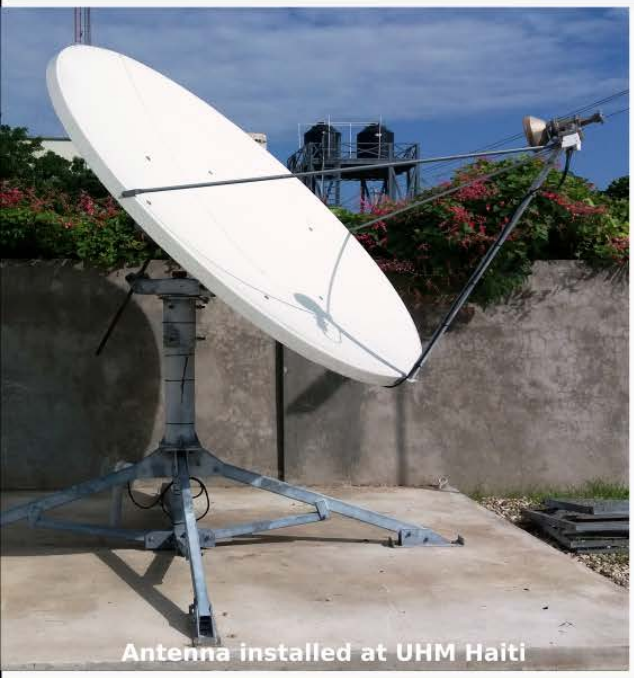
GEONETCast-Americas Overview


Antenna installed at UHM Haiti

Diego Souza

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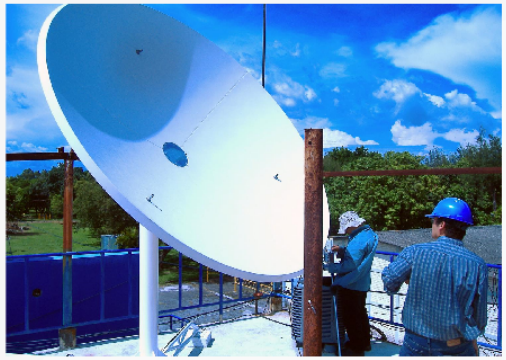
INPE - National Institute for Space Research
CPTEC - Center for Weather Forecasting and Climate Research
DSA - Satellite and Environmental Systems Division

satelite.cptec.inpe.br

GEONETCast: A Brief Definition



GEONETCast is a global network of sustained and cost-effective satellite-based dissemination systems. It delivers Earth observation (EO) data and products to the GEO (Group on Earth Observations) community activities, initiatives and flagships on a routine basis.

Group on Earth Observations

Ameri GEOSS

Implementing GEOSS in the Americas

MISSION: To strengthen international cooperation on global Earth Observation

www.earthobservations.org/geonetcast

GEONETCast-Americas: Community

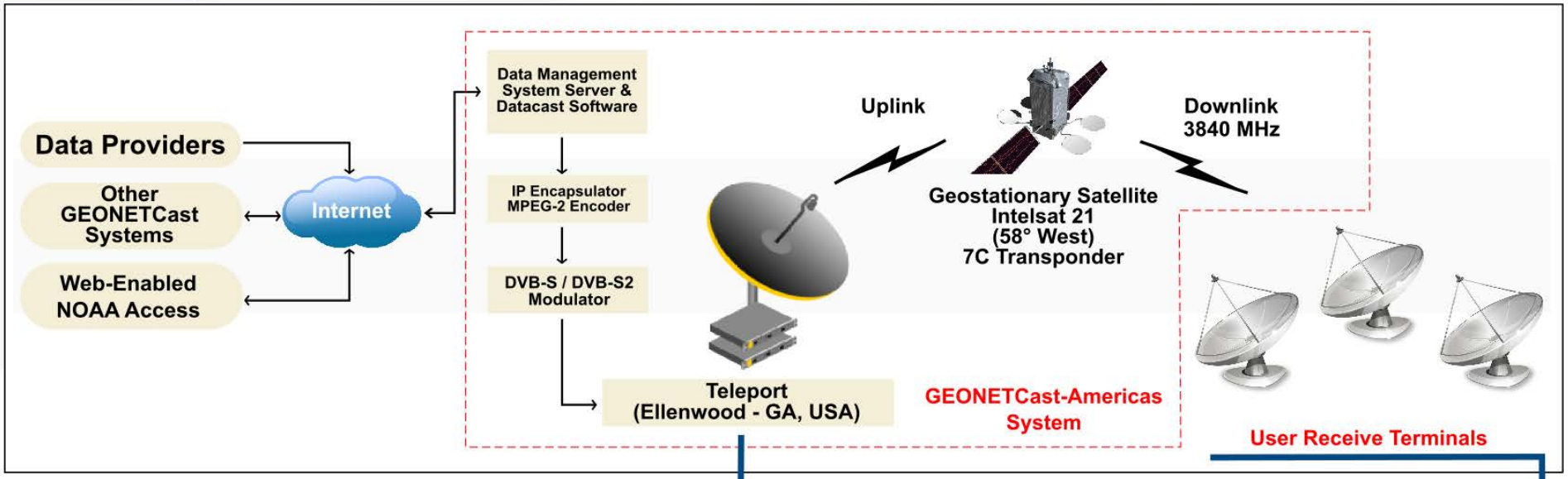
Number of Stations

2013	2014	2015	2016	2017	2018
10	16	30	55	69	82

Transmission Capacity

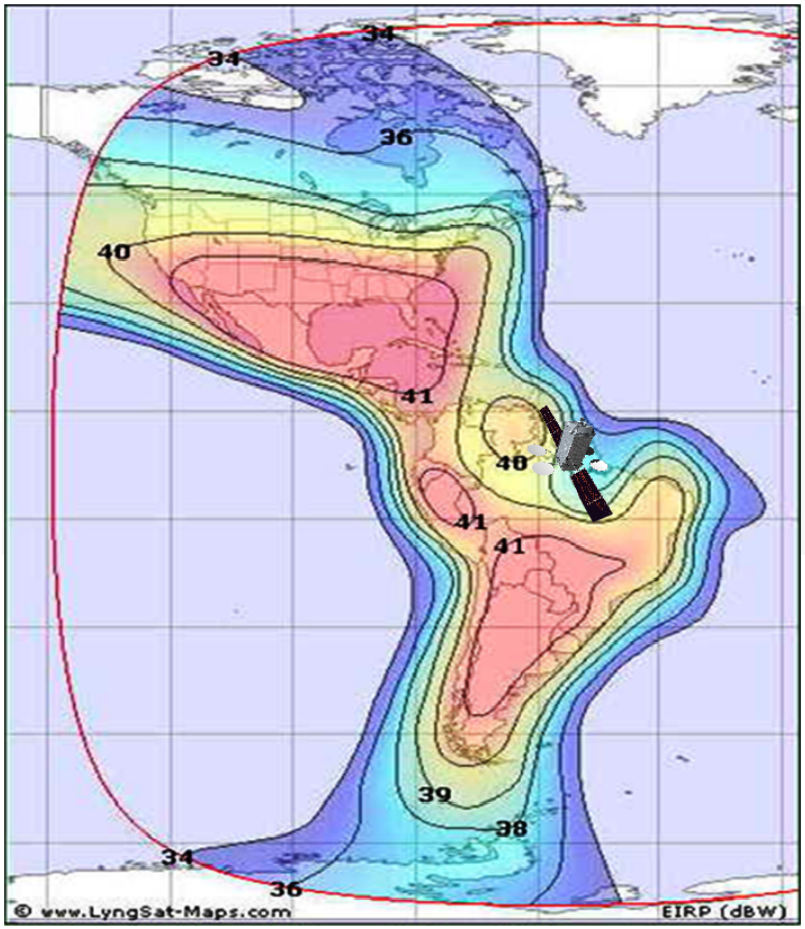
2015	2016	2017	2017	2017
2,0 Mbps	6,7 Mbps	8,6 Mbps	11,6 Mbps	12,0 Mbps
21 GB Day	72 GB Day	92 GB Day	125 GB Day	129 GB Day

GEONETCast-Americas: System Architecture



GEONETCast-Americas: Coverage

Coverage



- Western Hemisphere component of GEONETCast.
- Provided by USA / NOAA.
- Coverage for North, Central, South Americas and the Caribbean.

GNC-A
GEONETCast-Americas

GEOSTATIONARY SATELLITE INTELSAT-21 (IS-21)	
Satellite Name:	INTELSAT-21 (IS-21)
Manufacturer:	Boeing Space Systems
Orbital Position:	58° West
GNC-A Transponder:	7C
West Hemisphere C-Band Beam:	43.3 dBW Peak
Polarization:	Linear - Vertical
Frequência de Downlink:	3.840 GHz
Symbol Rate:	27.69 MS/s
FEC (Forward Error Correction):	7/8
PID (Packet Identification):	4201

The values in red are used in the DVB-S receiver configuration

Low Cost GEONETCast-Americas Stations

Computer

64-bit CentOS-6
INTEL Xeon E5
2.1 GHz
6 Cores
16 GB RAM
2 TB HD
2 Ethernet Ports

Antenna

LNB

DVB-S Receiver

Coaxial Cable

(back panel)

Ingestion Software

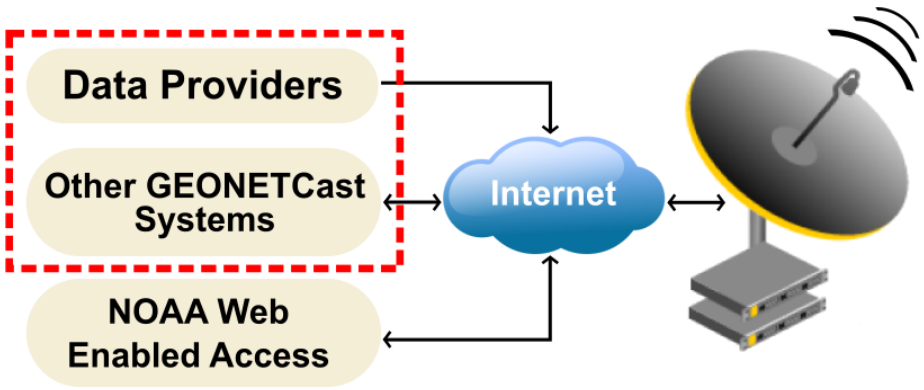
Crossover Network Cable

USD 5,000

GEONETCast-Americas: Receive Directory

/dados/fazzt/

Name	Size (KB)	Last modified	Owner	Gro
..				
Alert				
CONAE				
EUMETSAT				
GOES-R-CMI-Imagery				
GOES-R-GLM-Products				
GOES-R-Level-2-Products				
IDEAM-Forest				
IMN-CostaRica				
Info & Admin				
INPE				
Intl-Charter				
ISCS-ADMIN				
ISCS-ANLZ-CLIMATE				
ISCS-BUFR				
ISCS-FCAST				
ISCS-GRIB1				
ISCS-GRIB2				
ISCS-PIC				
ISCS-RADAR				
ISCS-SAT				
ISCS-SURFACE				
ISCS-UA				
ISCS-WARN				
JPSS				
MARN-El Salvador				
MSG-0degree				
NADM				
NOAA-NESDIS				
NOAA-NESDIS-GEOTIFFS				
RANET				
Training				
USEPA				



GNC-A
GEONETCast-Americas

MARN
Ministerio de Medio Ambiente y Recursos Naturales

CONAE

COMET
IEPAS / RANET

GEONETCast-Americas: Content (Summary)

- GOES-16
  - Advanced Baseline Imager (ABI)
    - Band 02
    - Band 07
    - Band 08
    - Band 09
    - Band 13
    - Band 14
    - Band 15
  - GLM (Geostationary Lightning Mapper)
    - Flash Density (5 minutes)
  - Baseline Products
    - Clear Sky Masks
    - Cloud Optical Depth
    - Cloud Top Height
    - Cloud Top Phase
    - Cloud Top Pressure
    - Cloud Top Temperature
    - Derived Motion Winds
      - Band 02
      - Band 07
      - Band 08
      - Band 08 (Clear Skies)
      - Band 09
      - Band 14
    - Fire Hot Spot Characterization
    - Land Surface Temperature (Skin)
    - Rainfall Rate / QPE
    - Surface Temperature (Skin)
    - Total Precipitable Water
  - Composites
    - Split Window Difference
    - Night Fog Difference
    - Day Cloud Convection RGB

- GOES-17 (Not open to public yet)
  - Advanced Baseline Imager (ABI)
    - Band 02
    - Band 07
    - Band 08
    - Band 09
    - Band 13
    - Band 14
    - Band 15
- JPSS
  - VIIRS
    - Day Night Band
    - I5 Band
- GCOM W1
  - AMSR-2
    - Soil Moisture
    - Land Cover Type
    - Total Precipitable Water
    - Cloud Liquid Water
    - Rain Rate
    - Convective Precipitation
    - Probability of Precipitation
    - Snow Cover
    - Snow Depth
    - Snow Water Equivalent
    - Sea Ice (Northern Hemisphere)
    - Sea Ice (Southern Hemisphere)
    - 6.9 Ghz Band H & V
    - 7.3 GHz Band H & V
    - 10.7 GHz Band H & V
    - 18.7 GHz Band H & V
    - 23.8 GHz Band H & V
    - 36.5 GHz Band H & V
    - 89.0 GHz Band-A H & V
    - 89.0 GHz Band-B H & V

- MIRS (S-NPP)
  - Total Precipitable Water
  - Rain Rate
  - Skin Temperature
  - Surface Type
  - Snow Cover
  - Snow Water Equivalent
  - Sea Ice Concentration
  - Snowfall Rate
  - Ice Water Path
  - Wind Direction & Speed
  - Brightness Temperatures
  - Graupel Water Path
  - Temperature and Moisture Profiles
- NUCAPS (S-NPP)
  - Sounding Products
- METEOSAT
  - 3 h Full & Open Data - Will be changed to 1h
  - Derived Products (15 minutes)
- Other
  - Blended Total Precipitable Water
  - Precipitable Water Anomaly
  - ASCAT Winds
  - Metop Sea Surface Temperature
  - Sea Ice Type (North. and South . Hemisp.)
  - Sea Ice Edge (North. and South . Hemisp.)
  - Sea Ice Concentration (N. and S . Hemisp.)
  - Sea Ice Emissivity (N. and S . Hemisp.)
  - Total Ozone Analysis SBUB/2 and TOVS
  - NPP Active Fires
  - 3h Fire Shapefiles (AQUA/TERRA/METOP/ NOAA/NPP/MSG/GOES)
- GFS
  - 1 ° (Global) and 0.5 ° (South Am. And Caribbean)

12 Mbps, 47 TB / year

Python Code Available & Visualization on SIGMACast

GEONETCast-Americas: Blog

GNC-A

GEONETCast-Americas

Delivering Environmental Data to Users in the Americas

BLOG

Home | The GEONETCast System | GEONETCast-Americas | Receive Station Set-Up | Products | Softwares | User Interaction | Contact | Live Support | GNC-A Forum | GNC-A Blog Content

GNC-A STATIONS EXAMPLES

New Operational GNC-A Station: UHM – Haiti (Station n° 82!)

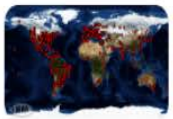
Posted on 2015-01-15 by Diego Souza

We have a new GNC-A operational station! It was installed at **UHM** (Unité d'Hydrométéorologie), Haiti. Their GNC-A antenna is shown at the picture below:

Huge thanks to CIMO, the "Center of Instruments and Observation Methods" from INSMET, Cuba, who assisted UHM in the installation and configuration, and kindly provided photos and information.

GNC-A PRODUCTS EXAMPLES

BLOG VISITORS MAP



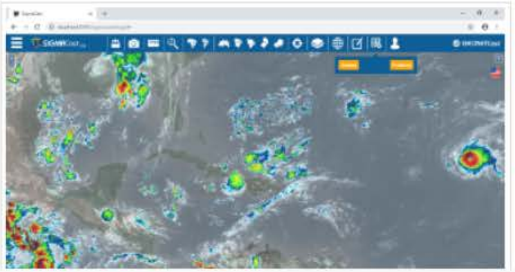
ALREADY IN GNC-A

GOES-16 derived products being added to the broadcast!

SOON IN GNC-A

Both ingestion and visualization machines are seen on the photo below:

SIGMACast and Python were installed in the visualization machine and remote access was provided in the UHM network:



geonetcast.wordpress.com

- Installation and Maintenance
- Product Manipulation (Python, SIGMACast and other)
- Station Examples
- Community Efforts
- GNC-A Related Events

GEONETCast-Americas Overview

THANK YOU FOR YOUR ATTENTION

Diego Souza

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CPTEC - Center for Weather Forecasting and Climate Research
DSA - Satellite and Environmental Systems Division

satelite.cptec.inpe.br