



Introduction to GEO-NETCast

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Richard Fulton
GEO-NETCast Lead for NOAA
NOAA Satellite and Information Service
Silver Spring, Maryland, USA
Richard.Fulton@noaa.gov

Outline

- **Description of GEO-NETCast**
- **NOAA's Status and Plans**
- **Live demonstration**

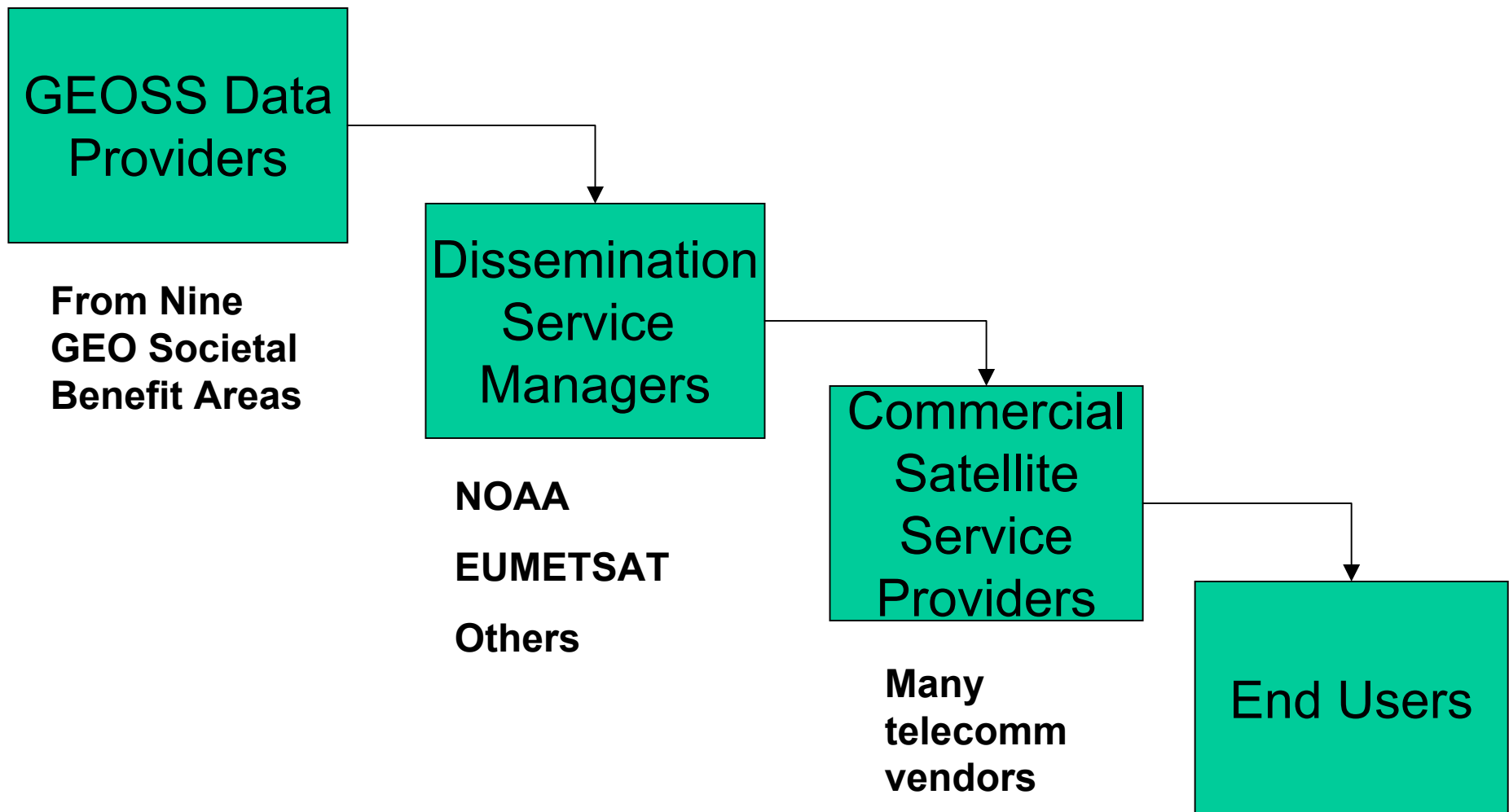
What Is GEO-NETCast?

GEO-NETCast is a component of a GEOSS real-time data dissemination system by which environmental satellite and *in situ* data, products, and services will be transmitted to users through a global network of communications satellites

Overall Concept

- **A global broadcast system for the delivery of diverse GEOSS data, products, and services**
 - Data from in-situ and space-based observing systems in standard formats
 - Supporting all nine GEO societal benefit areas
 - Divided into channels and product categories that user can select based on need
- **Transmitted to affordable ground receiving stations through a network of commercial communication satellites**
 - Built on existing dissemination systems with data collection hubs around the globe
 - Situated to provide global coverage
 - Use of standard multicast dissemination protocols such as Digital Video Broadcast (DVB) to encapsulate products of any format
- **Dissemination is full and open, respecting existing data policies**
- **Each GEO partner involved in GEO-Netcast would provide data dissemination capability with overall coordination provided by the GEO-NETCast Implementation Group**

Major GEO-NETCast Participants



GEO-NETCast Implementation Group

Linda Moodie (NOAA) : GEO-NETCast Point of Contact for GEO



■ Richard Fulton, POC



■ Michael Williams, POC



■ Donald Hinsman, POC

Lead organizations

■ Other contributors from around the world

GEO Members and Organizations Indicating Interest in GEO-NETCast

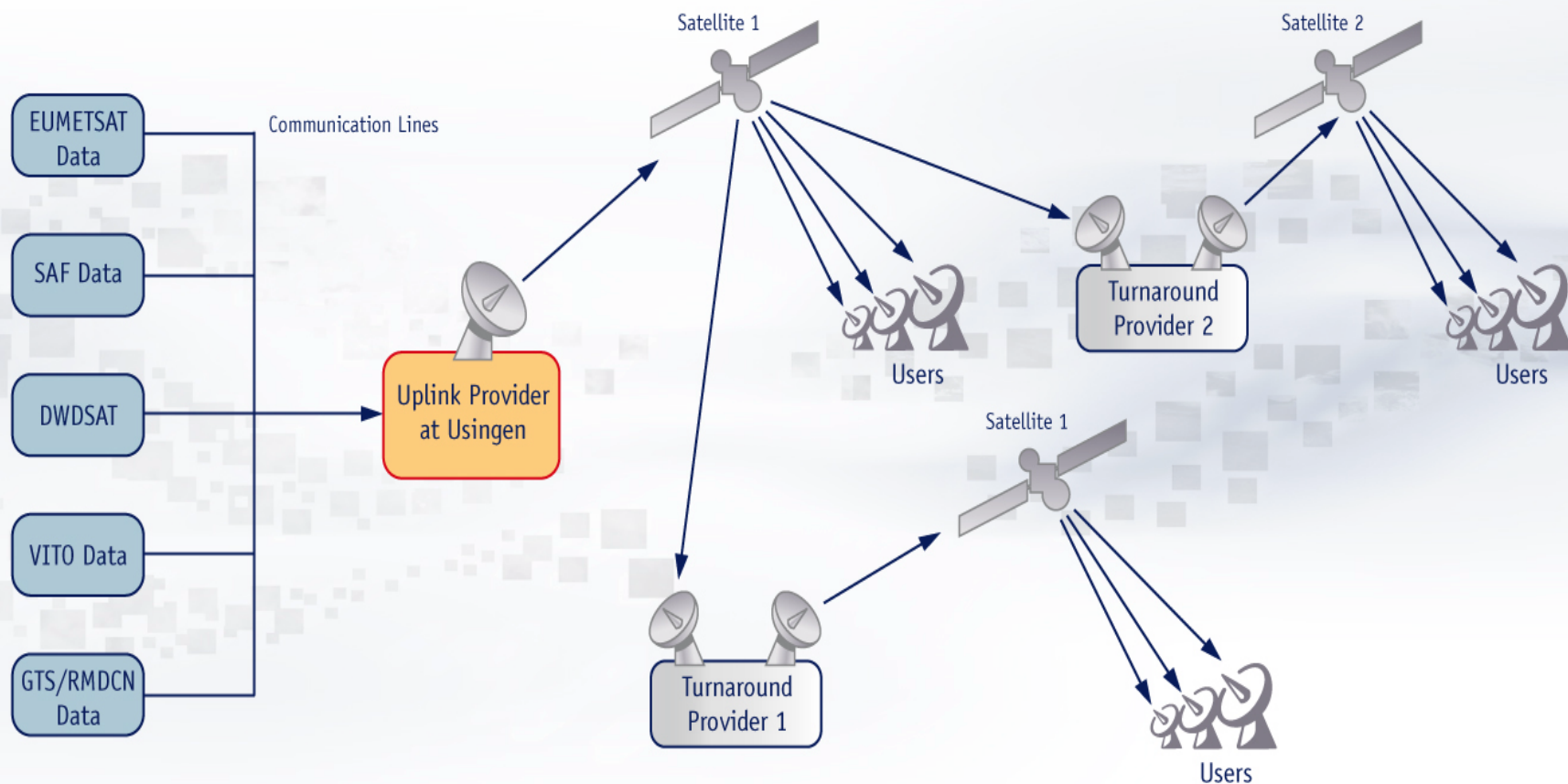
- Argentina
- Australia
- Brazil
- China
- European Commission
- Finland
- Germany
- Greece
- Japan
- Korea
- New Zealand
- Russia
- South Africa
- United Kingdom
- **United States (co-lead)**
- African Association of Remote Sensing of the Environment (AARSE)
- Committee on Earth Observation Satellites (CEOS)
- European Space Agency (ESA)
- EUMETNET
- **EUMETSAT (co-lead)**
- Federation of Digital Broadband Seismographic Networks (FDSN)
- International Institute of Space Law (IISL)
- Open Geospatial Consortium (OGC)
- **World Meteorological Organization (WMO) (co-lead)**

GEO-NETCast

Key Features and Advantages

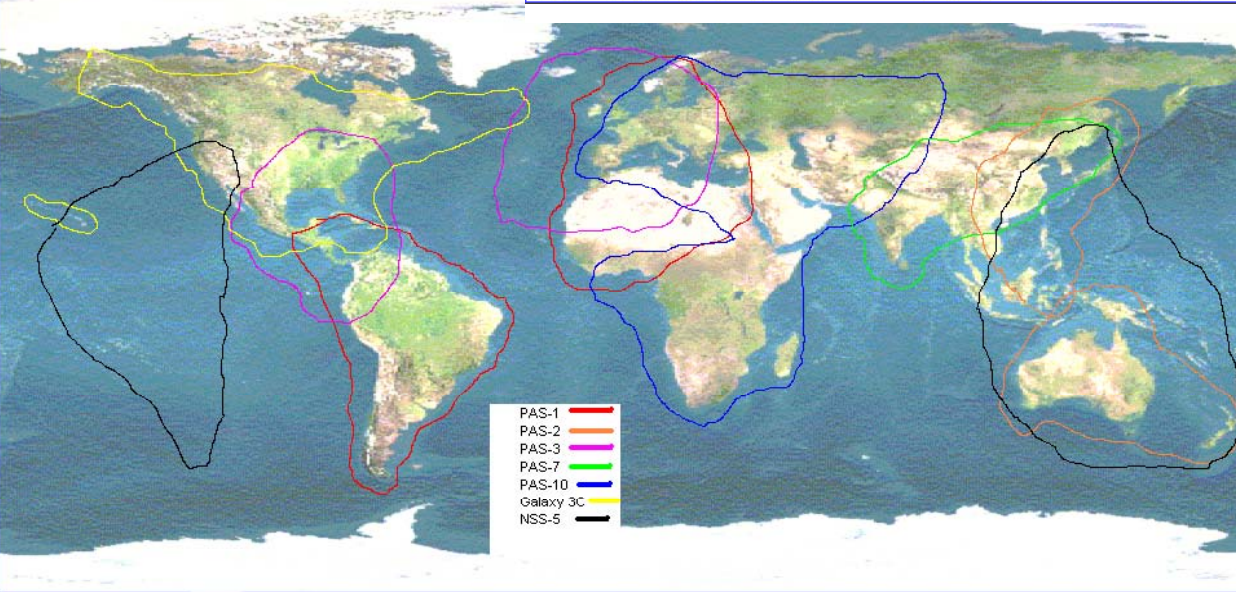
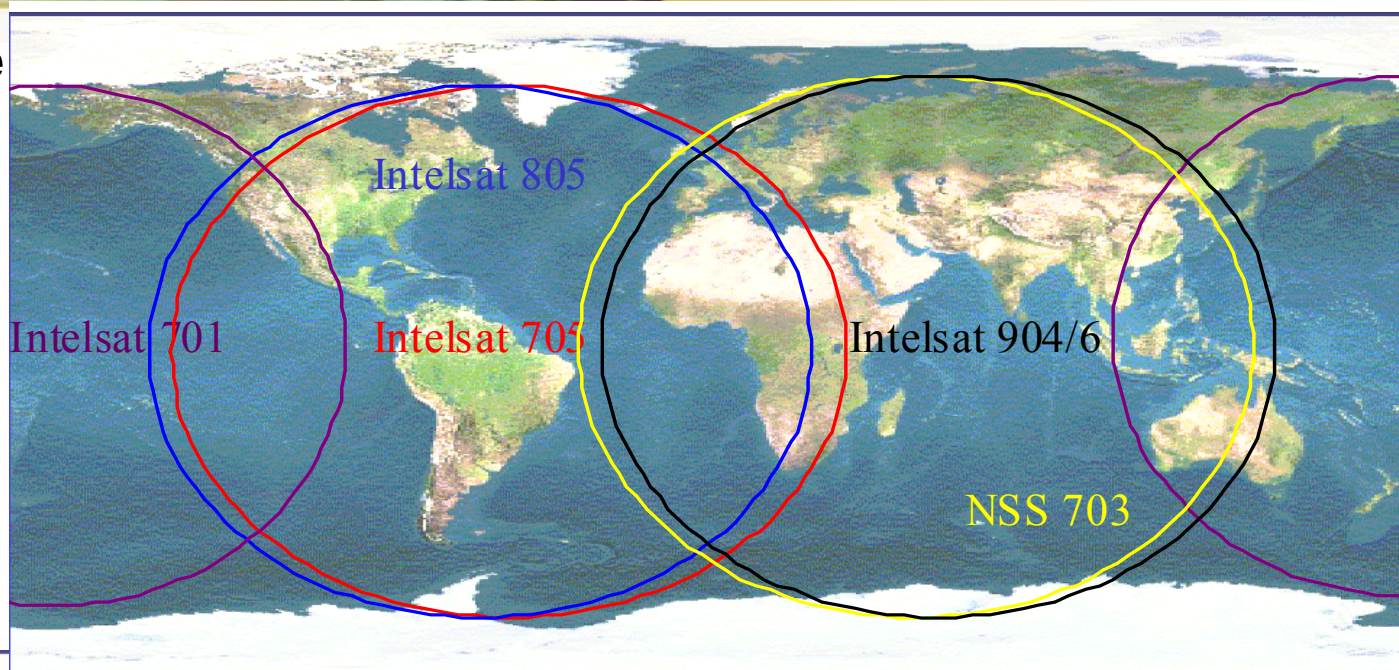
- **Will utilize existing and expanding **commercial satellite telecommunications** infrastructure** (digital satellite TV bandwidth, up/downlink, & turnaround facilities)
- **Expandable global coverage and data sharing** through use of existing commercial satellite turnaround ground stations
- **Expandable dissemination capacity** through purchase of additional satellite bandwidth ...obviating the need to purchase new custom hardware receive stations as new observing systems are deployed
- **Will leverage existing infrastructure** for operational environmental dissemination to speed deployment (e.g., EUMETSAT's EUMETCast)

GEO-NETCast Will Leverage upon Existing EUMETCast Infrastructure



Commercial Satellite Coverage

Global C-Band Coverage



Global Ku-Band Coverage

GEO-NETCast

Key Features and Advantages (cont.)

- **One-stop shopping: Reception of diverse GEOSS datasets using a **single receive station** (in-situ, remotely sensed data from any observing system in nine GEO societal benefit areas)**
- **Will utilize **inexpensive, generic, off-the-shelf** receiver hardware and software that can cost under \$2000 (PCs, small antennas, DVB interface cards)**
- **An **alternative** to existing dedicated receive stations customized to specific datasets and with limited expansion capabilities**

Typical Receiver Station Configuration

- Dedicated personal computer (~ \$1000)
- Satellite antenna dish (1-3 m) (~ \$300)
- DVB-S receiver card or box (~ \$200)



Data analysis and processing should be done on separate computer(s)

What is GEO-NETCast Not?

- **Not a user's data storage or management system**
 - User must manage his own data external to the receive station once it is received
- **Not a data archival system**
 - User must archive received data if desired
- **Not a value-added data processing system**
 - User must develop or use his own, or purchase commercial analysis software

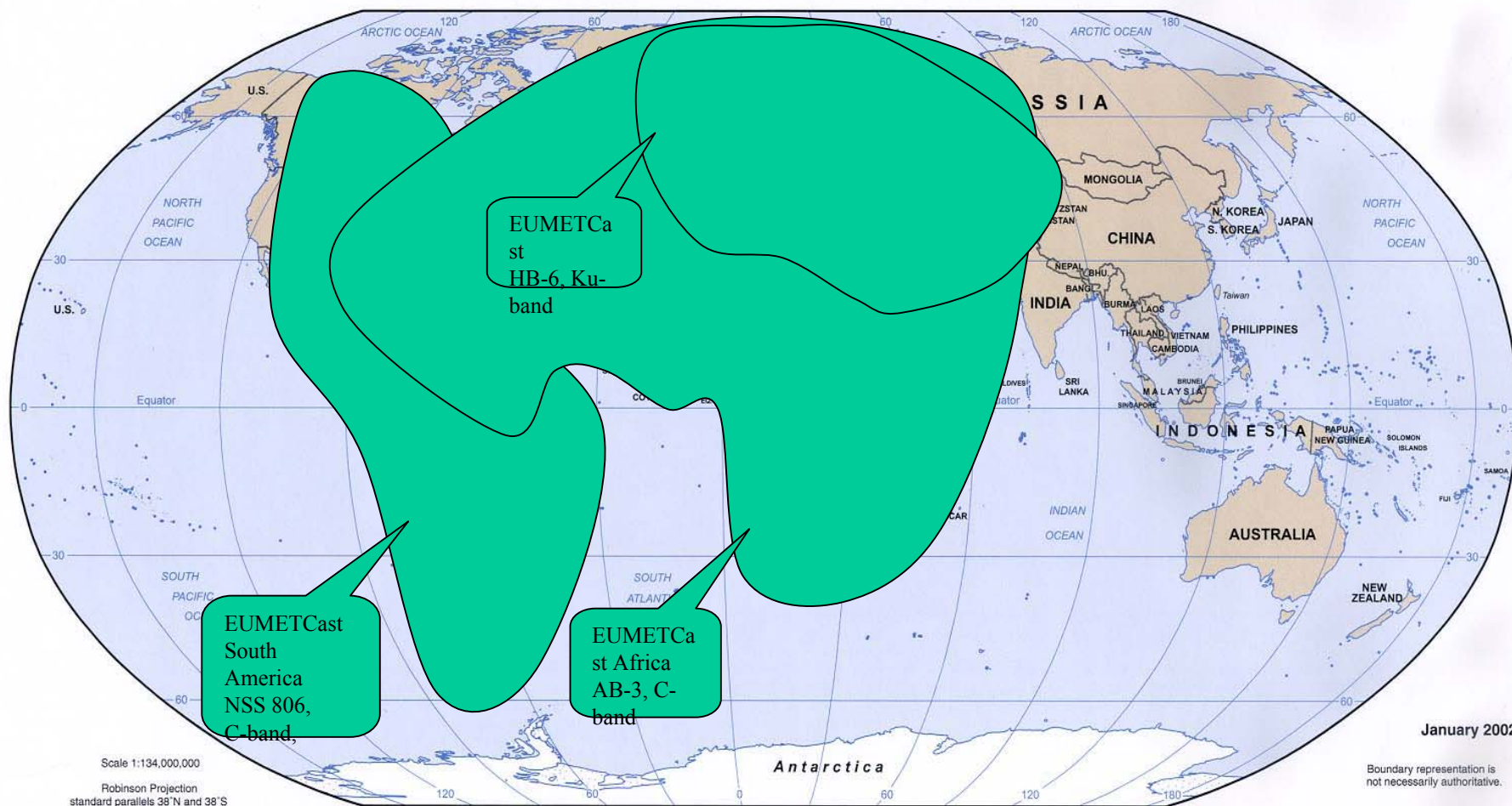
Sample of Initial Demonstration Products from NOAA and EUMETSAT*

- **GOES and MSG images**
- **Total Precipitable Water**
- **Ocean surface winds**
- **Soil moisture**
- **Global Snow cover and depth**
- **Land surface type**
- **Global vegetation index**
- **Ocean data chlorophyll alfa**
- **Downwelling radiation fluxes**

Data Available in the Americas Via the Existing EUMETCast Satellite Broadcast

- **EUMETSAT's Meteosat SEVIRI High-rate image data every 15 minutes**
- **NOAA's and EUMETSAT's GEO-NETCast demonstration products (starting next week)**

EUMETCast Coverage



Status of U.S./NOAA Development Activities

- **2003-2006 - Evaluating candidate GEO-NETCast alternative dissemination methods (including EUMETCast and others)**
- **2006 – Beginning to develop a prototype dissemination system to serve users in the Americas and adjacent parts of the Pacific and Atlantic Oceans**
- **2006 – Holding weekly coordination and planning teleconferences with our Implementation Group partners (EUMETSAT and WMO)**
- **2006 – Preparing for first GEO-NETCast Participants Meeting (U.S., July 19) and live GEO-NETCast demonstrations in Belgium (May 3), Brazil (today), and U.S. (July 19)**

Next Steps: U.S.

- NOAA to demonstrate GEO-NETCast dissemination capabilities for users in the Americas and adjacent ocean areas
- NOAA is in the process of:
 - Identifying technical requirements and costs
 - Working to provide access to *in situ* and satellite products for all nine societal benefit areas
 - Researching, negotiating and contracting for best-cost U.S. options for satellite bandwidth costs and dissemination hub capabilities
 - Working with EUMETSAT and WMO to identify other countries to bear communication satellite costs in other parts of the world to work toward global coverage
 - Working with other GEO Members and Participating Organizations for their input and feedback.

How Can You Contribute to GEO-NETCast?

The Implementation Group Requests Your Input

- **End Users: Tell us your environmental data product needs (type, frequency, size, etc.)**
- **Data Providers: Tell us what potential environmental data you wish to contribute to the GEO-NETCast real-time datastream**

Fill out a form provided here, and give it to me today or
mail it

For More Information, Contact...

- **GEO POC – Linda.Moodie@noaa.gov**
- **NOAA POC – Richard.Fulton@noaa.gov**
- **EUMETSAT POC – Mike.Williams@eumetsat.int**
- **WMO POC – dhinsman@wmo.int**
- **EUMETCast Help Desk - ops@eumetsat.int
+49 (0)6151 807 366/377**

Today's GEO-NETCast Demonstration: ***Two Components***

■ **End User demo:**

- **Demonstrate the real-time reception of Meteosat image data using the satellite dish outside our hotel and our portable receiver station**

■ **Data provider demo:**

- **Demonstrate the ad-hoc transmission using internet FTP of a NOAA GEO-NETCast product from here at the workshop, to the satellite uplink facility in Germany, to a commercial satellite for broadcast, and the receipt of that same product here with our receiver station from the satellite dish outside the hotel**

3 m C-band Satellite Dish pointing at NSS-806 Commercial Geostationary Telecommunications Satellite

