



High Energy Education and Public Outreach

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E/PO group



NASA E/PO



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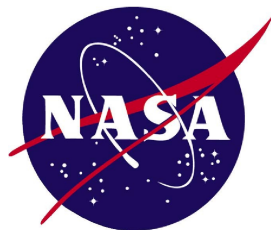


NASA E/PO

Gamma-ray Large Area Space Telescope (GLAST)



- GLAST Burst Monitor (GBM)
- Large Area Telescope (LAT)
- Launch in Fall 2007



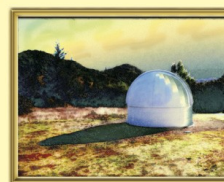
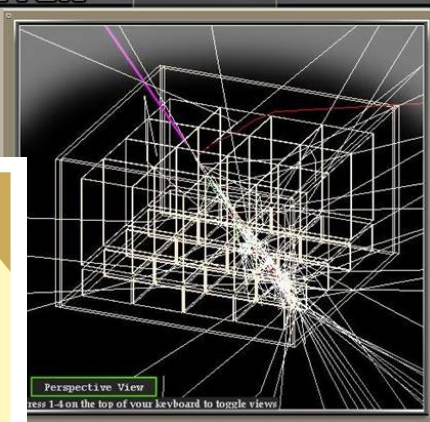
Highlights



- Web-based materials
 - <http://glast.sonoma.edu>
 - New Space Mystery: Solar Supernova
 - GLAST LAT Simulator
- Global Telescope Network
 - <http://gtn.sonoma.edu>
 - Robotic observatory in partnership with California Academy of Sciences



GLAST
LAT SIMULATOR



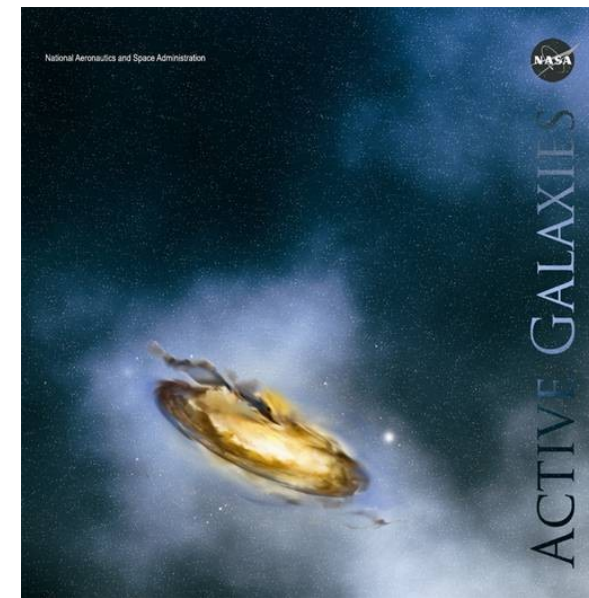
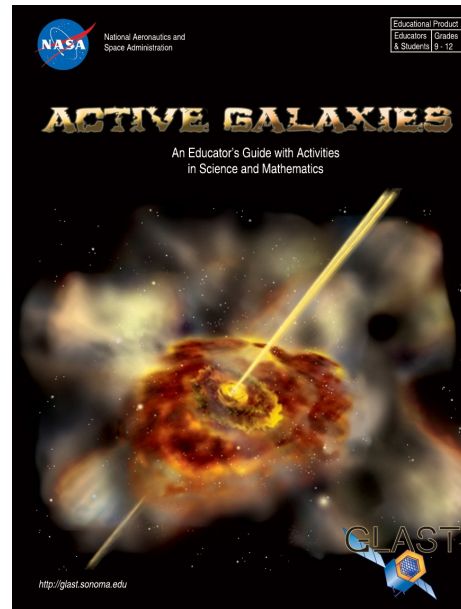
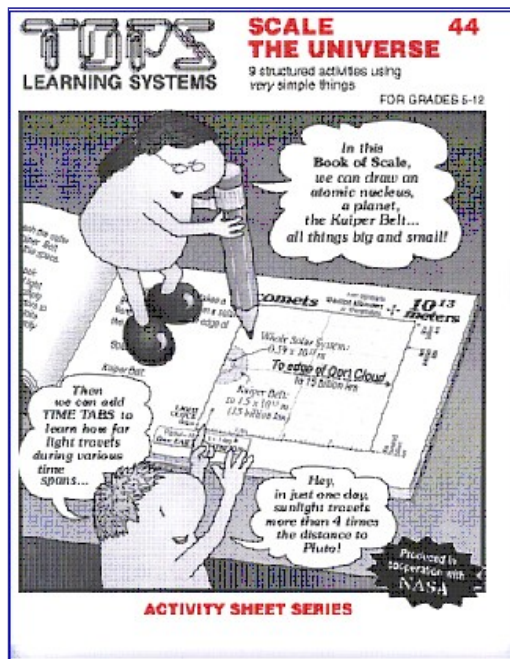
GIN
Global Telescope
Network



Highlights



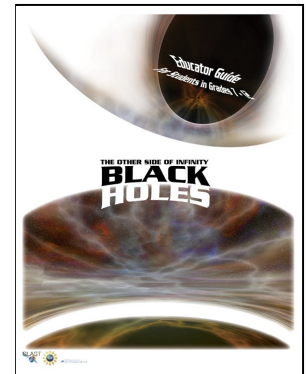
- Printed materials
 - 3 TOPS curriculum guides
 - Active Galaxy worksheet and educator's guide
 - Active Galaxy Pop-up book for younger kids



Highlights



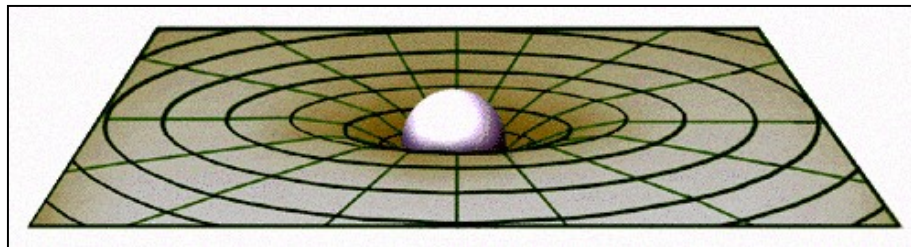
- PBS NOVA “Monster of the Milky Way”
 - Premiered 10/31/06
<http://www.pbs.org/wgbh/nova/blackhole>
 - Seeded with GLAST E/PO funds
 - Features HD simulations of black holes
 - “Black Holes: The Other Side of Infinity” planetarium show at the Denver Museum of Nature & Science and many others
 - Educator’s guide to accompany both television and planetarium shows



Black Hole Space Warp



Using ordinary supplies to discuss and discover abstract science concepts.





Black Hole Space Warp

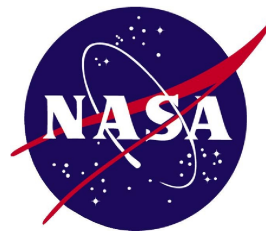
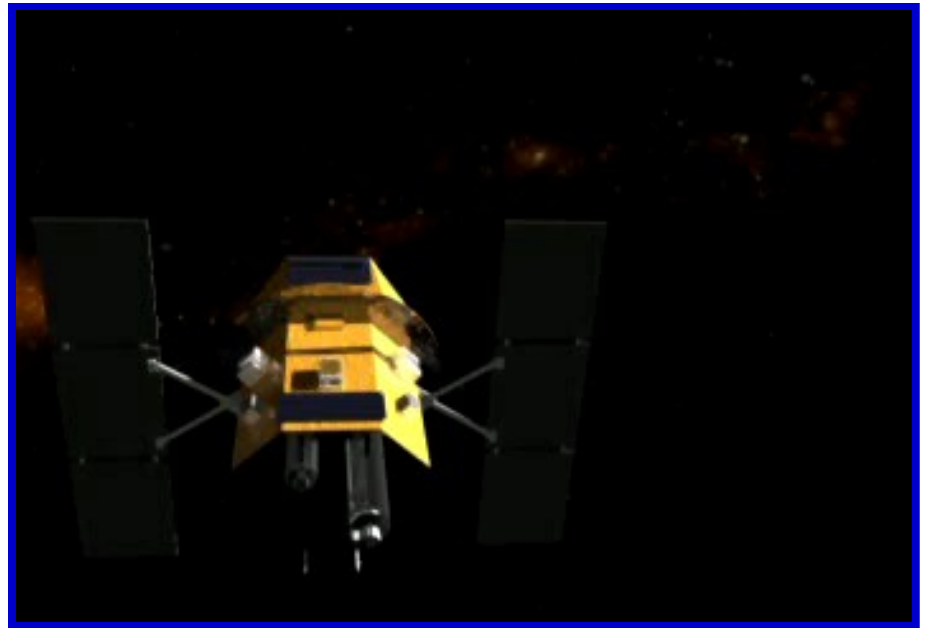
In groups

- Group members must hold the hoop horizontally.
- Place the weight at the center of the hoop. (what does this represent?)
- Have two people slowly toss in the bouncy balls one at a time. Toss them so that they are near the edge of the hoop when you release them.
- Observe what happens to the path and the speed of the balls.
- Repeat

Swift GRB Mission



- Studies Gamma-Ray Bursts with a “swift” response
- Launched 11/20/04



Highlights



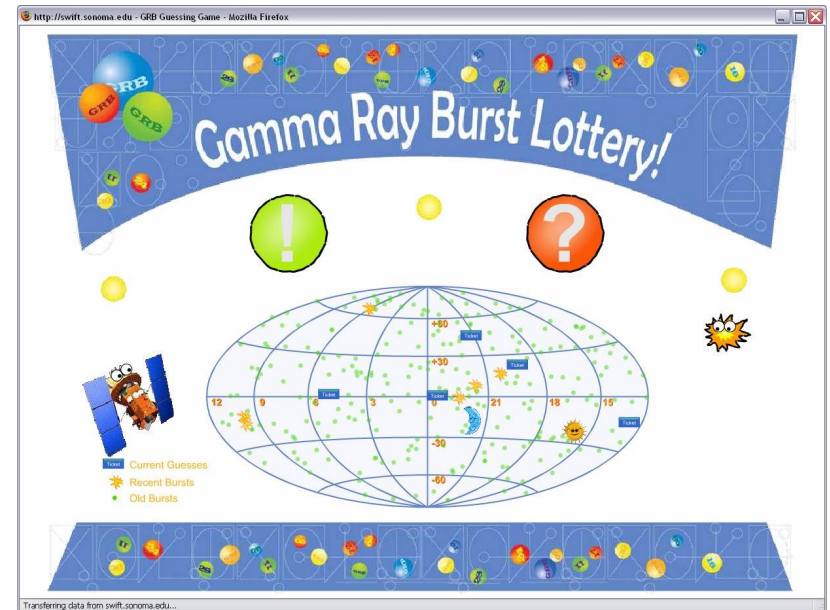
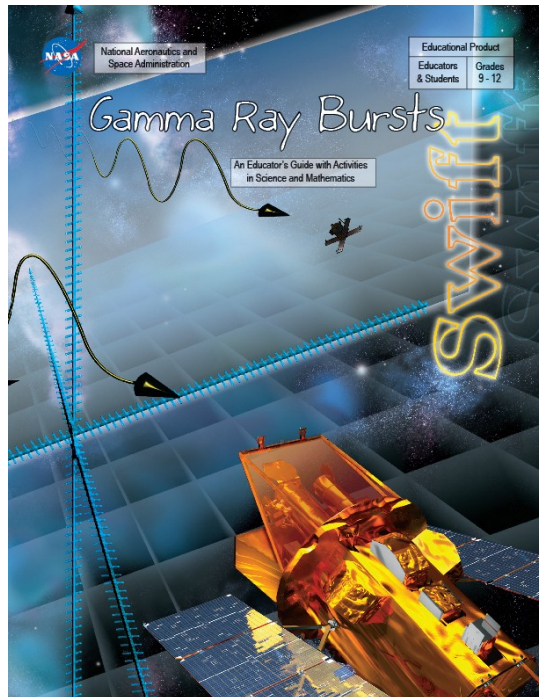
- Web-based materials
 - <http://swift.sonoma.edu>
 - Interactive skymap of GRBs
<http://grb.sonoma.edu>
- Printed materials
 - GEMS Invisible Universe guide
 - GRB wallsheet and educator's guide
 - Swift model booklet
 - Newton's Laws poster and activity set



The Cosmic Zoo



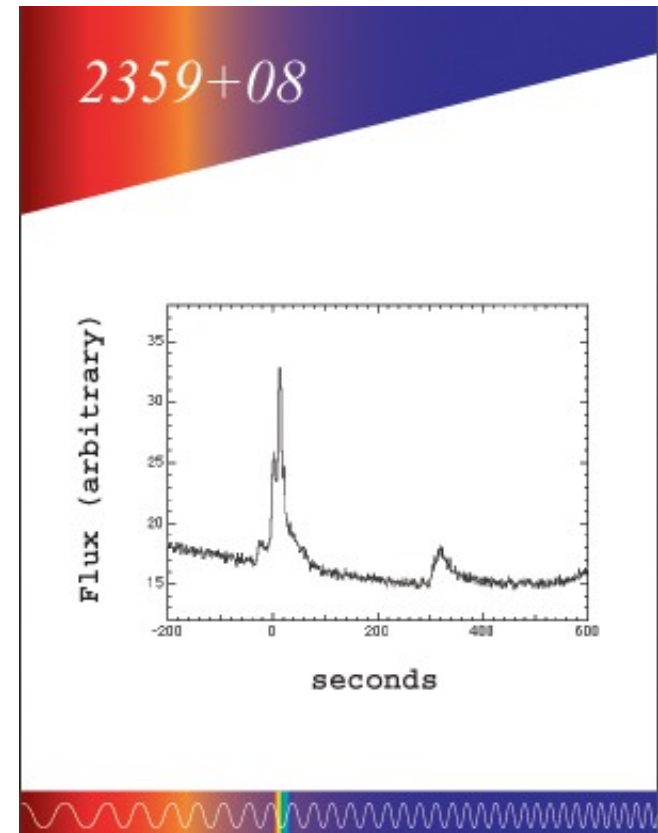
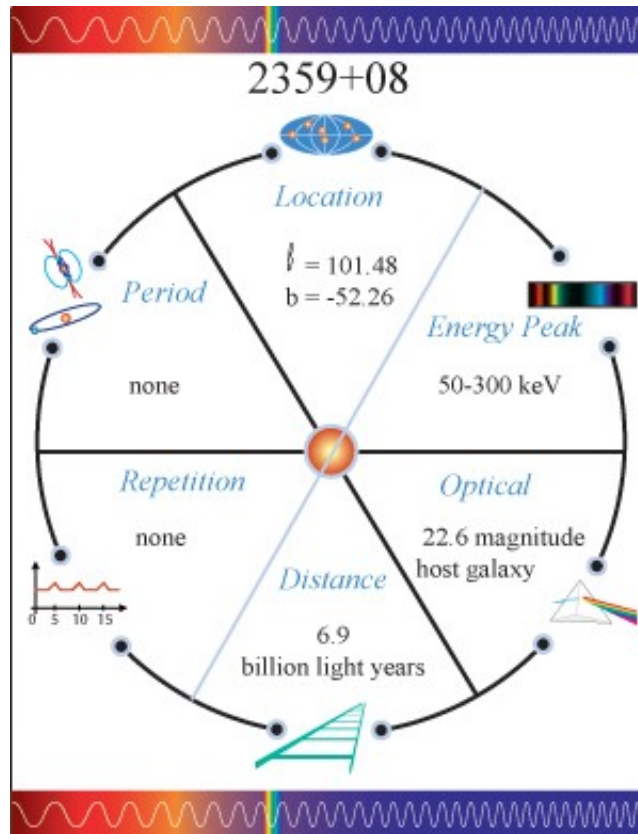
Using real science data to encourage students to think scientifically



Pick a Card...



NASA E/PO

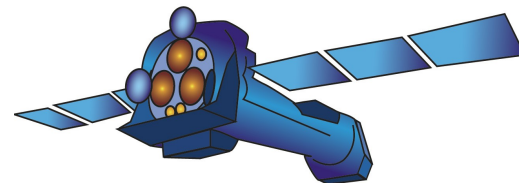


The Terrestrial Zoo

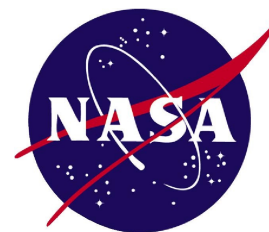


X-ray Multi-Mirror - Newton

XMM-Newton



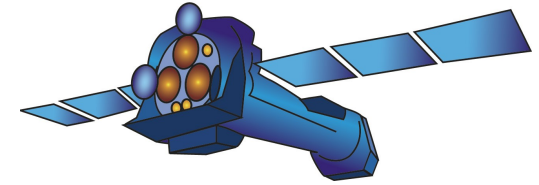
- Launched in December, 1999
- European Space Agency mission with NASA instruments and Guest Observers
- Large X-ray focusing mirror assembly
- High throughput X-ray spectroscopy



XMM-NEWTON



NASA E/PO

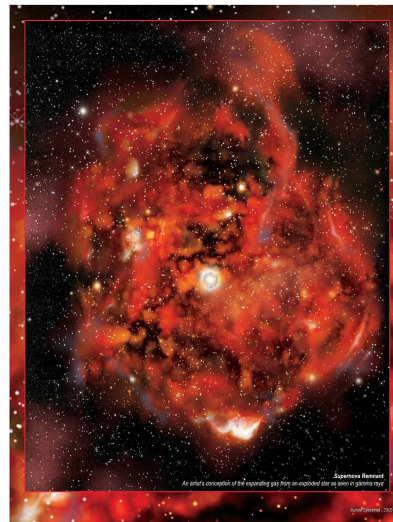


Highlights

- Web-based materials
 - <http://xmm.sonoma.edu>
 - CLEA Lab: “Dying Stars and the Birth of the Elements”
- Supernova educator’s guide in review
- Black Hole Space Rescue Game for younger kids (in both English and Spanish)

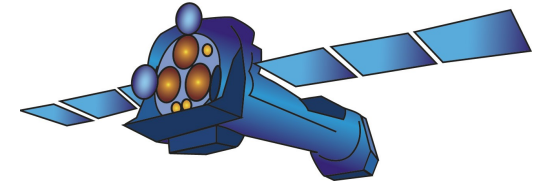
<http://spaceplace.jpl.nasa.gov/en/kids/blackhole/game.shtml>

<http://spaceplace.jpl.nasa.gov/sp/kids/blackhole/index.shtml>

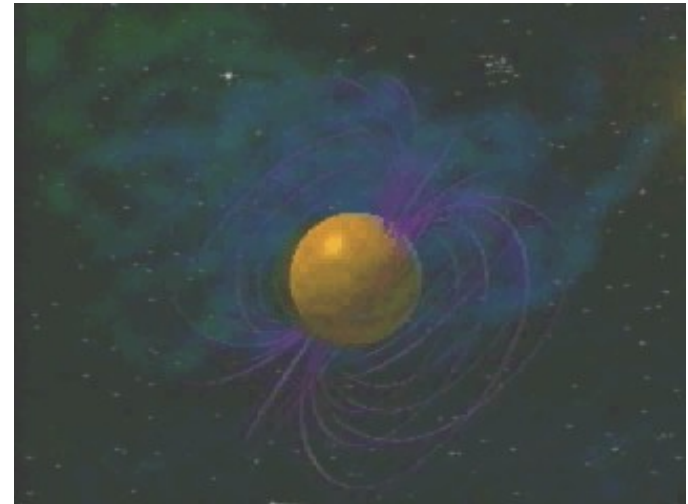


Magnetic Globe

XMM-Newton

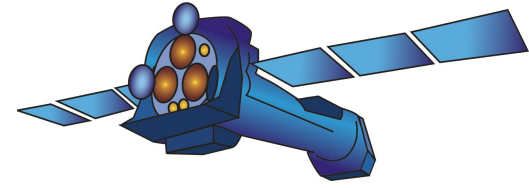


Bringing complicated astrophysical concepts
down to Earth

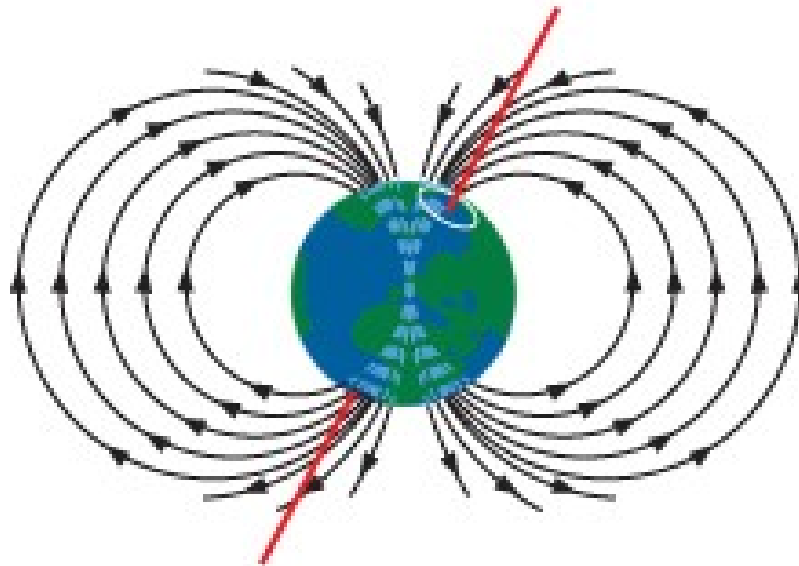


Magnetic Globe Demo

XMM-Newton



North geographic pole
South *magnetic pole*



South geographic pole
North *magnetic pole*

Educator Ambassadors



Summer training July 2006

Highlights



- 19 Astrophysics Educator Ambassadors
- Master teachers who help review, test and disseminate Astrophysics E/PO materials
- Trained every other year at SSU
- Have trained over 35,000 teachers in workshops at national, regional and state conferences



Conclusions

- The most successful E/PO is inquiry-based and engages the audience
- We have tried to model this approach in today's talk – and we have lots more activities for students, teachers, and the general public
- We are happy to share any of our ideas and materials with you and to work with you on future projects!

For more information:

- <http://epo.sonoma.edu>
- <http://glast.sonoma.edu>
- <http://swift.sonoma.edu>
- <http://xmm.sonoma.edu>
- <http://mystery.sonoma.edu>
- <http://grb.sonoma.edu>
- <http://gtn.sonoma.edu>