Release 5B - GSFC & NSIDC
Site Readiness Assessment (SRA)
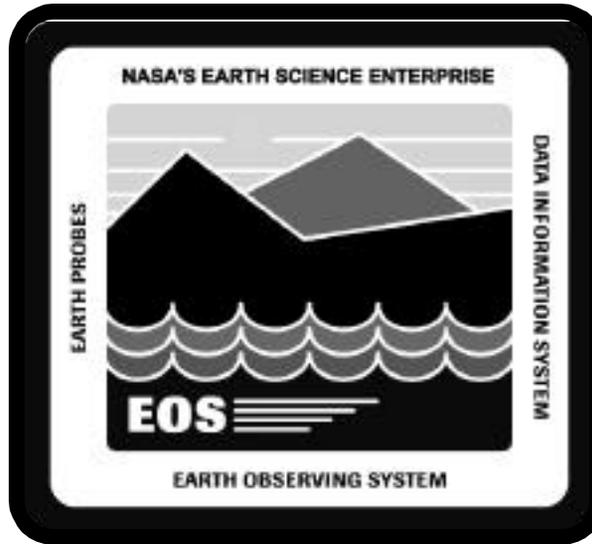
24 August 2000

Raytheon

Agenda
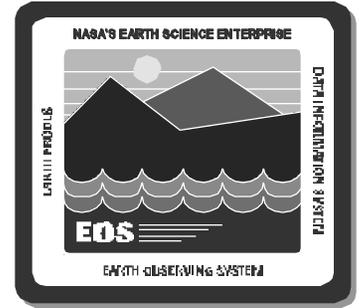
- **Introduction** — Ravi Nirgudkar
- **PCA Results for GDAAC & NSIDC** — Wanda Brown
- **GSFC DAAC 5B Transition Results** — Steve Kreisler
- **NSIDC DAAC 5B Transition Results** — Renea Ericson
- **Summary/Actions** — Ravi Nirgudkar

NASA'S EARTH SCIENCE ENTERPRISE

EARTH PROBES

DATA INFORMATION SYSTEM

EOS

EARTH OBSERVING SYSTEM

Introduction

Ravi Nirgudkar

Raytheon
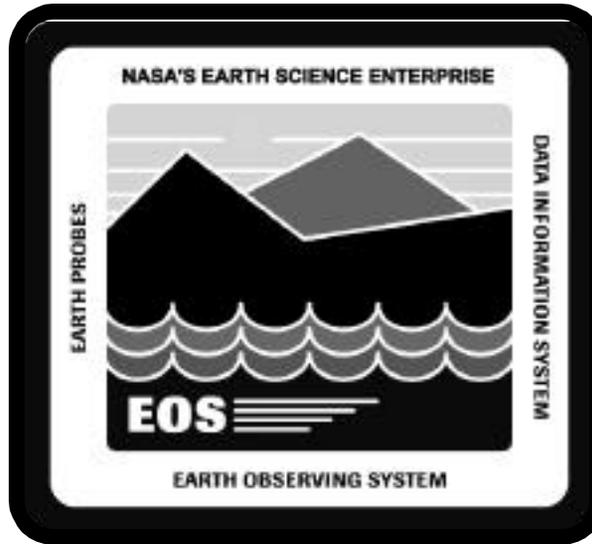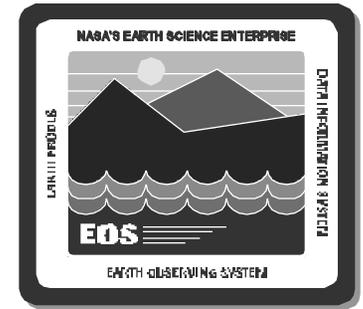
Introduction
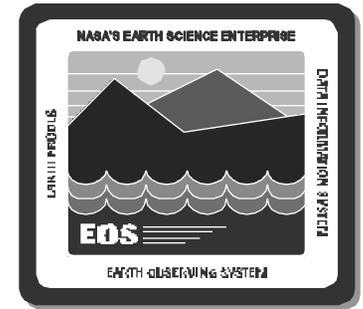
- **Review new capabilities added since PSR**
  - **None to report**

- **Review updated Development status since PSR**

  - **None to report**

- **Review updated Test Engineering status since PSR**

  - **None to report**

- **Review CM PCA results**

- **Review GSFC and NSIDC test results and transition status**

Raytheon

NSIDC and GSFC
Physical Configuration Audit

Wanda Jones Brown

Raytheon
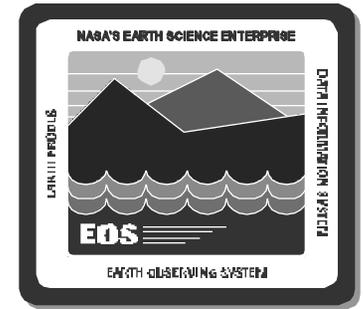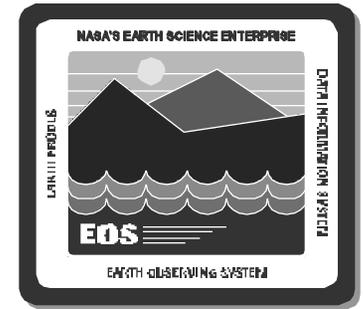
Agenda

- **Purpose of the PCA**
- **PCA Activities**
- **Documentation of PCA Findings**
- **Findings Classification**
- **PCA Process Summary**
- **NSIDC**
  - **PCA Findings**
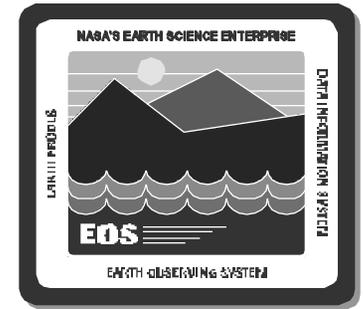 - **PCA Work-off Plan**

Agenda (Cont.)

- **GSFC**
  - **PCA Findings**
  - **PCA Work-off Plan**
- **Areas for improvement and process improvement actions**
- **Conclusion**

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Purpose

Compare the "as built" configuration to the "as approved baseline" configuration to verify the integrity of the system prior to transition to operations.

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PCA Activities

- **PCAs - Transition Modes (TS1, TS2 and OPS)**

  - **COTS Software - mode independent**

  - **O/S Patches - mode independent**

  - **Custom Code - All modes for Drop 5B.03+**

  - **Configuration Parameters - mode independent**

Documentation of PCA Findings
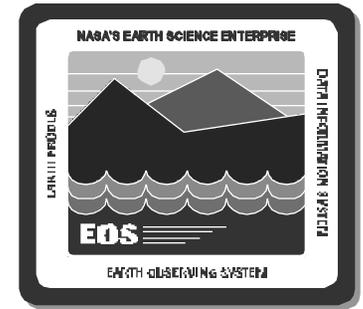
- **Critical and Non-Critical products**

- **PCA NCR classification recognized by the following distinction:**

  - **Class   Severity   Definition**

  - **2   Medium   Critical product. Finding will be forwarded to a technical cognizant (either a system administrator, development engineer, or site personnel) for problem resolution. If it is determined that the finding requires further action, then the affected site will be promptly notified**

  - **3   Low   Non-critical product. Correction recommended to assure continued level of support**

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Findings Classification
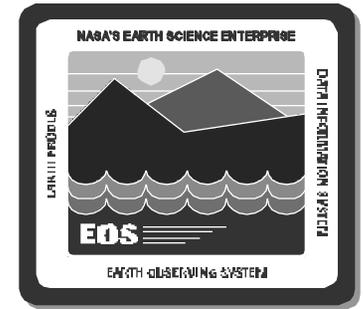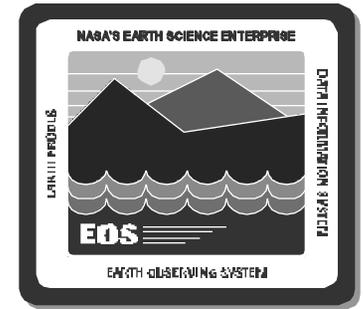
PCA NCR Severity:

- **COTS SW Findings will be either Class 2 or 3 severity.**

- **All Custom Code Findings will be Class 2 or 3. Each executable must be the correct version and none can be missing. Severity 3 findings are for backup hosts (unused).**

- **O/S Patches can be either Class 2 or 3. Certain missing patches may not affect the system because of how the system is used.**
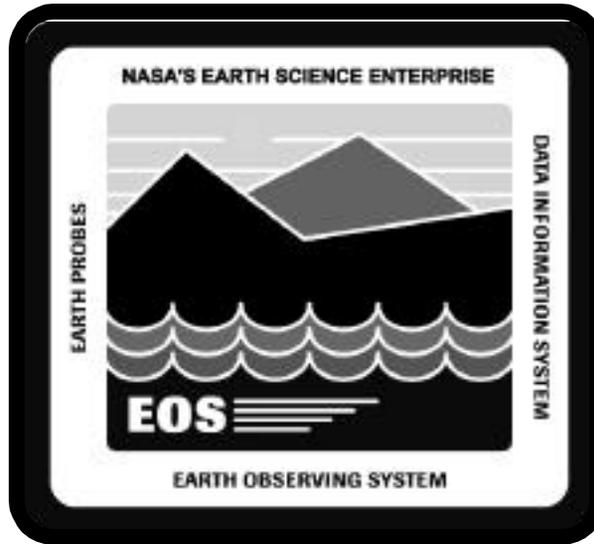
PCA Process Summary
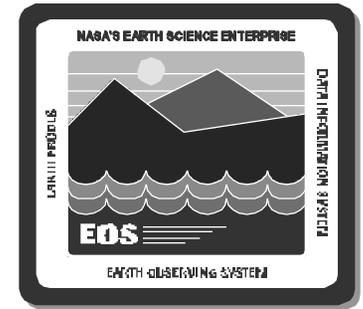
- **Develop Audit Plan/Schedule**

- **Provide Release Baseline for audit locations & modes**

- **Interrogate hosts at sites and create discrepancy reports**

- **Post discrepancy reports on http://cmdm.east.hitc.com/baseline/, then click on interrogation button**

- **Review Technical Data Package (TDP) and audit plan with the audit team at the kick off meeting**

  - **CM, M&O, Development, CM DAAC Representatives**
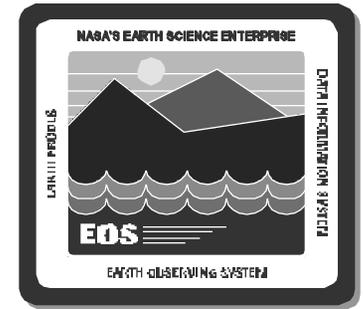
PCA Process Summary (Cont.)

- **Conduct Audit**

- **Forward medium severity findings to the appropriate area for further evaluation**

- **Create PCA NCRs to document findings**

- **Provide summary of all audit findings at the SRA**

- **Verify closure of all PCA NCRs and audit team action items**

- **Prepare final DID 506 report of the audit**

NSIDC PCA Findings

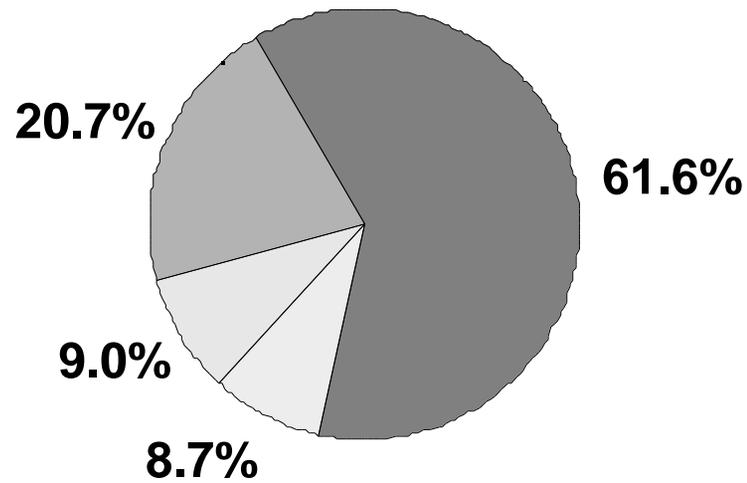Raytheon

NSIDC Findings

- **COTS SW**
  - **Critical and Non Critical COTS SW**
  - **Critical COTS SW**
    - **Approved but not installed**
    - **Not approved but installed**
    - **Installed incorrectly**
- **OS Patches**
  - **SUN, HP, SGI Summary**
- **Custom Code**
  - **Summary**
- **Configuration Parameters**
  - **Summary**

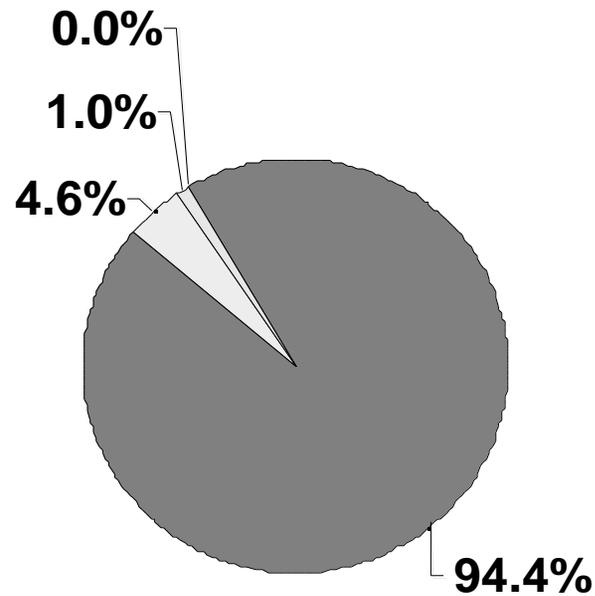# NSIDC PCA Results - COTS Software (Critical and Non Critical)

Investigation Completed on 8/21/00

20.7%

61.6%

9.0%

8.7%
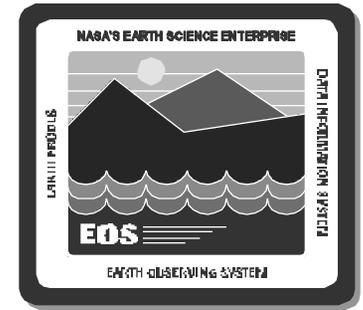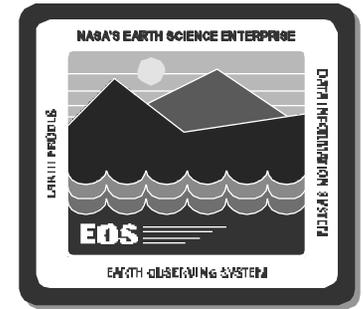
- ■ 61.6% Properly Installed
- 8.7% Approved but not installed
- 9.0% Not approved but installed
- ■ 20.7% Installed w/incorrect version/path

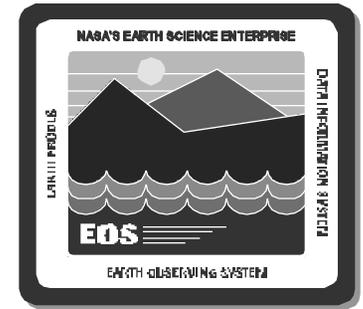# NSIDC PCA Results - Critical COTS Software

Investigation Completed on 8/21/00

0.0%

1.0%

4.6%

94.4%

■ 94.4% Properly Installed

4.6% Approved but not installed

1.0% Not approved but installed

■ 0.0% Installed w/incorrect version/path

NSIDC PCA Results - Critical COTS SW Approved but not Installed

4.6% COTS SW
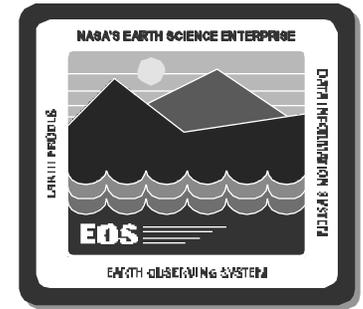
- **Host Issues**
  - AMASS not found on n0drg02
  - IMSL C & FORTRAN Libs not found on n0spg03
  - Replication Server not found on n0mss21
- **Baseline Issues**
  - BDS not found (SGI hosts)
  - BuilderXcessory not found (All hosts)
  - StorEdge Volume Manager not found (mss hosts)

Resolution

NCR ECSed 27843 written for host issues.
CCR 00-0859 written for baseline issues.

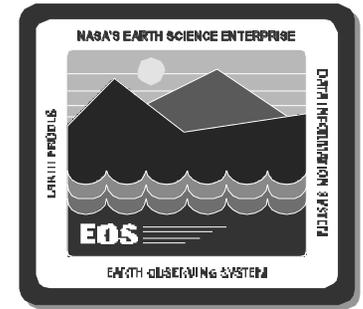# NSIDC PCA Results - Critical COTS SW Not Approved but Installed

1.0% COTS SW

- **Host Issues**
  - Netscape Enterprise Server on n0acg01

- **Baseline Issues**
  - AutoSys on n0ais01, n0pls01, n0pls02, n0pls03, n0spg03
  - Open Client on n0msh10
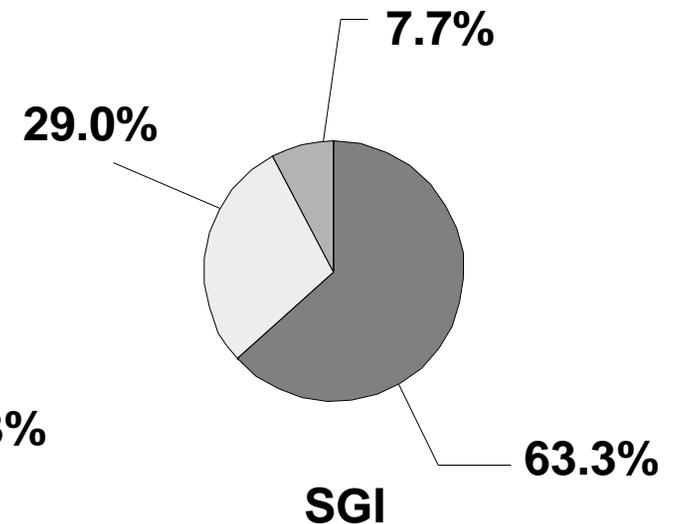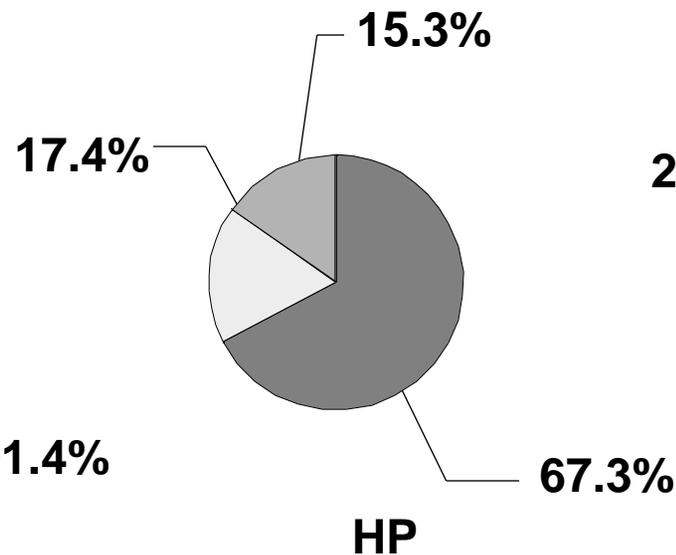 - Replication Server on n0mss20
  - FLEXlm on n0spg03

Resolution

- **Will write an NCR.**

Raytheon

NSIDC PCA Results - O/S Patches

Investigation Completed on 8/21/00

Sun
2.7%
5.9%
91.4%

HP
15.3%
17.4%
67.3%

SGI
7.7%
29.0%
63.3%

	Sun	
▒	91.4%	Properly Installed
☐	5.9%	Approved but not installed
▒	2.7%	Not approved but installed

	HP	
▒	67.3%	Properly Installed
☐	17.4%	Approved but not installed
▒	15.3%	Not approved but installed

	SGI	
▒	63.3%	Properly Installed
☐	29.0%	Approved but not installed
▒	7.7%	Not approved but installed

Raytheon
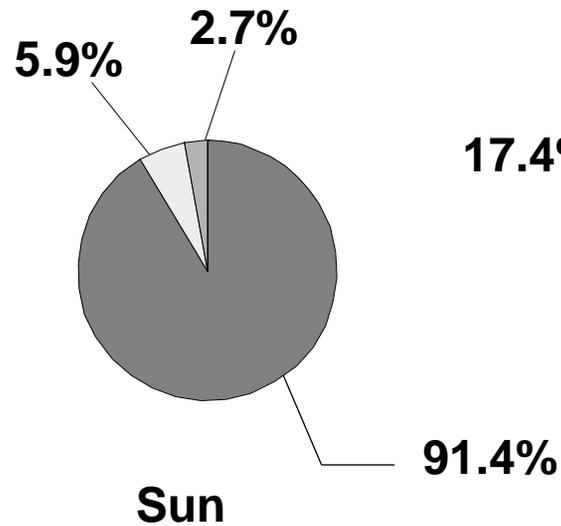
O/S Patch Summary - SUN Platforms
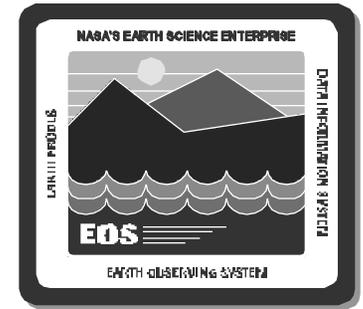
5.9% Approved but not installed:

Patch/Name	Impact	Status
104915-08	None	B/L needs to be corrected
105324-02	Sparc StorageArray ses driver	B/L needs to be corrected

Note: n0drs03 runs Solaris 2.6. There is no Solaris 2.6 O/S Patch baseline.
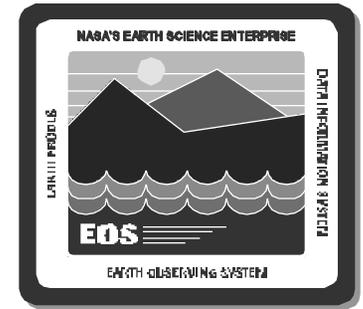
Raytheon

O/S Patch Summary - SUN Platforms (Cont.)
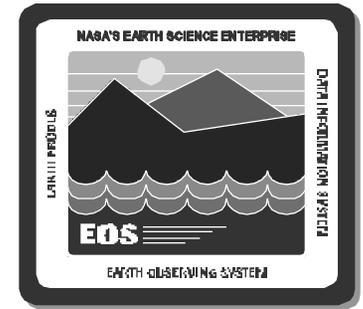
2.7% Not Approved but installed

Hosts n0ins01, n0ins02 and n0mss21- findings are baseline issues; need to correct baseline. Hosts are configured correctly.

O/S Patch Summary - HP Platform

17.4% Approved but not installed:

All issues need to be resolved by a RTSC system administrator. These findings were previously documented as PCA NCR's during previous audits.

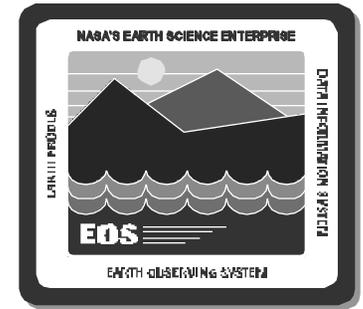**15.3% Not Approved but installed:**

All issues need to be resolved by a RTSC system administrator. These findings were previously documented as PCA NCR's during previous audits.

O/S Patch Summary - SGI Platform
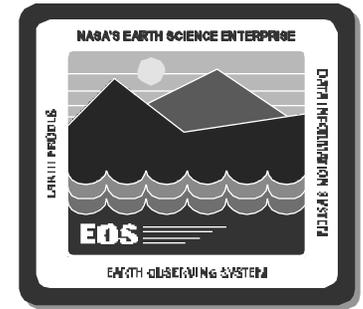
29.0% Approved but not installed:

22.2% of the findings are the result of incorrect baseline documentation. Severity 3 PCA NCR's will be written.

6.8% the findings need to be resolved by a RTSC system administrator. These findings were previously documented as PCA NCR's during previous audits.
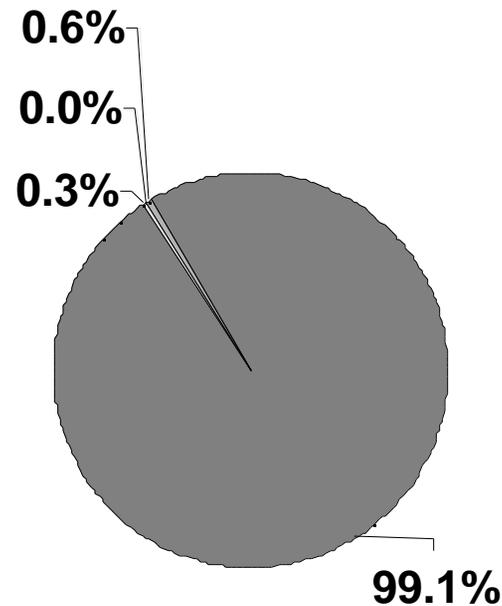
7.7% Not Approved but installed

All issues need to be resolved by a RTSC system administrator. These findings were previously documented as PCA NCR's during previous audits.

NSIDC PCA Results - Custom Code

Notes:

- **Excludes Backup Servers**
- **NSIDC does not populate TS2 mode**
- **Shown data is for OPS and TS1 modes**

0.6%

0.0%

0.3%

99.1%

Investigation Completed on 8/22/00

- 99.17% Properly Installed
- 0.28% Approved but not installed
- 0.0% Not approved but installed
- 0.55% Installed w/incorrect version/path

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NSIDC PCA Results - Custom Code Summary
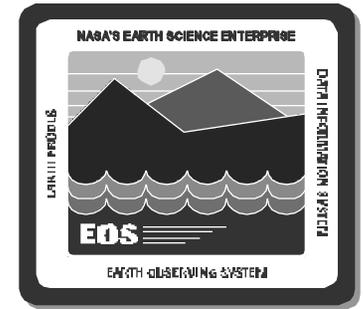
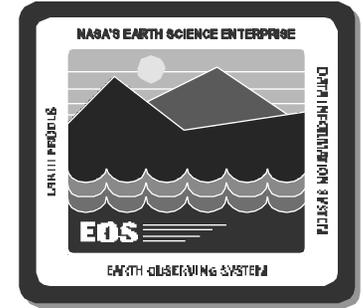**0.28% Approved but not installed:**

Host   Executable   CCR   Name

n0acs03   EcDsSdSrvGui   00-0659   5B.03

0.0% Not approved but installed:

NSIDC PCA Results - Custom Code Summary (Cont.)

0.0% Installed w/incorrect version:

Host	Executable	CCR	Name
n0acg01	EcDsStPullMonitorServer	00-0675	5B.04_Hemlock.01
n0pls02	EcPlPREditor_IF	00-0xxx	5B.04_Guava.01

These should have embedded version identifiers of "DROP5B.04" instead of "DROP5B.03".

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NSIDC PCA Results - Configuration Parameters

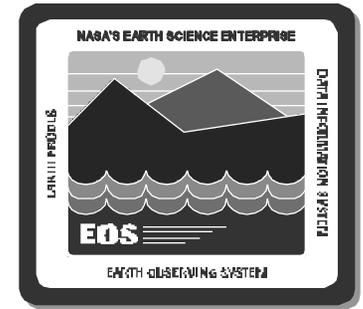**Investigation Completed on 8/22/00**

0.0%

100.0%

|	
■	100.0% Correct Values
	0.0% Incorrect Values

Raytheon
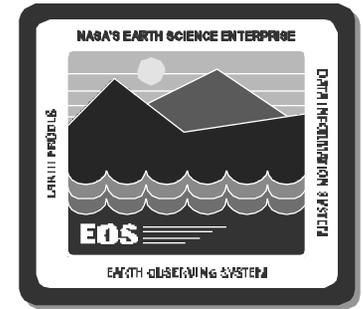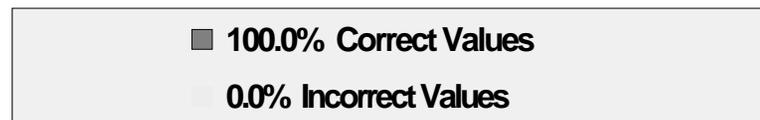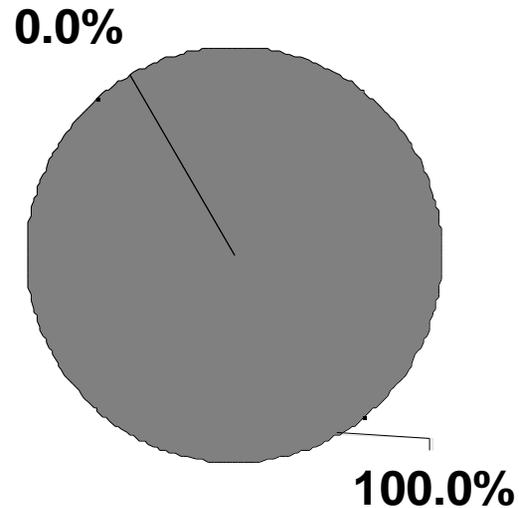
NSIDC PCA Results - Configuration Parameters Summary

- The new audit process for UNIX configuration parameters compares the baseline to the as-builts. The baseline consists of Tech Docs 920-TDx-015 (Suns), 920-TDx-016 (SGIs), and 920-TDx-017 (HPs). The "as-builts" are located on server pete.hitc.com in the /CONFIG directory.

- UNIX configuration parameters define how the UNIX operation system functions. These parameter values can be modified to enable specific custom code executables to perform more efficiently. There are 50 Sun parameters for each host, 239 SGI parameters, and 80 HP parameters.

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NSIDC PCA Results - Configuration Parameters Summary (Cont.)
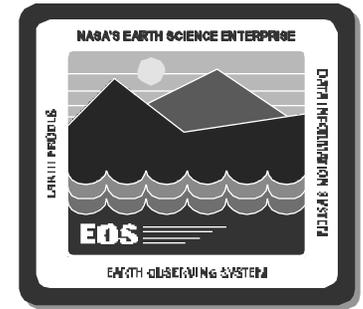
- The baseline was formulated by first reading all of the ECS hosts at the DAACs, the VATC, and the PVC. By subsequently reading the vendor notes, it was then determined whether the read values were the "default, out-of-the-box" values. All read values were the default values. HTML tables were created and posted using the CCR/CCB process.

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NSIDC PCA Work-off Plan
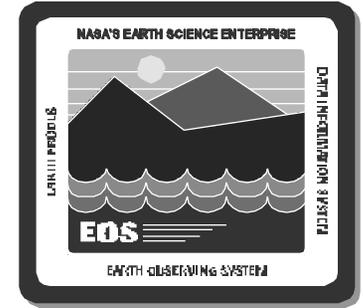
COTS SW:

   – 43 findings will result in updates to baseline documentation and will be completed by 9/30/00.

   – 87 findings will be reviewed by CM and M&O with the DAACs to prioritize and complete outstanding items.

OS Patches:

   – 97 Items must be assigned to System Administrator for priority resolution. (16 - Sun's, 24 - SGI's, 57 - HP's)

Custom Code:

   – Write NCR to document the 3 findings.
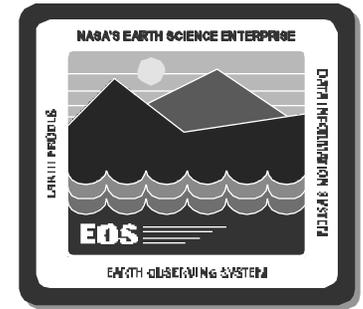
Raytheon

GSFC PCA Findings

Raytheon

GSFC Findings

- **COTS SW**
  - **Critical and Non Critical COTS SW**
  - **Critical COTS SW**
    - Approved but not installed
    - Not approved but installed
    - Installed incorrectly
- **OS Patches**
  - **SUN, HP, SGI Summary**
- **Custom Code**
  - **Summary**
- **Configuration Parameters**
  - **Summary**

Raytheon

GSFC PCA Results - COTS Software (Critical and Non Critical)

Investigation Completed on 8/22/00

25.0%

59.9%

9.9%

5.2%
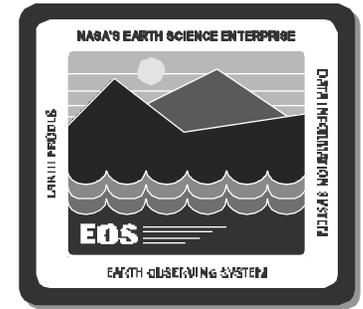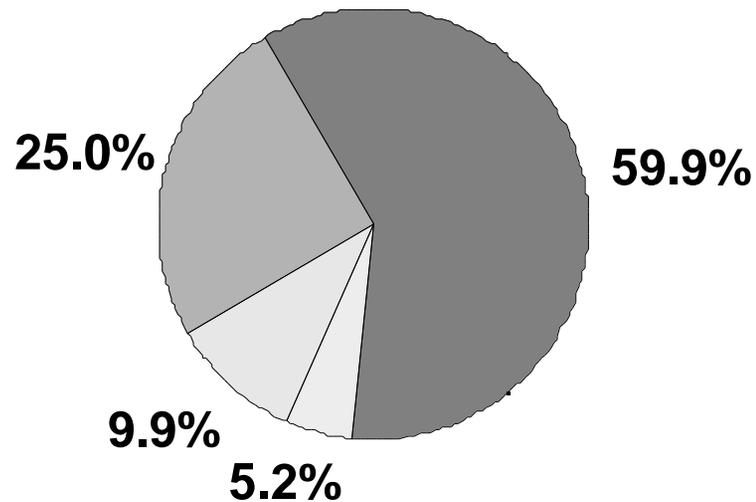
- ■ **59.9% Properly Installed**
- **5.2% Approved but not installed**
- **9.9% Not approved but installed**
- ■ **25.0% Installed w/incorrect version/path**

Raytheon

GSFC PCA Results - Critical COTS Software

Investigation Completed on 8/22/00

1.6%

1.2%

2.2%

95.0%

- ■ 95.0% Properly Installed
-   2.2% Approved but not installed
-   1.2% Not approved but installed
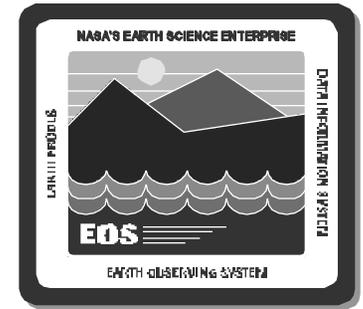- ■ 1.6% Installed w/incorrect version/path

GSFC PCA Results - Critical COTS SW Approved but not Installed

2.2% COTS SW

- **Host Issues**
  - StorEdge Volume Manager (version is 2.5, should be 2.6) 6 hosts
  - Sybase Adaptive Ser (version is 11.0.33, should be 11.5.1) 6 hosts
  - Netscape Enterprise Ser not found on g0ins01, g0ins02, g0msh08
- **Baseline Issues**
  - BuilderXcessory (version 5.0 not found, B/L is 5.0.3)
  - HDF Libraries baseline path wrong
  - IMSL C Libs baseline path wrong

Resolution

CCR and NCR written for NSIDC to be updated with GSFC findings.

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GSFC PCA Results - Critical COTS SW Not Approved but not Installed
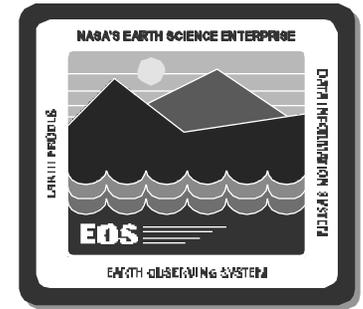
1.2% COTS SW

- **Host Issues**
  - DCE Client on g0spg01, g0spg07
  - FLEXlm on g0acg01, g0acg05, g0aqg01, g0aqg02, g0drg06, g0icg01, and g0spg07
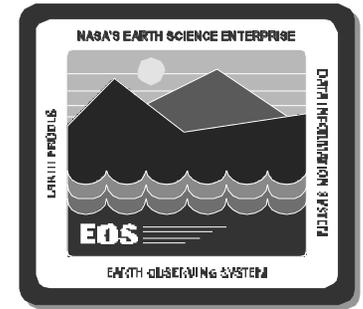 - Replication Server on g0mss20
- **Baseline Issues**
  - HiPPI on g0acg01, g0acg05, g0drg01, g0drg02, g0drg07, g0icg01, g0icg02, g0spg01, g0spg07
  - AutoSys on g0ais01, g0pls01, g0pls02, g0pls03
  - BDS on g0icg01 and g0icg02
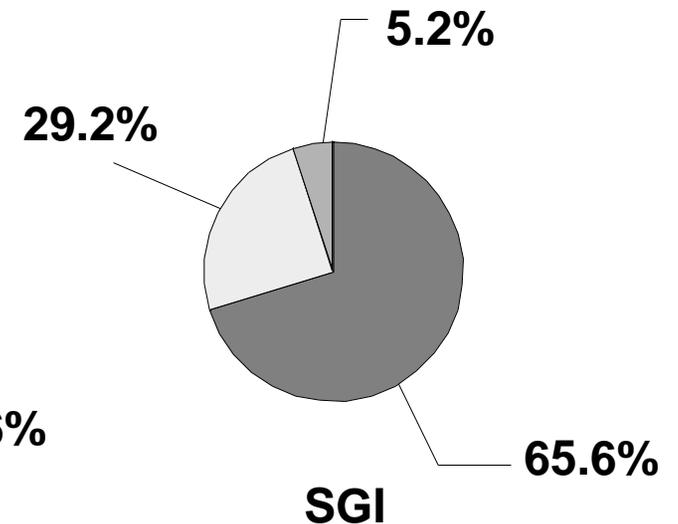 - DCE Server on g0mss07

Resolution
CCR and NCR written for NSIDC to be updated with GSFC findings

Raytheon

GSFC PCA Results - O/S Patches

Investigation Completed on 8/22/00

Sun

0.8%
1.6%
97.6 %

HP

9.9%
10.5%
79.6%

SGI

5.2%
29.2%
65.6%

97.6%	Properly Installed	
1.6%	Approved but not installed	
0.8.%	Not approved but installed	

79.6%	Properly Installed	
10.5%	Approved but not installed	
9.9%	Not approved but installed	

65.6%	Properly Installed	
29.2%	Approved but not installed	
5.2%	Not approved but installed	
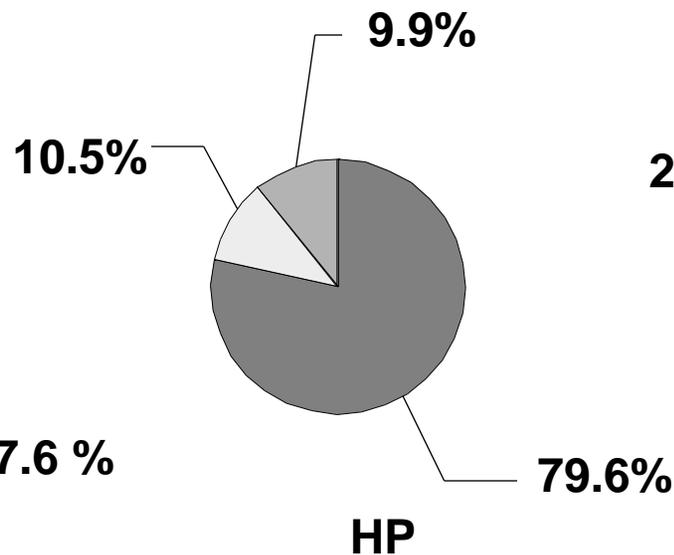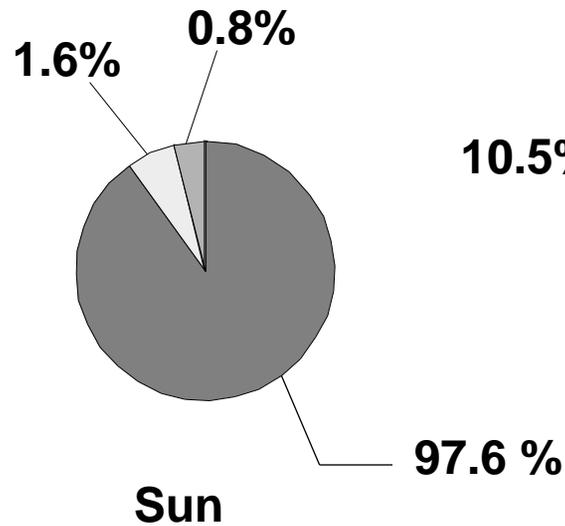
O/S Patch Summary - SUN Platforms

1.6% Approved but not installed:

All issues need to be resolved by a RTSC system administrator. These findings were previously documented as PCA NCR's during previous audits.

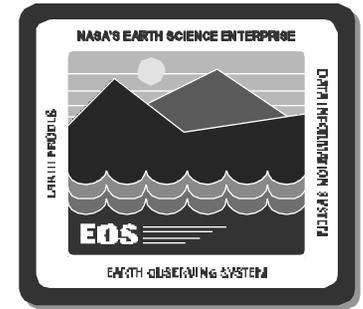**0.8% Not Approved but installed:**

All issues need to be resolved by a RTSC system administrator. These findings were previously documented as PCA NCR's during previous audits.

Raytheon

O/S Patch Summary - HP Platforms

10.5% Approved but not installed

7.9% of the findings are the result of incorrect baseline documentation. Severity 3 PCA NCR's will be written.

2.4% the findings need to be resolved by a RTSC system administrator. These findings were previously documented as PCA NCR's during previous audits.

9.9% Not Approved but installed

All issues need to be resolved by a RTSC system administrator. These findings were previously documented as PCA NCR's during previous audits.

O/S Patch Summary - SGI Platform
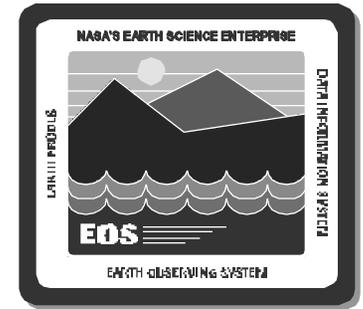
<u>29.2% Approved but not installed:</u>

All issues need to be resolved by a RTSC system administrator. These findings were previously documented as PCA NCR's during previous audits.
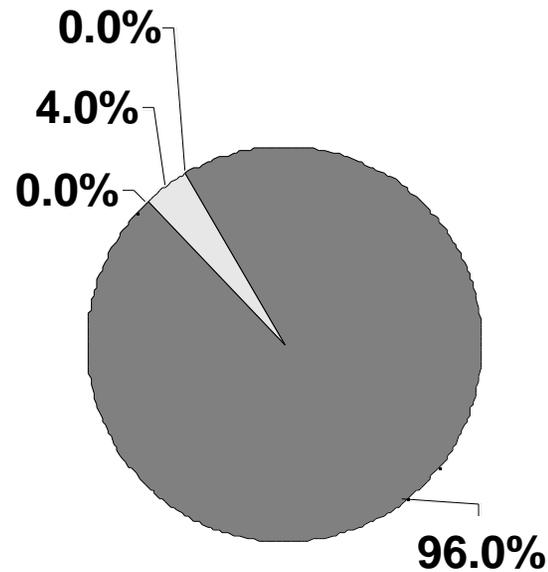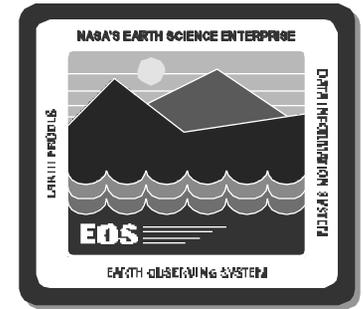
<u>5.2% Not Approved but installed</u>

All issues need to be resolved by a RTSC system administrator. These findings were previously documented as PCA NCR's during previous audits.

Raytheon

GSFC PCA Results - Custom Code
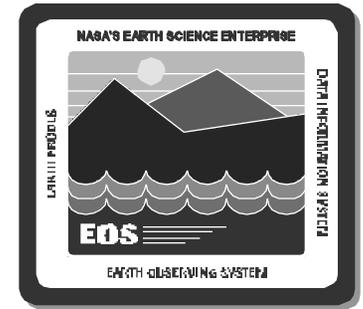
Investigation Completed on 8/22/00

0.0%

4.0%

0.0%

96.0%

- ■ 96.0% Properly Installed
- 0.0% Approved but not installed
- 4.0% Not approved but installed
- ■ 0.0% Installed w/incorrect version/path

740-PP-511-001

Raytheon

GSFC PCA Results - Custom Code Summary

0.0% Approved but not installed:

4.0% Not approved but installed:

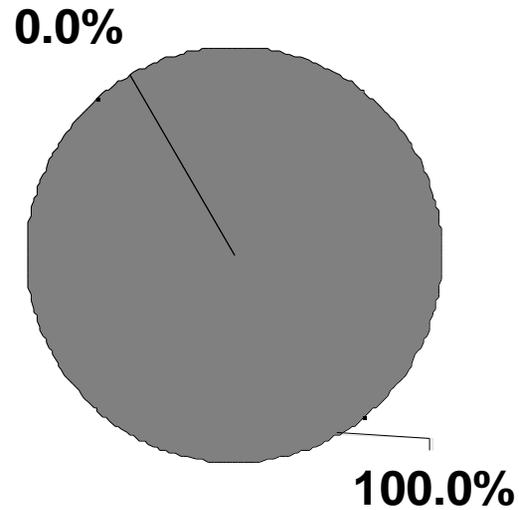| Host	Executable	
g0css02	14 Old Versions (July 7, 1997)	Not used
g0acs03	EcTsDsClientDriver	Not delivered

14 are Sev 3's, as these executables are not invoked.

0.0% Installed w/incorrect version:
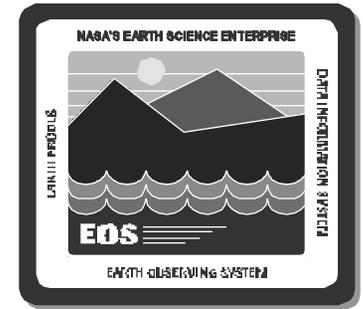
Raytheon

GSFC PCA Results - Configuration Parameters

Investigation Completed on 8/22/00

0.0%
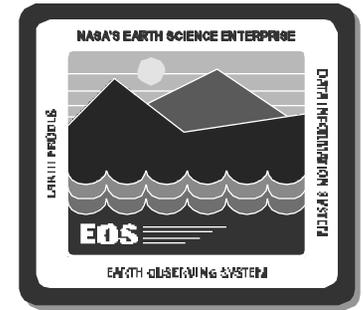
100.0%

■ 100.0% Correct Values

0.0% Incorrect Values

GSFC PCA Work-off Plan

COTS SW:

– 44 findings will result in updates to baseline documentation and will be completed by 9/30/00.

– 127 findings will be reviewed by CM and M&O with the DAACs to prioritize and complete outstanding items.
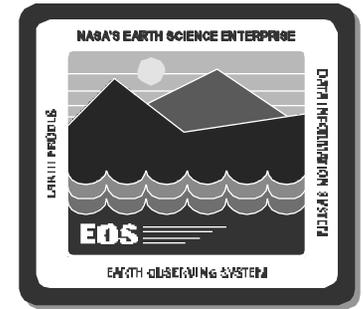
OS Patches:

– 75 Items must be assigned to System Administrator for priority resolution. (7 - Sun's, 26 - SGI's, 42 - HP's)

Custom Code and Configuration Parameters:

– 14 Old Custom Code versions can be removed from g0css02 (OPS).

– Review g0drg06 and g0drg07 semaphore settings

Areas for Improvement

The PCA identified the following issues:

- Lack of a standard feedback loop from the DAACs when the need arises to deviate from the install instructions.

- Problems that have been identified in previous audits have not been resolved.

- Need to improve Baseline management process, updates are not captured accurately in the XRP database.

- PCA's are not conducted on a routine basis to resolve discrepancies as they occur.

- CMO needs to improve it's direct process with RTSC to address OS Patches findings.

Raytheon

Process Improvement Actions
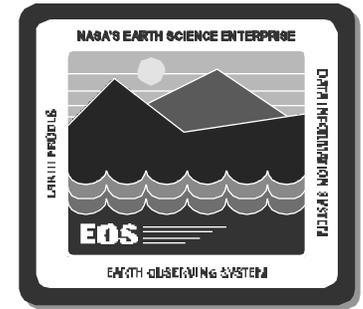
- Implement a standard policy for the DAAC's to use the TT reporting process to communicate deviations from the install instructions. Status - completed

- Action team (CM and M&O) to work with DAACs (as appropriate) to review and resolve outstanding PCA NCR's. Status - in progress

- Review existing processes within baseline management. Recent change in CMO separates the audit and baseline management team. Status - in progress

- Audits will be conducted on a weekly basis to identify new discrepancies from the baseline and will be addressed immediately. Status - in progress

NSIDC and GSFC PCA Conclusion
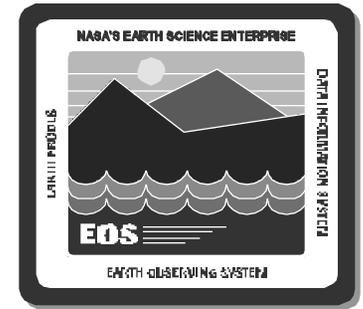
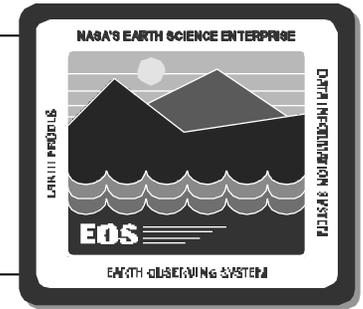## NSIDC and GSFC

- Items needing resolution have been identified and will be addressed via the work-off plans

- Overall, the results of the PCA demonstrates the integrity of the configuration of the system

Raytheon
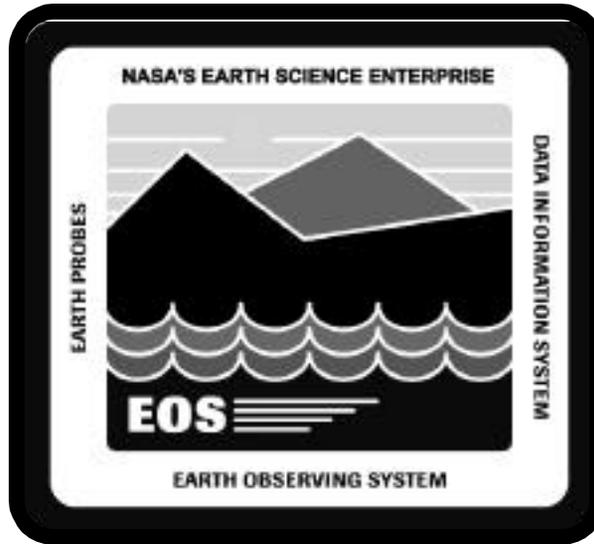
GDAAC 5B Transition Report

**Raytheon**

ECS Drop 5B.03
TS2/TS1 Transition Results

- **TS2 Install/Checkout – 07/11/00 to 08/02/00**
  - 8 TT/NCRs submitted for TS2 install/checkout; no NCRs on 5A.05 equivalent functionality.
  - Necessary to convert remote shell install script to secure shell.

- **TS1 Install/Checkout – 08/03/00 to 08/08/00**
  - No TT/NCRs submitted for TS1 install/checkout.
  - All TS2 previously submitted sev1 TT/NCRs corrected.

- **Parameter Registry in use for both modes.**

- **Replication Server installed and tested in coordination with SMC.**

**Raytheon**

ECS Drop 5B.03
OPS Transition Results
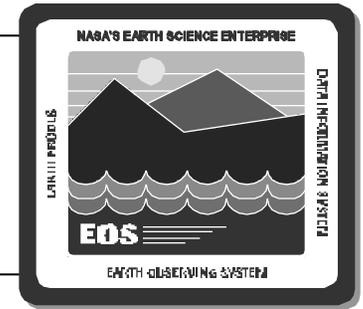
- **OPS Install/Checkout – 08/08/00 to 08/10/00**
  - 11:00 a.m. on 08/08/00 – Code brought down
  - 11:30 a.m. on 08/09/00 – Ingest and distribution resumed
  - 3:30 p.m. on 08/10/00 – Production resumed

- **Extended downtime due to 5A/5B database transition.**
  - Post-analysis revealed cause as incorrect installation of Testerossa.04.

- **3 TT/NCRs submitted.**
  - Science data server issues (ECSed27733, ECSed27752) -- corrected.
  - PDPS anomaly (ECSed27786) -- pending.

- **OPS checkout completed for:**
  - 5A.05 equivalent functionality.
  - Update ESDT functionality (introduced with 5B).

- **Other new 5B functionality currently being tested via OREs.**

**Raytheon**

ECS Drop 5B.03
Post Transition Issues
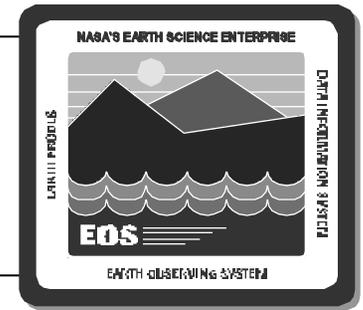
- **ECSed27733 (SV 1) -- Science Data server core dumping.**
  - Major impact due to performance degradation.
  - 5B.04_SDSVR.02 installed on 08/14/00 appears to have corrected the problem.

- **ECSed27786 (SV 2) – PDPS requests other than MOD000 coming in distribution as Vhigh.**
  - Impact to production due to inefficient thread allocation.

- **ECSed27425 (SV 2) – Cleanup of mode deleted ESDT files.**
  - Minor install impact -- Restoration of deleted files was necessary.

- **ECSed27491 (SV 2) – Unable to initialize g0icg01 servers as a group.**
  - As workaround, Ops Controller must bring up g0icg01 servers individually.

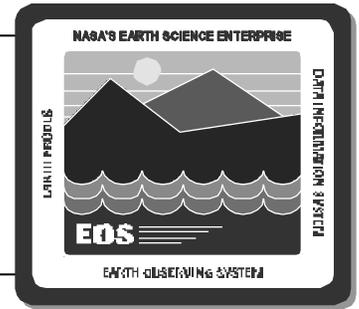Raytheon

ECS Drop 5B.03
# *Post Transition Issues* (cont.)
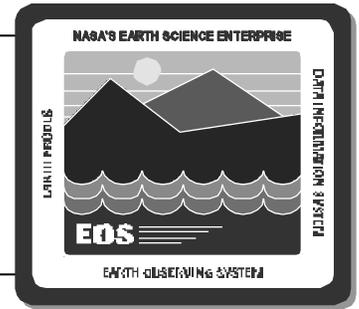
- **ECSed27401 (SV 3) – Sitemap corrections.**
  - **Minor impact to installation process.**

- **ECSed27418 (SV 3) – Install program omitted some configuration parameters.**
  - **Minor impact to installation process.**

- **ECSed27494 (SV 3) – Failed update to row in PDPS database.**
  - **Minor impact – DBA manually added row.**

ECS Drop 5B.03
Summary Status

- **From 8/10 to 8/18, high volume exercise of 5B Custom Code was limited due to:**

  – **MODIS sensor being turned off from 8/6 to 8/18.**

  – **Science Data Server anomalies preventing a full capacity checkout.**

- **Since 8/18, MODIS data volumes have been at a normal rate and OPS mode seems to be performing nominally.**
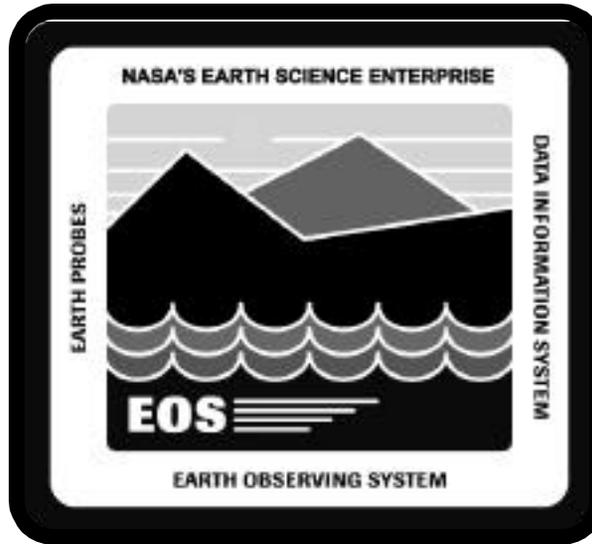
NSIDC 5B Transition Results

Renea Ericson

Raytheon

NSIDC ECS 5B Transition Planning
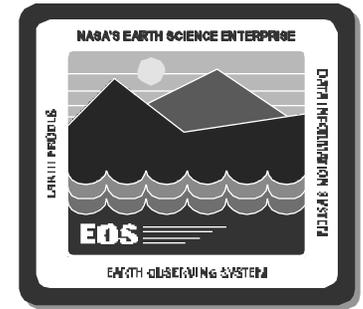
5B.03 OPS Install Process

- **Review with Local CCB**

  - **Review potential risks of install into OPS**

  - **Review potential risks of not installing into OPS**

  - **Review problems during install into TS1**

  - **Review fall back procedures should they be needed**

  - **Assign tasks to staff**

  - **Establish communication channels**

NSIDC ECS Transition Results
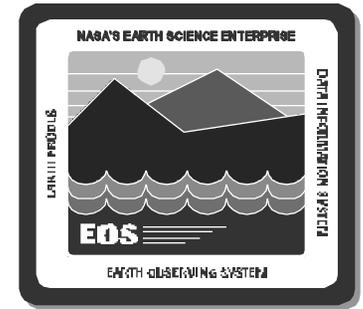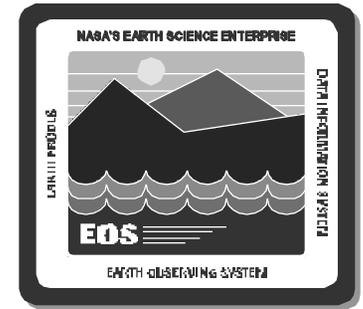
Install Review

- **OPS Install 2 (16 hours) day install ***

- **Some internal communication issues**

- **No show stoppers**

   * no ingest down time reported due to slow data flow from MODAPS

Testing of 5B.03

- **OPS mode tested ingesting NISE and MODIS data**

- **No "test" data ingested into OPS Mode**

- **Distribution not used in drop evaluation**

NSIDC ECS Post Transition Issues

- **Post Transition Issues/comments**

  - **Training and cross DAAC support successful**

  - **Install instructions reasonably detailed and complete**

  - **OPS Installed in 2 days (16 hours)**

  - **Help from EDF was timely**

  - **NISE browse not ingesting (resolved)**

  - **Memory Growth on server process (workaround)**

  - **No show stoppers**

  - **Ingest speed improved however it continues to be slower than EGS10 results**

  - **Distribution not fully tested**

Summary
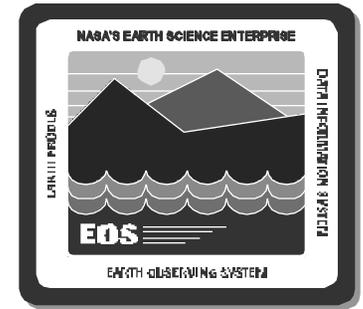
No Show stoppers found

NSIDC will continue to use Trouble Ticket process to resolve problems found in 5B.03

5B transition process (planning, training cross DAAC support) seen as successful at NSIDC

Distribution not fully tested - not seem as critical to NSIDC until MODIS public release

Summary/Actions

Raytheon