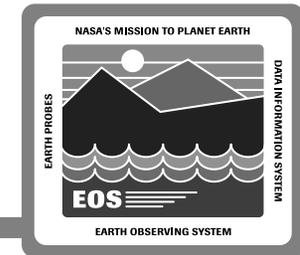


FOS PDR Overview

Cal Moore

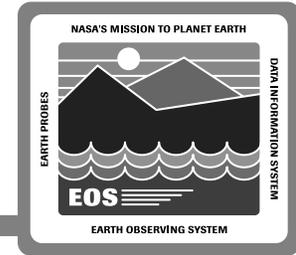
13 December 1994

FOS PDR Agenda - Day 1



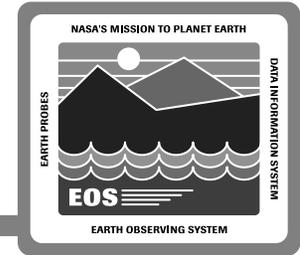
FOS PDR Introduction	Alan Johns	8:30 - 8:45
FOS Overview	Cal Moore	8:45 - 9:15
Engineering Activities	Andy Miller	9:15 - 10:15
Break		10:15 - 10:30
FOS Facilities	Rick Hudson	10:30 - 11:00
FOS Hardware	Jeff Glenn	11:00 - 11:30
Network Design	Dean Moore	11:30 - 12:00
Lunch		12:00 - 1:00
FOS Architecture	Jeff Cox	1:00 - 2:00
Failure Recovery	Andy Miller	2:00 - 2:30
Break		2:30 - 2:45
IST Architecture	Jim Creegan	2:45 - 3:15
Support Architecture	Rick Broome, Dave Peters, Jim Creegan	3:15 - 4:45
1st Day Summary Wrap-up	Alan Johns	4:45 - 5:00

FOS PDR Agenda - Day 2



Scheduling Phase	Guy Swope, David Hyde, Tony Cetuk Neil Clabough	8:30 - 10:45
Break		10:45 - 11:00
Real-Time Phase	Carrie Williams, Ken Fregeolle, Tim Holtz, Dave Peters	11:00 - 12:00
Lunch		12:00 - 1:00
Real-Time Phase (cont.)		1:00 - 2:30
Break		2:30 - 2:45
Analysis Phase	Marlene Quick-Campbell, Roger Sheldon, Shawn Firth	2:45 - 4:00
Segment Scenarios	Andy Miller	4:00 - 4:45
2nd Day Summary Wrap-up	Alan Johns	4:45 - 5:00

Administrative/Facility



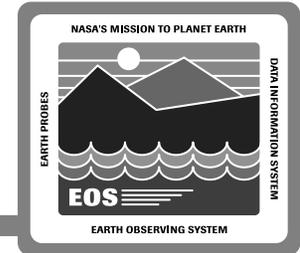
Telephones are located in workrooms 1131, 1132, and 1133 within the auditorium.

Messages and faxes:

- Phone (301) 925-0300 (Receptionist Main Switchboard)
- Fax (301) 925-0327

Reference FOS PDR attn: K. Partida-Runge

FOS PDR Objectives



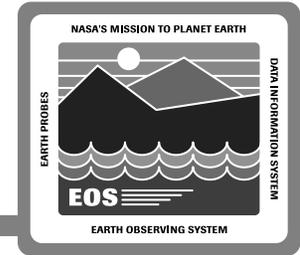
Scope of PDR

- Release A and B (Fully operational for AM-1 Launch)
- Validate preliminary design prior to proceeding to the CDR
- Summarize preliminary design in the next two days

Present preliminary design document 'review' versions

- Level 4 Requirements Specification (General and AM-1 Mission Specific)
- Design Specification
- Preliminary Release/Development Plan and I&T Plans
- IST Capabilities Document
- FOS ICDs
 - Spacecraft Analysis ICD
 - ASTER ICD,
 - NASA Institutional (NCC, FDF, Ecom, EDOS)

FOS PDR Objectives (cont.)



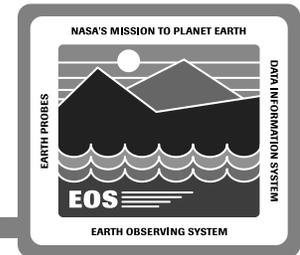
Orient presentation to user community

- **Address design from FOS activity phase level**
 - **Scheduling Activity Phase**
 - **Real-Time Phase**
 - **Analysis Phase**

Receive feedback from PDR audience through RID process

- **AM-1 project and ESDIS project**
- **Spacecraft manufacturer**
- **Instrument operations teams**
- **FOS external interfaces**

Next Steps



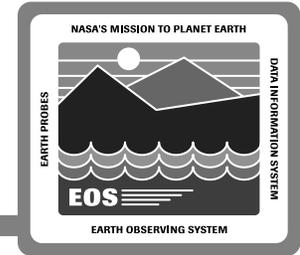
Update PDR documentation

- **Need comments on the documentation by 12/23/94**
- **Based on results of the FOS PDR Workshop**
- **Submit updated documentation by end of January 1995**

FOS Prototype Results Review

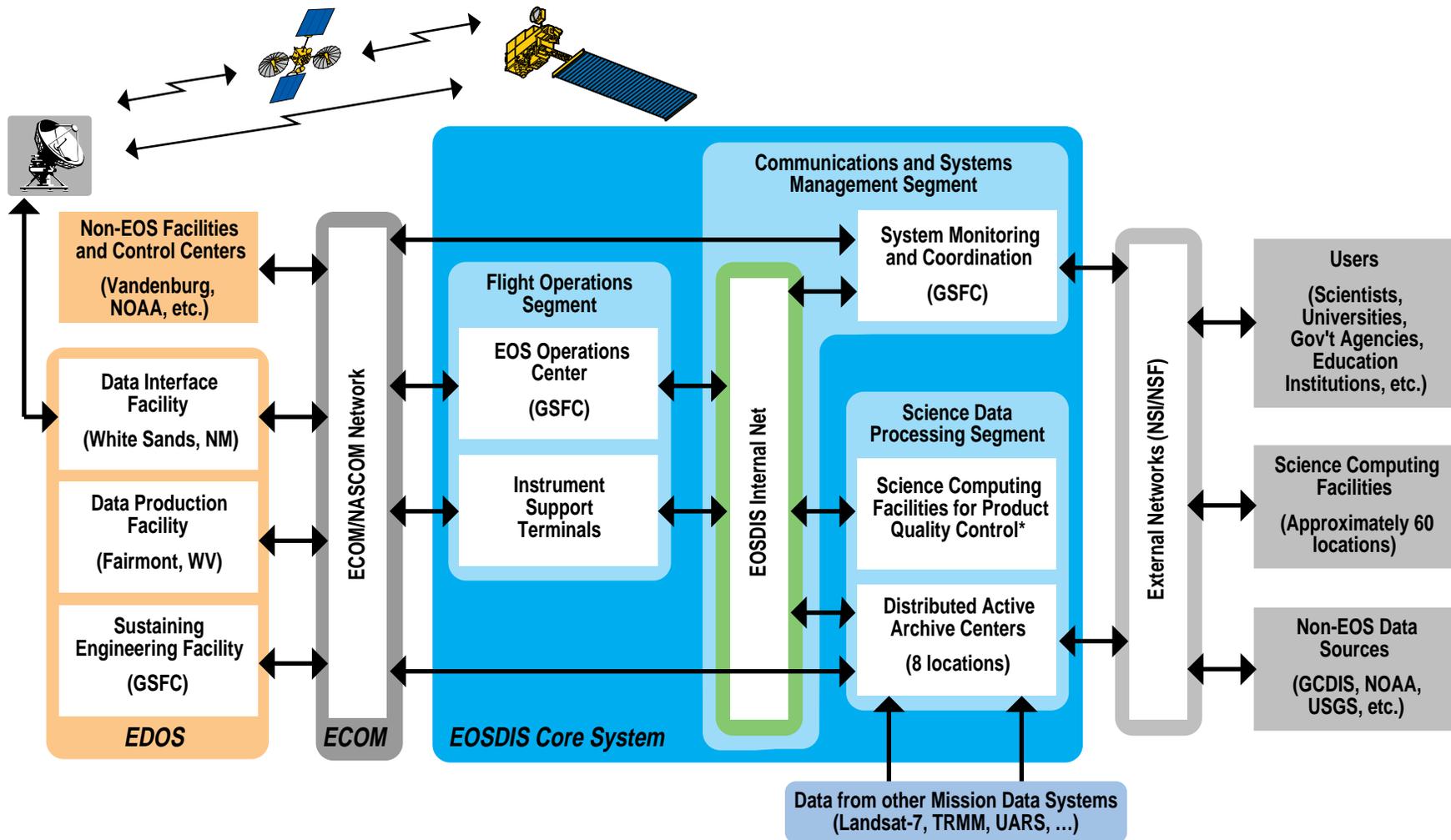
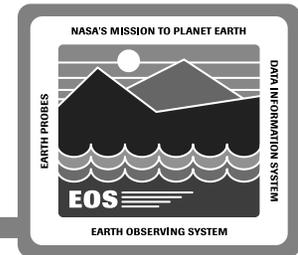
- **January/February Timeframe**
- **Demonstrate end-to-end FOS functionality**

FOS Schedules



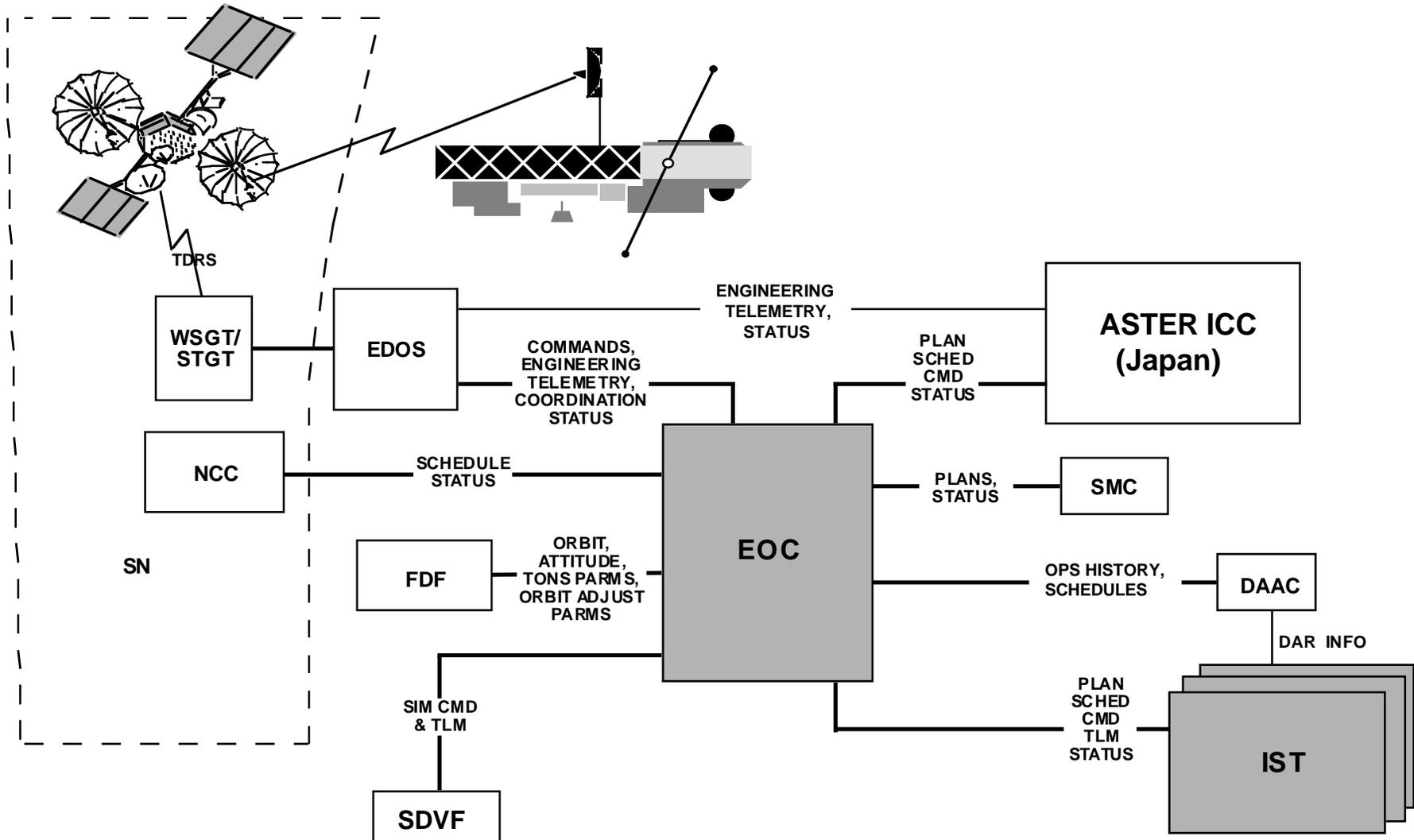
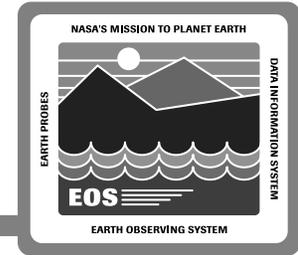
See following pages.

EOSDIS/ECS Context

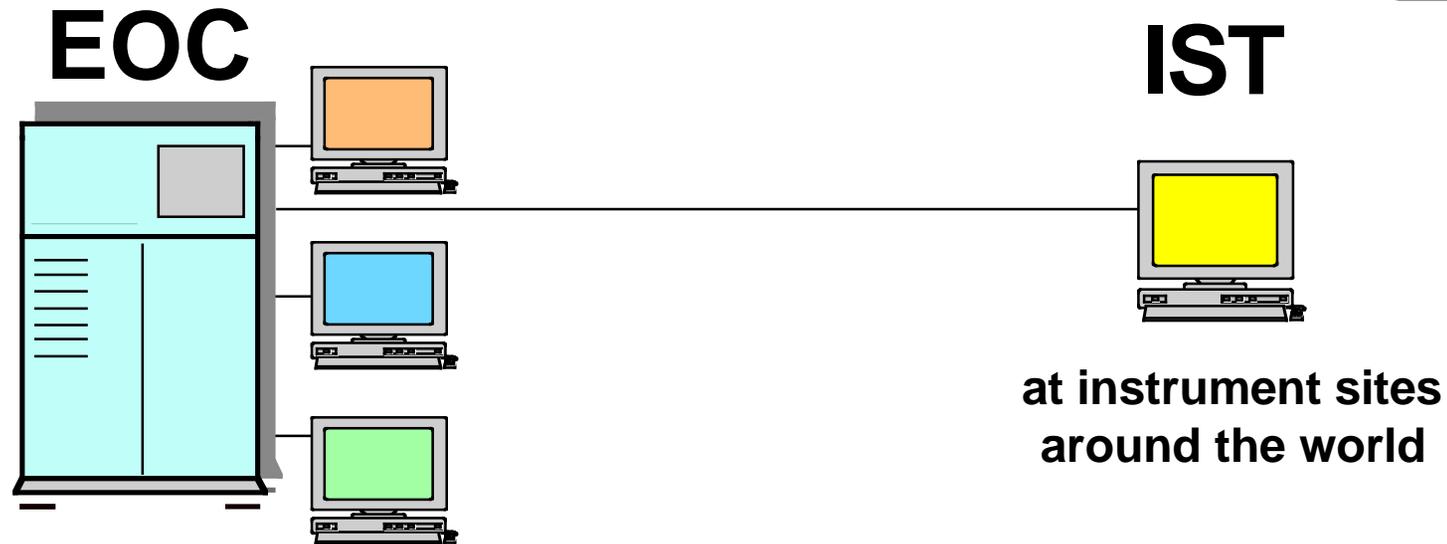
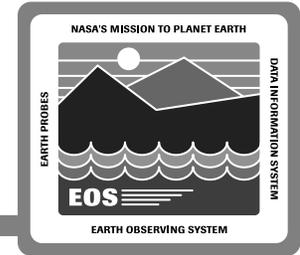


94E008-28 (V2)

FOS Context Diagram



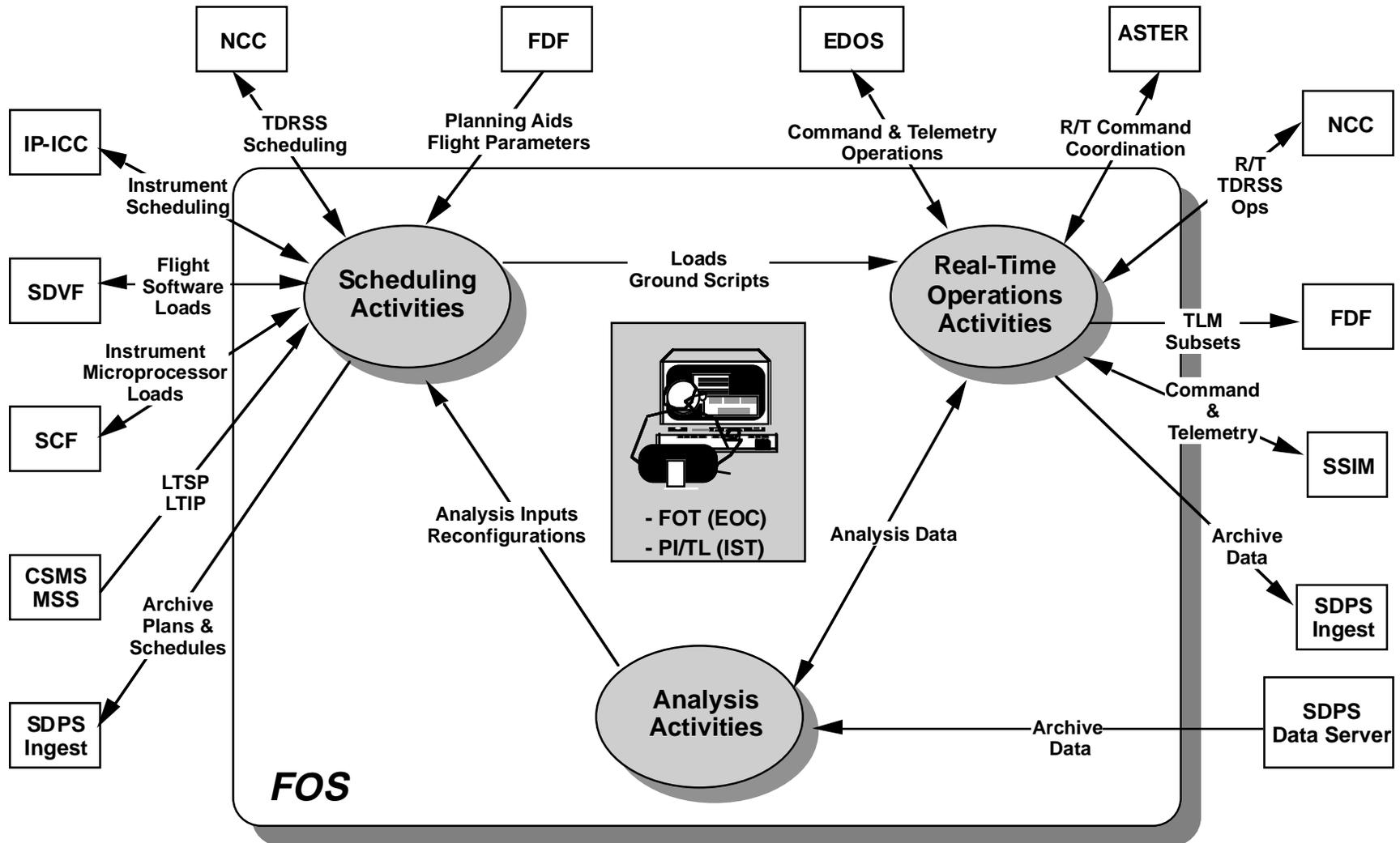
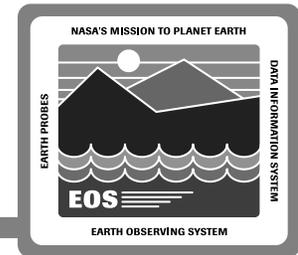
FOS Elements



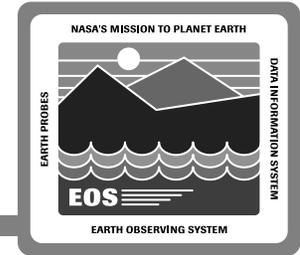
- **GSFC element responsible for:**
 - Overall mission operations
 - Health and safety
 - Mission planning and scheduling
 - Command, control, and monitoring

- **Remote site element to allow participation in operations by instrument teams for:**
 - Planning & scheduling of instrument
 - Monitoring real-time telemetry
 - Performing instrument analysis
 - Requesting command uplinks

FOS External Interfaces



FOS External Interfaces Relationship to Activities



Scheduling

- Ingest and distribution of planning aids
- Establishment of TDRSS contact times
- Final scheduling
- Command load generation

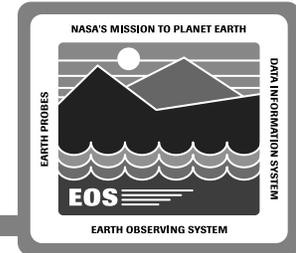
Real-Time Operations

- EOC configuration
- Telemetry monitoring
- Command/load uplink and verification
- Real time TDRSS coordination

Analysis

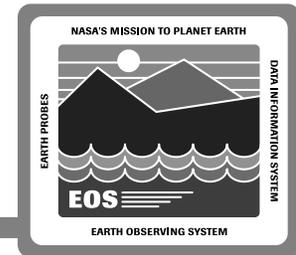
- Anomaly detection
- Performance assessment

FOS ICD Status



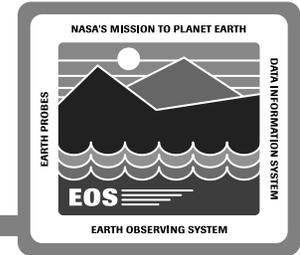
ICD	Resp.	Schedule	Comments
AM-1 ICD-106	AM Project	Completed 4/94	
AM-1 Data Base DFCD	ECS	Preliminary completed 11/94 Final 6/95	Data Base Schema due from AM Project 12/94.
AM-1 Spacecraft Analysis Software (SAS)	ECS	Rel A Preliminary completed 11/94 Rel A Final 6/95 Rel B Preliminary 8/95 Rel B Final 3/96	Analysis Tool Requirements due from AM Project 4/94.
AM-1 Software Development & Validation Facility (SDVF)	ECS	Rel B Preliminary 8/95 Rel B Final 3/96	SDVF initially at VF; later transition to GSFC.
AM-1 Spacecraft Simulator (SSIM)	AM Project	I/F Requirements 6/95 Preliminary ICD 9/95	SSIM delivery to GSFC 6/97
ASTER	ECS	Rel A Preliminary completed 11/94 Rel A Final 6/95 Rel B Preliminary 8/95 Rel B Final 3/96	ASTER GDS contractor has been selected.

FOS ICD Status (cont.)



ICD	Resp.	Schedule	Comments
Ecom	Ecom	Review Copy Completed 10/94 Final 6/95	
EDOS	EDOS	Final IRD 1/95 Preliminary ICD 6/95 Final ICD 9/95	EOC Rate-buffered telemetry data needs to be incorporated.
FDF	FDF	Working Draft completed 5/94 Rel A Preliminary 1/95 Rel A Final 6/95 Rel B Preliminary 8/95 Rel B Final 3/96	Assessing impacts of Renaissance concepts.
JPL/GSFC ICD (AM-1 Appendix)	Code 502	Rel B Preliminary 8/95 Rel B Final 3/96	Interface for DSN Monitor Blocks
NCC	NCC	Completed 3/92 DCN 002 (9/94)	ICD updates are expected reflecting NCC Service Planning Segment upgrade (scheduling I/F).

FOS Driving Requirements



Primary purpose of the Flight Operations Segment is for health and safety and to maximize science data collection

- **No single point of failure for real-time operations functions**
- **Support multiple concurrent spacecraft and instrument operations**
- **Provide integrated spacecraft and instrument operations**
- **Provide for distributed scheduling and global visibility into spacecraft and instrument plans**
- **Provide quick access and processing of data for spacecraft and instrument analysis (12 times real time rate)**
- **Provide an evolvable architecture**
 - **Scalable**
 - **Technology Insertion**
 - **Requirement Growth**