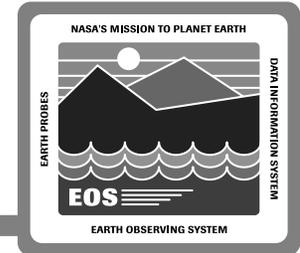


# Diagnostics

**Karl Cox**

# Outline

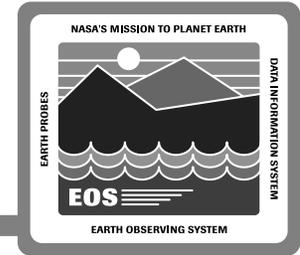
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- **Common Problems / Common Causes**
- **SSI&T Diagnostic Tools**
- **Diagnostic Advice**
- **Problem Tracking / Reporting**

# Compile/Link Problems

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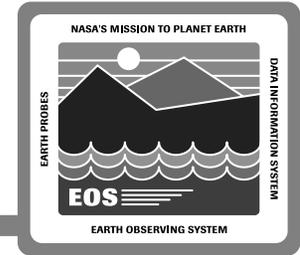
**The Science Software fails to compile/link.**

## **Possible causes:**

- **Code**
- **Compiler Options**
- **Include Files**
- **Libraries**

# Failure to Complete

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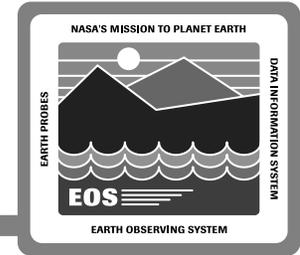
**The Science Software compiles and links, but does not run to normal completion.**

## **Possible causes:**

- Code
- Environment
- Inputs (i.e., data, Process Control File (PCF), Metadata Control File, Data Dictionary)

# Incorrect Output

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**The Science Software output is not correct.**

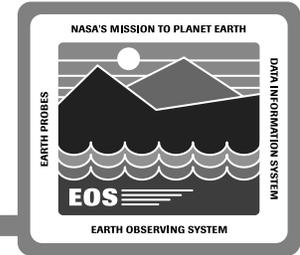
- This will be determined by the Instrument Teams!

**Possible causes:**

- Code
- Compiler options
- Libraries
- Input parameters and files

# SSI&T Diagnostic Tools

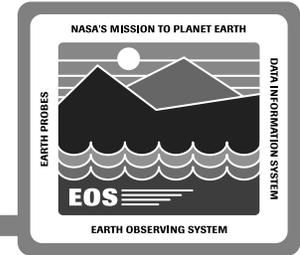
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- **Checkers**
  - PCF, prohibited functions
- **File Comparison Tools**
- **Data Visualization Tools**
- **Interactive Debugger**
- **Science Software and ECS Log Files**
- **You**

# File Comparison Tools

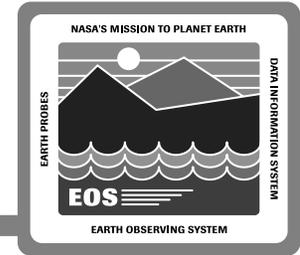
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- **ASCII**
- **HDF**
- **Binary**

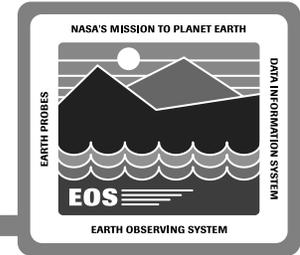
# Data Visualization Tools

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- **EOSView**
  - Data and Metadata
- **IDL**
- **Text Editors / MS Word**

# Interactive Debugger



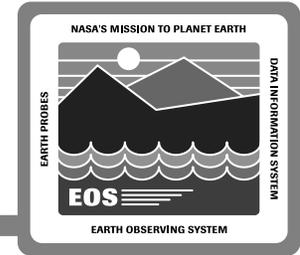
## Part of CASEvision

- Set break points
- Execute a block of statements, then halt
- Single step
- Examine variables / change values
- Examine file status

## Caveats

- Code must be compiled without optimization
- Cannot be used within PDPS prototype

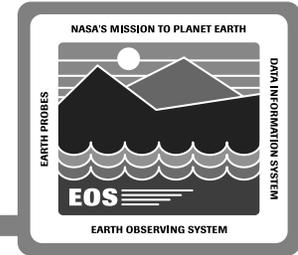
# Log Files



- **PGE-produce Log Files:**
  - **LogStatus...** all error and status information concerning a program.
  - **LogUser...**a subset of messages of level or type "\_U\_" or "\_N\_" which are of particular interest to the user.
  - **LogReport...**arbitrary message strings sent by the PGE software (not related to the toolkit functions).
  
- **Management Subsystem Log File**
  - Events reported by agents to HP Openview

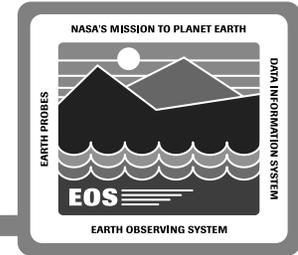
# What will you do? Who do you call?

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- **Identify Problem**
  - Examine Log Files
  - Check paths and other environment variables
  - Verify that the inputs are correct
  
- **Correct Problem**
  - If problem is incorrect input parameters/files or environment variables, correct and rerun
  - If problem appears to be in the Science Software, verify with the appropriate IT representative.
  - If the problem appears to be in Ir1, verify with M&O System Administrator.

# Science Software Problem Tracking

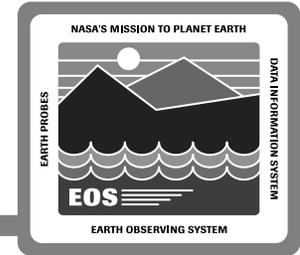


- **Problems identified in the science software will only be entered into a spreadsheet for the record.**
- **Corrective actions or workarounds will be recorded as well.**
- **The spreadsheet will be provided to the IT as a record of the identified science software problems, and not be used by ECS or the DAACs for ensuring resolution of any problems identified.**
- **Spreadsheet fields include**

**Date entered**  
**PGE identifier**  
**Problem Description**  
**Identified by (person)**  
**Detection Method**

**Related problems identified**  
**Recommended change (optional)**  
**Change implemented (optional)**  
**Date change implemented (optional)**  
**Authorizing person (optional)**

# ECS Nonconformance Reporting



- **Verify with the M&O System Administrator that the problem is with ECS hardware, software or COTS.**
- **If confirmed, access the WWW interface to the ECS NCR system**
  - Using WWW browser, open URL  
<http://newsroom.hitc.com/sit/ddts/ddts.html>
- **Enter NCR information**
- **Submit NCR**