



Joint Polar Satellite System Flight Project

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JPSS Flight Project Scope

- Under the JPSS Program, the JPSS Flight Project is tasked with the Space (instruments and spacecraft) and Launch (launch vehicle) Segments for JPSS
- The Flight Project responsibilities include:
 - S-NPP satellite – engineering sustainment
 - Program of Record (POR) – development and launch of the JPSS-1 and JPSS-2 satellites
 - JPSS-1: a sole-source “near-clone” of SNPP
 - Instruments were inherited as in-process hardware from the legacy NPOESS Program
 - JPSS-2: “same” payload as JPSS-1 with OMPS-Limb sensor and Radiation Budget Instrument (RBI) (replaces CERES)
- Development and launch of the JPSS-3 and JPSS-4 satellites under the Polar Follow-On (PFO) - identical to JPSS-2
- Flight Project leverages heavily on Lessons Learned as we look back (SNPP), look down (JPSS-1), and look forward (JPSS-2)



JPSS Flight Development Partners

Hardware Element	Responsible Organization	Contractor	S-NPP	JPSS-1	JPSS-2 JPSS-3 JPSS-4
ATMS	NASA GSFC	Northrop Grumman Electronic Systems (NGES)	X	X	X
CrIS	NASA GSFC	Exelis Geospatial Systems (Harris Subsidiary)	X	X	X
VIIRS	NASA GSFC	Raytheon Space and Airborne Systems (SAS)	X	X	X
OMPS	NASA GSFC	Ball Aerospace and Technologies Corporation (BATC)	X	X	X
CERES	NASA LaRC	Northrop Grumman Aerospace Systems (NGAS)	X	X	-
RBI	NASA LaRC	Exelis Geospatial Systems (Harris Subsidiary)	-	-	X
Spacecraft	NASA GSFC	Ball Aerospace and Technologies Corporation (BATC)	X	X	-
Spacecraft	NASA GSFC	Orbital ATK	-	-	X
Launch Vehicle	NASA KSC	United Launch Alliance (ULA) – Delta II	X	X	-
		TBD	-	-	TBD



Supply Chain Challenges / Risk Management

- The restructuring of the NPOESS Program in February 2010 presented the challenge of transitioning the instrument DoD contracts to NASA contracts, most notably
 - In-process Flight hardware, residual/spare hardware, Ground Support Equipment (GSE), tooling, etc.
- JPSS Program Office / Flight Project repeatedly challenged on why more significant cost and schedule build efficiencies are not being realized and believe it or not, supply chain is a large part of that
 - Drives non-recurring engineering, design changes, schedules, etc.
- It starts with the realization that building a series of instruments over 20+ years, procuring them “one at a time” brings some unique challenges
 - JPSS-3/4 instruments (ATMS, CrIS, VIIRS, and OMPS) together

Program	Review	ATMS	CrIS	VIIRS	OMPS
NPOESS	PDR	2000 (NASA)	1999	2000	1999
NPOESS	CDR	2002 (NASA)	2003	2003	2003
NPOESS	dCDR	2008	-	-	-
JPSS	dCDR / Technical Review	-	2011	2011	2011



Supply Chain Challenges / Risk Management

- Some of the challenges to date include both the obvious and the not so obvious:
 - Parts Obsolescence / Technology Evolution
 - EEE parts – parts just no longer available (technologies, packages styles, etc.)
 - Single Board Computers – technology evolution shortens availability of computers
 - Process Evolution
 - Manufacturing processes changed due to environmental policy changes and technology improvements – acceptable manufacturing chemicals
 - Requirements / Standards Changes
 - Printed Wiring Board requirements have changed dramatically
 - Micrometeoroids and Orbital Debris (MMOD) environment / requirements have changed dramatically
 - Supply Base
 - Changing subcontractor business base - switch between commercial and aerospace
 - Corporate consolidations / sales – large disruption to personnel and manufacturing
 - Lost recipes
 - Just can't build it anymore – big deal for detectors and optics
 - Loss of key personnel – retirements, etc.



Supply Chain Challenges / Risk Management



- To date JPSS has been very successful in addressing these challenges when they arise, and it starts with the team
 - Timely decisions and sufficient resources
- JPSS relies heavily on lessons learned and actively manages Supply Chain risks similar to the more traditional technical and programmatic risk
- **JPSS makes a concerted effort to**
 - **Bring our prime contractors together as “competi-mates”**
 - **Use our collective resources to be successful ...**
 - **and insure we aren’t “hurting” each other since we have much overlap in our Supply Chain**



The End...



<http://www.jpss.noaa.gov/>