National Environmental Satellite, Data, and Information Service

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# DCS Data on GEONETCast Americas (GNC-A)

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# Outline

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- Broadcast Characteristics and GNC-A Overview
- Why GEONETCast?
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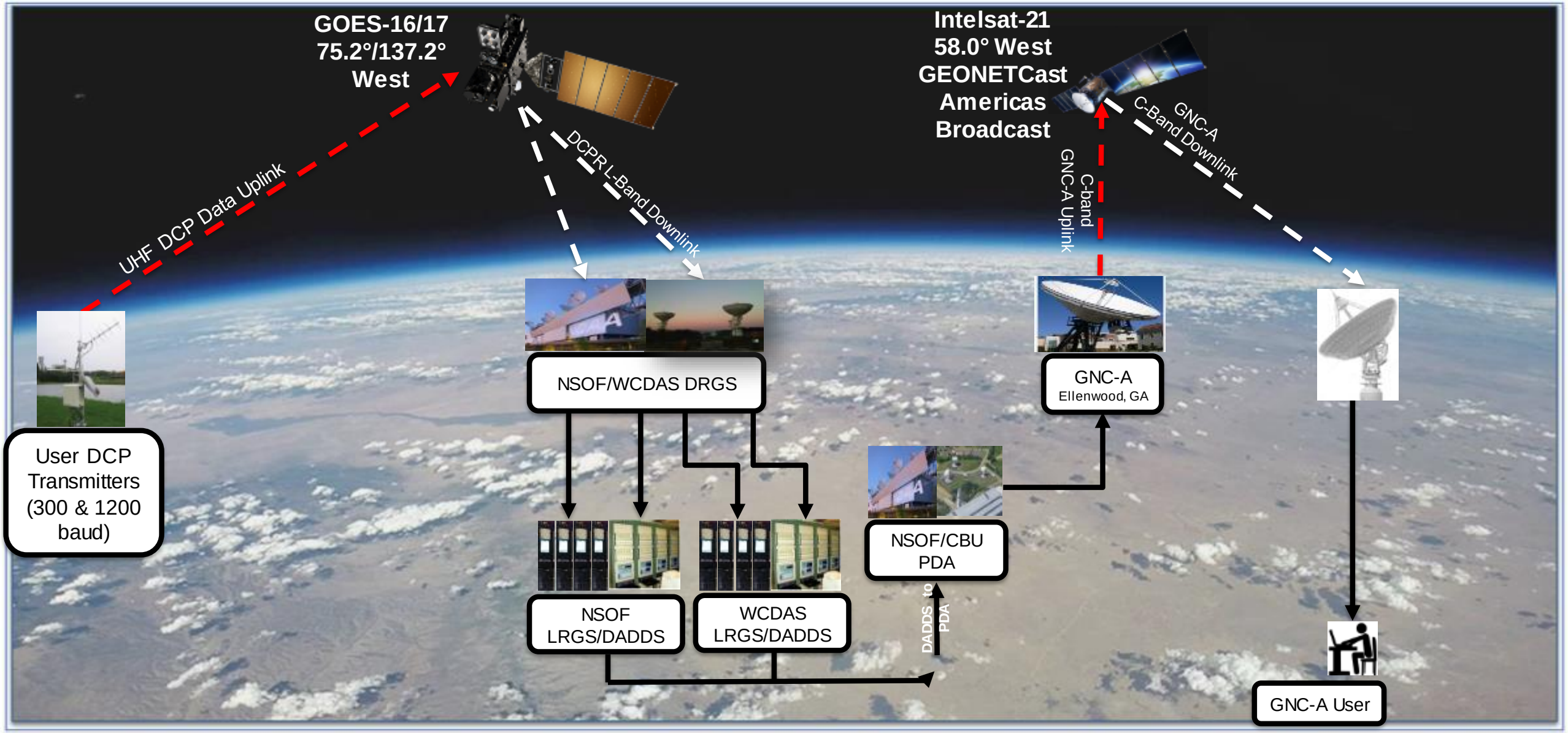
# NESDIS Satellite Broadcast Data Access Overview

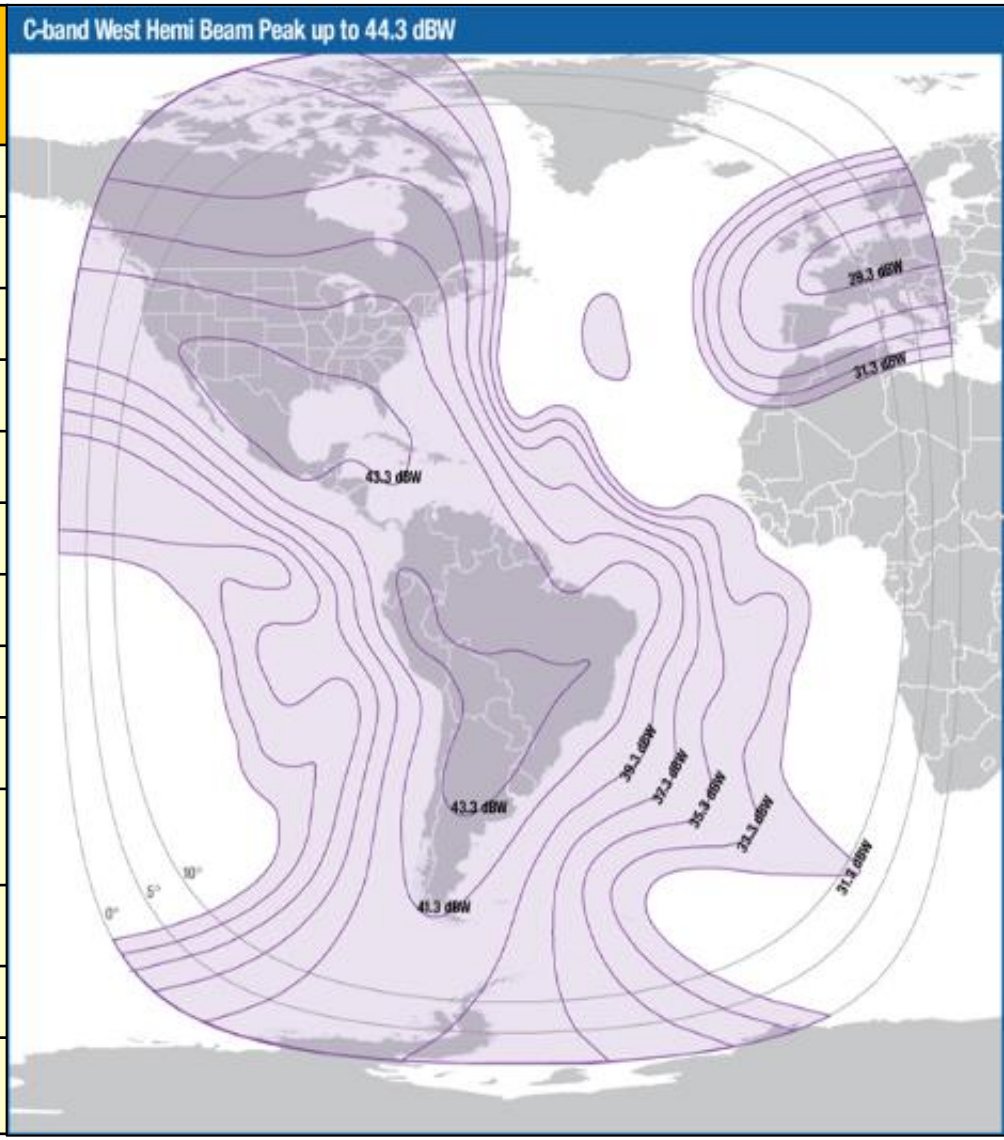
| Acronym | System Name | Description | Satellite & Location |
|---|---|---|---|
| GRB | GOES Rebroadcast | The primary relay of full resolution, calibrated, near-real-time broadcast of GOES-R for Level 1b data products (Advanced Baseline Imager L1b, Space Weather L1b, and Geostationary Lightning Mapper L2). This data is available to all users with GRB receivers in view of a GOES-R series satellite at the East or West operational footprints. | GOES-16 @ 75.2° W<br>GOES-17 @ 137.2°W |
| HRIT/ EMWIN | High Rate Information Transmission/ Emergency Managers Weather Information Network | The HRIT/EMWIN service is a high data rate (400 Kbps) broadcast for GOES-R satellite imagery and selected products to remotely-located user terminals. Combines LRIT and the EMWIN direct broadcast service that provides users with weather forecasts, warnings, graphics and other information directly from the NWS in near real-time. Also included is a copy of GOES-DCS. | GOES-16 @ 75.2° W<br>GOES-17 @ 137.2°W |
| DCS | Data Collection System | Remote data collection platforms (DCP) within the footprint of the NOAA geostationary East and West satellites that collect vast array of environmental observational data (river, tidal, seismic, meteorological, etc..) are transmitted to the GOES satellites and broadcasted down to users for processing, visualization and decision making. | GOES-16 @ 75.2° W<br>GOES-17 @ 137.2°W |
| GNC-A | GEONETCast Americas | GEONETCast Americas is the Western Hemisphere component of GEONETCast, a near real time, global network of satellite-based data dissemination systems designed to distribute space-based, air-borne and in situ data, metadata and products to diverse communities. This is a NOAA funded, NESDIS managed commercial rebroadcast service. | Intelsat-21 @ 58°W |
| JPSS HRD | High Rate Data | The HRD direct broadcast is a continuous real-time downlink of JPSS mission environmental data to users on the ground that are equipped with the ground resources necessary to capture the broadcast when the polar orbiting satellite is within view. HRD data content is a full set of science and calibration data from the mission instruments, as well as the spacecraft attitude and ephemeris data necessary for data product generation. | S-NPP and NOAA-20 polar orbiting satellites |

# GOES DCS to GNC-A Datapath



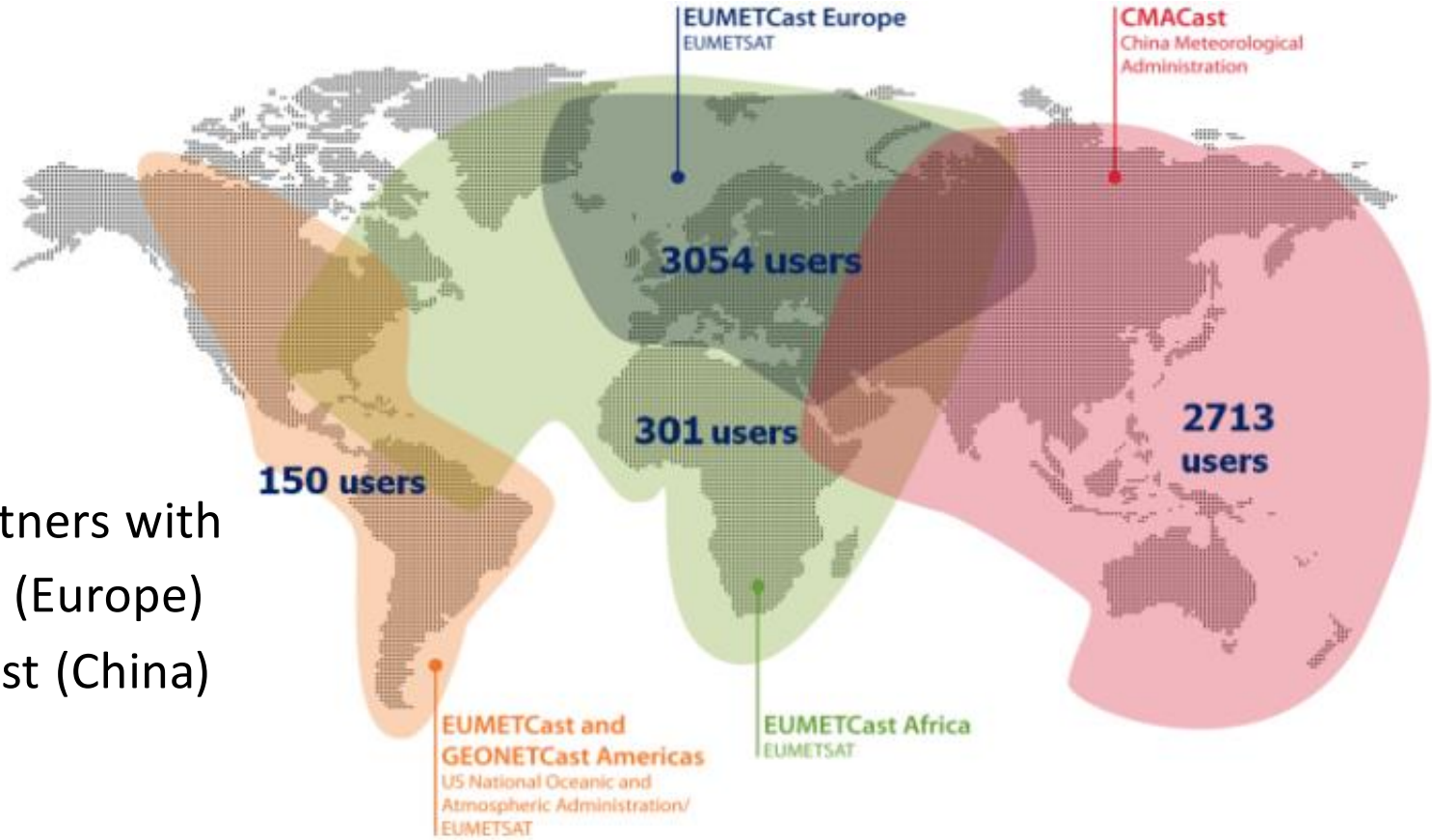
# GNC-A Broadcast Characteristics

| GEONETCast Americas Broadcast Parameter | Parameter Value |
|---|---|
| Satellite | IS-21 (Intelsat) |
| Location | 58 ° West or 302° East |
| PID | 4201 |
| Transponder | 19C (DVB-S2) |
| Radio Frequency Band | C-band |
| Frequency | 4080 MHz |
| Frequency Range | 3700 – 4200 MHz |
| Symbol Rate: | 30.00 Msym |
| Polarization | Linear – Vertical |
| Effective Isotropic Radiated Power Coverage | > 31.3 dBW |
| Datacasting Client Software (Required) | Kencast FAZZT Professional Client |
| Forward Error Correction – Kencast FAZZT | 5/6 |
| Peak G/T (antenna gain-to-noise-temperature) | Up to 2.5 dB/K |



# GEONETCast-Americas Overview

GEONETcast (GNC) is a worldwide, near real time, network of satellite-based data dissemination systems designed to distribute weather products to diverse communities.



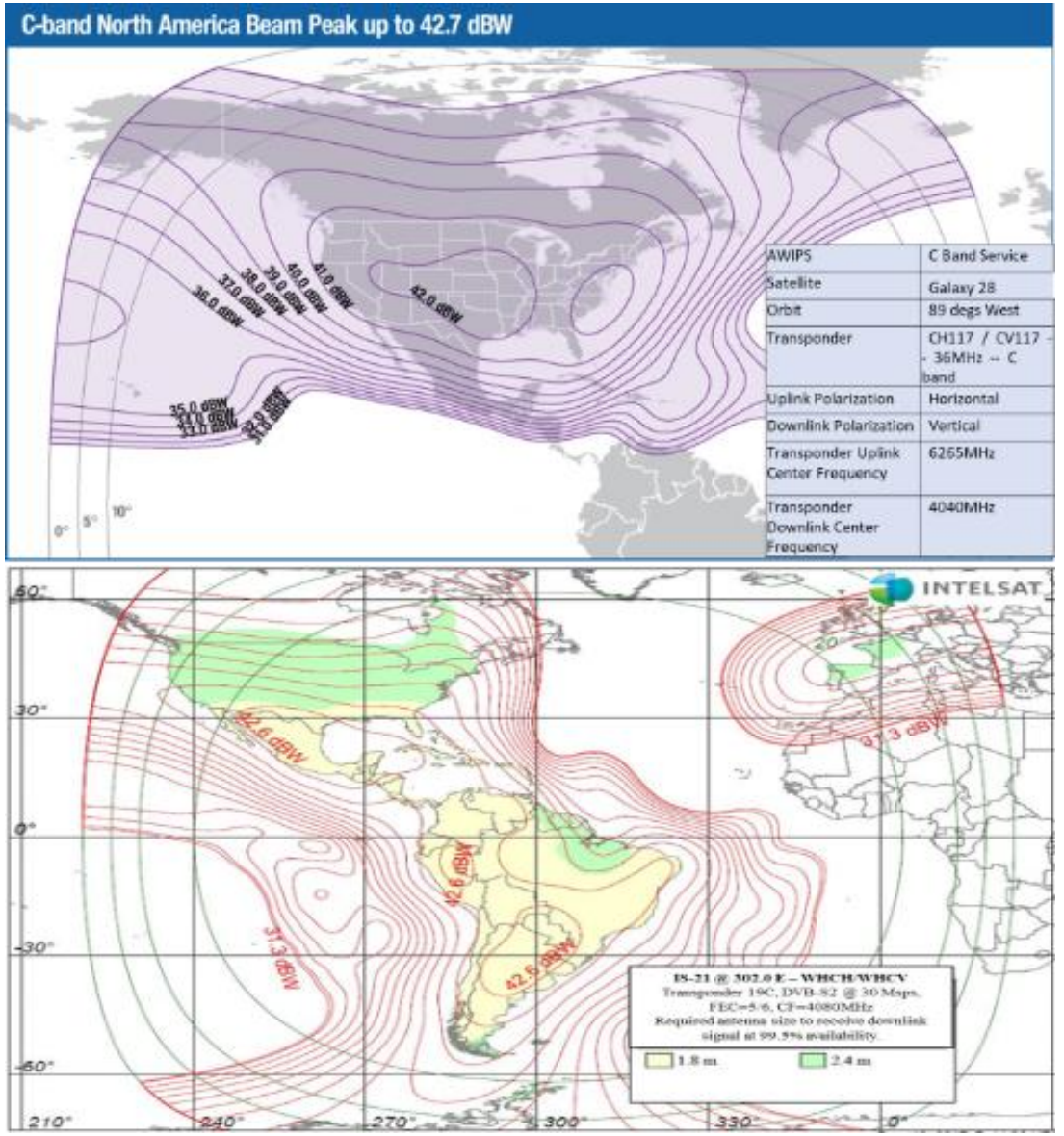

- We are partners with EUMETcast (Europe) and CMAcast (China)

# GEONETCast-Americas Customer Base is Growing

- GEONETCast Americas (GNC-A) now has 101 stations in the Western Hemisphere
- New stations in 2021-2022:
  - CEMIG (BRAZIL Electric Utility)
  - Catholic University of Valparaiso, CHILE
  - Ambiental, BRAZIL
  - ST-KITTS & NEVIS Meteorological Services
  - ANTIGUA and BARBUDA Meteorological Services
  - GRENADA Meteorological Services
  - Lannion, FRANCE

# Why GEONETCast?

- Available bandwidth for DCS data distribution
- It's broadcast bandwidth is scalable, allowing for more products if needed
- GNC-A's area coverage is much larger than NOAAPort's N. American C-band beam coverage. This gives users outside of NOAAPort the ability to capture DCS data
- A portion of the GNC-A community is also DCS data users
- C-band receive hardware more readily available and less expensive than L-band.
- Both CMACast and EUMETCast contain DCS data from their regions



# What's Needed to Obtain GEONETCast

- Users will need the following hardware to obtain GNC-A:
- Antenna – 1.8 – 2.4m,
- Low Noise Block (LNB)
- DVB-S2 compatible receiver
- Kencast FAZZT software
- CPU workstation for receiving and processing the data

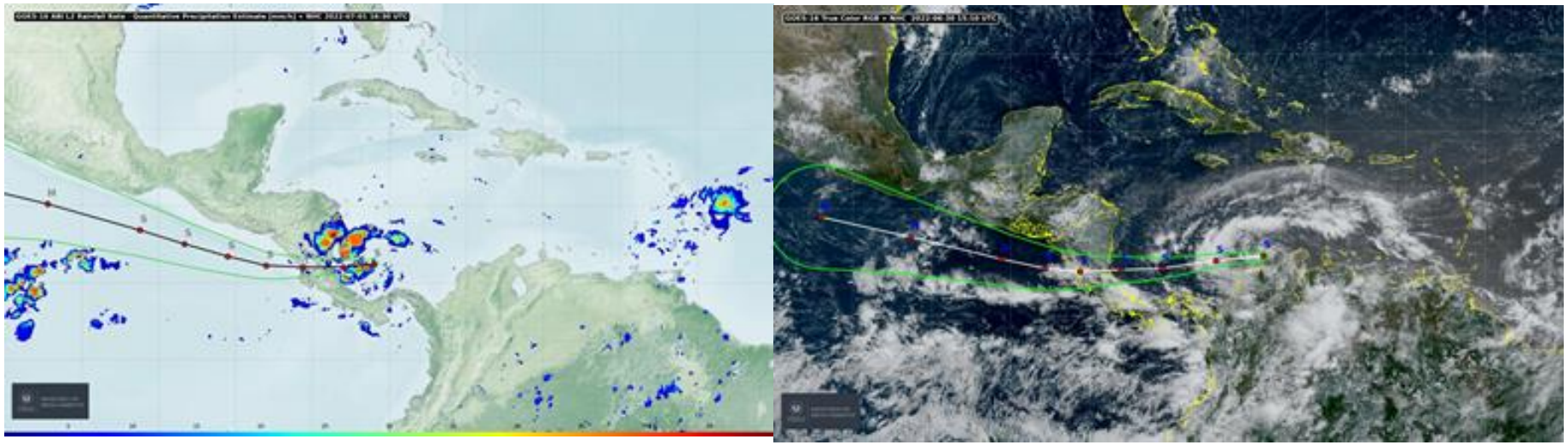

For more details, please visit the GNC-A blog at the following URL:
https://geonetcast.wordpress.com/where-to-buy-gnc-a-equipment/

# GEONETCast-Americas Upgrades and News

- We are doing upgrades to hardware, software, virtual machines
  - We  expect some short downtimes. Customers will be notified
  - Downtime went well on 7 March
  - Phase 2 in April - hardware
  - Phase 3 before 25 May - software, virtual machines
- Multinational Webinar went well on 2 March.
  - Attended by 130 customers from North, Central, and South America
  - Discussed GNC-A news and upgrades/outages
  - Presentation:
    - Mr. Mike Neilson, OpenDCS Developer from the United States Army Corps of Engineers Institute for Water Resources, Hydrologic Engineering Center
    - Setting up an OpenDCS LRGS system to acquire data and do some processing

# Customer Showcase: Ministerio De Medio Ambiente Y Recursos Naturales (MARN) El Salvador - William Abarca

- MARN plots the NHC Tracking and Forecast overlayed with GOES-16 Bands 02 (0.64 µm), 13 (10.35 µm), the True Color RGB and the Rainfall Rate / Quantitative Precipitation Estimate.
- This allows El Salvador to better predict tropical storm and hurricane tracks, with an example Tropical Storm Bonnie, which made landfall 2 July 2022 near the Costa Rica-Nicaragua border
- MARN is receiving data via GEONETCast-Americas and is using SHOWCast for processing and visualization.



# Mexican National Tsunami Warning System

- From the DCS website: Mexican hydro data is sent via internet NAD via DCS to the Mexican Tsunami Warning Center
- Tsunami data is also sent via GNC-A.
- Could GNC-A be a backup for remote Mexican forecasters or Mexican military and first responders on-site after a disaster?