NASA
Galaxy Evolution Explorer

Projected Software Changes

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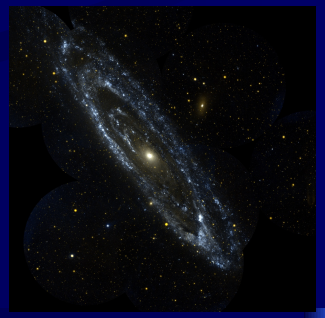
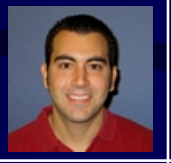
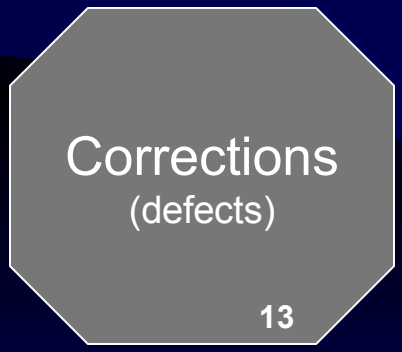


Background

Personnel	Weekly Level of Effort
Eyal Amir 	16 hours
Justin McNeill 	8 hours

- Eyal Amir is now the primary software engineer for the GALEX Mission Planning System (MPS)
- Justin McNeill continues supporting GALEX MPS, providing design and process guidance and oversight
- Within the GALEX Science Operations Center, most all of the completed and desired changes are captured in the web-based “problem” reporting system

Categories of SOC Changes



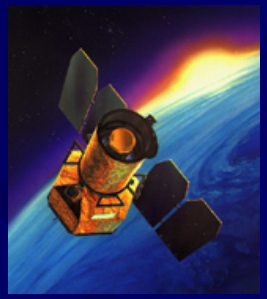
- Currently, there are just over 30 documented MPS software (executables and procedures) issues that are prioritized and awaiting action, which can be placed in the following categories
  - SSR and Bright Star Management
  - Safety
  - Long Range Planning
  - Process improvement/efficiency
  - Configuration Control
  - Miscellany
- Seven (7) defects and five (5) improvements have been classified with a severity greater than "annoying"
  - With the current level of support, these 12 changes could consume one calendar year.

Process for Change

- A set of requirements for Mission Planning System is needed for changes to the system
- Need a period of time for an analysis of MPS intermediate (work) files and their flow through the system to make improvements based on these requirements
- Design changes to MPS should undergo peer review and then approval by GALEX CCB
- From the design, a set of OECRs or GNAT change requests should be generated and prioritized as appropriate

Selected Areas of Improvement

- Process Improvement/Efficiency
  - Space/Ground Contact Management
    - Establish a reliable interface with USN for GALEX contact availability
    - Provide new application with a Graphical User Interface to assist in contact selection
  - Value-Added Human Interaction
    - Determine what needs human review and what can be automated in terms of the processing streams within the MOC, within the SOC, and across the interface. Improvements can be made with additional scripting and automated execution to reduce operator interface within the MPS
      - Move from a Human Computer Interface based system in the MOC to a script based, event-driven system
      - Automate transfer files between SOC and MOC operators, including automatic notification of operations staff (plan 180)
- Safety
  - Reduce MPS risk by creating new applications or modifying processes to eliminate all direct editing of Mission Planning System (MPS) files
    - Application to adjust ACS twist angles (plan 179)
- Configuration Control
  - Control all long range planning code
  - Control all IDL code used during operations



Recommendations

- ***Address hindrances to cross-institutional process changes to improve efficiency***
- As a team, we should expect the unexpected
  - improvements in efficiency within the MPS have rightfully taken second priority to FUV recoveries in 2005 and 2006, as well as OECR 31
  - ***Good chance for off-nominal operational events in the future***
  - ***Need flexible MPS in terms of staffing for software and procedural changes***
- PSET should discuss simplification of OECR documentation (software checklist) to accelerate software change process