

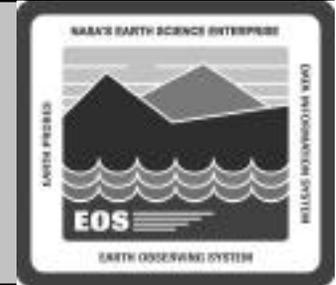
# Restricted Granule Access

John Cockey

**Raytheon** Raytheon Systems Company

704-CD-510-001

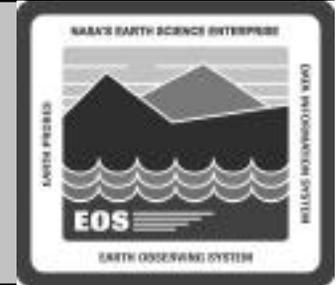
# Requirements Summary



**Restricted Granule Access is supported by requirements in the SDSRV and MSS subsystems.**

- **SDSRV will restrict the ACQUIRE service availability of granules.**
- **SDSRV supports access rules based upon the MSS User Profile roles and associated privilege levels.**
- **MSS User Profile roles are available to SDSRV through the existing MSS Accountability Service.**
- **By Default, SDSRV will provide access checking based on the QA attributes - OperationalQualityFlag and the ScienceQualityFlag - and a “QA time range” based on granules ProductionDateTime.**

# Key Design Drivers

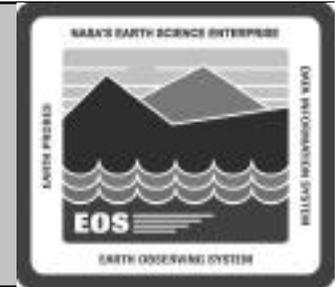


**Coordinated by ESDIS, and driven by PI and DAAC Requirements to limit access of granule data to specific user profiles based on status of/value of QA attributes during a data QA period.**

## **User Interface**

- **Utilize existing MSS ECS user registration capability and NASA User attributes.**
- **MSS provides user profiles of - Privileged NASA User, Regular NASA User, and Non-NASA User.**
- **SDSRV provide interface to DAAC Operations to change “QA time range” and/or QA independent access permissions of specific ESDTs.**
- **SDSRV provides customize-able granule restriction capability implemented.**

# Key Design Drivers (cont.)



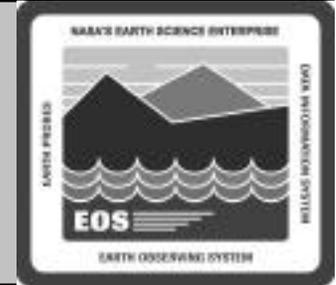
## SDSRV Acquire Processing

- Provides automated access checking in Acquire service prior to ANY granule distribution.
- ECS internal subsystems access are considered privileged “users” automatically. Based on data provided in the Acquire Request to SDSRV.
- Audit trail of denied access attempts recorded in the SDSRV log files.

## Distribution

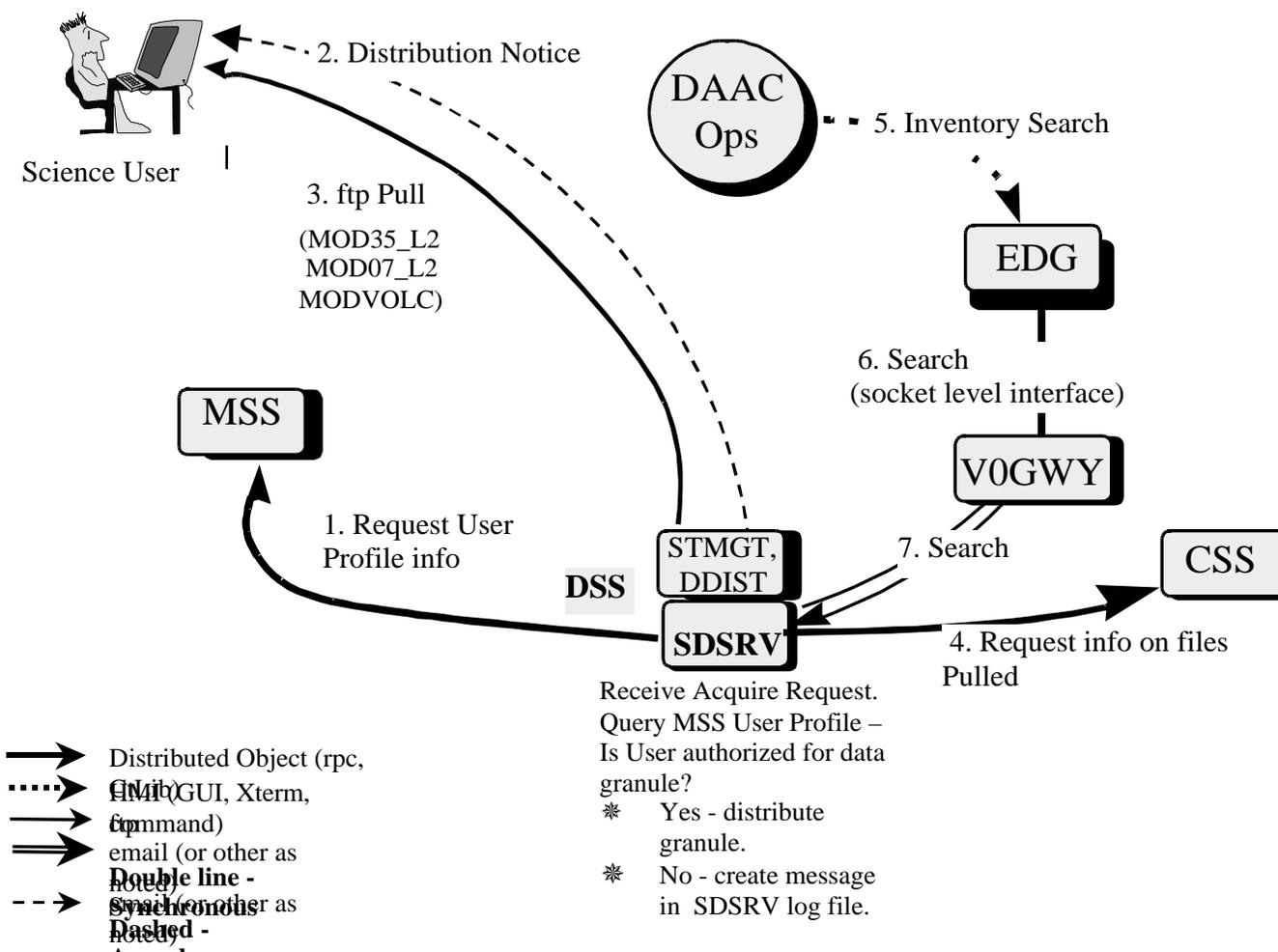
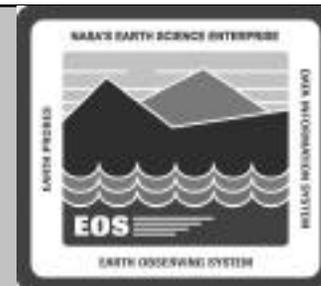
- Distribution of requests through normal means - no changes.

# New HW/SW Components

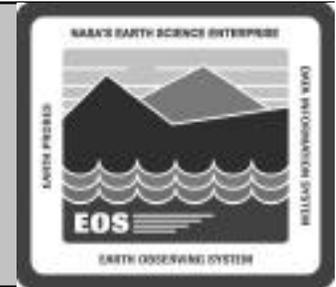


- **No new components**
- **Modifications to existing SW components:**
  - **SDSRV has one new interface - to MSS through Accountability Service.**
  - **Addition of new ESDT level “internal” attributes in SDSRV Inventory database to support access checking.**
  - **2 new command line interfaces to implement population of “access” attributes - Quality Flag attributes and “QA time range”.**
  - **No changes to MSS.**

# MODIS Data Access Interaction Diagram



# Operational Impacts

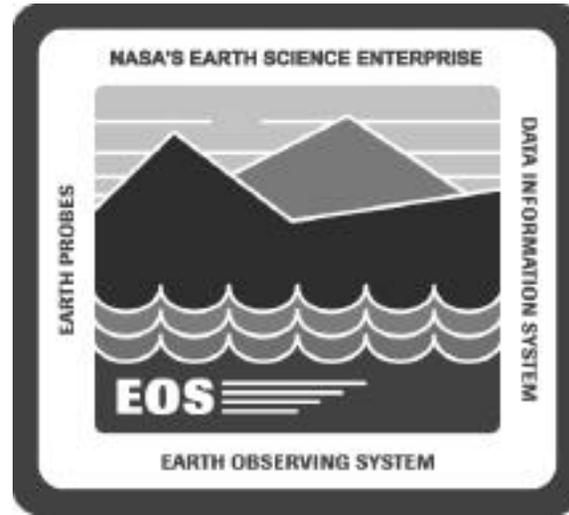


## DAAC Operations

- DAAC Ops must be sensitive to potential performance impact of queries when customizing Access stored procedure.
- DAAC Ops must be sensitive to any interaction/conflict between granule access content and Subscriptions -
  - for example, one could have Subscriptions firing for granules that cannot be accessed due to user restrictions.

## User Services

- Users not explicitly notified of granule attempts/granules not sent.
- Check of SDSRV log files to verify denied Acquire requests for end users.



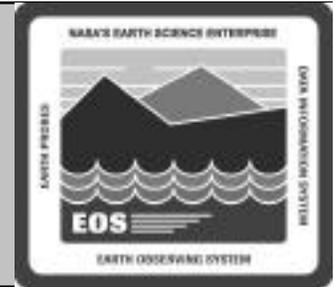
# COTS ADDITIONS & UPGRADES

**J. H. DeLAUTER**

**Raytheon** Raytheon Systems Company

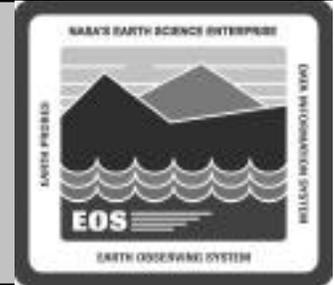
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# Agenda



- **Requirements**
- **Overview**
- **Hardware COTS**
- **Software COTS**

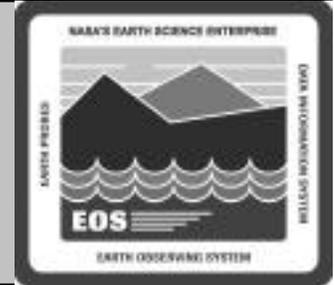
# Requirements



**COTS upgrade requirements fall in the following areas:**

- **Vendor Support**
- **Problem Resolution**
- **Performance**
- **Vendor Supplied Patches**
- **Customer Requests**

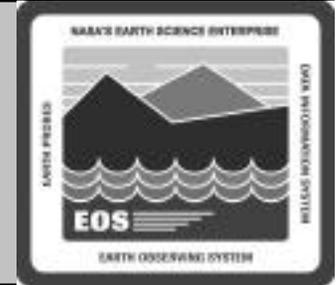
# Overview



**COTS being implemented during the '5B' time frame are not specifically tied to the functional release, except as noted**

- **HARDWARE UPGRADES:**
  - Generally based on Capacity Requirements as a function of the F&PRS
- **SOFTWARE UPGRADES:**
  - Product Version Upgrades to maintain Vendor Support
  - Problem/NCR Resolution
  - Vendor Patches

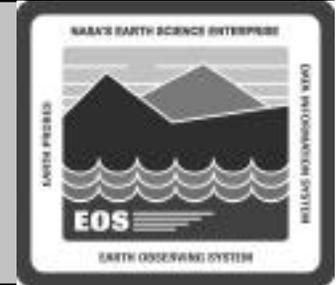
# 5B Hardware Upgrades



**Hardware COTS being upgraded covers the following areas:**

- **M&O equipment for GSFC, EDC, LaRC, and NSIDC**
- **GSFC media buys, capacity upgrades and/or parts additions in the following subsystems/CIs (ACM, DRP, DIP, SPR, PLS, ISS)**
- **EDC media buys, capacity upgrades and/or parts additions in the following subsystems/CIs (ACM, DRP, DIP, SPR, ISS)**
- **LaRC media buys, capacity upgrades and/or parts additions in the following subsystems/CIs (ACM, DRP, DIP, SPR, PLS, ISS)**
- **NSIDC media buys, capacity upgrades and/or parts additions in the following subsystems/CIs (ACM, DRP, DIP, ISS)**
- **Ingest Subsystem for NSIDC**
- **MODAPS communications bandwidth enhancements for GSFC and EDC**

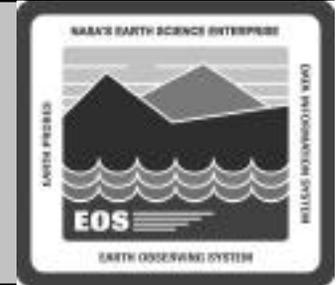
# 5B Hardware Upgrades



- **Hardware ‘buys ‘ taking place during the 5B time frame include:**
  - **The Early Buy, CCR 99-0609**
  - **The Performance Verification Center, CCR 99-0608\***
  - **GSFC Ingest RAID for L0 Buffer, CCR 99-0610**
  - **Landsat 7 Sub-Setting RAID Upgrade, October 99 Buy\***

\* In support of a 5B requirement

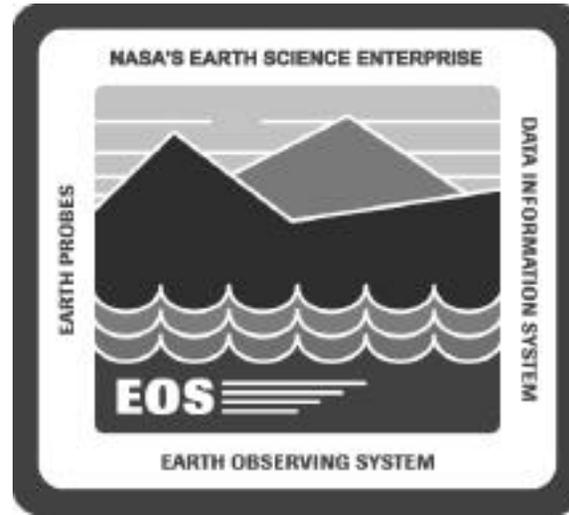
# 5B Software Upgrades



- **Software COTS Upgrade Activities are Described and Guided by: DID 335, Volume 1; ECS Work Instruction SE-1-001, and the Weekly COTS Status Report/Briefing**
- **DID 335, Volume 2 will be delivered by November 1999**
- **Software COTS being Upgraded during the Sep 99 to June 00 Time Frame Include the following:**
  - **PERL 5.005, DAAC Requested upgrade Sep 99**
  - **Secure Shell 2.0.12, Problem Fixes Sep 99**
  - **Sybase OC 11.1.1, Vendor Support Sep 99**
  - **Solaris 2.5.1 Sec Patch, NCR # 23346 Sep 99**
  - **SQR 4.3.2.2, Vendor Support Sep 99**
  - **IQ 5.5, DAAC DB Support Rqmt Oct 99**
  - **IMSL Libraries (F & C), Certified Versions Nov 99\***

\*In Support of a 5B Requirement





# Test Engineering

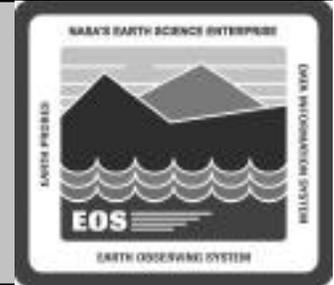
Bob Kniffin

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# Test Engineering

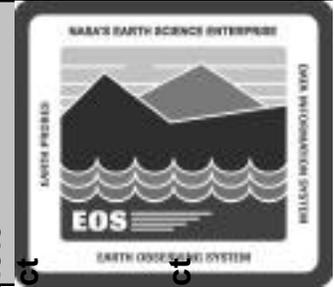
## 5B Overview



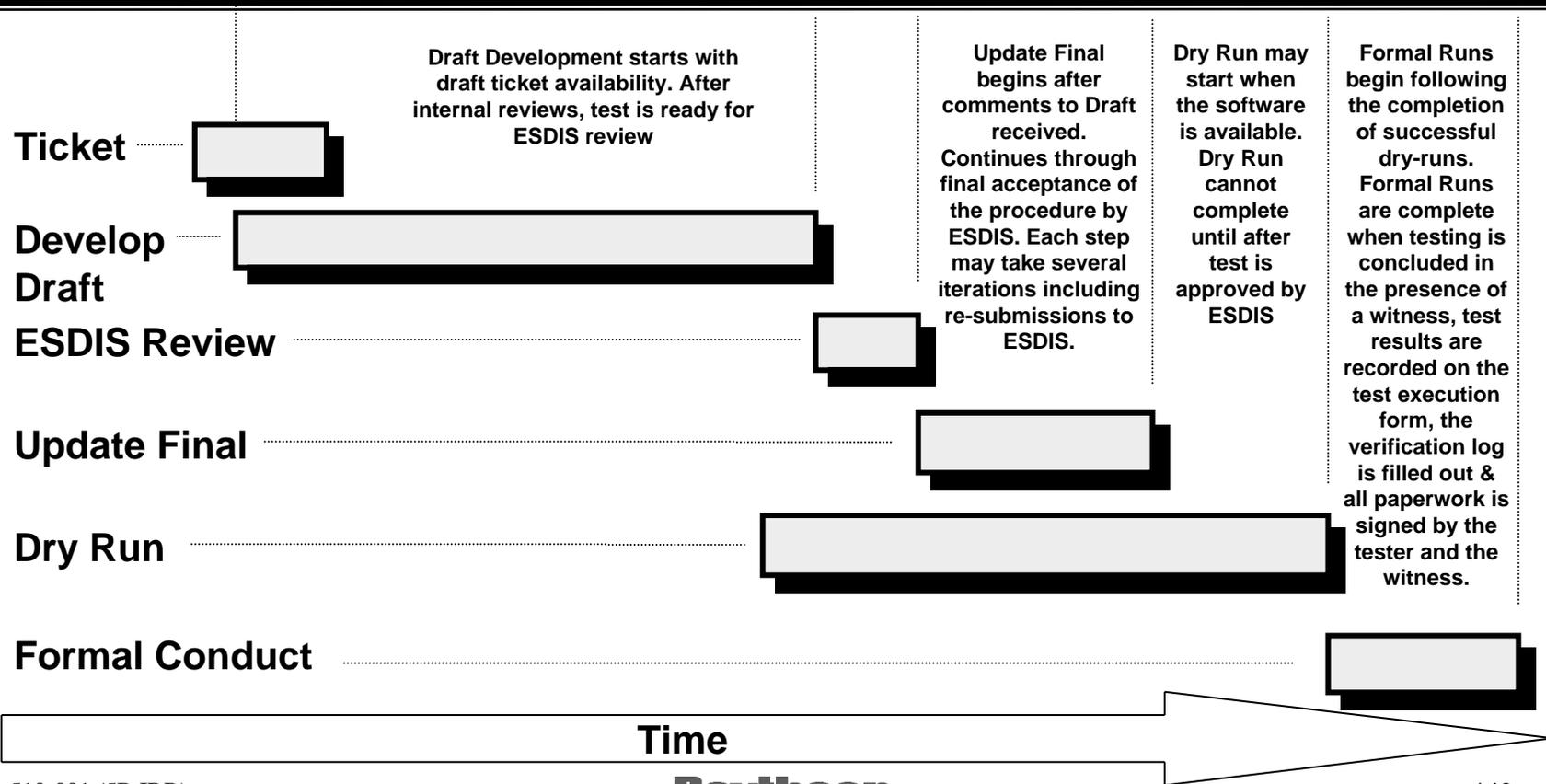
### Agenda:

- **Test Approach**
  - **Overview**
    - Test Planning
    - Test Development
    - Test Conduct
    - Test Reporting
    - Performance Testing
  - **Deployment Support**
- **Test Suite**
  - Tests
  - Allocation to Software Turnover
  - Where Verified
- **Process Improvements for 5B**

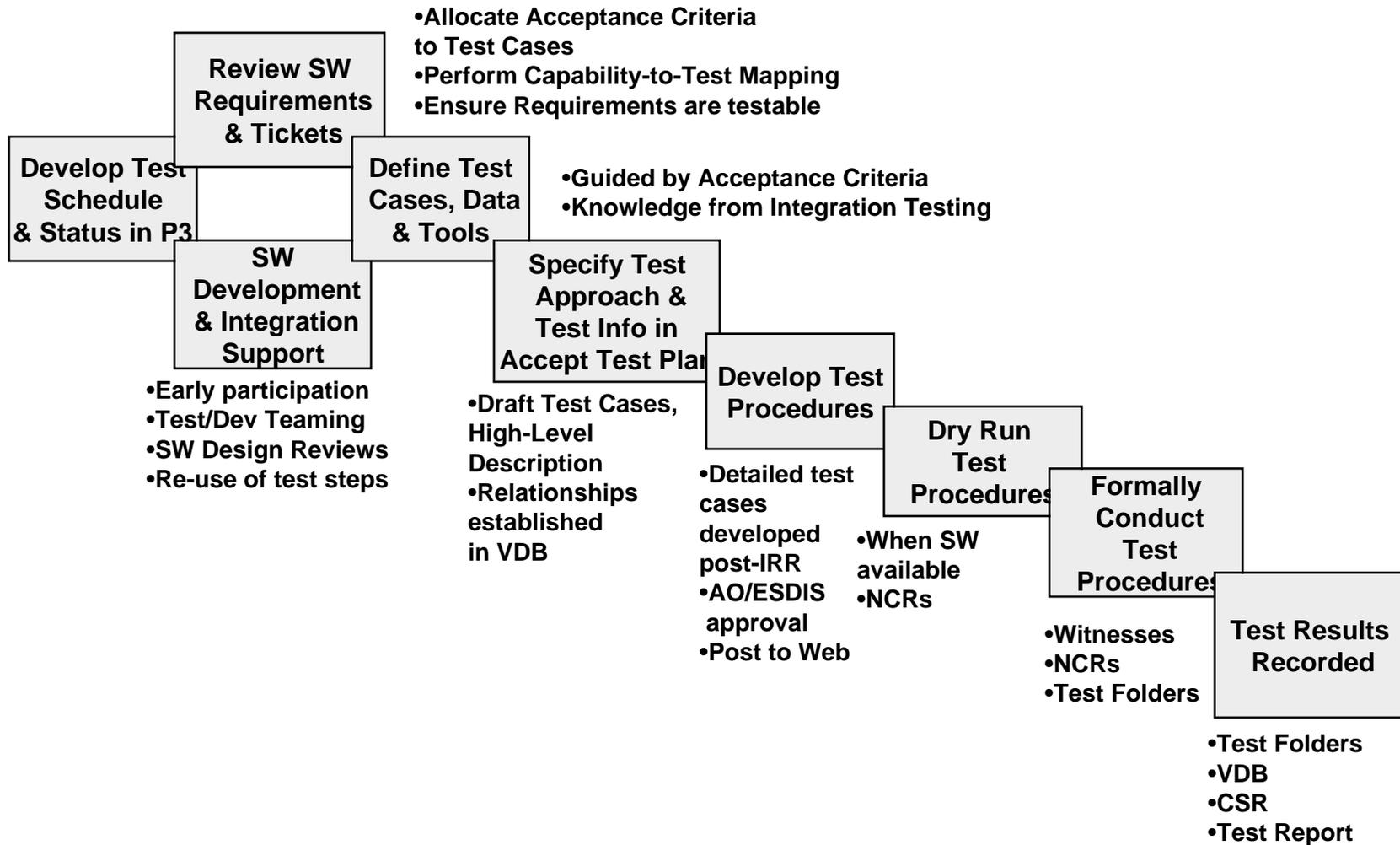
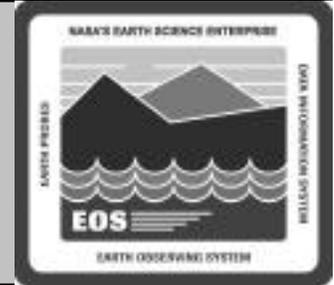
# Test Approach Overview



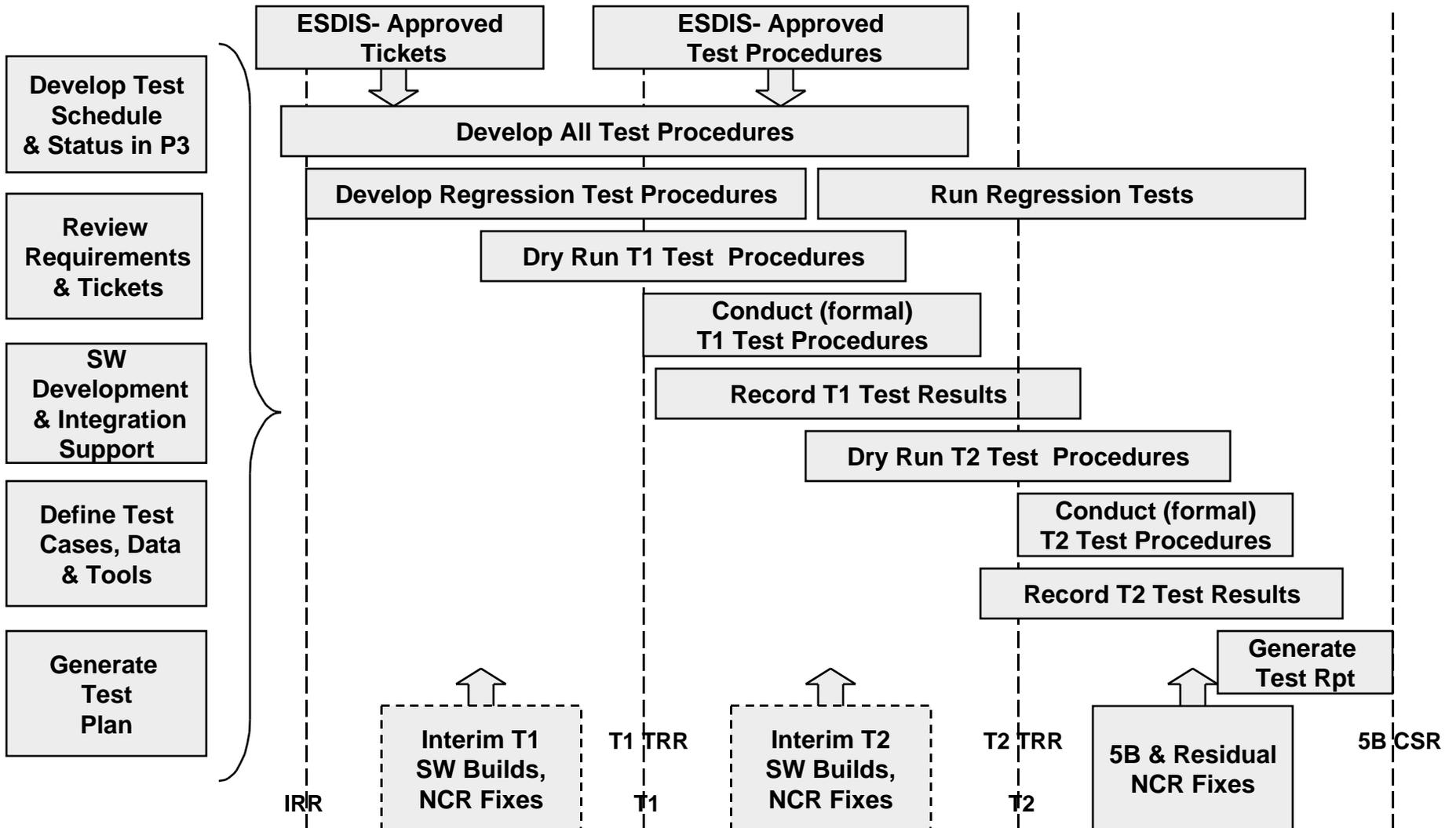
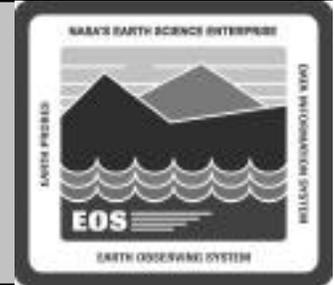
Draft Ticket - Start Draft      ESDIS-Approved Ticket      Peer Review      Final SE Review      Release for ESDIS Review      Rx ESDIS Comments Test Updated      ESDIS Approval      Dry Run Complete Formal Conduct Start      Formal Conduct Complete



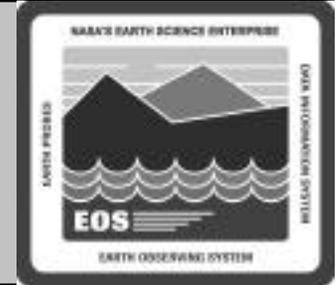
# Test Approach Overview



# Test Approach Turnover 1 and 2



# Performance Verification



**Performance verification scope is full AM-1 ingest, production, and distribution**

**Performance verification will be based on a workload specification for EDC and GSFC**

- **EDC contains major new capabilities (L7 floating scene subsetting and ASTER on-demand production)**
- **GSFC requires the largest throughput volumes**
- **Workload specification available for review by 8/25/99**
- **Workloads will be similar to the volumes specified in the DAAC system overview slides at the beginning of this presentation**

**Release 5B verification will use the Release 4 End-to-End test method**

- **Simulated external interfaces**
- **Empty archive and a 95K granule inventory to support searches**

# Test Approach Deployment Support



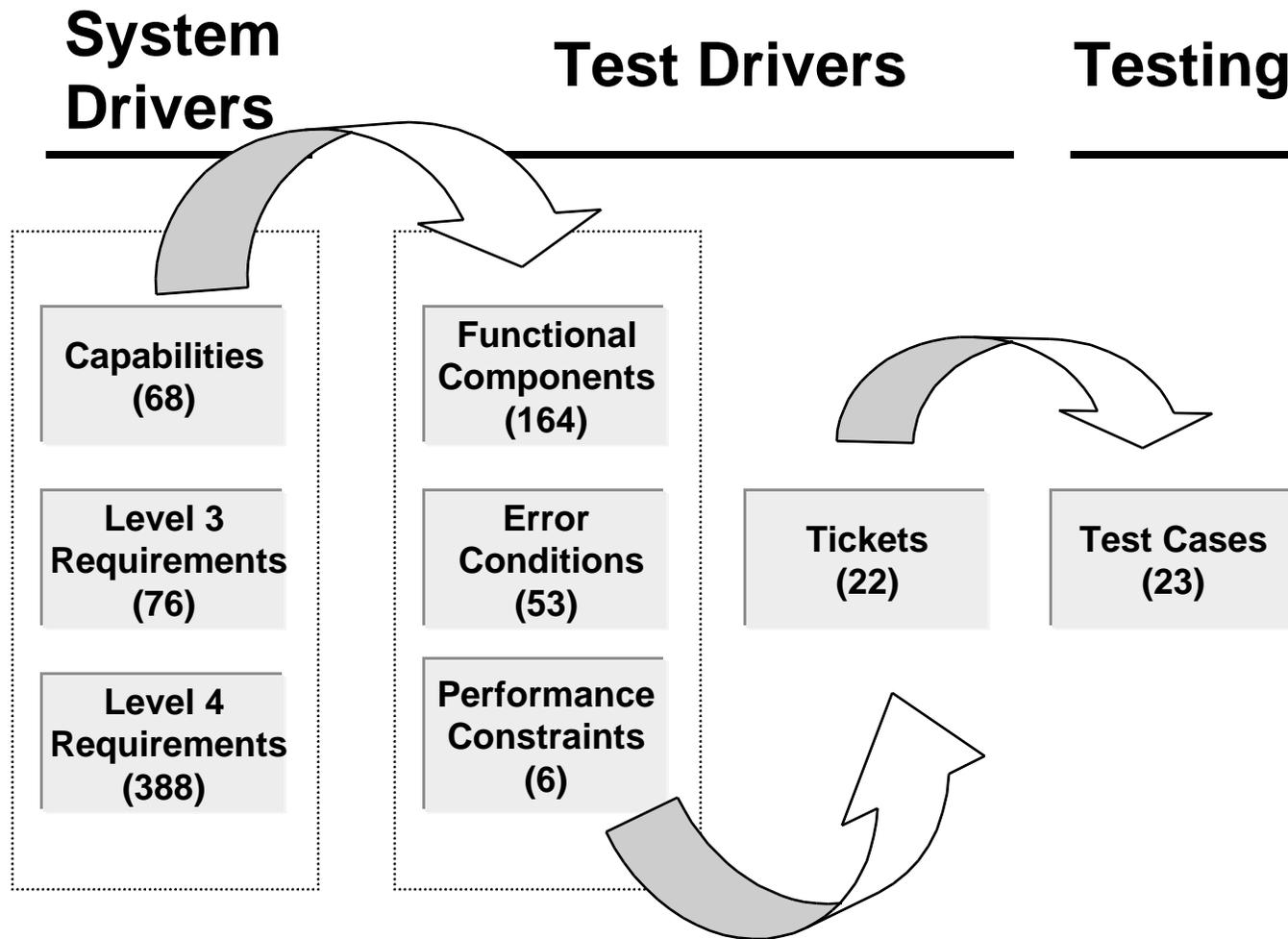
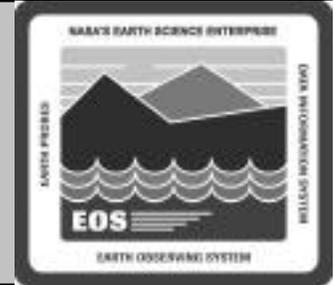
## Prepare for Release 5B Deployment

- IRR - Describe on-site activities for each DAAC
- Develop DAAC regression tests
- ICO in VATC
  - verify Install Script
  - exercise/refine CO procs
- Coordinate with DAACs
- CSR - Show results of testing & readiness to deploy
- PSR - Ready site support team

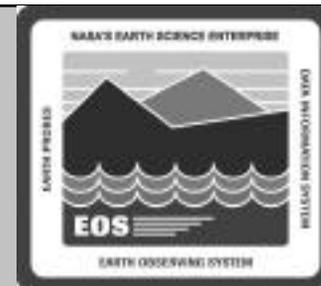
## Deploy Release 5B

- Support DAAC ICO
- Support core regression test conduct
- Conduct any Acceptance Tests

# Test Generation

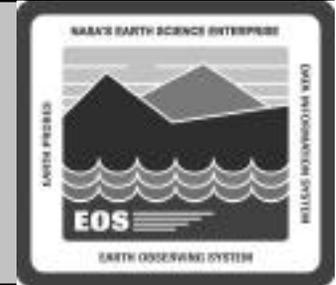


# Test Suite Allocation SW Turnover/Where Verified



Test	Toolkit	Level-3 Requirements	Level-4 Requirements	Capabilities	Functional Components	Endr Conditions	Performance Constraints	Turnover#1	Turnover#2	WATC	PMIC	ESSEC	LARIC	ERDC	MSBDC
Toolkit	RH01	1	8	1	7	0	0	T1		X					
Toolkit	RH02	1	2	1	12	11	0	T1		X					
5B09010 - Closest Granule Prod Rule	RH03	1	4	2	4	1	0	T1		X					
5B09080 - Closest Granule & Minimum/ Maximum Granule Production Rule Combination	RHO3	1	4	2	1	1	0	T1		X					
5B09020 - Spatial Pad Prod Rule	RH04	1	3	2	6	1	0	T1		X					
5B09030 - Orbit Process Run Time Para	RH05	1	15	1	11	0	0	T1		X					
5B09040 - PM-1 DPREP Processing	RH06	TBD	TBD	1	5	4	0		T2	X					
5B10010 - LLBox & Oriented Polygon	RM01	6	16	5	11	0	0		T2	X					
5B10020 - Persist Queue of Subscript	RM02	1	9	1	8	0	0	T1		X					
5B12010 - ASTER On-Demand (ASTER L1B)	RM03	11	39	6	8	3	0		T2	X					
5B12020 - On-Demand ASTER DEM	RM04	7	28	4	5	1	1		T2	X	X				
5B12030 - On-Demand ASTER High Level Pr	RM05	7	66	5	18	5	1		T2	X	X				
5B10030 - V0 to ECS GateWay (Integrated Browse)	RM06	3	5	1	1	0	1	T1		X	X				
5B08010 - Maintenance Tool Management (M-Tool Enhancements)	RM07	4	11	4	8	0	0		T2	X				X	
5B10040 - GDS-to-ECS ASTER Gateway	RM09	4	47	8	9	3	0		T2	X				X	
5B10050 - Restrict Gran Access	RM10	5	20	1	13	4	0		T2	X					
5B08020 - User Profile Enhcmnts	RM11	4	4	2	2	2	0		T2	X					
5B08030 - SDSRV Recovery & Queue	RM12	1	6	1	3	0	0	T1		X					
5B08040 - Update ESDT	RM13	1	28	5	3	7	0	T1	T2	X					
5B09050 - DAS Ingest Cancel Request (Ingest Operability & New Data)	SM01	1	1	1	2	0	1	T1		X	X				
5B09060 - Ingest Database Data Type Verification (Ingest Operability & New Data)	SM01	1	1	3	1	0	0	T1							
5B09070 - Ingest Cancel & Resume	SM01	3	3	3	4	0	0	T1							
5B10060 - L7 Floating Scene Sub	SM02	9	34	6	10	6	1		T2	X	X			X	
5B08050 - L7 Error Handling	SM03	TBD	7	1	6	1	0		T2	X					
5B10070 - JAVA DAR Tool	SM04	2	27	1	6	3	1	T1	T2	X					
* Detailed development capabilities may effect more than one test	Totals	76	388	68*	164	53	6	16	13						

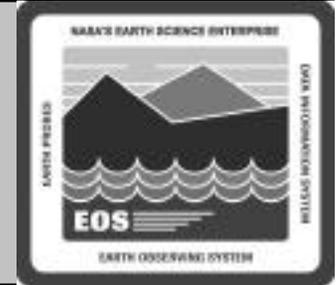
# Test Engineering Improvements in 5B Test Approach



## Teaming & Early Participation with AO & SW counterparts:

- Participating in SW PDRs and DDRs
- Observing Integration Test Conducts
- Ready to Receive Integration Tests when Available
- Benefits:
  - Visibility into:
    - Intent of Requirements & Associated Capabilities
    - SW Design/Implementation of Requirements
  - Enhanced knowledge of capabilities, system/operational context
  - Clarify implementation via reviews
  - Influence scope of Integration Tests
    - Ensure tests fully and correctly exercises capabilities
  - Apply knowledge to *Acceptance Test* development & conduct
  - Reuse Test Procedure steps where possible

# Test Engineering Improvements in 5B Test Approach



## One Acceptance Test per Ticket

- **System Orientation for Testing**
  - Focus is on major capability, not underlying subsystems
  - Functional & Error Criteria verified in same test

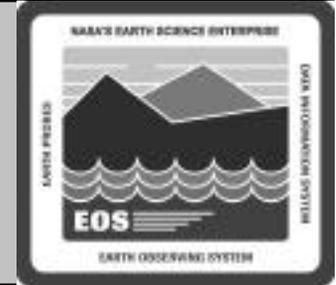
## Peer Reviews of Acceptance Tests

- **Decreases Internal Review turnaround time**
  - Review test package once
  - Test Eng, AO Rep, SW Eng, Ops Rep participate
  - Ready for ESDIS review after update

## Early use of Merged Software in VATC/PVC

- **Goal to get pre-turnover SW releases to exercise capabilities early**
- **Feedback to SW via early NCRs permits increased Quality of SW at Turnover**

# Test Engineering Improvements in 5B Test Approach



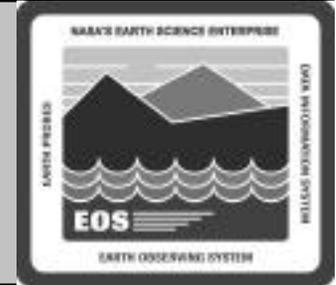
**Program uses VDB for status of all Acceptance Criteria**

**Formalizing Regression Testing**

- **Suite of tests appropriate for regression testing pulled from Acceptance Tests**
- **Performed after ICO for SW in VATC & PVC**
- **Applicable to key operations at each DAAC**

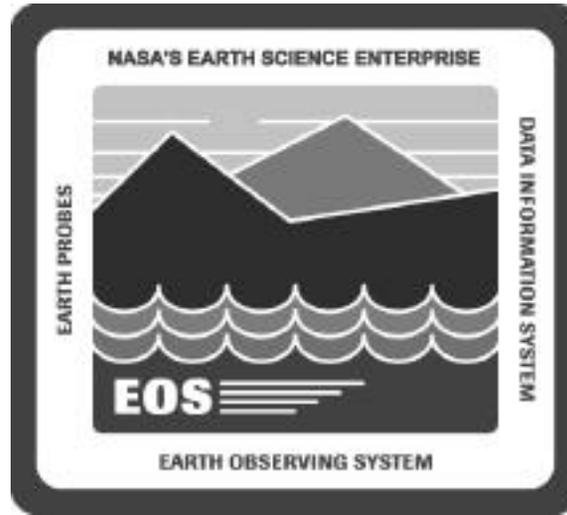
**Early Coordination with DAACs for Onsite Activities**

# Test Engineering Current Status For 5B



## Participating in Software Integration & Test Support Test Planning:

- **Established Overall Plan for 5B Test**
- **Established Test Engineering Processes**
  - dovetail with System Engineering and Development
- **Reviewed Draft Tickets**
- **Developing Draft Test Cases**
  - using ESDIS-Approved Tickets where Available
- **Generated the Draft Overall Acceptance Test Plan (DID 409)**



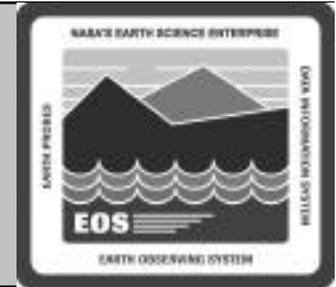
# Transition

Robert Kniffin

**Raytheon** Raytheon Systems Company

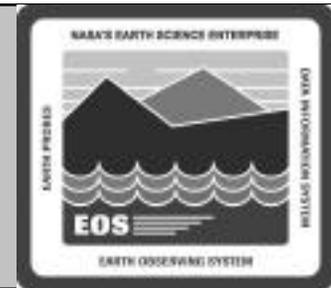
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# Agenda



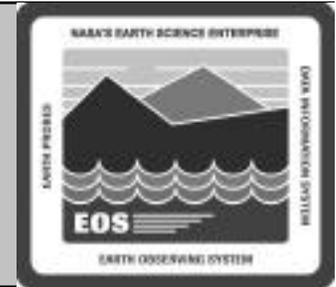
- **Installation/Transition strategy**
- **Transition process**

# Installation/Transition Strategy



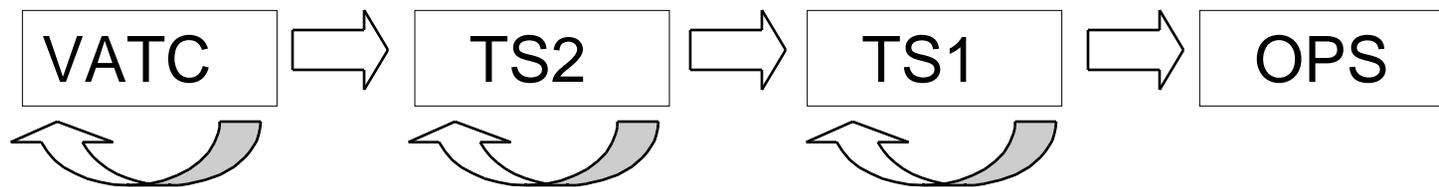
- **All DAACs will be operational**
  - must perform a *transition* from currently fielded version to 5B
- **Predecessor activities include the site ICO of 5B Shared Mode & COTS**
  - Transition is independent of COTS upgrades
- **Transition to 5B is similar to 5A... differences include:**
  - All sites involved: EDC, NSIDC, GSFC, LaRC
  - Parallel transitions at 2 DAACs
- **Transition to 5B will expand on ECS Assist automation enhancements based on 5A lessons-learned**

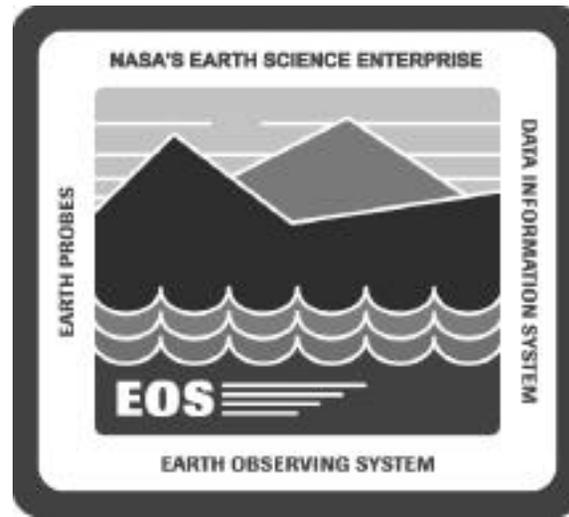
# Transition Process



## Key features include:

- **Automation: ECS Assist, Update ESDT, backup and restore scripts, database patch and verification scripts**
- **Integrated team - DAAC, development and test**
- **Phased approach used to validate procedures and train team**
  - Rehearsals/training in the VATC Ops, DAAC TS2 & TS1 modes





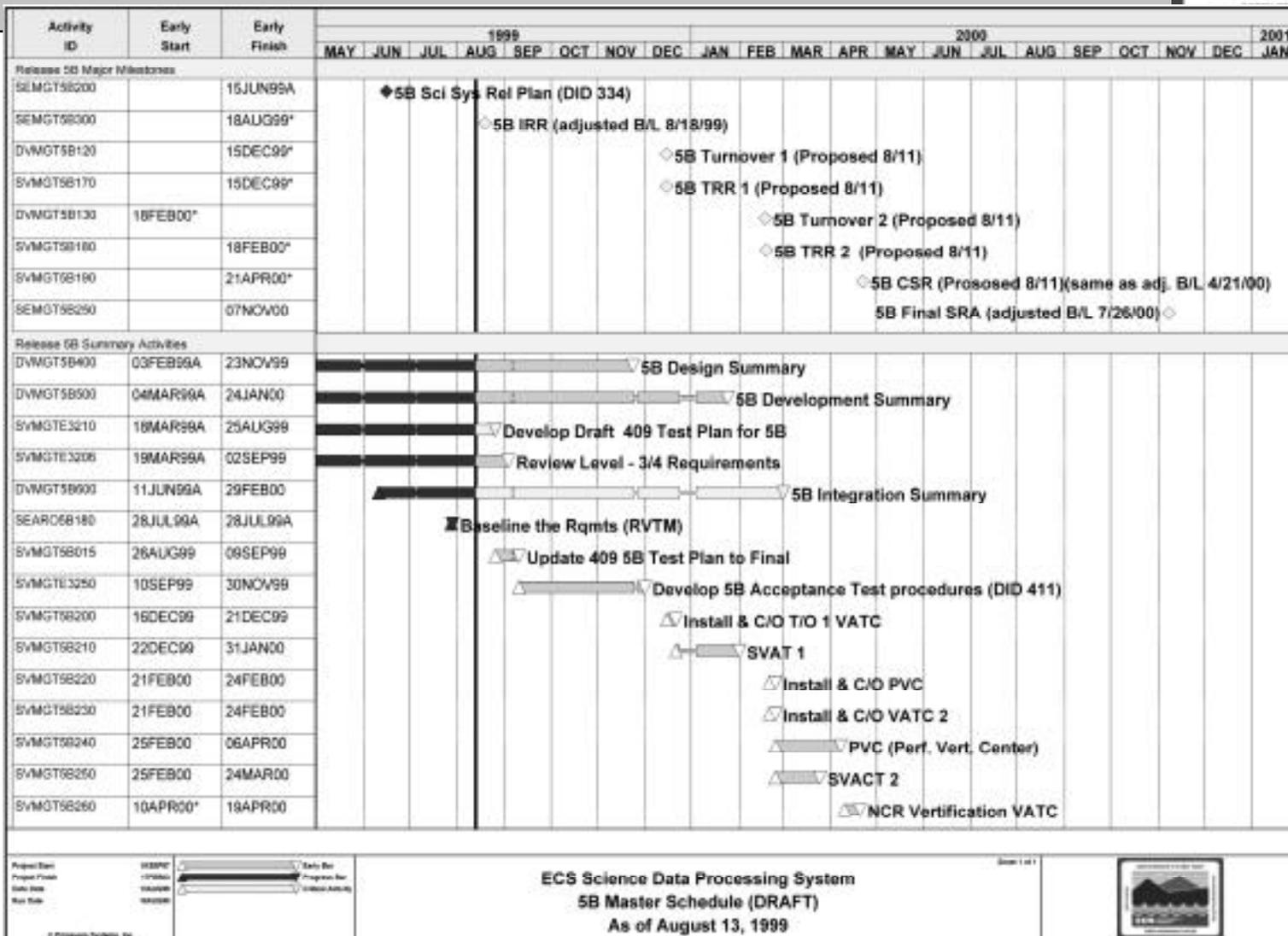
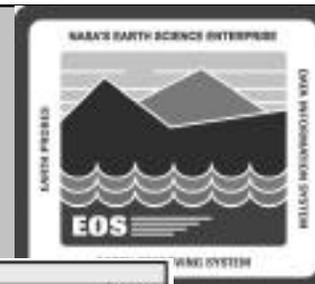
# Wrap-up/Summary

**Mark McBride**

**Raytheon** Raytheon Systems Company

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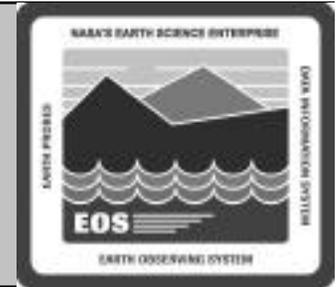
# 5B Schedule



ECS Science Data Processing System  
5B Master Schedule (DRAFT)  
As of August 13, 1999

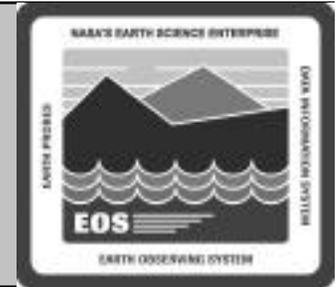


# GFE/GFI Identified for 5B



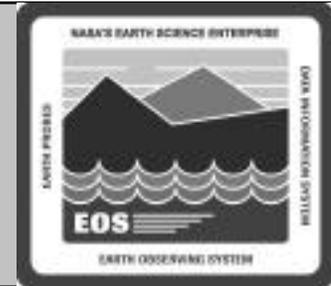
GFE/GFI Description	Date Required	Rationale/Risk
The 5B related SIPS ICDs for AMSR (ADEOS II), AMSR-E (PM-1), LaTIS-CERES (PM-1), and MODAPS (PM-1) in draft form for review by IF Engineering and use by INGEST	6/1/1999	<ul style="list-style-type: none"> <li>▪ The volumes are required to enable INGEST to meet the current development, test and delivery schedule. Currently, ECS is proceeding at risk, making best estimates of formats of individual datatypes. Expected rework when data is defined.</li> </ul>
EDOS ICD Updates (AP ID's for PM1 Level 0 data)	7/30/1999	<ul style="list-style-type: none"> <li>• The INGEST database requires AP ID's to properly configure for new data types. Minimal impact to testing.</li> </ul>
PM-1 DPREP processing scenarios/requirements.	4/15/99 Pre-Processing Concept Doc provided 6/25/99 (preliminary)	<ul style="list-style-type: none"> <li>▪ Cannot proceed with development of DPREP for PM-1. Depending on final requirements, may need to develop more SLOC than originally estimated by ECS.</li> <li>▪ 8/12: Awaiting FDD analysis of our interpolation software for finalizing requirements and ticket; need answers to several other questions submitted to Dan Marinelli in order to proceed with design</li> </ul>
Test data for SIPS interface	Overdue	<ul style="list-style-type: none"> <li>▪ Cannot perform integration testing for SAGE II, LaTIS-CERES A and ACRIM without valid test data.</li> <li>▪ Have data for MODAPS and MOPITT.</li> <li>▪ (SAGE III, LaTIS-CERES-A and ACRIM interfaces merged 7/7/99 w/o test data)</li> </ul>

# GFE/GFI Identified for 5B



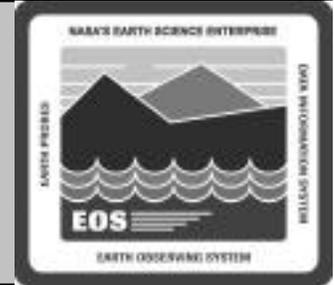
GFE/GFI Description	Need Date	Rationale/Risk
Need formal direction (TD) from ESDIS for which USGS pricing algorithm to implement	Due 5/27	<ul style="list-style-type: none"> <li>• 5B development schedule</li> <li>• 7/29: USGS provided direction. Algorithm has significant changes to the design baseline, so design re-work is needed.</li> <li>• Awaiting ESDIS CCR for the re-work.</li> </ul>
Need interface to V0 finalized for L7 Floating Scene pricing and subsetting	<b>Due 7/1.</b> Received WE 8/13.	<ul style="list-style-type: none"> <li>• Some initial delays in development schedule.</li> <li>• Information has been finalized and working off development issues.</li> </ul>
AIRS (PM-1) V1 Software Delivery	Due 6/30 <b>Closed on 8/2</b>	<ul style="list-style-type: none"> <li>• Delivery of AIRS PGEs expected 7/12;</li> <li>• AIRS PGE integration testing will start late.</li> </ul>
MODIS (PM-1), CERES (PM-1), AMSR-E metadata	8/2	<ul style="list-style-type: none"> <li>• Required for ESDT development and testing</li> </ul>
Need direction on how to proceed to support summary product from AIRS	<b>Overdue</b>	<ul style="list-style-type: none"> <li>• Not supported in 5B IRR design</li> <li>• Subject to prioritization when received</li> </ul>

# Risk Areas & Mitigation Strategy



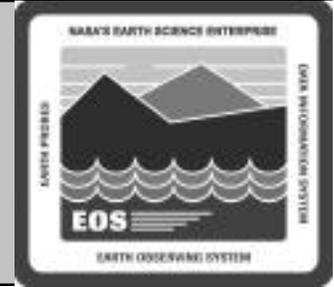
<u>Risk Item</u>	<u>Impact</u>	<u>Mitigation Strategy</u>
<b>OPS Transition</b>	<b>Seamless operations; loss of archived products.</b>	<b>Detailed planning and practice; DAAC coordination; dedicated resources.</b>
<b>Staffing</b>	<b>Schedule degradation; Inability to fulfill Mission requirements by delivering capabilities.</b>	<b>Aggressive hiring; reallocation of key resources; careful coordination between organizations.</b>
<b>PVC Startup</b>	<b>Inability to perform 5B performance testing; inability to troubleshoot high priority DAAC issues.</b>	<b>Detailed planning; Experienced contractors and consultants; expedited procurement.</b>
<b>GFE/GFI Items</b>	<b>Schedule impacts. Inability to meet mission requirements...</b>	<b>Proceed at risk. Possible rework or retest.</b>

# Review of Open Actions

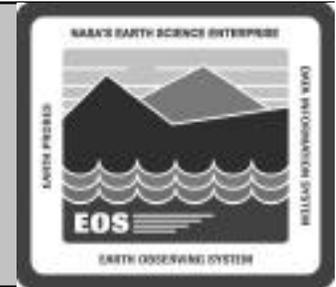


**IRR Actions received prior to review.**

# Review of Today's Action Items



# Concluding Remarks



## Release Management through Lifecycle Process Improvement

### Requirements Completed (L3/L4)

- Issues identified and evaluated
- Resolution underway

### Tickets approved and provided to Test

### System Acceptance Test Plan available

- Test Cases Identified
- Allocated to VATC, PVC, and DAACs
- Planned in conjunction with Development Turnovers

### Preliminary Design Presented which meets requirements