GLAST Education and Public Outreach (E/PO) Program

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Overview of GLAST E/PO

• E/PO required to be budgeted at 1-2% of NASA cost (excluding launch) = $3.4M for GLAST prelaunch & $600k/yr postlaunch

• We are on schedule and within budget

• No new technical issues

• Our goal:

  “We will utilize the observations and scientific discoveries of the GLAST mission to improve the understanding and utilization of physical science and mathematics concepts for grades 9-12”
4.1.C E/PO Work Breakdown Structure

1) Management
2) Assessment and Evaluation (WestEd)
3) Web based Materials
   - Web Site
   - *Space Mysteries (2003-2005)*
4) Educator Training
   - Educator Ambassadors
   - Conference participation
5) Printed materials
   - TOPS Lesson Modules
   - Posters and Activities
6) *SLAC Virtual Visitor Center (2004)*
7) PBS documentary (Tom Lucas Productions)
8) GLAST Telescope Network
4.1.C.1: Management

- Professor Lynn Cominsky
  - GLAST E/PO Lead and Sub-system Manager
  - Oversight and daily coordination, SWG ex-officio

- Dr. Philip Plait
  - GLAST E/PO Research Manager
  - Development of curriculum content and teaching materials, management of Educator Ambassador program

Partners:

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<tr>
<th>GSFC</th>
<th>TOPS Learning Systems</th>
<th>Francis Marion Univ.</th>
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<td>MSFC</td>
<td>Videodiscovrery, Inc.</td>
<td>AAVSO</td>
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<td>SLAC</td>
<td>Thomas Lucas Prod.</td>
<td>Texas A&amp;M Univ., Kingsville</td>
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4.1.C.2 Assessment

- Evaluation & Dissemination plans also required by NASA
- Program assessment provided by WestEd: Ted Britton is Lead Evaluator
- Under contract since June, 2002
- Educator Ambassador workshop assessment in progress
- Formative and summative evaluation
  - Pre- and post-tests for workshops
  - Web-tracking and surveys
  - Use of workshop materials in classroom
- WestEd also measures dissemination
  - NASA distribution channels
  - EPO site usage
  - Marketing by Videodiscovery, TOPS, PBS, etc.
  - Educator conferences
4.1.C.3: Web Materials

http://glast.sonoma.edu

GLAST slides for SEU museum exhibit

Play the first two mysteries at:
http://mystery.sonoma.edu
4.1.C.4: Educator Training

- Meetings supported in 2002:
  - National Science Teachers Association National and 2 Regionals
  - National Council for Teachers of Mathematics
  - California Science Teachers Association
  - American Astronomical Society
  - AAS High Energy Astrophysics Division Meeting
  - Expanding Your Horizons (8th grade girls)
  - American Association of Variable Star Observers
  - CSU-NASA Collaboration Planning

- Near-Future meetings:
  - National Science Teachers Association (TOPS workshop in FY03)
  - National Council for Teachers of Mathematics (TOPS workshop in FY03)
  - California Science Teachers Association (booth)
  - American Association of Physics Teachers (workshop in FY03)
4.1.C.4.5 GLAST Educator Ambassadors Program

- 5 highly skilled educators from across the country (and Canada) chosen in national competition
- Awards include Presidential Award for Excellence in Math and Science Teaching, Millikan Fellowship, Christa McAuliffe Fellowship, and many state and local Teacher of the Year honors
- Develop, assess and disseminate GLAST-related curriculum and activities designed to meet national science, math and technology education standards
- Five more will be chosen in 2003 to begin work in 2004
- Week-long workshop at SSU held during July 15-19 was an extraordinary success
4.1.C.4.5 Educator Ambassadors (cont’d)

Teena Della’s Magic Show

Tom Estill (SEU) & Tim Brennan

Jason Smith & Daryl Taylor

At SLAC
4.1.C.5 Printed Material and Curriculum Development

- TOPS (Ron Marson)
  “Far Out Math!”: using slide rules to understand powers and logarithms

- GLAST AGN Poster
  Poster describes unified model of AGN
  Activities and teacher’s guide – COMING SOON!

- CD containing GLAST promotional movie

- Cosmic Journeys card game and GLAST trading cards
4.1.C.6 SLAC Virtual Visitor Center

- Dr. Helen Quinn (SLAC)
- Web-based interactive lessons for formal setting to develop understanding of particles
- Simulation of electron/photon interactions
- Simulation of interactions in GLAST detectors
- Grades 9-12, also college and public
- FY04

http://www2.slac.stanford.edu/vvc/Default.htm
4.1.C.7 PBS Special

- Thomas Lucas Productions
- “Mysteries of Deep Space”, “Runaway Universe”
- 1 or 2 hour documentary special, cost-share with Nova, PBS
- Possible topics: GRBs leading to the birth of black holes; seeming ubiquity of black holes
- Cominsky and Plait will provide scientific oversight
- Cominsky has met with TLP to discuss script outline
- Detailed R&D in FY 03, production in 04, 05
4.1.C.8 GLAST Telescope Network

- Provide multiwavelength monitoring of GLAST active galaxy targets and gamma-ray bursts
- Professor Gordon Spear attended AAVSO meeting
- Tim Graves developing prototype Java-based archiving system
- Educator Ambassador Michiel Ford (Holton, KS) will participate to help develop distance observing and archiving
- Dr. John Mattox (Francis Marion University), member of the Robotically Controlled Telescope consortium
Issues and Concerns

• Though lauded by EAs for content and activities, SSU team lacks expertise in instructional design

• We are investigating ways of improving design, including implementing design template from Challenger Center, and/or hiring instructional design consultant

• GLAST AGN activities need scientific review

• Science team members must become more involved with E/PO (especially now that NASA Quest webchats have been discontinued due to lack of leverage)
Summary

- E/PO program is going very well
- Over 15,000 teachers have received GLAST E/PO materials at educator conferences
- Educator Ambassadors program off to a good start
- Activity development will be improved using better instructional design
- GTN ramping up
- On schedule and within budget