



NPOESS Preparatory Project (NPP) *Access to Data*

The 14th International TOVS Study Conference

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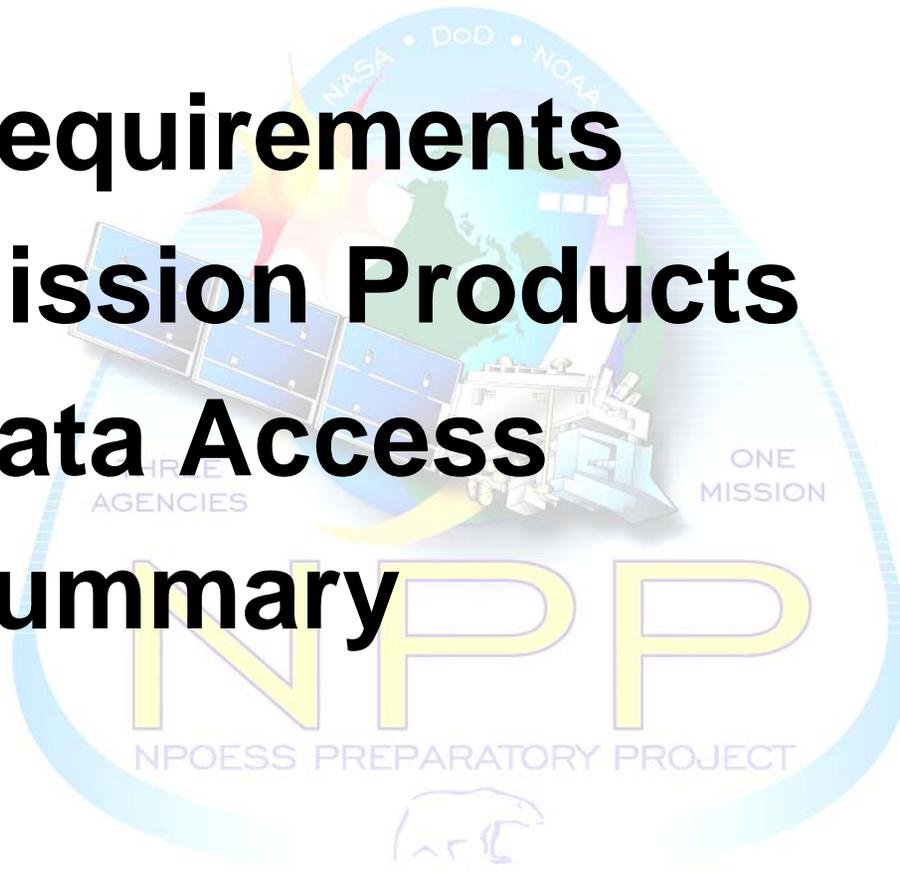
NPOESS Integrated Program Office (IPO)

Silver Spring, MD USA



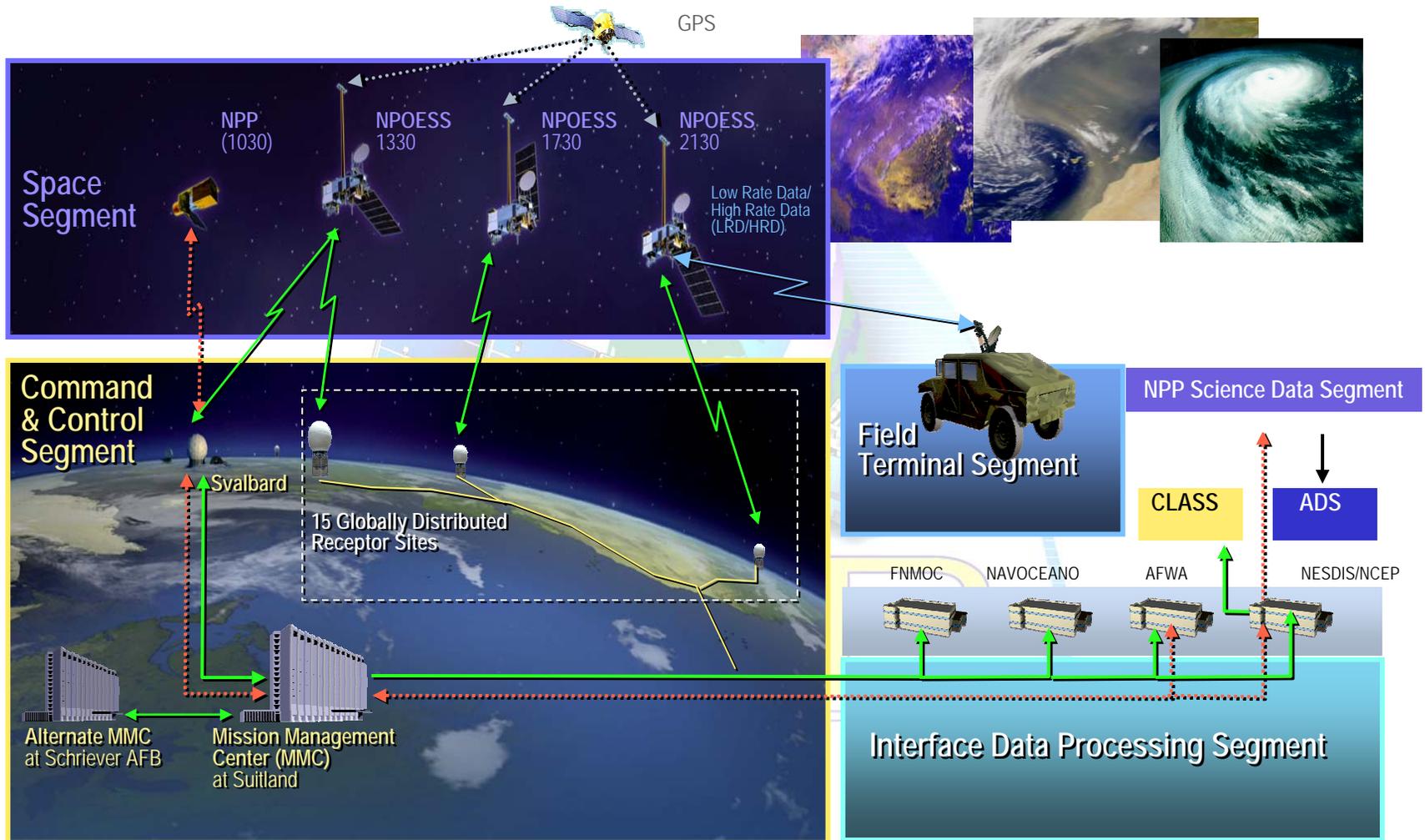
Overview

- **Requirements**
- **Mission Products**
- **Data Access**
- **Summary**





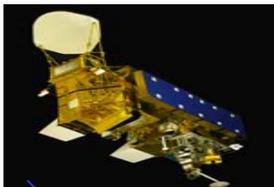
NPOESS & NPP Top Level Architecture





Real-Time Operational Demonstrations

Aqua (2002)
AIRS/AMSU/HSB & MODIS



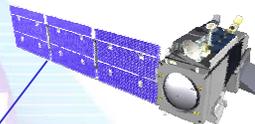
Coriolis
WindSat (2003)



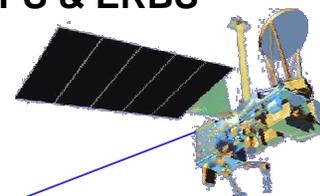
METOP (2006)
IASI/AMSU/MHS & AVHRR



NPP (2008)
CrIS/ATMS
VIIRS
OMPS



NPOESS (2009-2010)
CrIS/ATMS, VIIRS, CMIS,
OMPS & ERBS



Use of Advanced Sounder Data for Improved Weather Forecasting/Numerical Weather Prediction

**NOAA Real-Time Data Delivery Timeline
Ground Station Scenario**

C3S

IDPS

NOAA
Real-time
User

Joint Center for Satellite Data Assimilation

NWS/NCEP
GSFC/DAO
ECMWF
UKMO
FNMOC
Meteo-France
BMRC-Australia
Met Serv Canada

**NWP
Forecasts**

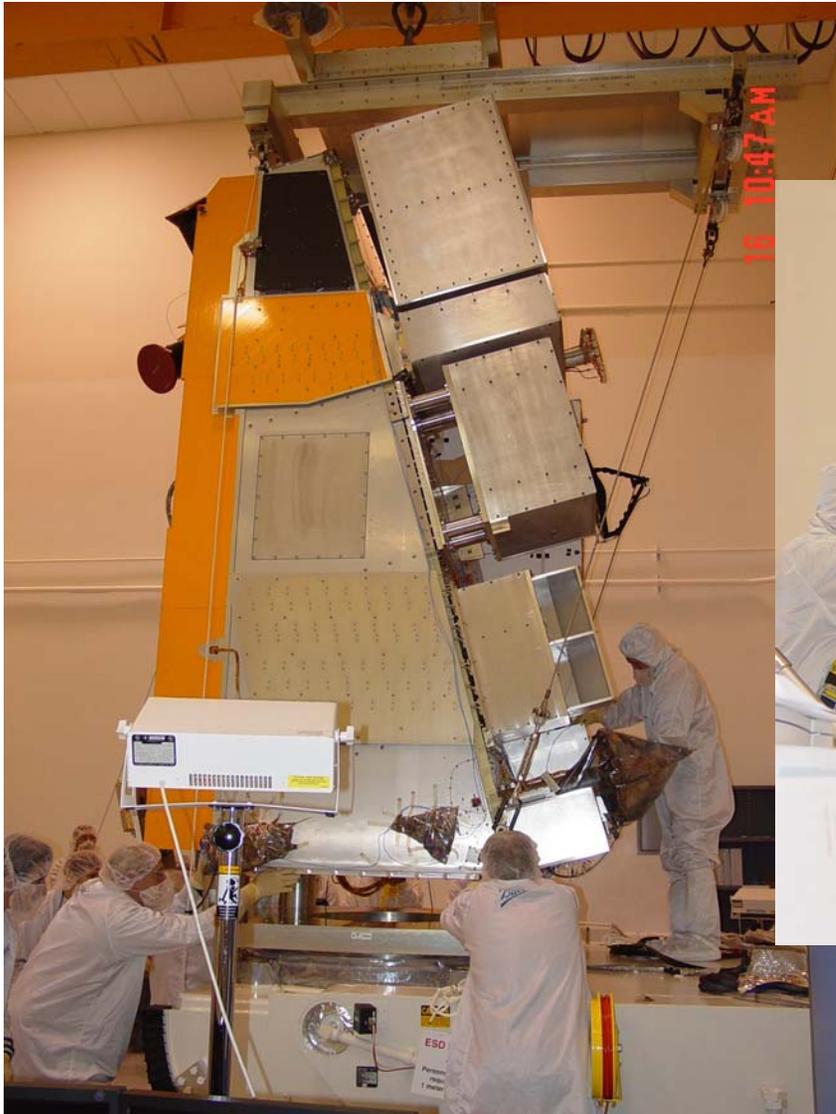


NPP Requirements Summary

- **NPP programmatic requirements established by NASA Mission Level 1 Requirements document and science performance by NPOESS Integrated Operational Requirements Document (IORD).**
- **Key Level 1 requirements include:**
 - **5 year mission lifetime.**
 - **Accommodation of the ATMS, CrIS, OMPS, and VIIRS instruments.**
 - **Concurrent operations of all instruments.**
 - **Real-time direct broadcast of VIIRS, CrIS, OMPS and ATMS instrument data.**
 - **Polar sun-synchronous orbit (824km, 20km ground track repeat, 20 day cycle, and descending equatorial crossing time of 10:30 AM).**
 - **Science Data Segment shall be a research tool (with no operational requirements) used to test the usefulness of NPP EDRs for accomplishing climate research.**
 - **SDS shall use a fully distributed interoperable architecture with 5 (nominally) independent elements (Climate Analysis Research System or CARS) organized around key EDRs.**
 - **Delta II Launch Vehicle with a 2008 Launch Readiness Date.**



Spacecraft Progress





Ground Systems Progress

IPO Antenna Ribbon Cutting
March 1, 2005

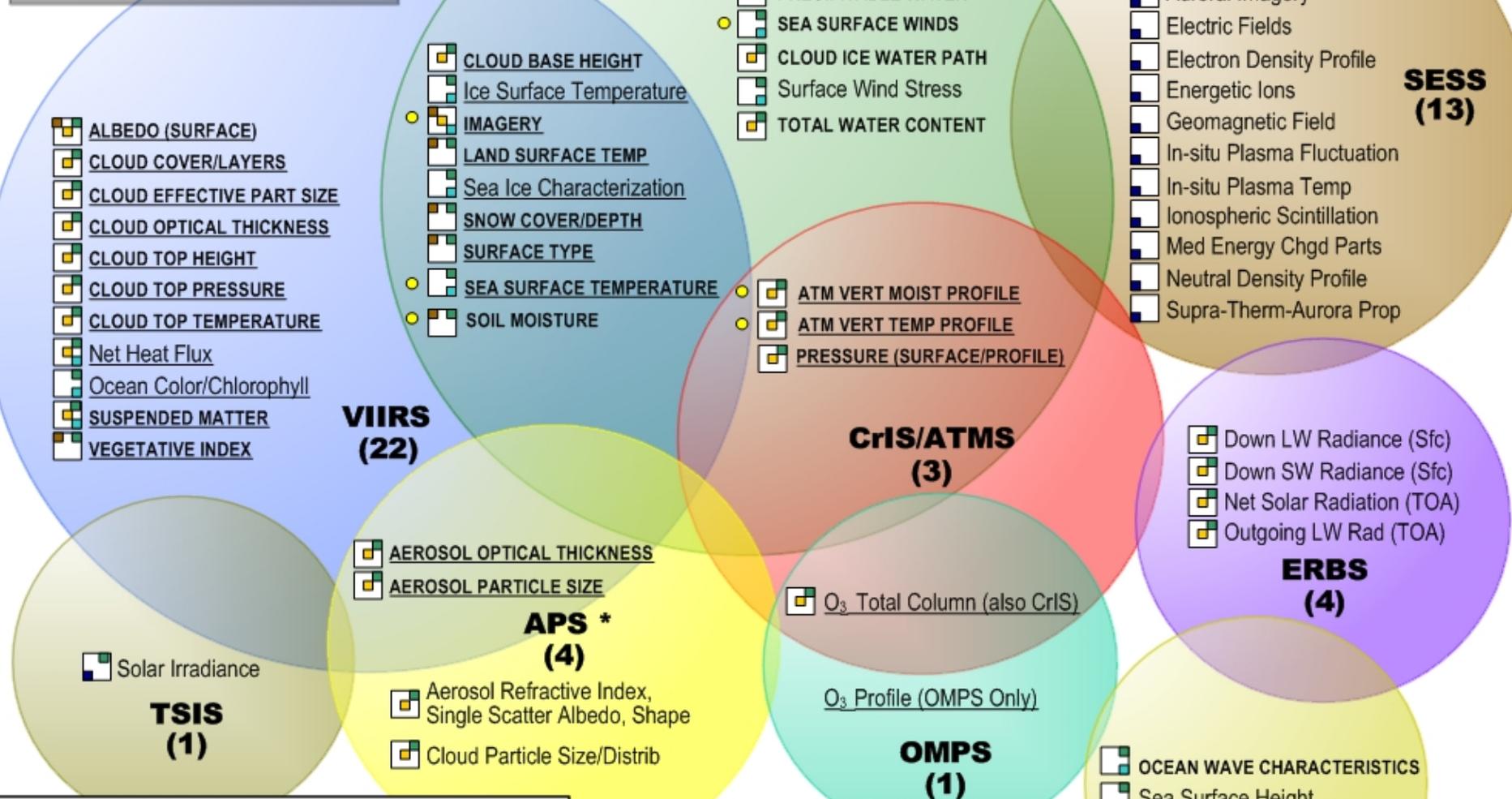


NPOESS EDR-to-Sensor Mapping

(55 EDRs, 9 Sensors)

MISSION AREAS

 Atmosphere	 Climate
 Land	 Ocean
 Space Environment	



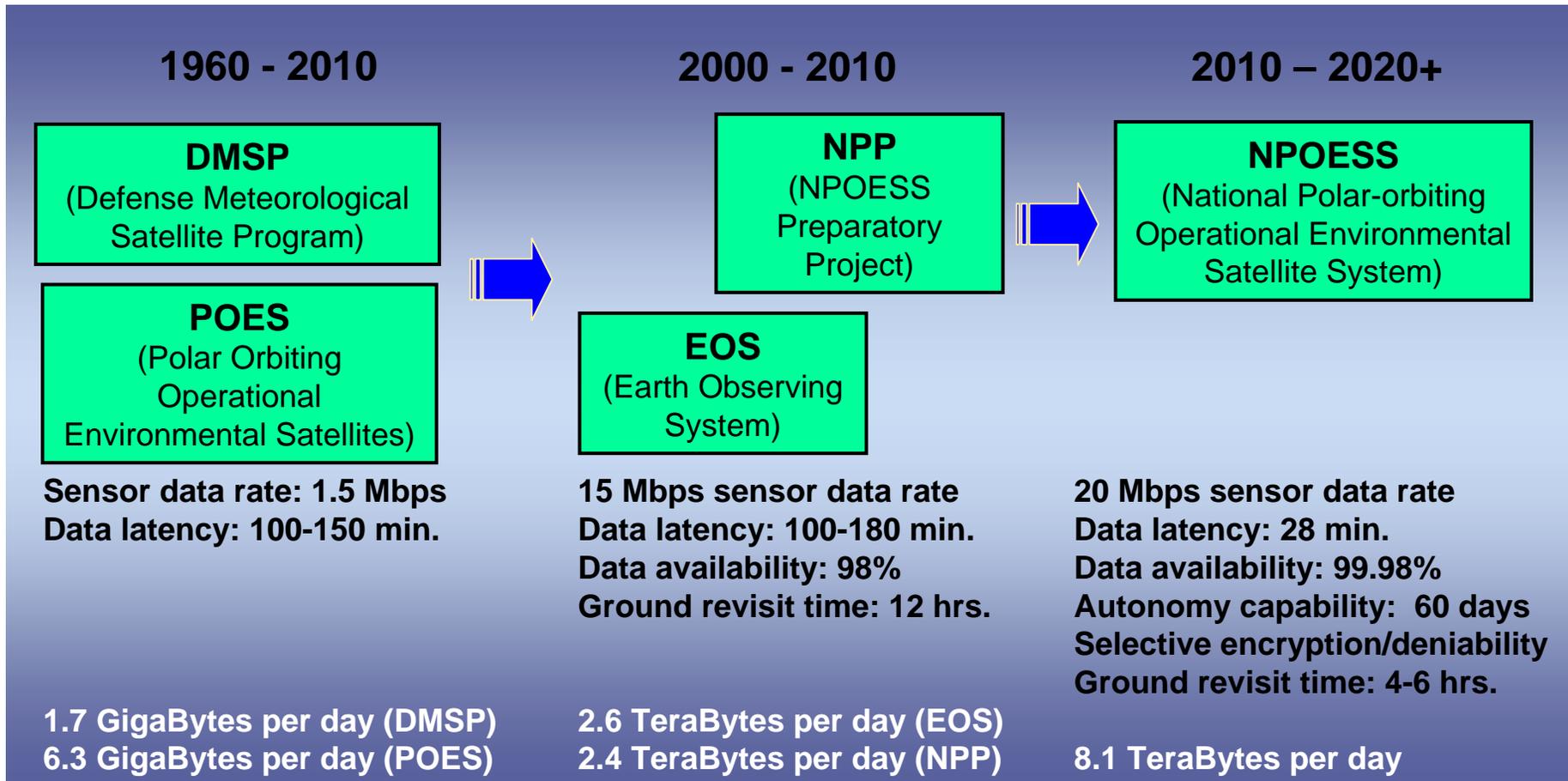
KEY

- = NPP EDRs (25)
- = NPOESS Key Performance Parameters
- BOLD CAPS** = LRD Environmental Data Records
- * = not yet on contract

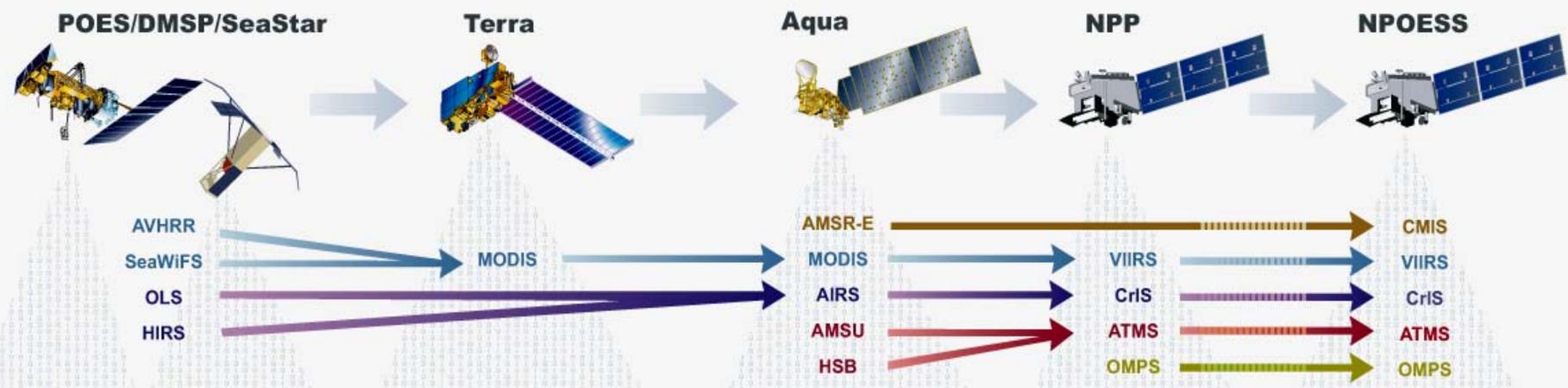
29 Dec 2004
 DOC, NOAA, NESDIS,
 Integrated Program Office
 D. Pierce, M. Haas, S. Mango,
 J. Schaeffer, J. Whitcomb



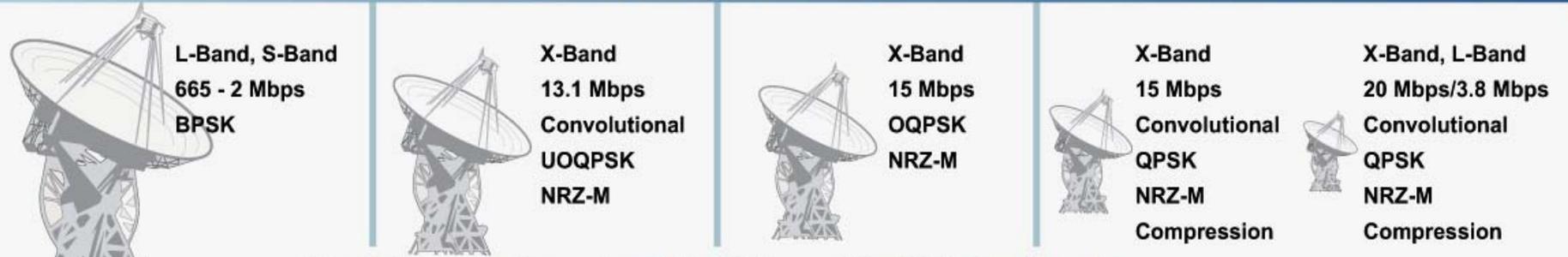
Growing Data Volume and Rate Could Stress Processing and Archive



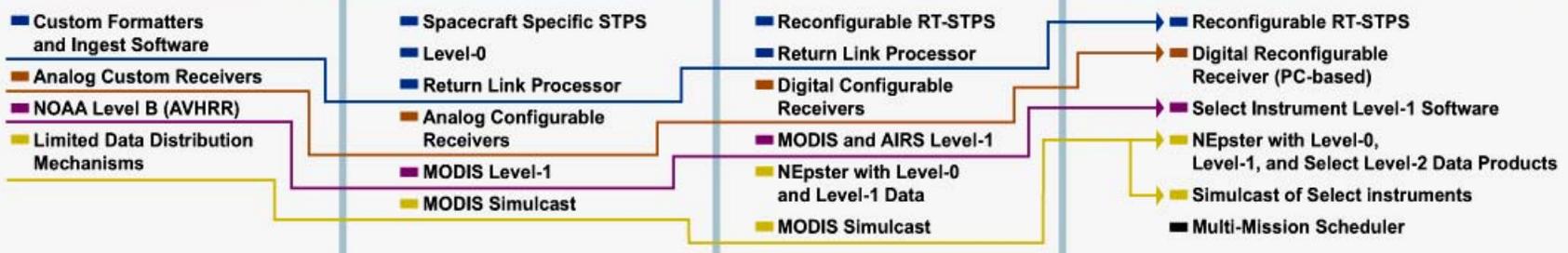
Ensuring Direct Broadcast Continuity



Spacecraft and Instrument Evolution



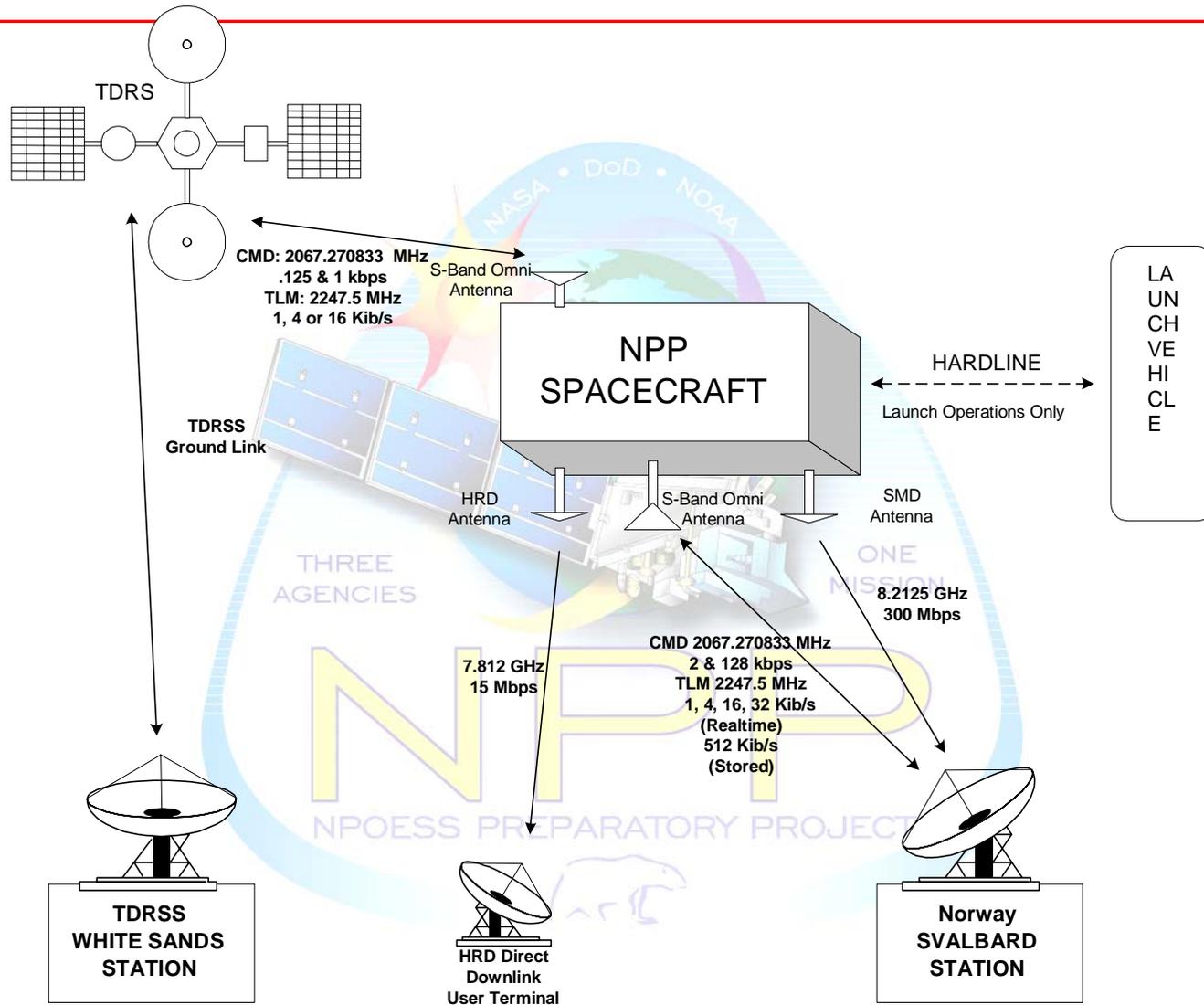
Standardization and Increasing RF, Modulation, and Bandwidth Requirements



Evolution of Concurrent Ground Systems Supporting Technologies and Algorithm Development



NPP's Communications





Risk Reduction & Mitigation

- For NPP, the NASA Direct Readout Laboratory (DRL) provides risk reduction and a roadmap for the NPOESS IDPS system in the Field Terminal Segment (FTS).
- The DRL has been, and will continue to do this by providing NPP packet processing and Level-0 algorithms, real-time NPP-specific visualization tools, lessons learned and an environment for testing and validating the FTS processing system.



NPP & NPOESS Realtime Data

- **Data will be available to all**
 - Real time data from direct downlink sent in the clear
 - Processing software will be available to all
 - No cost other than media and shipping
 - No cost if downloaded from the net
- **Domestic and International Users will be part of the development process**
- **IPO Realtime Data Contact**
 - Mr. John Overton, IPO Field Terminal Manager
 - Email : john.overton@noaa.gov



Summary

- **NPP and NPOESS will have HRD direct readout**
- **NPP most likely to launch in 2008**
 - Technical problems with the Raytheon VIIRS instrument have caused a delay of 14-16 months to NPP
- **For more information:**
 - <http://www.ipo.noaa.gov>
 - <http://jointmission.gsfc.nasa.gov>