

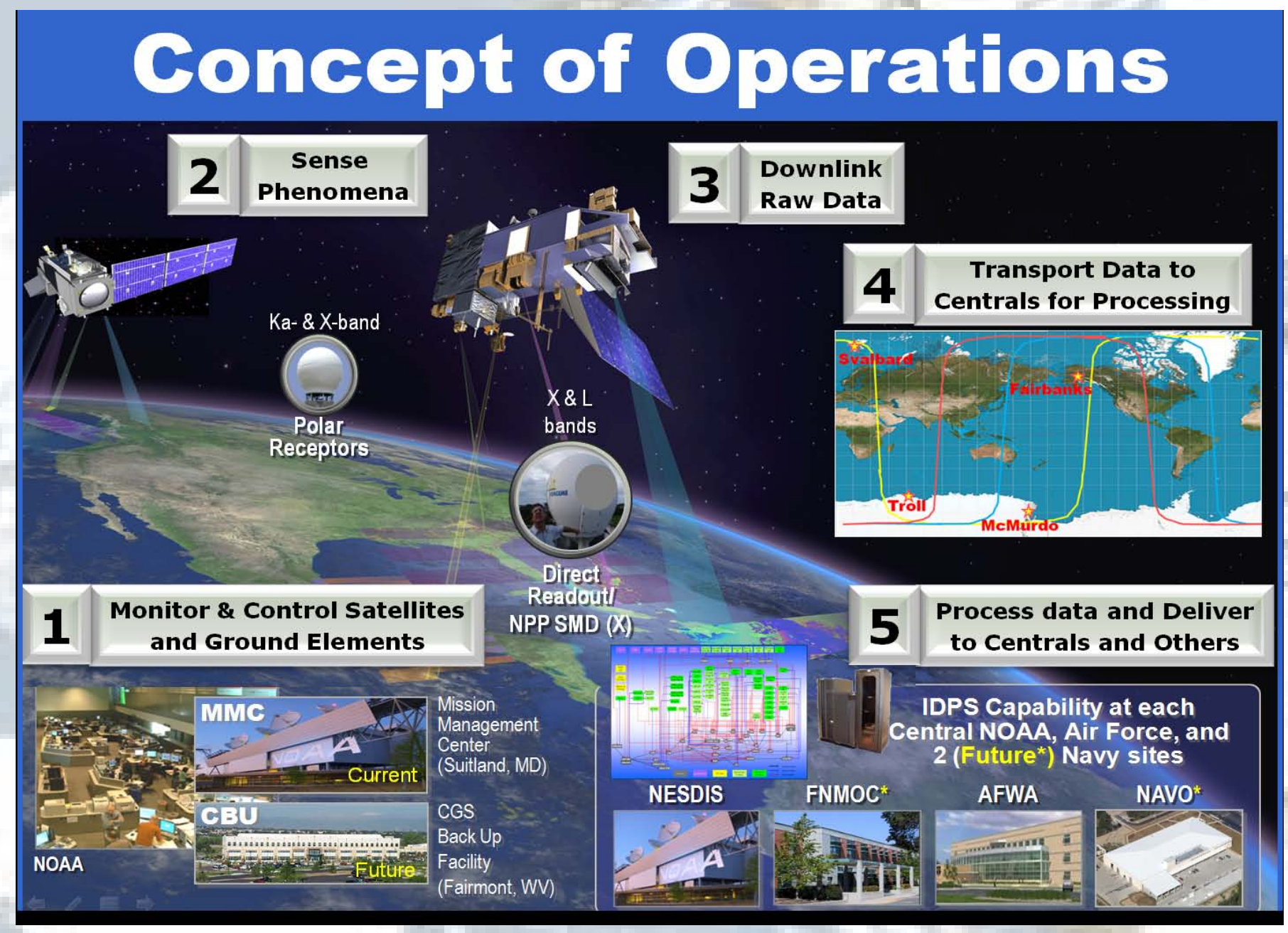
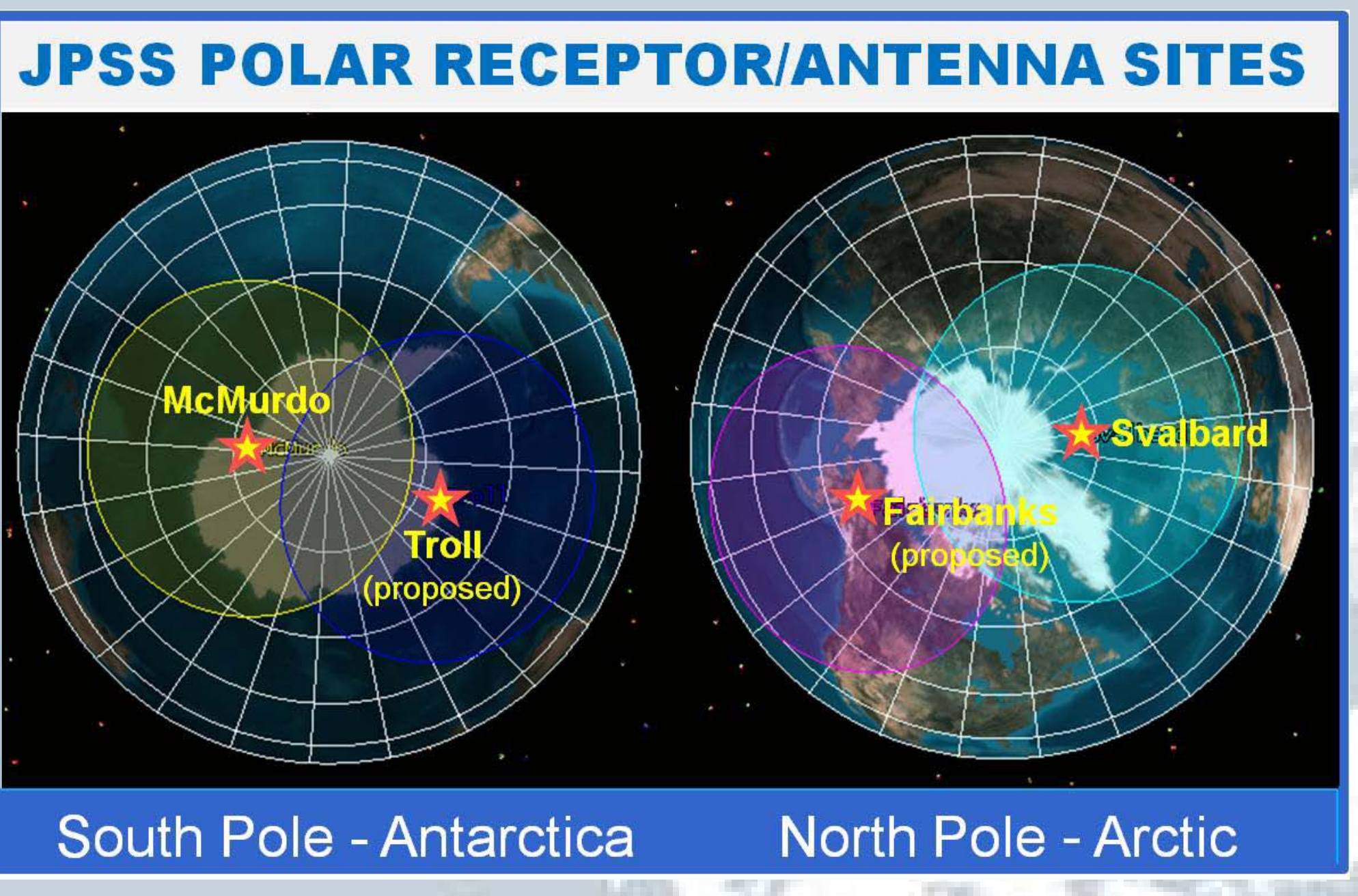


Joint Polar Satellite System (JPSS) Common Ground System (CGS) Overview

Raytheon

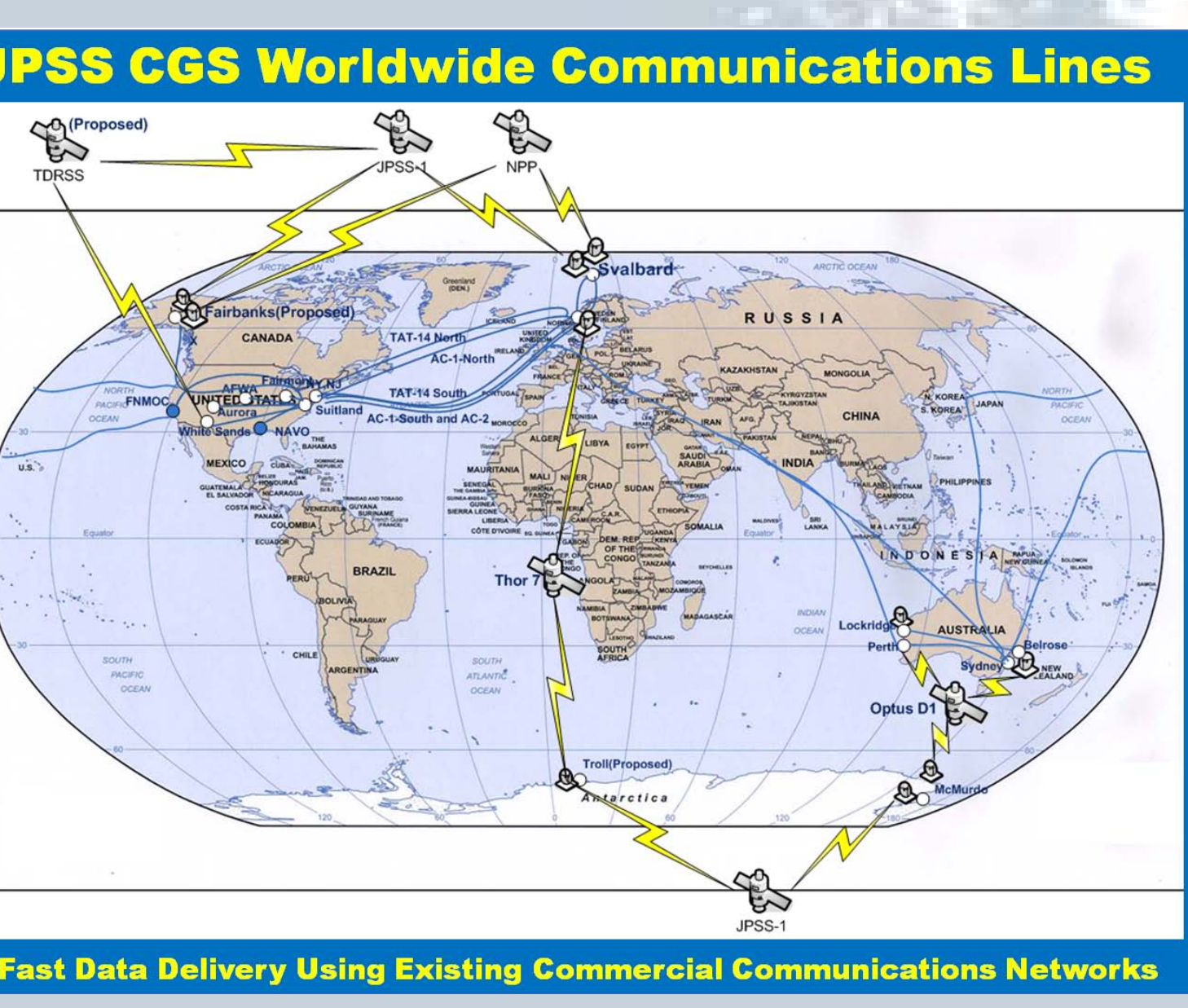
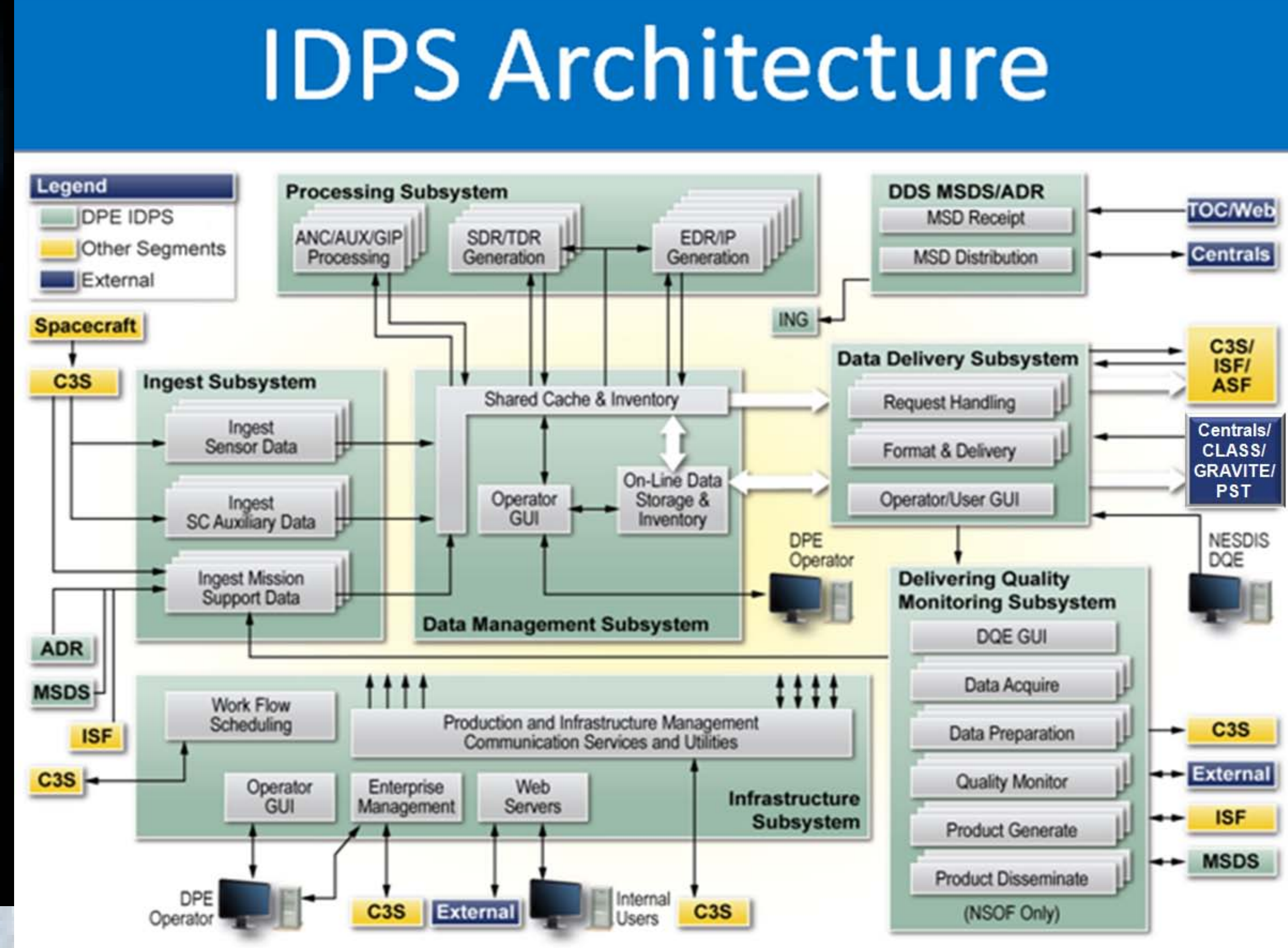
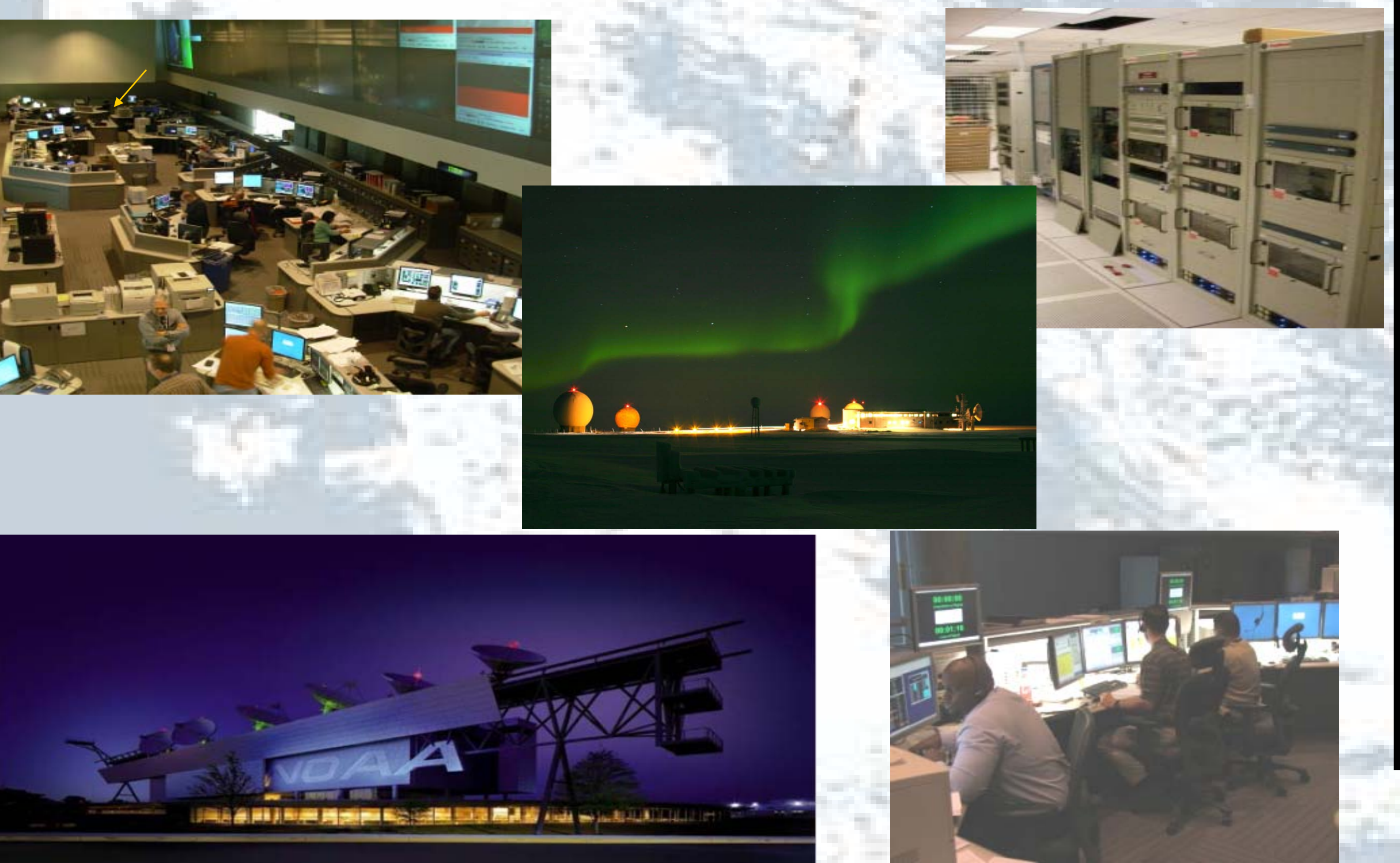
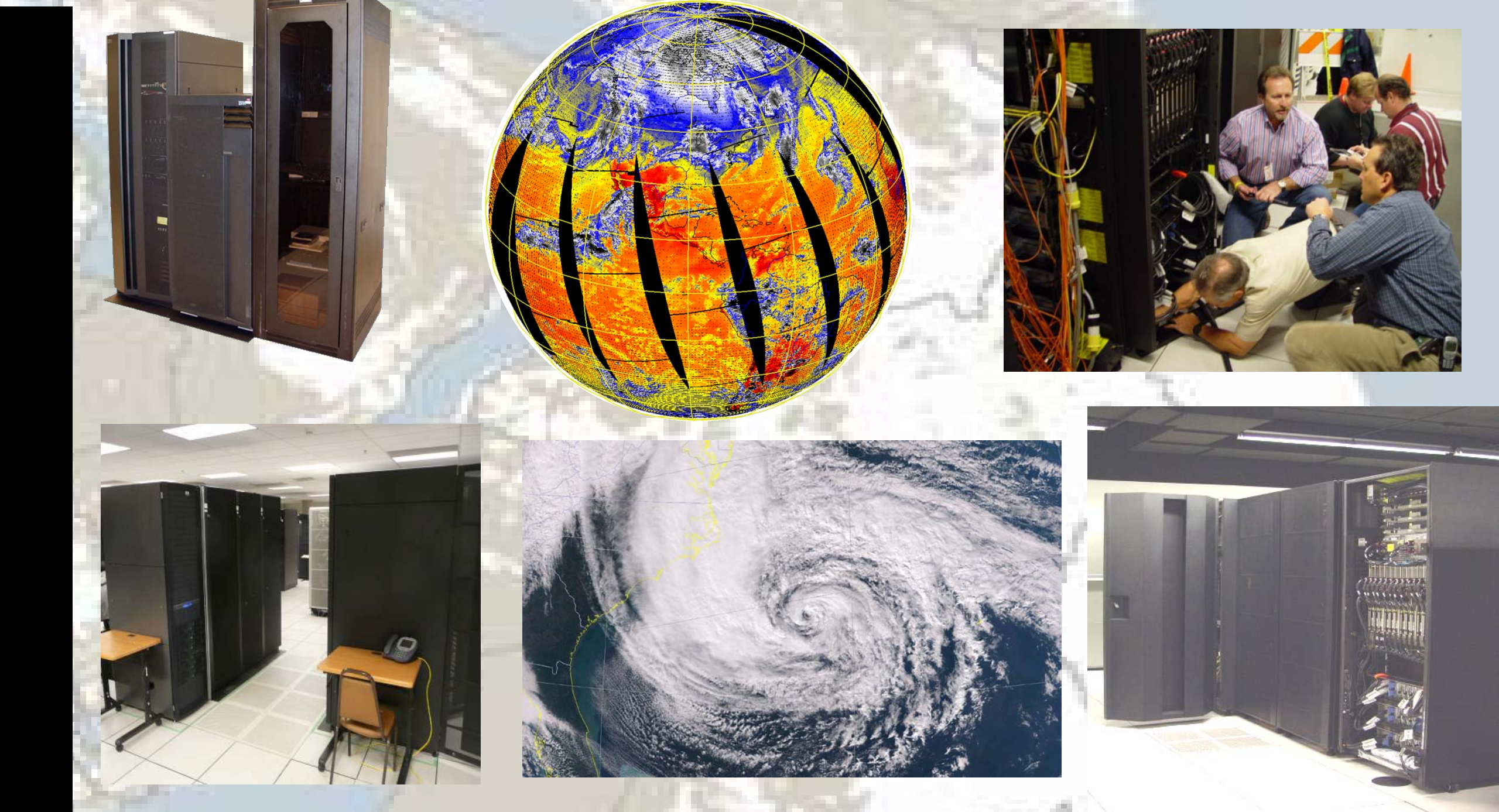
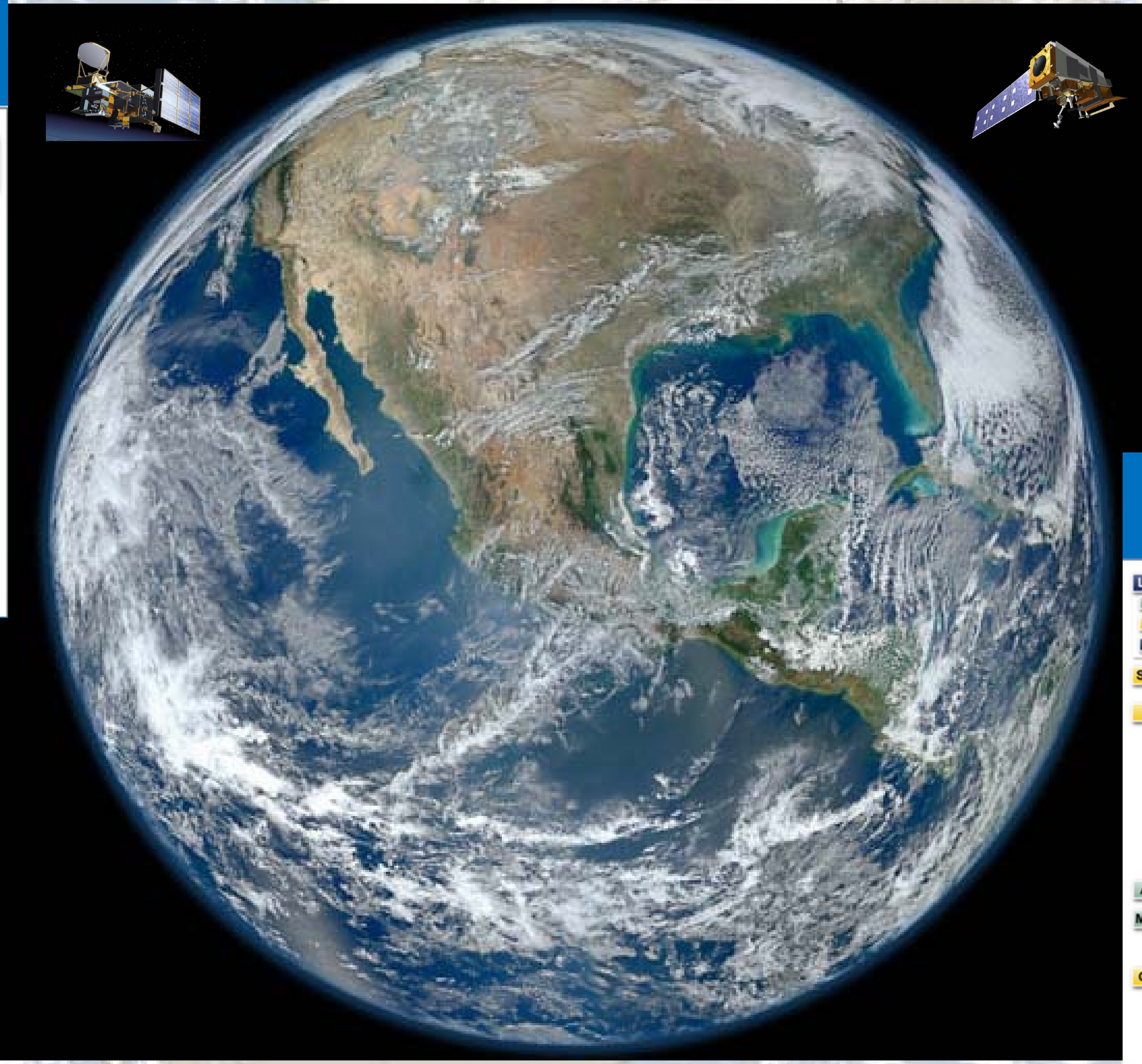
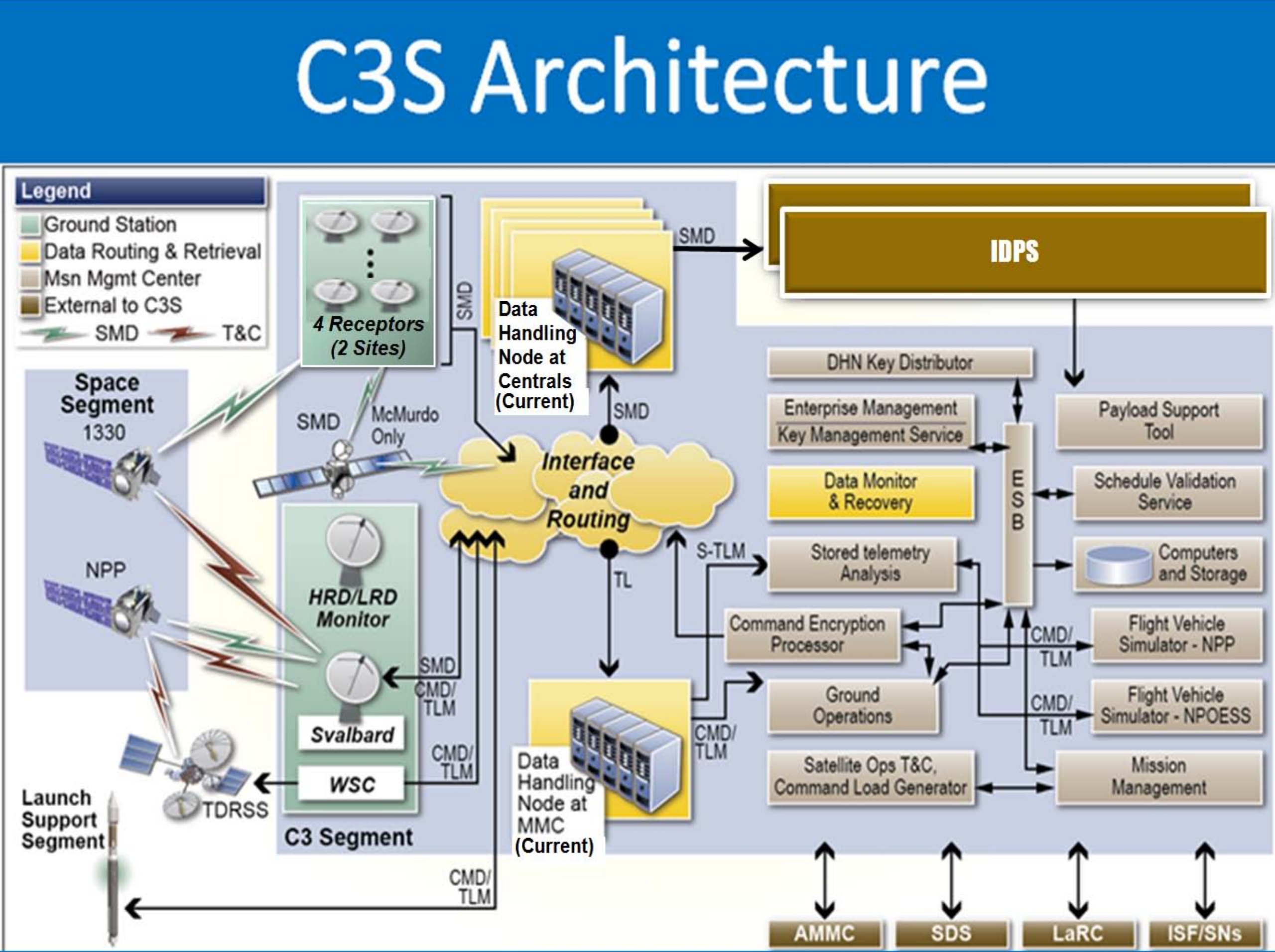
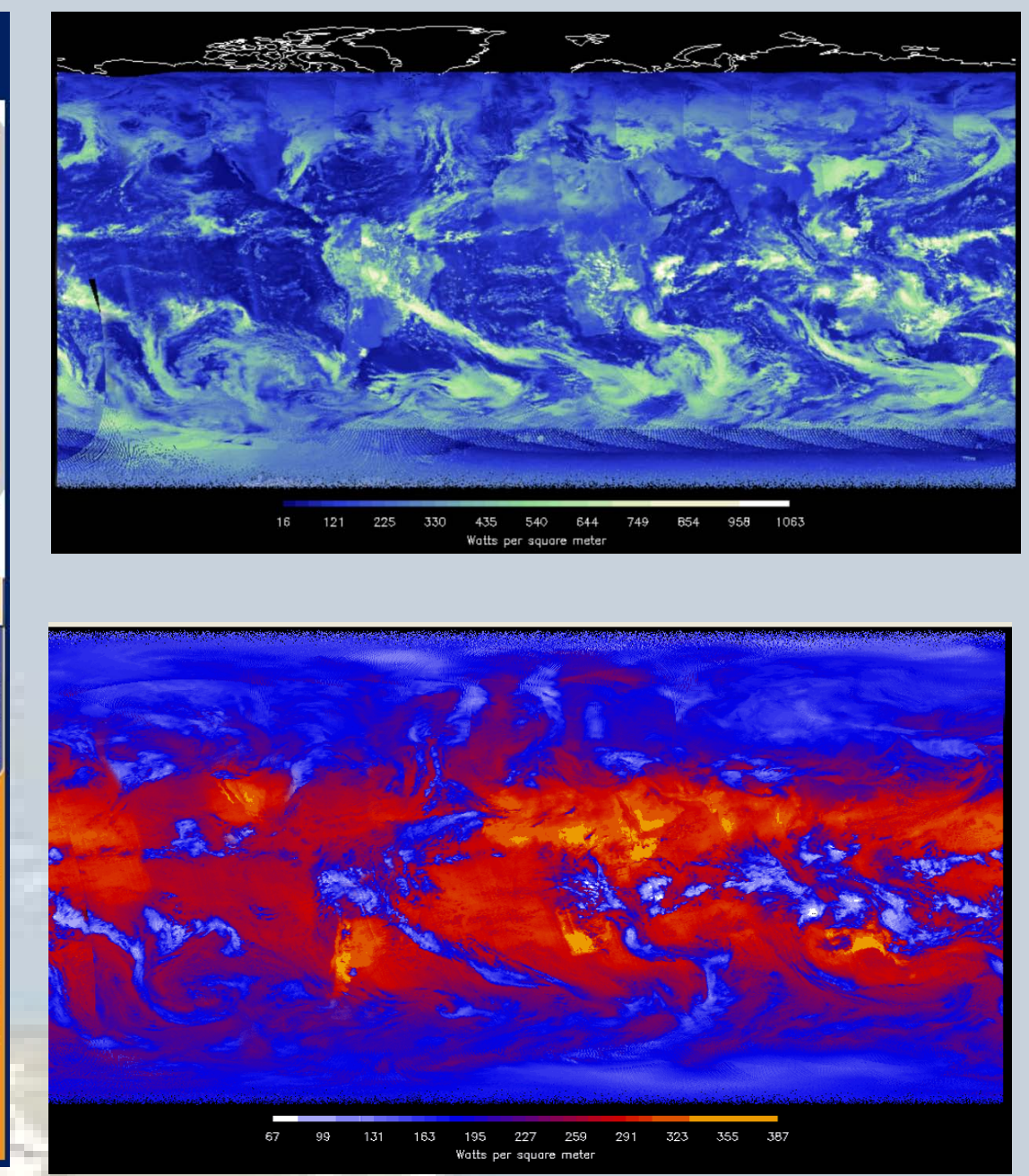
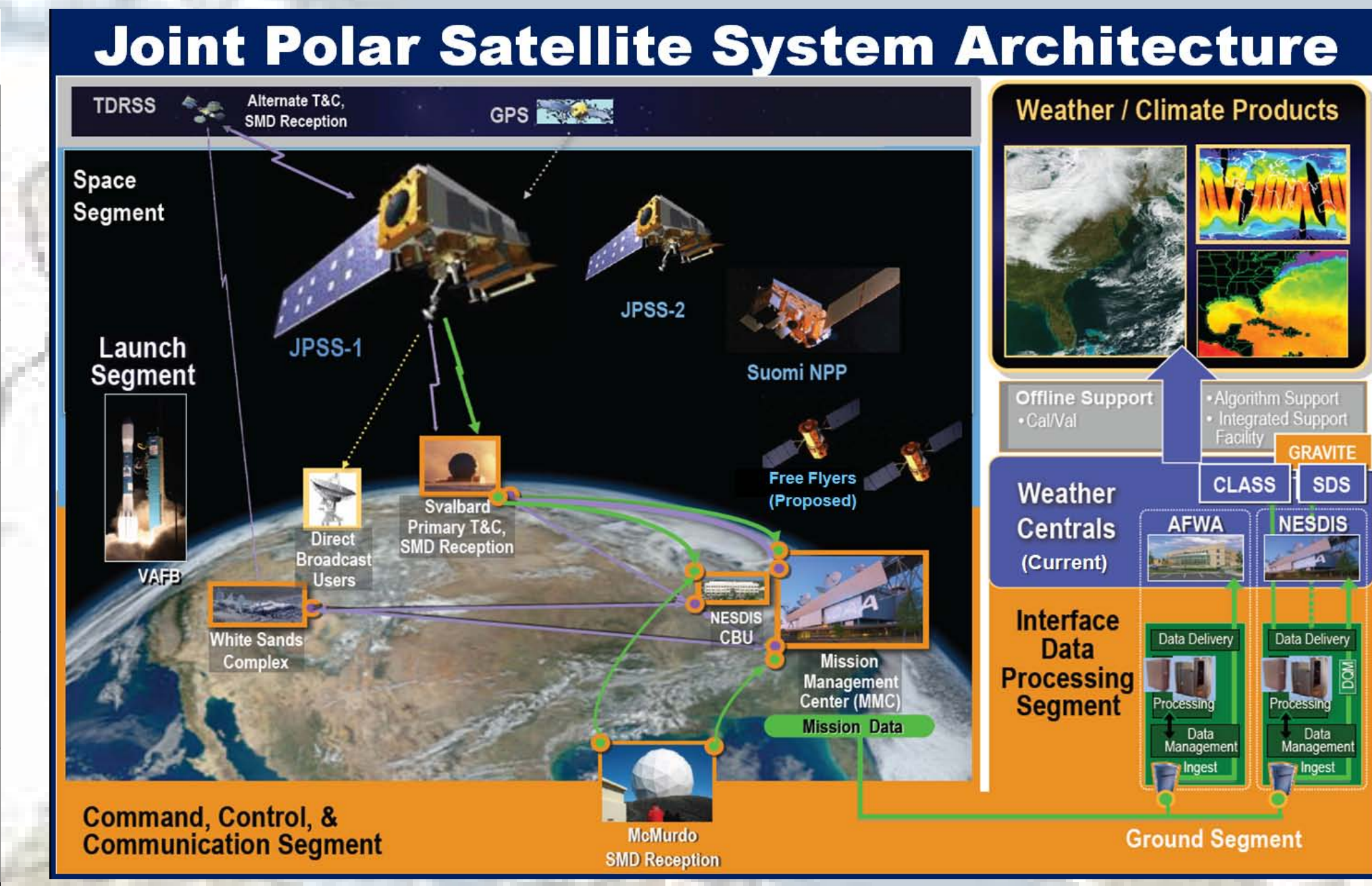


Michael Jamilkowski, Raytheon JPSS CGS Customer Liaison, Greenbelt MD
Shawn W. Miller, Raytheon JPSS CGS Chief Architect, and Kerry Grant, JPSS CGS Chief Scientist, Aurora CO



Key Specifications/Parameters

Requirement	Parameter	Architecture Features
SMD Product Data Latency	S-NPP: 95% within 140 mins JPSS Block 2: Mission/System: 95% within 80 mins	Global Wide Area Network (WAN) Configurable S/W & H/W; concurrent data processing Current: Data Handling Node at each site to multicast data to IDPS Block 2: J1 w/4 Receptors at polar sites - JPSS SMD Hub (JSH) Architecture
SMD Data Availability (Current)	Downlink: 99.99% Spacecraft Retransmit: 98% Centrals: 99.99% 99.99% of RDRs (monthly)	SMD data tracking and missing data recovery capabilities at Receptors and Centrals Recovery of missing data from spacecraft Automated S/W anomaly detection and recovery; data retransmission; and data product repair
Operational Availability	98.9%	No single points of failure for critical components S-NPP: Single polar receptor at SVL with IOC (extended outages only) backup at Fairbanks AK Block 1.5: SVL receptor + Full FCAS backup Block 2: Polar network of 4 Receptors with ability to withstand outages
SMD Delivery for Multiple Spacecraft	PRN for J1 and J2 Svalbard receptor for GCOM-W1 McMurdo receptor for DMSP Frequent, short contacts	Distributed Polar Receptor Network (PRN) - 4 Receptors Architecture independent of time period of contacts
Mission Processing Deployment	2 Centrals (NESDIS, AFWA) currently Block 1.5: One Central (NESDIS) 2 Centrals (FNMOC, NAVO) 2 Centrals (FNMOC, NAVO) proposed in future	Multicast data delivery to each site via MPLS network (currently) Distributed architecture; configurable, expandable, modular H/W & S/W



JPSS Ground System Supported & Operated Missions

	NSF	Coriolis/WindSat	POES	JPSS-Supported Missions	DMSP	Metop	GCOM-W1	S-NPP	JPSS
Launch Date	N/A			Operational				J1 2017 J2 2021 (ready by 2019)	J1 2017 J2 2021
Support Date				Current				J1 2015 J2 2018	J1 2015 J2 2018
Mission Planning	No	No	No	No	No	No	No	Yes	Yes
Spacecraft Control	No	No	No	No	No	No	No	Yes	Yes
Satellite Command and Telemetry	No	No	No	No	No	No	No	Yes	Yes
Data Acquisition	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Data Routing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data Processing and Distribution	No	No	No	No	No	No	RDR-level	XDR-level	XDR-level
Cal/Val Field Terminal Support	No	No	No	No	No	No	No	Yes (Block 2.0)	Yes

JPSS Ground System is a fielded and evolving multi-mission ground system

Development Facilities

Raytheon Organization	Location	CGS Responsibility
IIS, Defense and Civil Missions Systems (DCMS)	Aurora, CO	Program Leadership, SEIT, C3S, IDPS, O&S, Sustainment
IIS, Defense and Civil Missions Systems (DCMS)	Omaha, NE	IDPS Processing and Ingest subsystems
IIS, Mission Operations and Services (MOS)	Suitland, MD	O&S Mission Operations Team (MOT)
IIS, Mission Operations and Services (MOS)	Riverdale, MD	SEIT Cal/Val Support, SDS Customer Liaison
IIS, Mission Operations and Services (MOS)	Colorado Springs, CO	IDPS Data Product Quality subsystem
Raytheon Technical Services Company, Custom Engineering and Depot Support (CEDS)	Indianapolis, IN	Integrated Logistics Support

