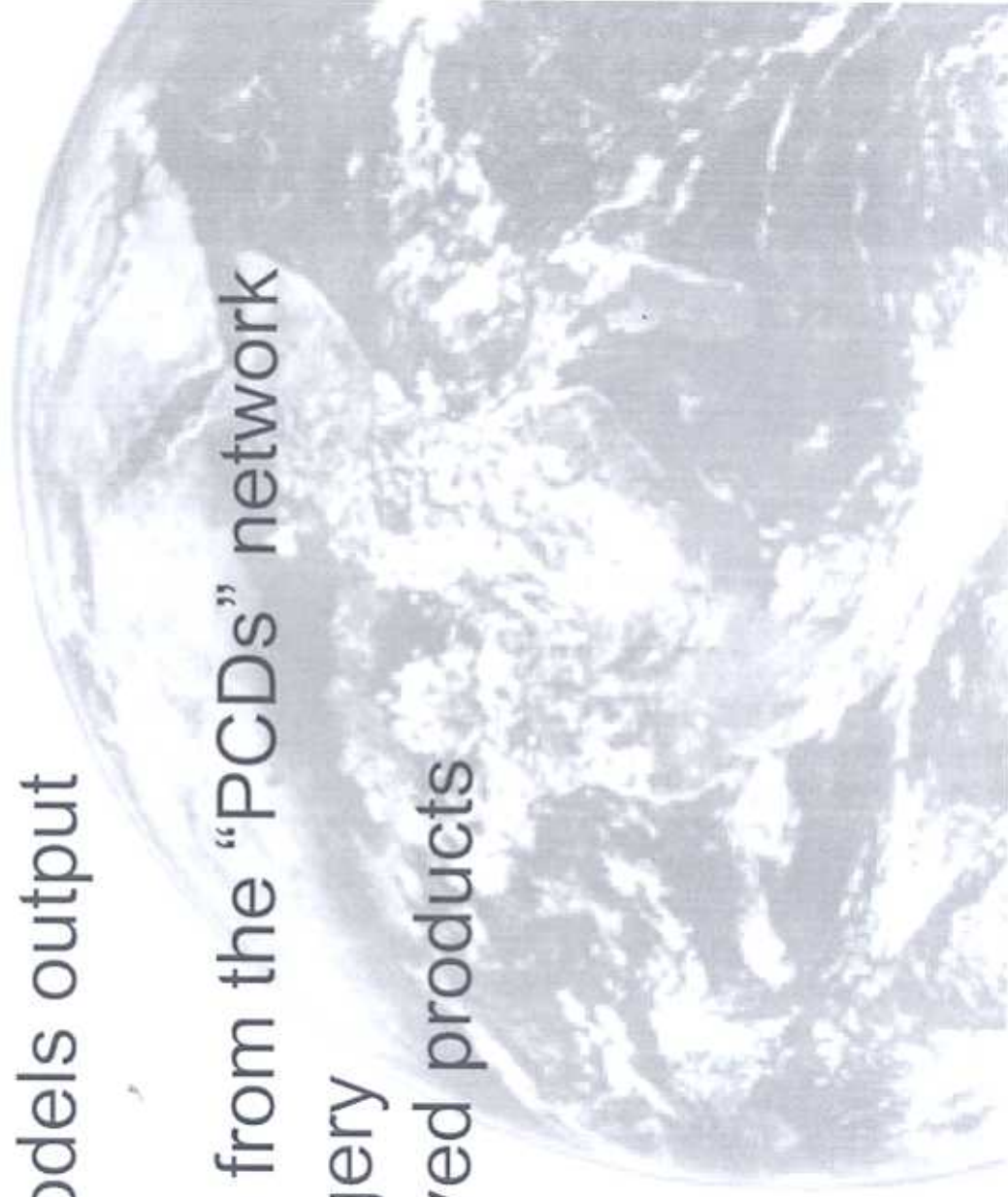
- A Brazilian operational, education and research institution under:
 - the National Institute for Space Research (INPE)
 - the Science and Technology Ministry.
- Runs the fastest supercomputer in the South America
- Is a pioneer in global and regional numerical weather forecasting in South America.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





CPTEC's datasets

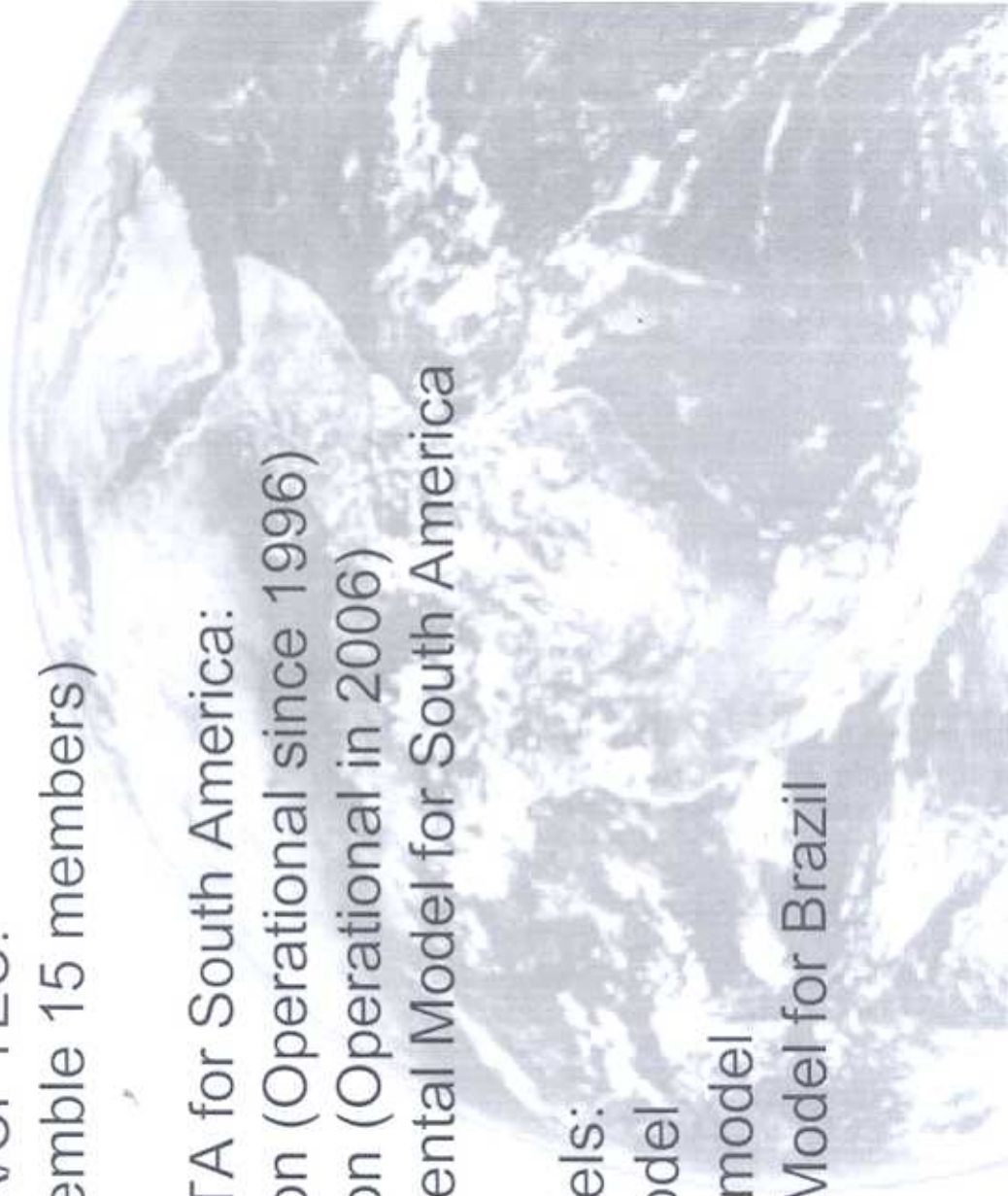
- Numerical models output
- GTS data
- Observations from the "PCDs" network
- Satellite Imagery
- Satellite-derived products





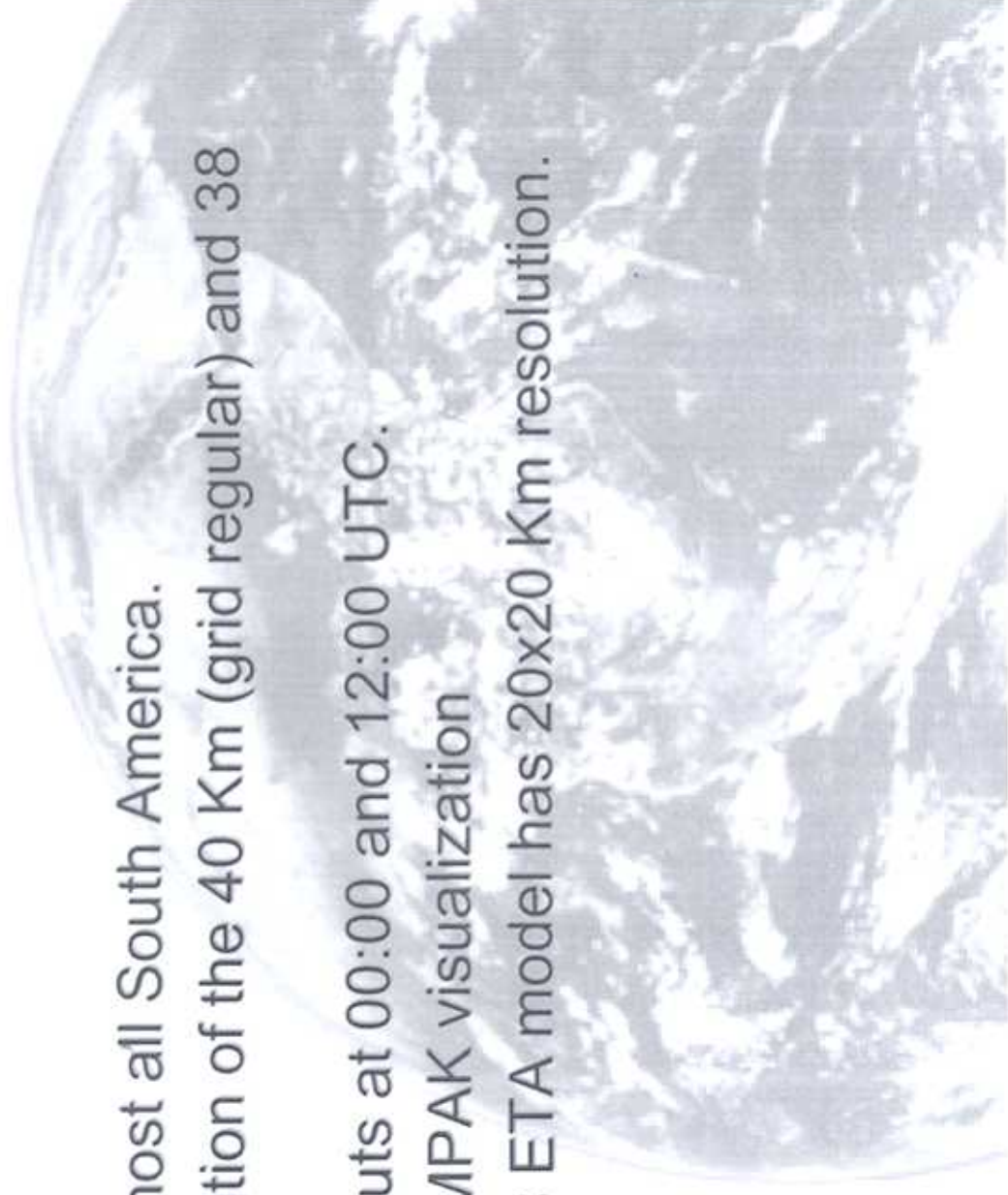
Some Models run at CPTEC:

- 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

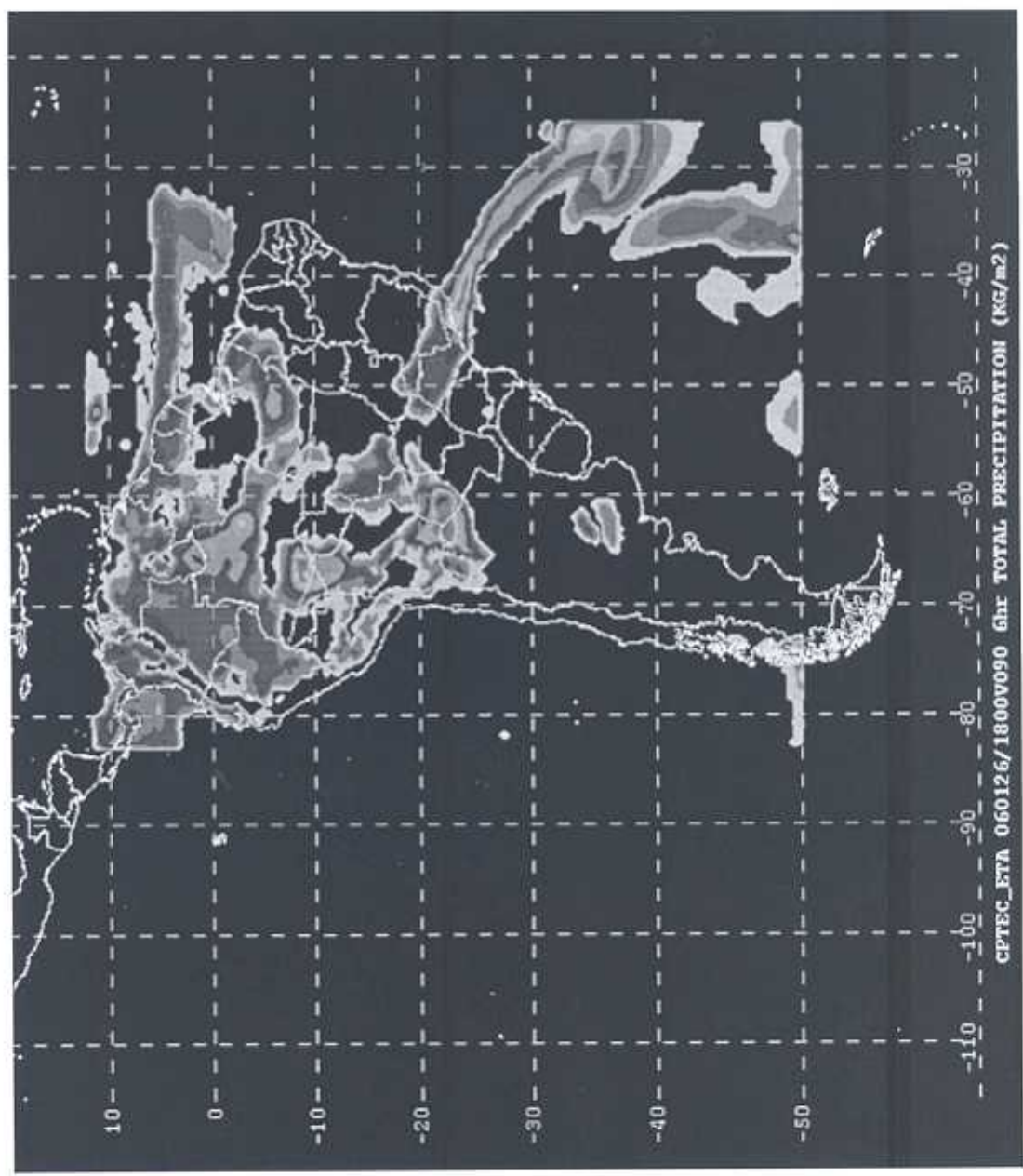


CPTEC's ETA Regional Model

- 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.

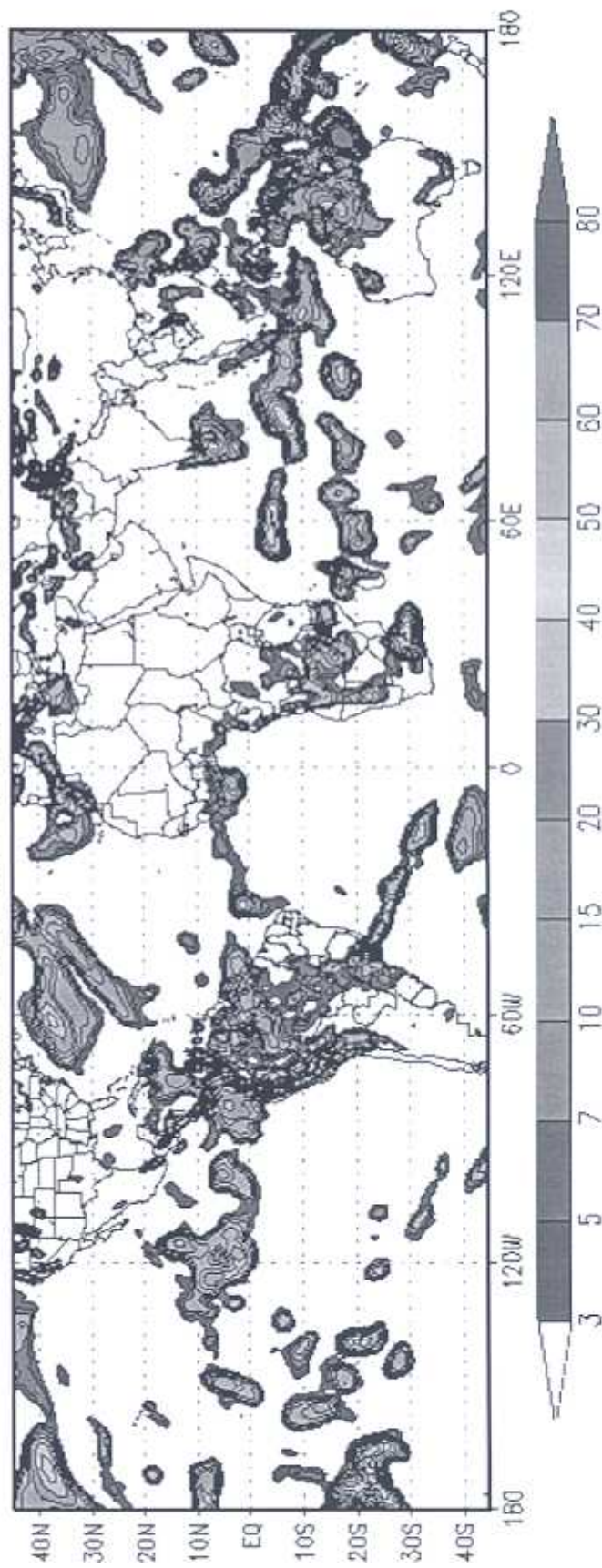


ETA Model in GEMPAK



Global T213 Model

CPTEC/INPE/MCT - GLOBAL MODEL - T213L42
FORECAST FROM: 2006012700 VALID FOR: 2006012800
TOTAL PREC (mm/day - Ac. last 24h)





Ministério da Ciência e Tecnologia

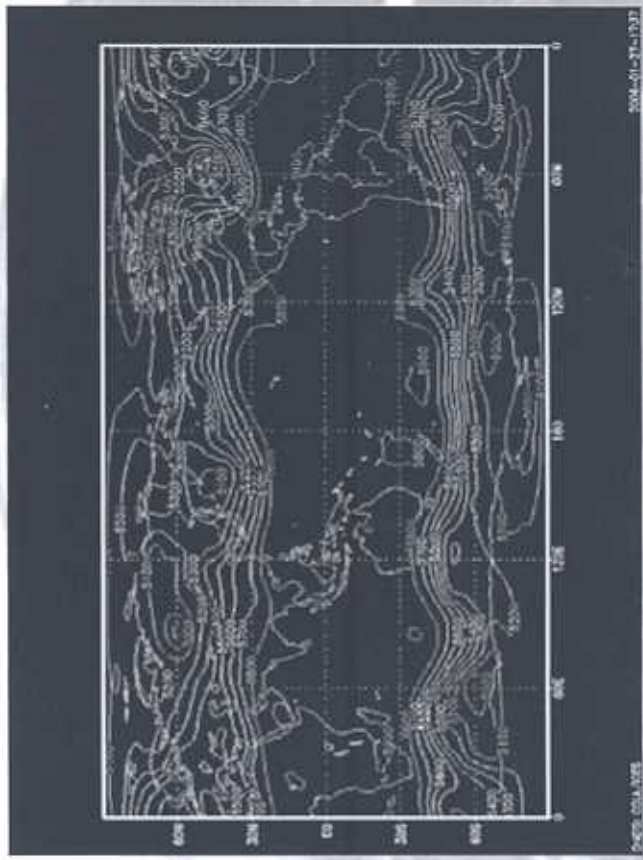
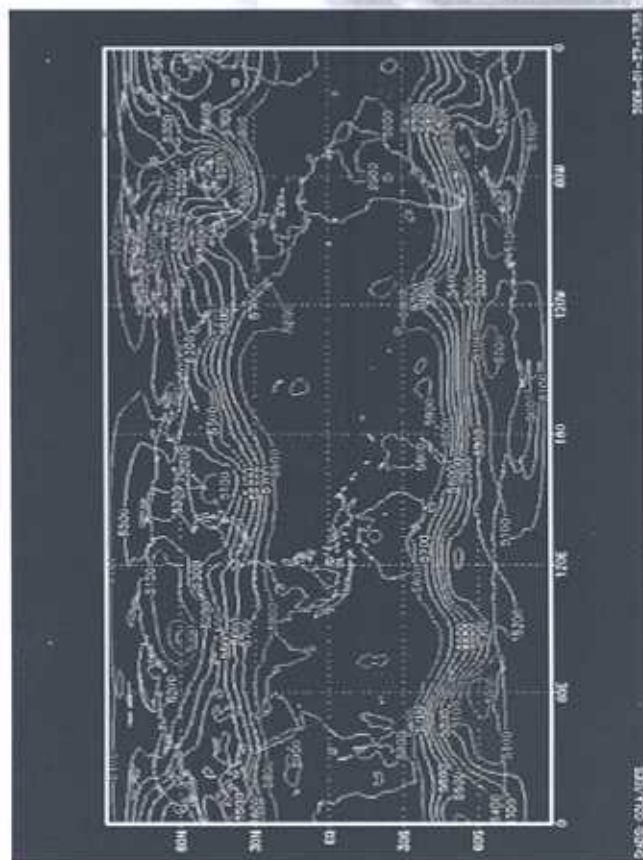


Science and Technology
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Ensemble T126



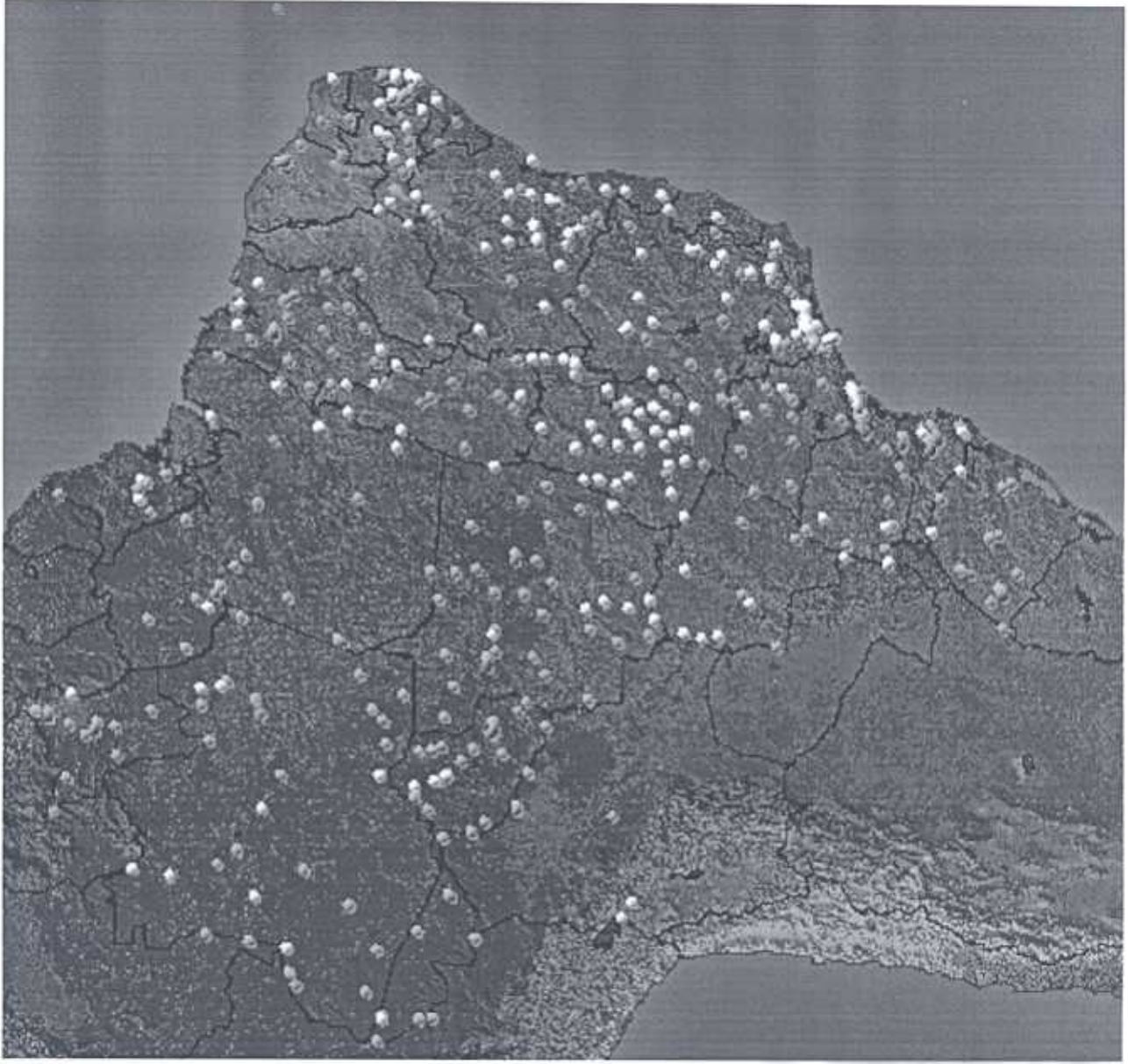
-A Dataset to be distributed for TIGGE/THORPEX project with the LDM software.

Data Collecting Platforms

- More than 524 automate stations from INPE and cooperating Institutions.
- Several types of stations: Meteorological, Agro-meteorological, 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 MADIS/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



NOAA



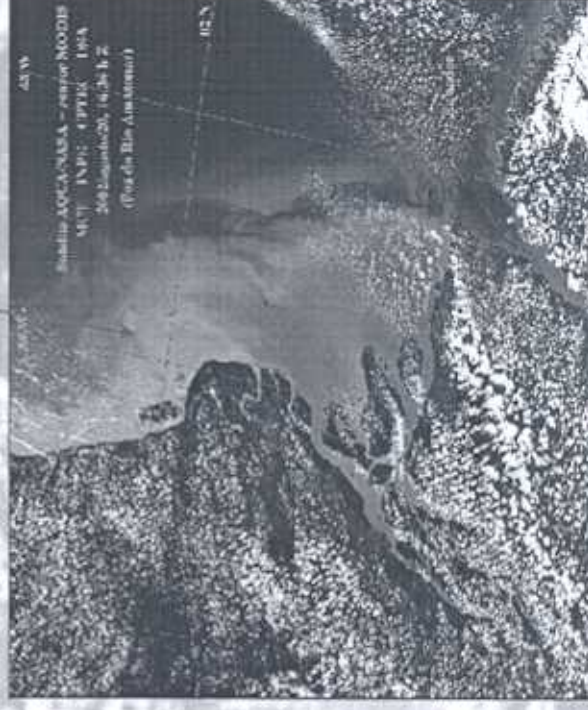
Satellites:

- GOES-12
- Meteosat-7
- NOAA 14, 15, 16, 17
- EOS-AM Terra
- EOS-PM Aqua

GOES and METEOSAT – Cachoeira Paulista



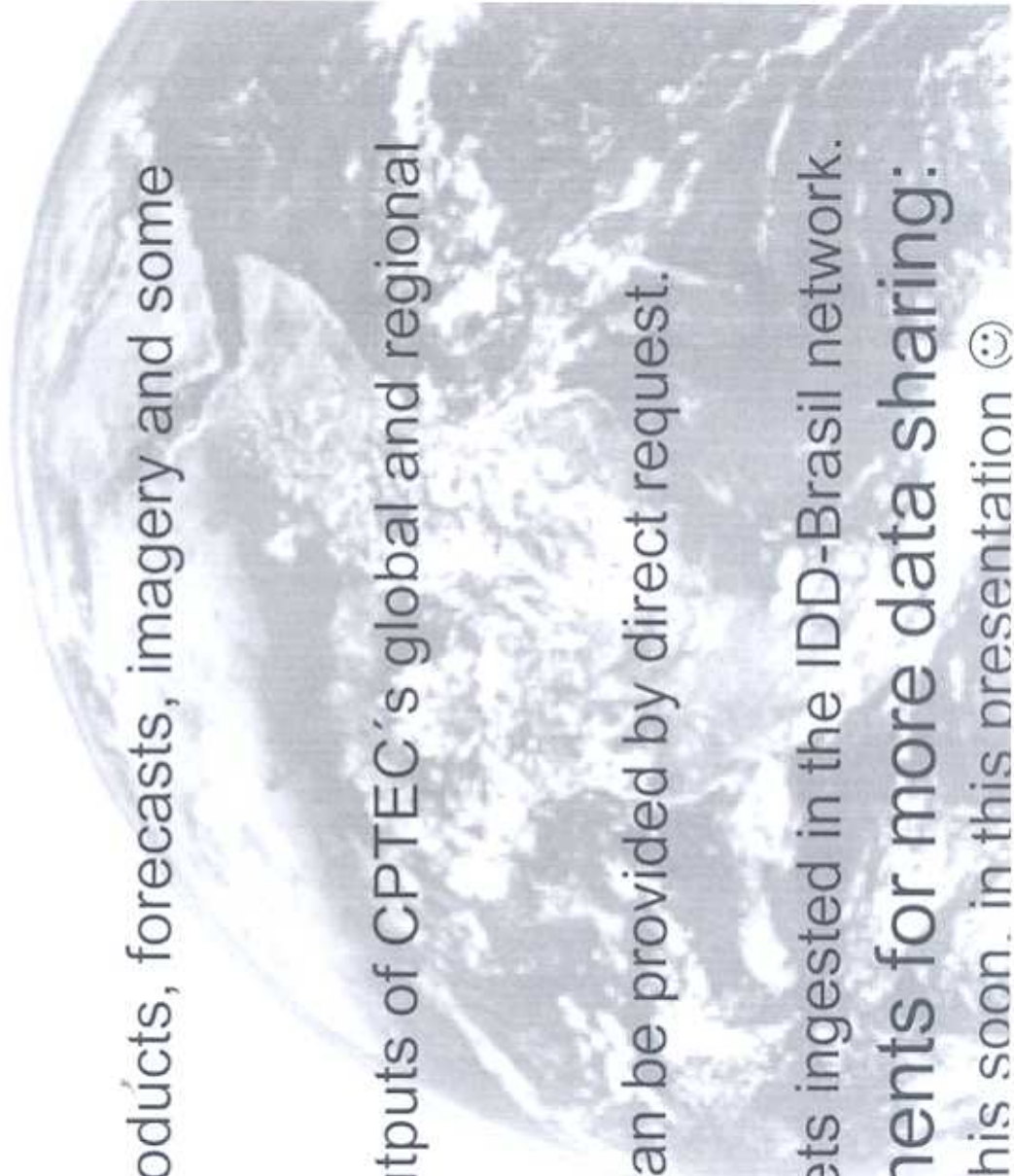
TERRA and AQUA – Cuiabá



- 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 ☺

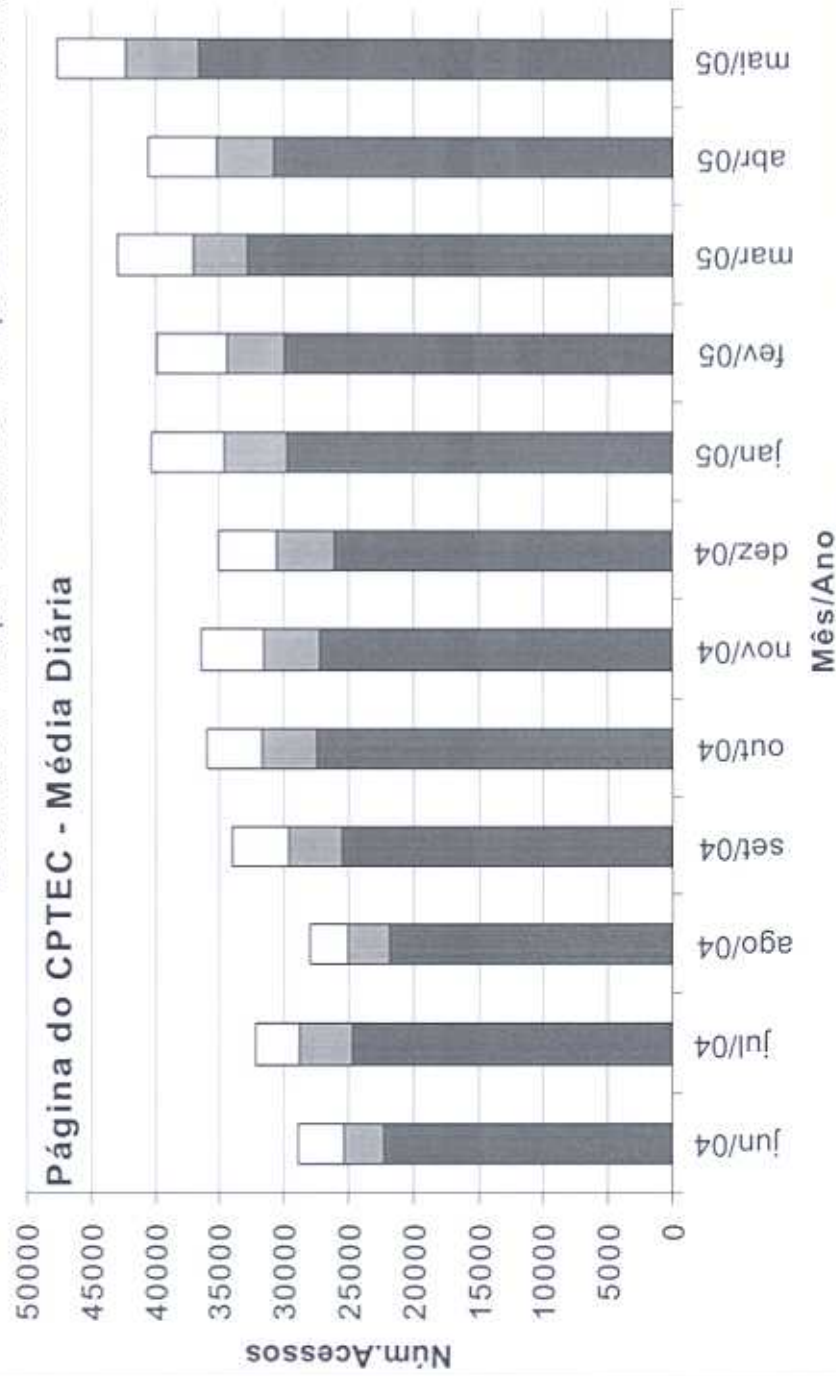


www.cptec.inpe.br

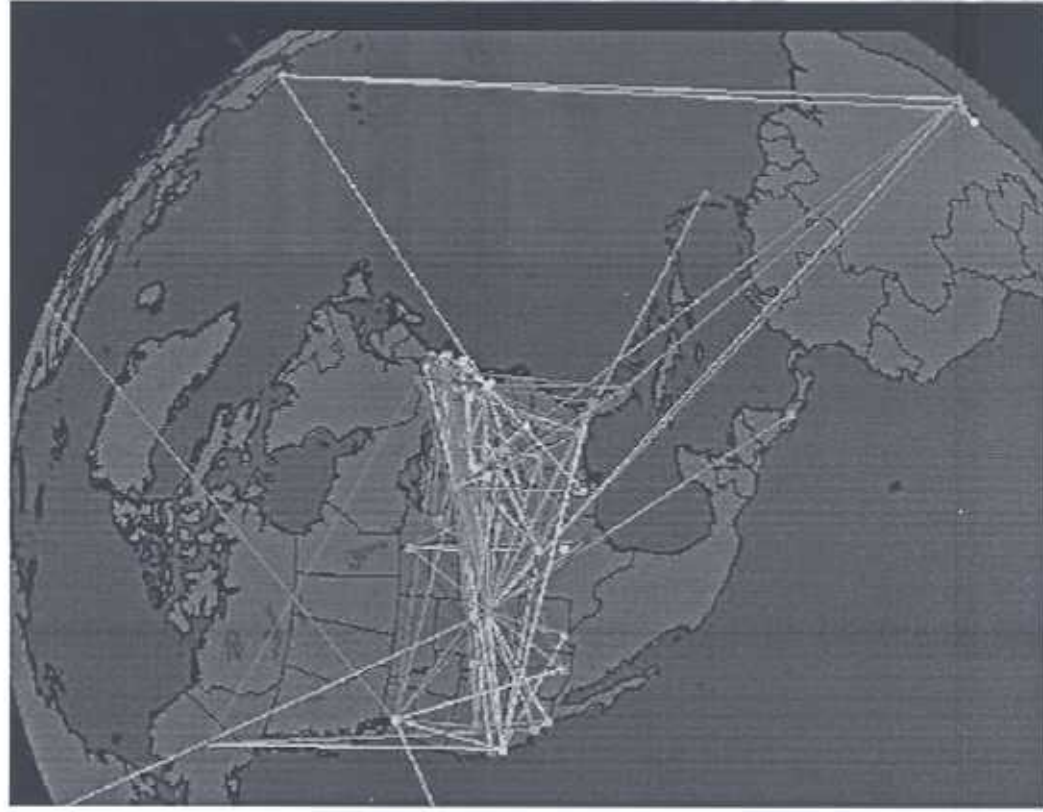


Servidor Principal
 Servidor Tempo
 Servidor Satélite

Página do CPTEC - Média Diária



The *IDD-Brasil*



- Began as a collaboration under *Meteorforum* project.
- Inaugurated in January of 2004 with 4 nodes.



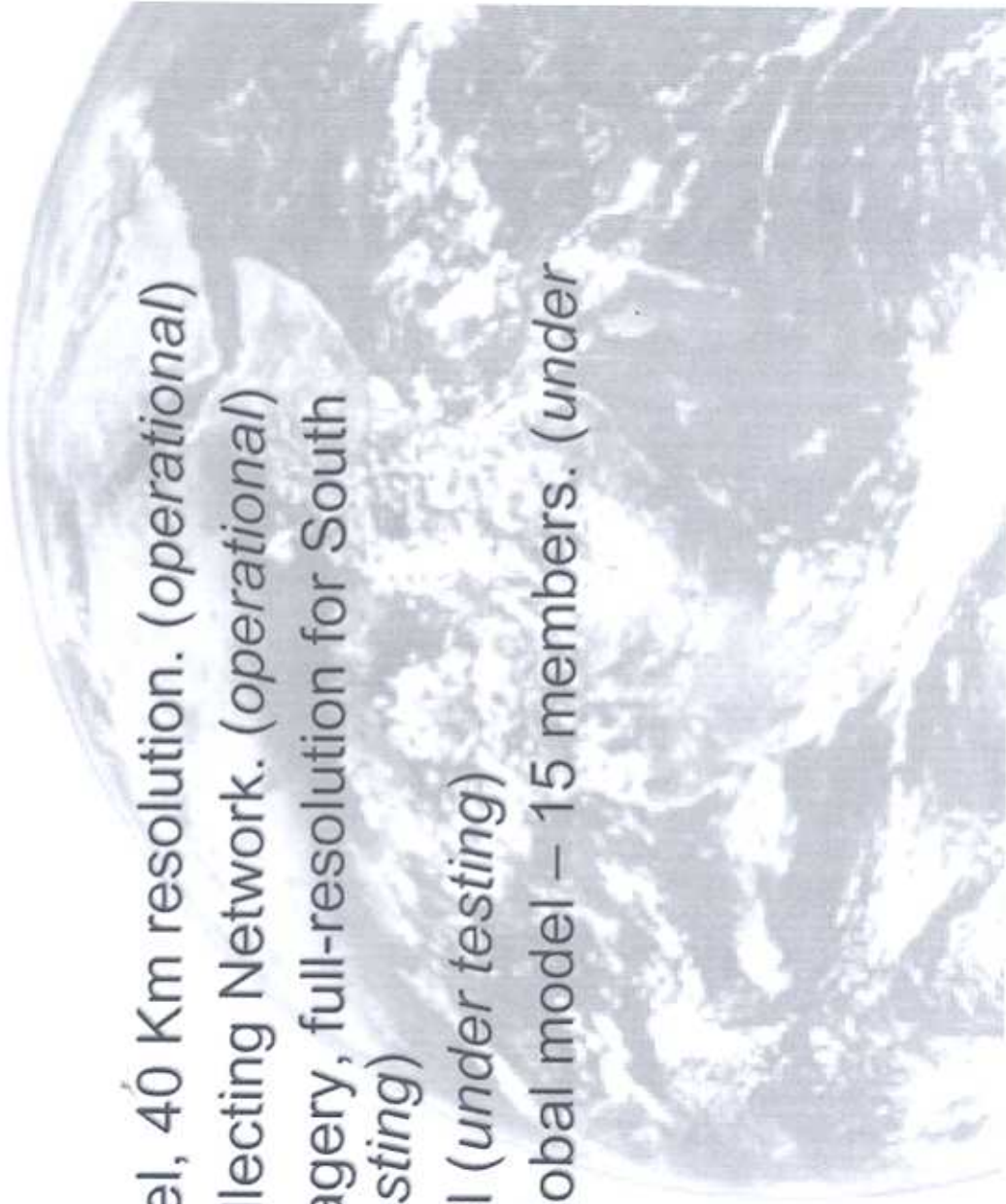
IDD-Brasil Home-Page

- 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:

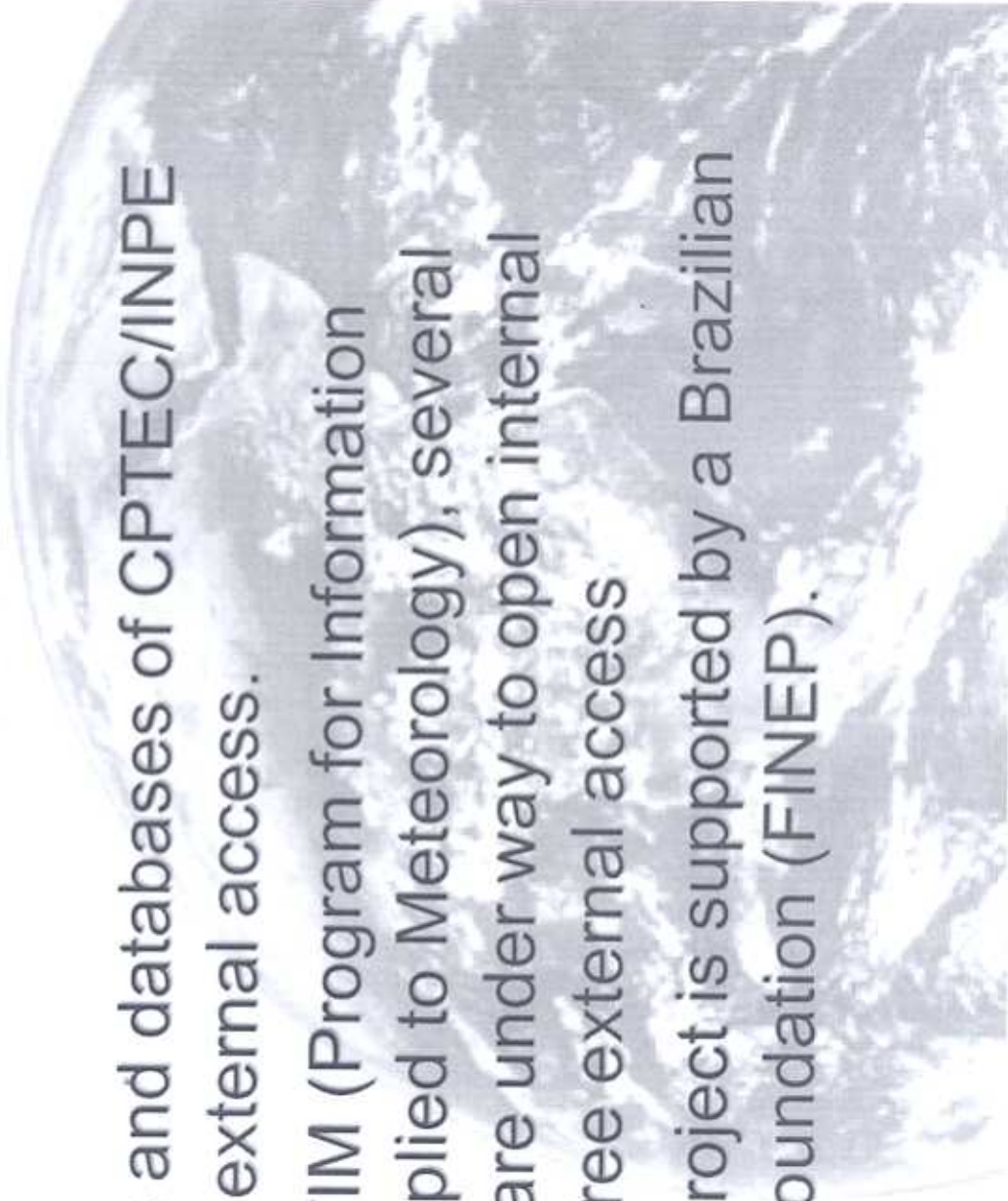
Satellite-derived products:

- Clouds Classification
- Precipitation from Satellite and Radar
- Convective Systems - FORTRACC
- Sea Surface Temperature
- Sounding: TOVS from NOAA
- Satellite Winds



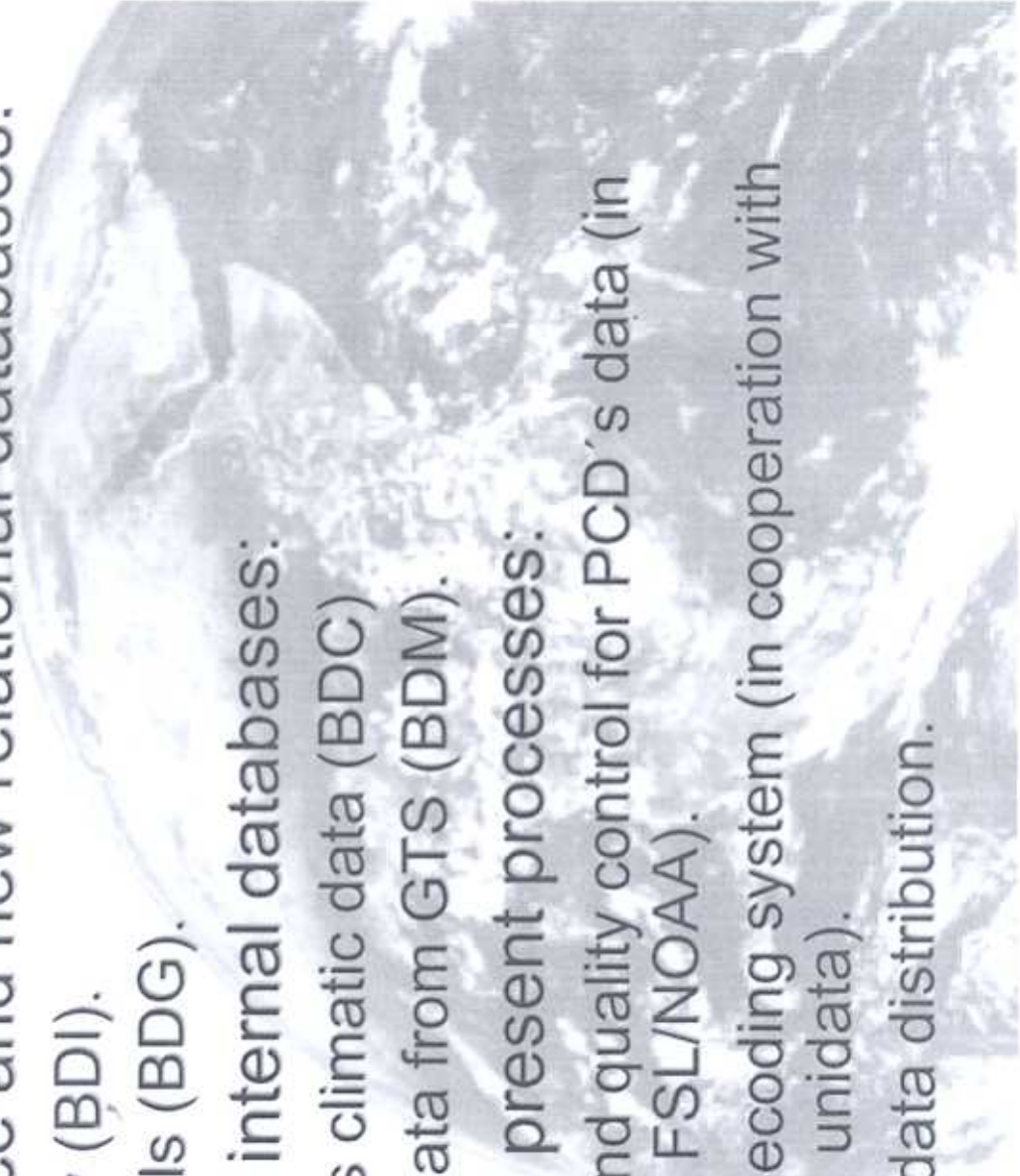
New Developments for data distribution

- 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).



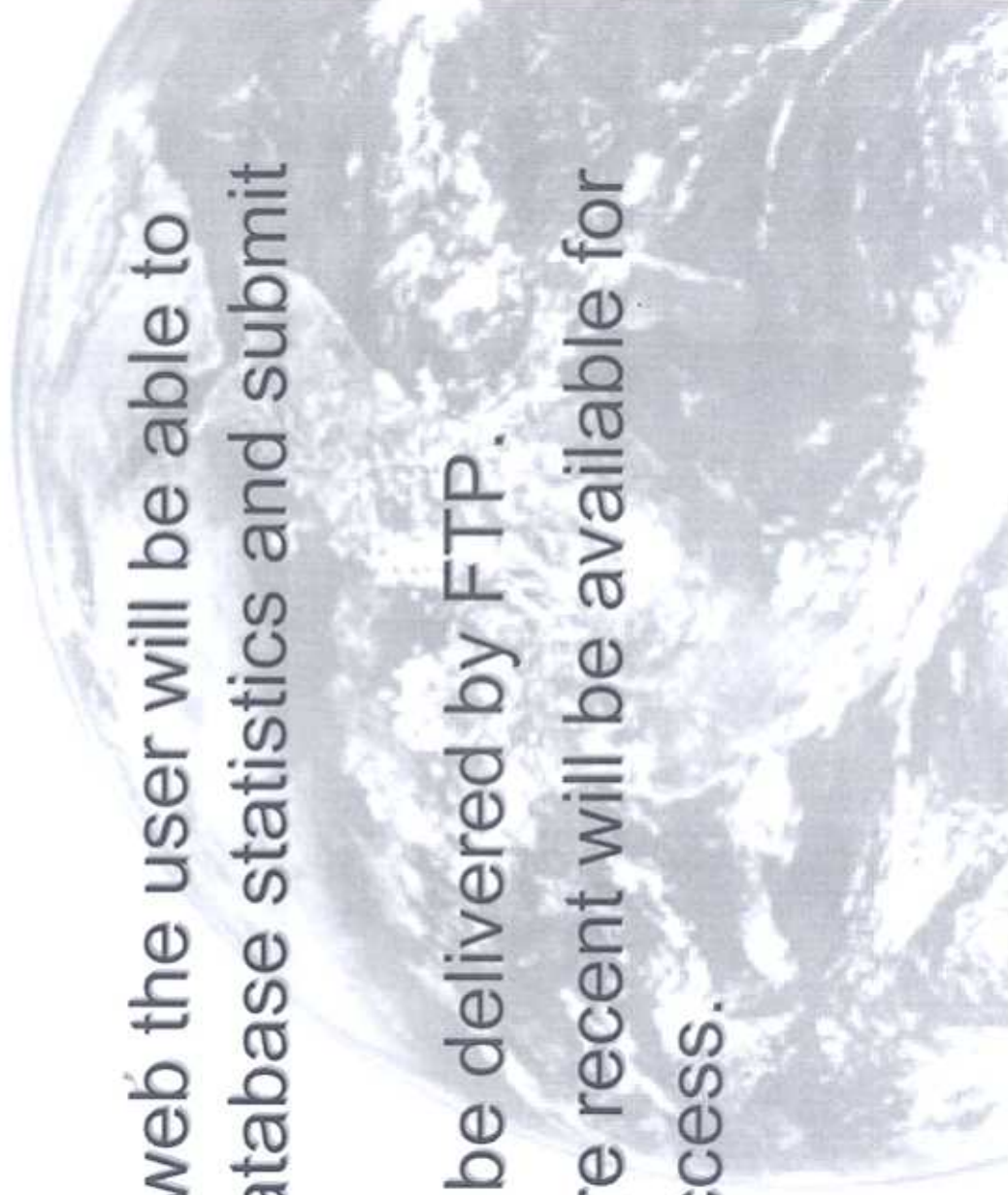
PROTIM Projects:

- ▣ 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.



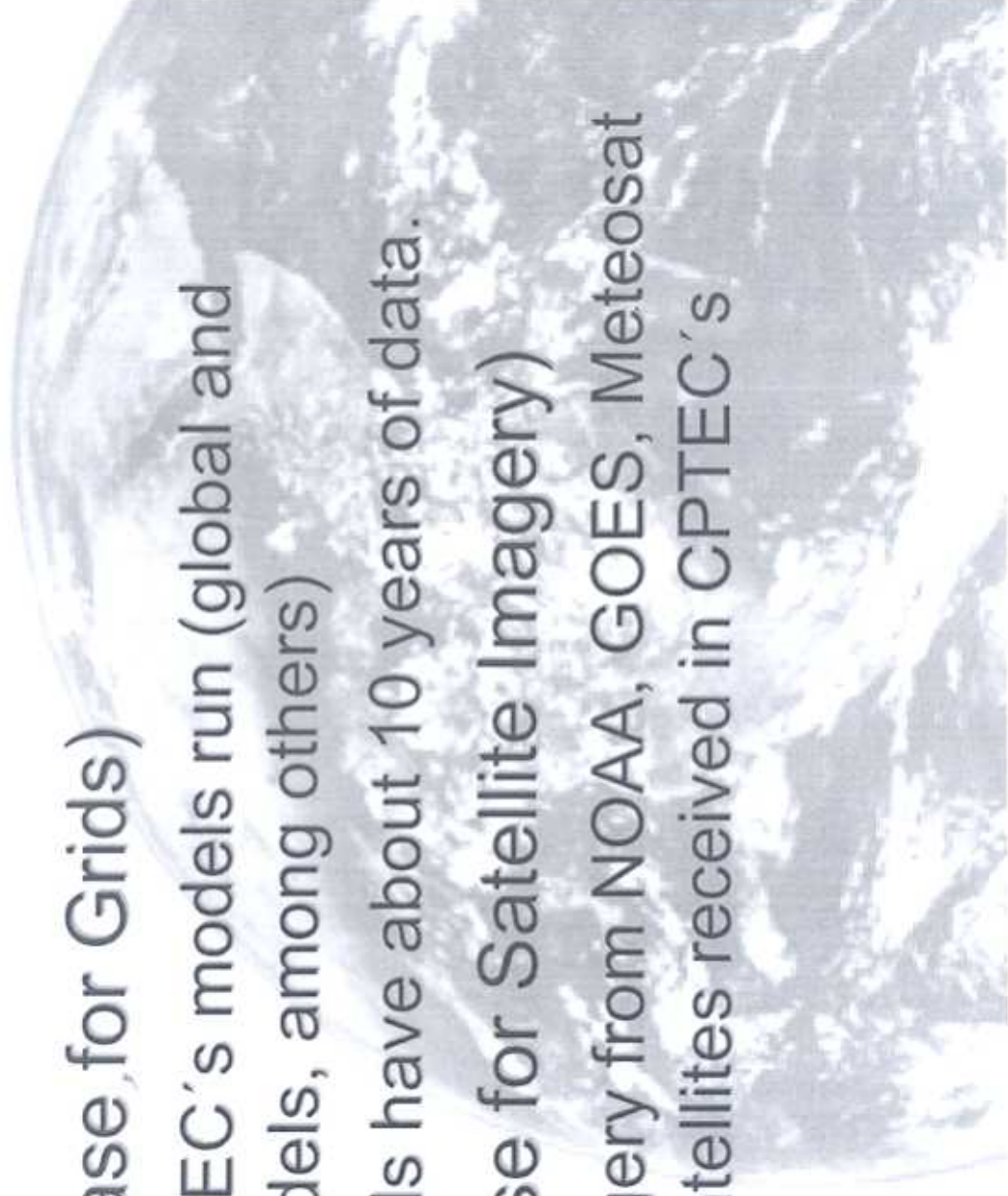
The web and databases:

- 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.



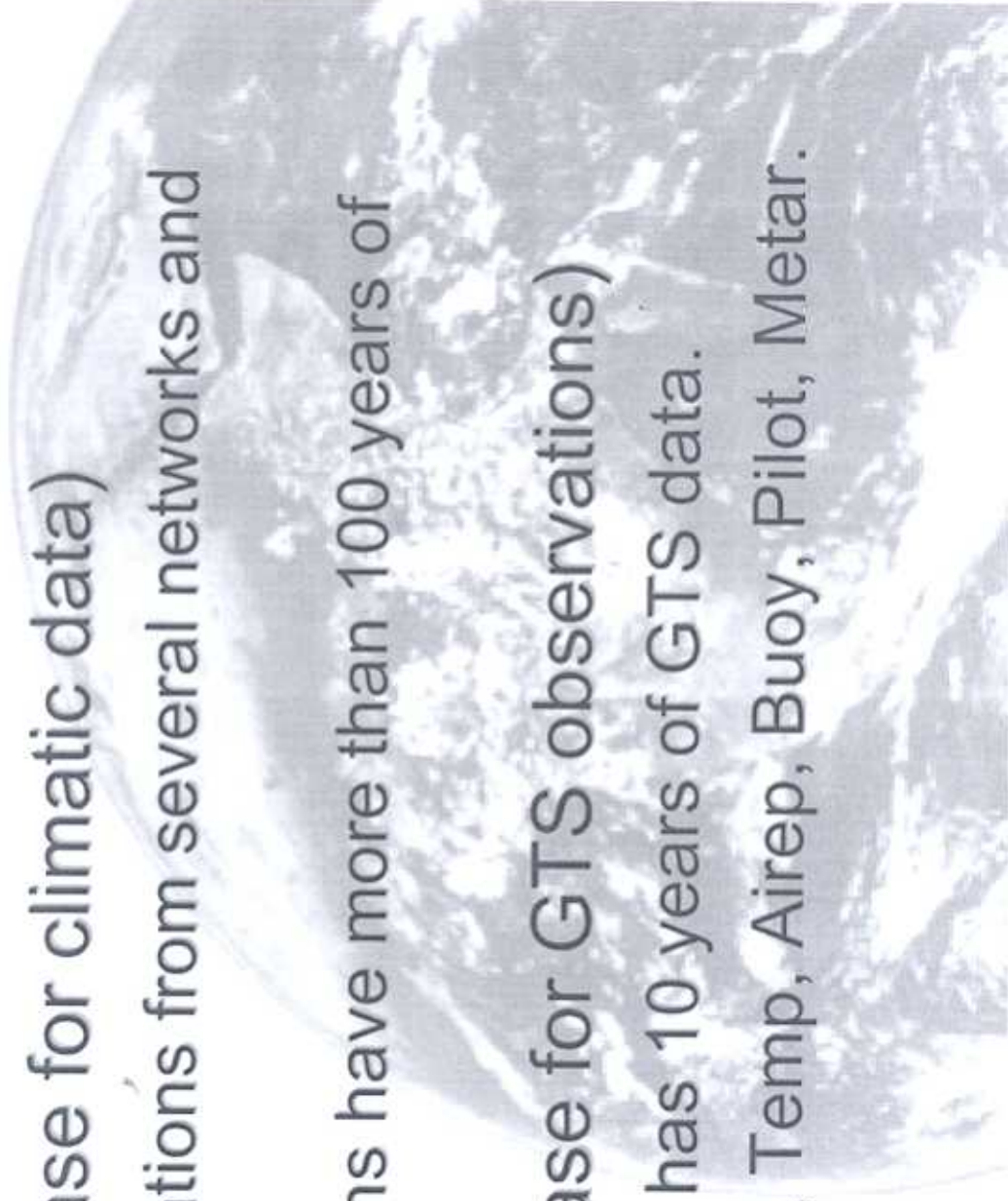
Databases under development:

- ┆ 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-Brazil) 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-Brazil shows a sharply growing rate
- Now The Brazil is the largest international IDD-user community.

