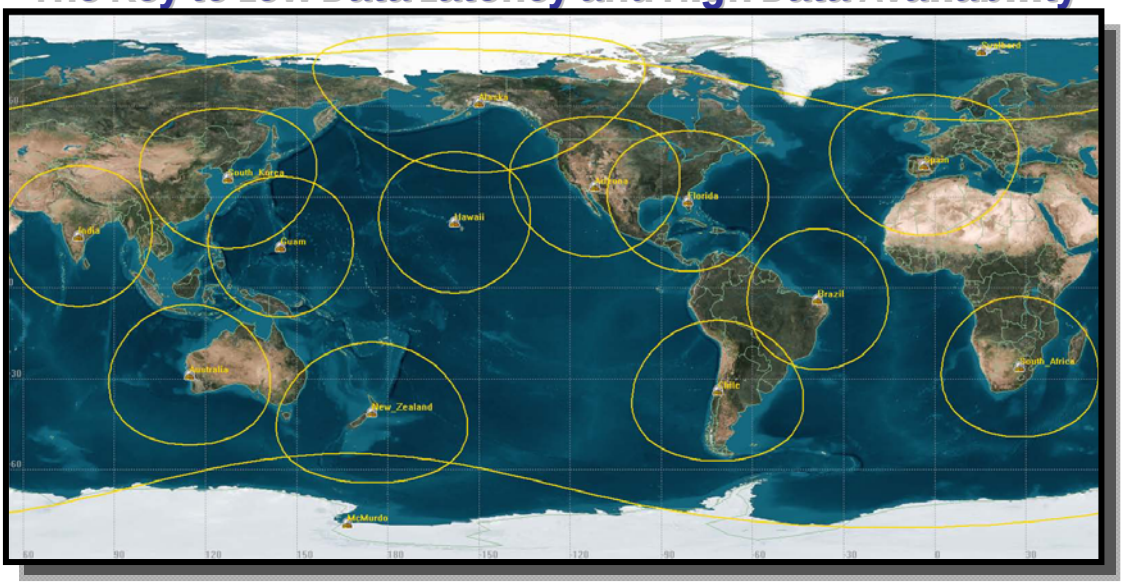
NPOESS Safety Net™

NGST Subcontractor – Raytheon

www.npoess.noaa.gov

A key feature of the National Polar-orbiting Operational Environmental Satellite System (NPOESS) is the Northrop Grumman Space Technology patent-pending data collection architecture called SafetyNet™. Globally distributed ground receptors (15) developed by Raytheon Company, collect up to five times as much weather data four times faster than current polar-orbiting weather satellite systems. Once collected, this data is rapidly forwarded to US weather centrals, via global fiber optic network, for processing in environmental prediction models and other vital applications.

The Key to Low Data Latency and High Data Availability



SafetyNet™ -- 15 globally distributed SMD (Stored Mission Data) receptors linked to the centrals via commercial fiber -- enables low data latency and high data availability

NPOESS SafetyNet™ Receptor Sites Support

- Rapid sensor data reception
  - Globally diverse locations (7 continents)
  - Dedicated earth stations
  - Autonomous operation
- Designed to track orbiting satellites
  - Low earth
- High data volume
  - Provides independent network for stored mission data
  - Data relay via commercial fiber network
  - Stored spacecraft sensor data transferred to US for processing and dissemination
  - Data multicast simultaneously to all processing locations
- Redundant data reception
  - Supports dual copy mode for diverse data reception

Receptors located at secure fiber network entry points receive mission data automatically per defined contact schedules

Quality

Support environmental analyses for science and operations: 10x more data than DMSP or POES

Support forecast warnings and now-casts: ≤15 minute data latency 77% of the time, under 28 minutes 95% of the time

Latency

Availability

Support military and civilian operational needs: 99.95% data availability and 94.3% system availability

The SafetyNet™ ground architecture for the National Polar-orbiting Operational Environmental Satellite System (NPOESS) will provide low data latency and high data availability to its customers. NPOESS will cut the time between observation and delivery by a factor of four when compared with today's space-based weather systems, the Defense Meteorological Satellite Program (DMSP) and NOAA's Polar-orbiting Operational Environmental Satellites (POES). SafetyNet™ will be a key element of the NPOESS architecture, delivering near real-time data over commercial telecommunications networks. Scattered around the globe, the 15 unmanned ground receivers are linked by fiber-optic systems to four central data processing centers in the U. S. known as Weather Centrals. The Centrals are operated by the National Environmental Satellite, Data and Information Service; Air Force Weather Agency; Fleet Numerical Meteorology and Oceanography Center, and the Naval Oceanographic Office.

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