



*Keeping the universe connected.*

# SCaN Program Overview

## Earth Venture-2 (EV-2) Draft AO Workshop

### March 4, 2011

# SCaN Program Objectives

- The objectives of the SCaN Program are to support the NASA Mission Directorates and external organizations with centralized space communications and data services that enable missions to meet their objectives
- Additionally the SCaN Program performs infrastructure, sustaining, and replenishment efforts necessary to maintain service capacity and capability consistent with the Agency's commitments and mission model
- The SCaN Program also conducts space communications technology development, data standards development, and radio frequency management to provide enabling, efficient and effective mission services

# SCaN Operating Networks



**Deep Space Network (DSN):** three globally distributed terrestrial communications stations predominantly supporting missions operating at significant distances from Earth orbit



**Space Network (SN):** geosynchronous relay satellites predominantly supporting Low Earth Orbit (LEO) missions with global coverage



**Near Earth Network (NEN):** globally distributed tracking stations supporting near Earth spacecraft needing periodic contact

# SCaN Ground Stations

- **DSN**
- **NEN/NASA**
- **NEN/Commercial**
- **NEN/Partner**
- **SN**

**Alaska Satellite Facility**  
Fairbanks, Alaska



**Partner Station:**  
Gilmore Creek, Alaska



**USN Alaska**  
Poker Flat & North Pole, Alaska



**Madrid Complex**  
Madrid, Spain



**Kongsberg Satellite Services (KSAT)**  
Svalbard, Norway



**Swedish Space Corp. (SSC)**  
Kiruna, Sweden



**German Space Agency (DLR)**  
Weilheim, Germany



**Goldstone Complex**  
Fort Irwin, California



**USN Hawaii**  
South Point, Hawaii



**White Sands Complex**  
White Sands, New Mexico



**White Sands Ground Terminal,**  
White Sands, New Mexico



**Merritt Island Launch Annex**  
Merritt Island, Florida



**University of Chile**  
Santiago, Chile



**Wallops Ground Station**  
Wallops, Virginia



**McMurdo Ground Station**  
McMurdo Base, Antarctica



**Satellite Applications Center**  
Hartebeesthoek, Africa



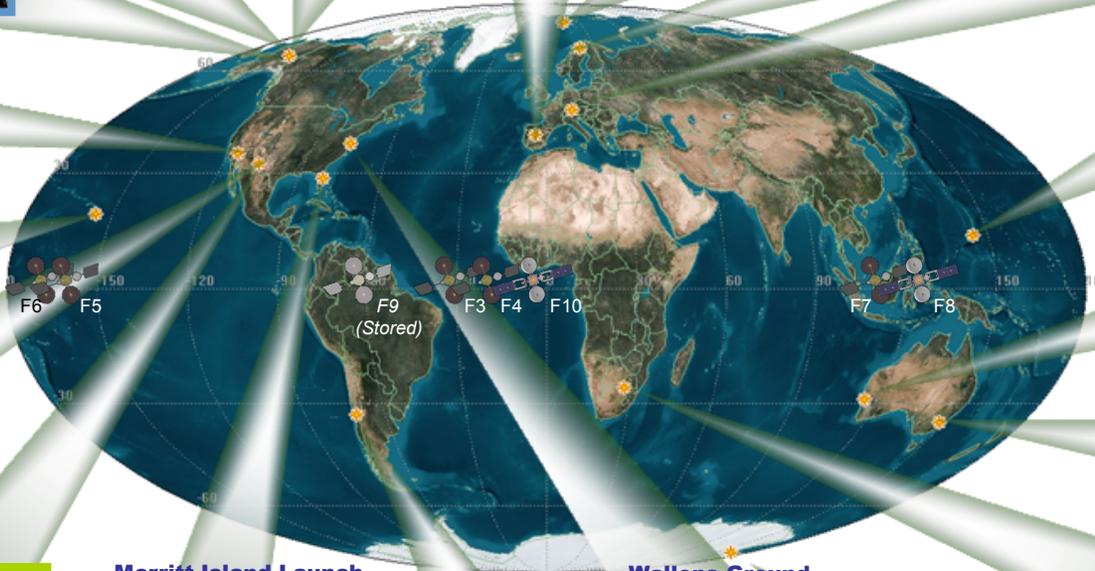
**Guam Remote Ground Terminal**  
Guam, Marianna Islands



**USN Australia**  
Dongara, Australia



**Canberra Complex**  
Canberra, Australia

# NASA Telecommunications Policy

- NASA Policy Directive (NPD) 8074.1, Management and Utilization of NASA's Space Communication and Navigation Infrastructure, states NASA Mission Directorates (MDs) shall:
  - Use SCaN networks to meet their communication and navigation requirements for human and robotic space missions
  - Where appropriate and cost-effective for the Agency, MDs, in coordination with the SCaN Program Office, may use pre-existing infrastructure external to NASA for this purpose, as long as no new facilities are constructed using NASA funds
  - Not design or develop space Communications & Navigation infrastructures independent of SCaN

# EV – 2 Draft AO Telecommunications Requirements

- 5.2.5 Telecommunications, Tracking, and Navigation
  - Requirements 19, 20, and 21
- 5.2.6 Critical Event Coverage
  - Requirement 22
- Appendix B, Requirements for Proposal Preparation
  - Requirement B-29 Mission Design
  - Requirement B-31 Flight System Capabilities
  - Requirement B-34 Mission Operations

# SCaN Capabilities Documents

- NASA's Communications Services Document
  - Overview of service capabilities and service costing
  - Located in EV-2 Library
    - [http://essp.larc.nasa.gov/EV-2/ev2\\_Library.html](http://essp.larc.nasa.gov/EV-2/ev2_Library.html)
- DSN Service Catalog, DSN No. 820-100, JPL D-19002, Jet Propulsion Laboratory
  - <http://deepspace.jpl.nasa.gov/advmiss>
- Near Earth Network User's Guide Revision 1, 450-NENUG, 450/Exploration and Space Communications Projects Division
  - <http://esc.gsfc.nasa.gov/space-communications/NEN.html>
- Space Network Users' Guide Revision 9, 450-SNUG, 450/Exploration and Space Communications Projects Division
  - <http://esc.gsfc.nasa.gov/space-communications/sn-sne.html>

# SCaN Commitment Process

- Contact the Commitment Offices early
- Fill out the Network Services Request as much as possible, for example:
  - Service requested (telemetry, tracking, command, science data)
  - Frequency band (Ku, Ka, S, X)
  - Data rates
  - Orbital information
- Commitment Office will assist proposer in understanding SCaN capabilities and “best use” concepts and approaches
- Commitment Office will prepare feasibility analysis, planning estimate, and commitment letter for proposer
- Commitment Office will broker NASA Integrated Network Services (NISN) and navigation services (e.g., GSFC Flight Dynamics) on proposer’s behalf
- Allow the process time

# SCaN Customer Commitment Offices

- JPL/DSN Commitments Future Planning Office
  - Deep Space Network mission design, proposal support, service agreements and compatibility testing
  - <http://deepspace.jpl.nasa.gov/advmis>
- GSFC/Network Integration Management Office (NIMO)
  - Space Network and Near Earth Network mission design, proposal support, service agreements and compatibility testing
  - <http://scp.gsfc.nasa.gov/nimo>

# SCaN Points of Contact

- SCaN Program Office/NASA HQ
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- GSFC/Network Integration Management Office (NIMO)
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