
# IDD Data Access through LDM

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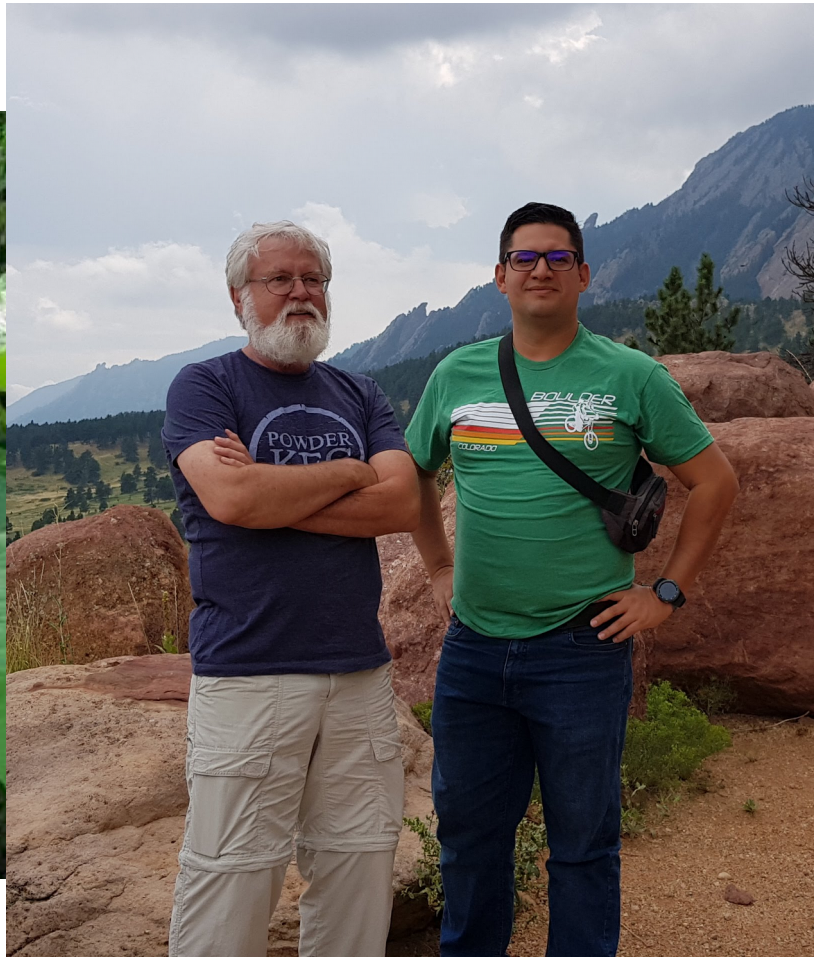


It all started in 2000 when Dr. Vilma Castro and Tom Yoksas from Unidata installed a NOAAPort Satellite feed at University of Costa Rica.

Back then this was the best way to obtain satellite imagery, and many other products! The system was heavily integrated with Gempak and McIDAS and needed a BIG satellite dish to pick up the signal.

No more satellite dishes, now the distribution is Internet based.

Unidata's web page: www.unidata.ucar.edu

What is Unidata?

Unidata is a diverse community of education and research institutions with the common goal of **sharing geoscience data and the tools to access and visualize that data**.

For more than 30 years, Unidata has been providing data, software tools, and support to enhance Earth-system education and research. Funded primarily by the National Science Foundation (NSF), Unidata is one of the University Corporation for Atmospheric Research (UCAR)'s Community Programs (UCP).

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UNIVERSIDAD DE COSTA RICA

UCAR COMMUNITY PROGRAMS | unidata
Data Services and Tools for Geoscience

History

The Unidata program was first conceived in 1983, when the NSF called together representatives from some 80 U.S. university meteorology and atmospheric science departments to conceptualize ways of making **"real-time" weather observations and other data available** to the university community.

As a result of that meeting, the Unidata program was created to facilitate the **transmission of weather data, imagery, and forecasts** to the university community; to support universities' local interactive computing capabilities; and to **improve data access capabilities** for researchers and educators.

Training Workshops

Unidata **holds software training workshops** in Boulder, Colorado, at Unidata Community institutions, and at scientific conferences to train users in the use of Unidata-supported software. **The training and tutorial information used during Unidata's training workshops are available online** as a resource to our community.

Regional workshops are sponsored by particular institutions in the Unidata Community and provide opportunity to utilize Unidata software and data. **If your institution is interested in having Unidata staff conduct a workshop, please contact the Workshop Coordinator**.

# AWIPS II and LDM

## Data Visualization & Analysis Software

- AWIPS Forecasting Software
- GEMPAK/ NAWIPS
- Integrated Data Viewer (IDV)
- Unidata McIDAS-X
- MetPy

## Data Access & Management Software

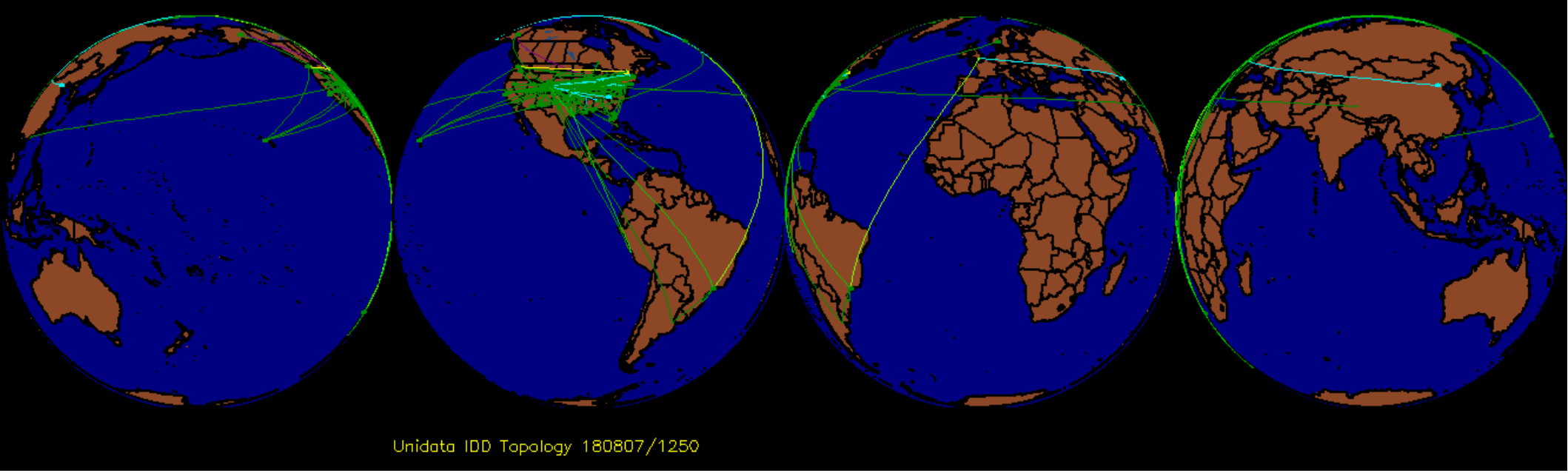
- Local Data Manager (LDM)
- NetCDF Libraries
- Rosetta Data Transformation
- Siphon Data Access
- THREDDS Data Server (TDS)
- UDUNITS Unit Manipulation

# Internet Data Distribution (IDD)

The Unidata community of over 260 universities is building a system for disseminating near real-time earth observations via the Internet. Unlike other systems, which are based on data centers where the information can be accessed, Unidata Internet Data Distribution (IDD) is designed so a university can **request that certain data sets be delivered to computers at their site as soon as they are available** from the observing system. The IDD system also allows any site with access to specialized observations to inject the dataset into the IDD for delivery to other interested sites.

Unidata Local Data Manager **(LDM) is a collection of cooperating programs that select, capture, manage, and distribute arbitrary data products**. The system is designed for event-driven data distribution of the kind used in the Unidata Internet Data Distribution project.

The Unidata IDD has been in operation on a 24x7 basis since 1995, when it replaced a real-time data delivery system that used a sideband on satellite TV broadcasts. The satellite delivery system required that user sites pay a subscription fee and have a special receiver to decode the data stream. The switch to IDD did away with the subscription fee and the need for a special receiver, which **made it possible for many more sites to receive a greatly expanded menu of data streams**. The reach of the IDD has been expanded internationally and it is now being used to ship real time data in all directions to virtually every continent on the globe.




Aruba:
dma.ldm.meteo.aw

Costa Rica:
iddcc.ucr.ac.cr

Argentina:
unidata.at.fcen.uba.ar

Brazil:
ldm.ciram.com.br
dados.climatempo.com.br
virt026.cemaden.gov.br
idd.cptec.inpe.br
mopora.cptec.inpe.br
tapacura.cptec.inpe.br
taperu.cptec.inpe.br
tapixaba.cptec.inpe.br
tigge-ldm.cptec.inpe.br
raio.smm.mil.br
nldm.tempestades.org.br
gaia.io.usp.br

Perú:
data.senamhi.gob.pe

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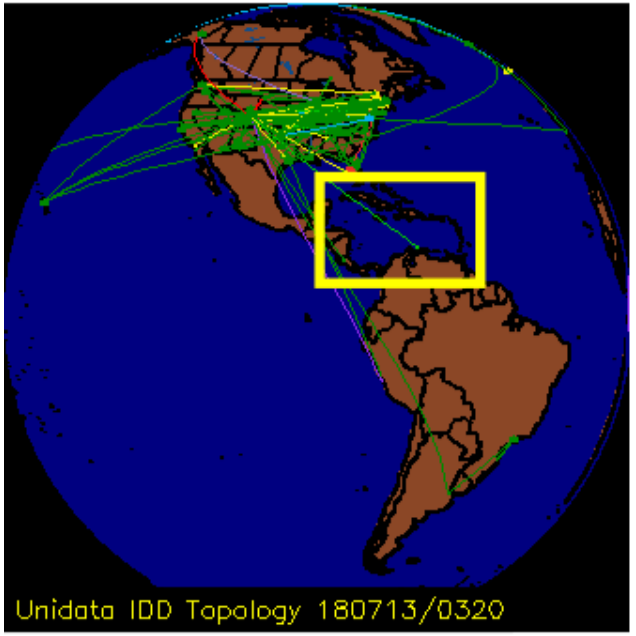
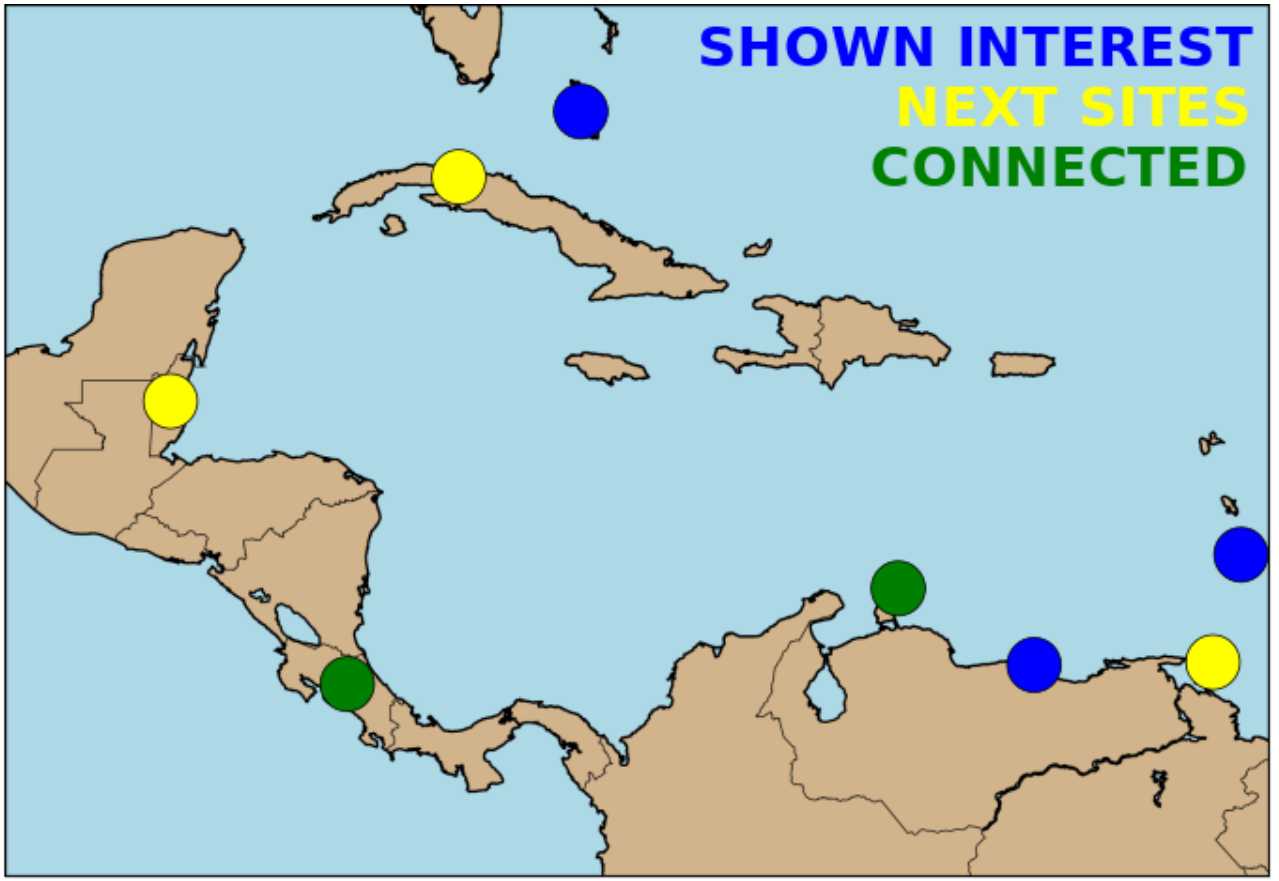
Internet Data Distribution
Central-America and Caribbean
(IDDCC)



GOES-R ReBroadcast (GRB) Satellite Imagery

More information can be obtained here:
https://www.unidata.ucar.edu/data/goesr.html

GOES-16 Satellite imagery and products available in the **SATELLITE** (aka **DIFAX**) datastream of the Unidata IDD.

| Instrument | Description |
|---|---|
| ABI | Advanced Baseline Imager imagery, sixteen wavelength channels |
| GLM | Geostationary Lightning Mapper |
| EXIS | Extreme Ultraviolet and X-Ray Irradiance Sensors |
| MAG | Magnetometer |
| SEIS | Space Environment In-Situ Suite |
| SUVI | Solar Ultraviolet Imager |

# GOES-R ReBroadcast (GRB) Satellite Imagery (ONE EXAMPLE OF **ABI L1b** PRODUCTS)

Full Disk - 15 minute Update Interval Mode 3 / 5 minute Update Interval Mode 4

| Channel | Description | Resolution [km] | Size [Lines x Elements] |
|---|---|---|---|
| Band 1 | 0.47 um VIS aerosol-over-land | 1.00 | 10848 x 10848 |
| Band 2 | 0.64 um VIS clouds fog, insol, winds | 0.50 | 21696 x 21696 |
| Band 3 | 0.86 um Near IR veg/burn scar,aerosol, wind | 1.00 | 10848 x 10848 |
| Band 4 | 1.37 um Near IR cirrus cloud | 2.00 | 5424 x 5424 |
| Band 5 | 1.61 um Near IR cloud phase, snow | 1.00 | 10848 x 10848 |
| Band 6 | 2.24 um Near IR land/cloud, vege, snow | 2.00 | 5424 x 5424 |
| Band 7 | 3.89 um IR Sfc, cloud, fog, fire, winds | 2.00 | 5424 x 5424 |
| Band 8 | 6.17 um IR High-level WV, winds, rainfall | 2.00 | 5424 x 5424 |
| Band 9 | 6.93 um IR Mid-level WV, winds, rainfall | 2.00 | 5424 x 5424 |
| Band 10 | 7.34 um IR Lower-level WV, winds & SO2 | 2.00 | 5424 x 5424 |
| Band 11 | 8.44 um IR Total WV cloud phase, dust | 2.00 | 5424 x 5424 |
| Band 12 | 9.61 um IR Total ozone,turbulence,wind | 2.00 | 5424 x 5424 |
| Band 13 | 10.3 um IR Surface & cloud | 2.00 | 5424 x 5424 |
| Band 14 | 11.2 um IR Imagery,SST,clouds,rainfall | 2.00 | 5424 x 5424 |
| Band 15 | 12.3 um IR Total water, ash, and SST | 2.00 | 5424 x 5424 |
| Band 16 | 13.3 um IR Air temp, cloud height and amount | 2.00 | 5424 x 5424 |

Example LDM/IDD Product ID:
OR_ABI-L1b-RadF-M3C01_G16_s20172571745382_e20172571756148_c20172571756196.nc

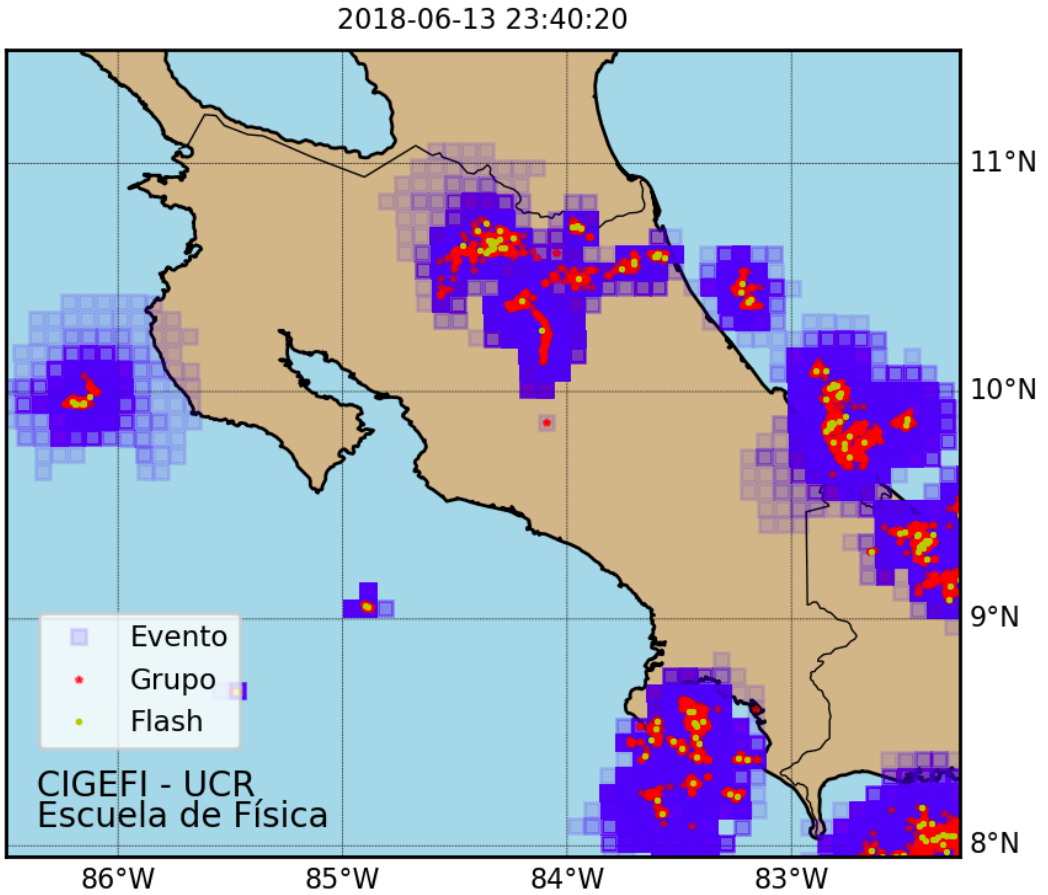
Example LDM configuration file REQUEST line:
**REQUEST DIFAX "RadF" idd.unidata.ucar.edu**

# GOES-R ReBroadcast (GRB) Satellite Imagery (ONE EXAMPLE OF **GLM** PRODUCTS)

GLM - Geostationary Lightning Mapper Products

Example LDM/IDD Product ID:
OR_GLM-L2-LCFA_G16_s20172571751400_e20172571752000_c20172571752029.nc

Example LDM configuration file REQUEST line:
**REQUEST DIFAX "GLM" idd.unidata.ucar.edu**



**1. Internet**

The bandwidth needed is data dependent. If you ask for a lot, you need a lot!

**2. Computer/Server**

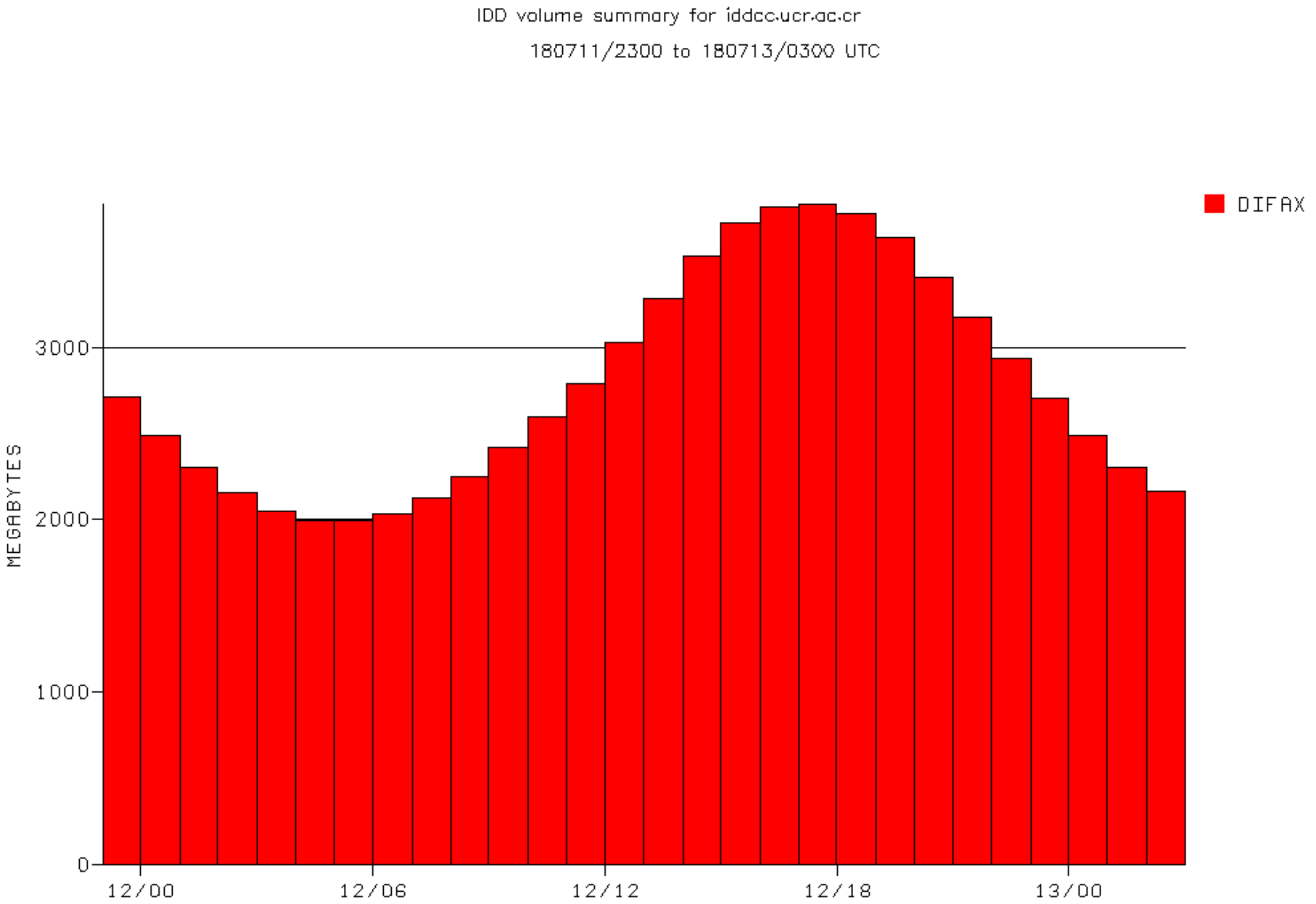
The computer “muscle” needed is dependent on the network traffic, products generated and post processing. CentOS Linux is STRONGLY recommended.

**3. A feed**

You need someone nice enough to share all the data with you! Unidata is a good friend but you can have others!

# Requirements

## Internet



Other software and links (very) useful from Unidata

Including a 2 week archive of everything!

Go to

http://thredds-test.unidata.ucar.edu/thredds/catalog/catalog.html

and try **Test Datasets, then GOES-16 Products, then GRB16!**

Or go directly to this link:

http://thredds-test.unidata.ucar.edu/thredds/catalog/satellite/goes16/catalog.html

For L2 data, you can visit this link:

http://thredds-test.unidata.ucar.edu/thredds/catalog/satellite/goes16/GOES16/Products/catalog.html

Different tools for accessing the data from the TDS server are available. One good option is to use Python.

To remember:

IDD is used in the USA and many other places.

It was designed for the Academia but now it is open to other clients, even private initiatives.

Includes ALL GOES16 sensors and MANY other data sources. Can be used as a backup for GRB or supplementary to GNC-A.

Real time operation, research, teaching, and other uses.

Data/Product filtering (get only what you need). If you only need ABI channel 1 and 13 that is what you get.

Products are organized and get ready for other programs like McIDAS X/V, IDV, TDS, AWIPS2 (CAVE), python-awips...

Very easy to incorporate in production environment. Look into:
http://www.cigefi.ucr.ac.cr/iddcc-ucr/

Thank you!