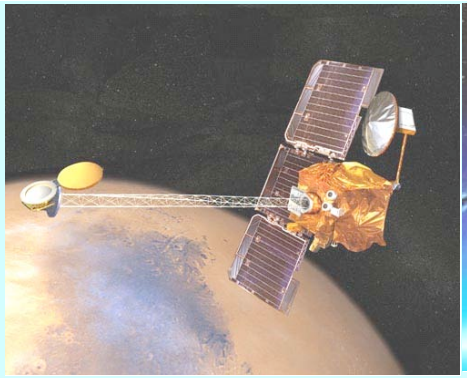
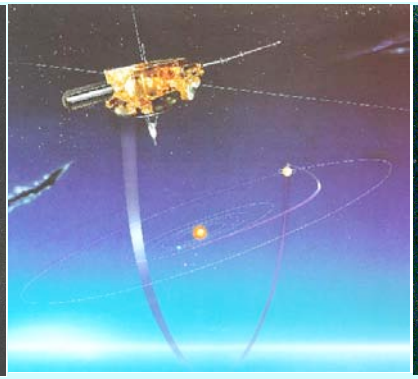
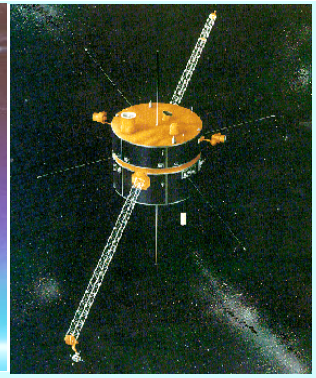


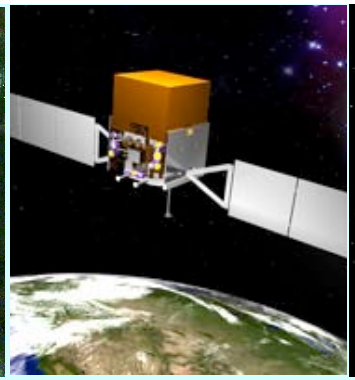
MARS ODYSSEY



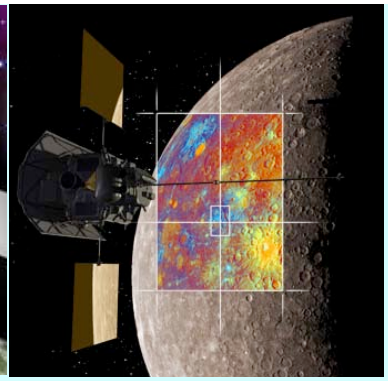
ULYSSES



WIND



GLAST



MESSENGER

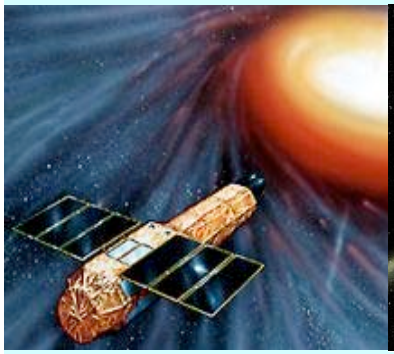
ADDING THE GLAST GAMMA-RAY BURST MONITOR TO THE 3rd INTERPLANETARY NETWORK

Kevin Hurley

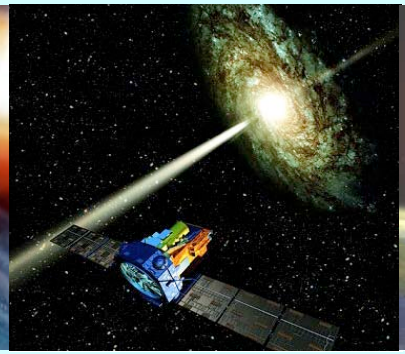
UC Berkeley

Space Sciences Laboratory

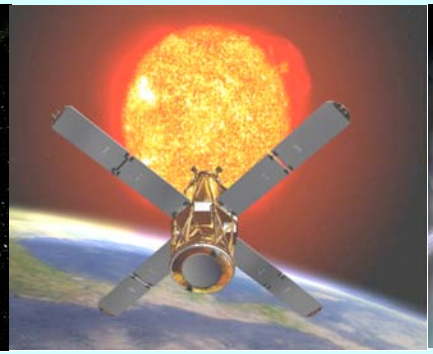
Berkeley, CA



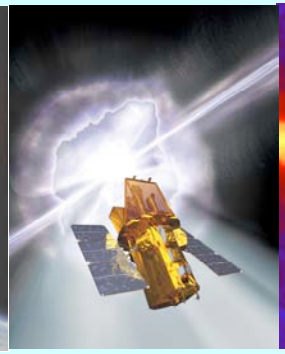
SUZAKU



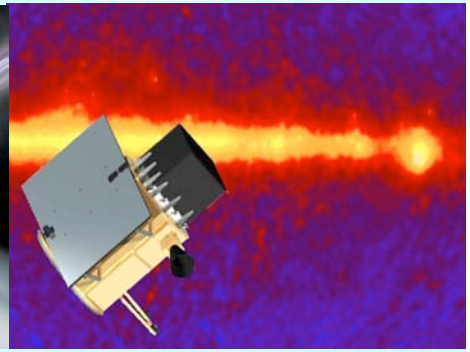
INTEGRAL



RHESSI



SWIFT



AGILE

THE GLAST GRBM

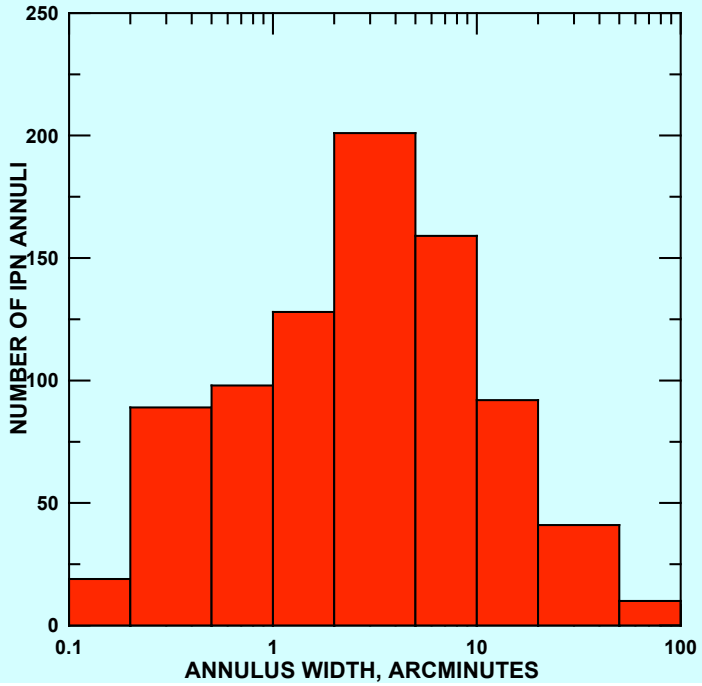
- **200 bursts/year**
- **Threshold sensitivity 0.35 photons cm^{-2} s^{-1} for untriggered events (cf. BATSE untriggered threshold ~0.1 photons cm^{-2} s^{-1})**
- **Location accuracies:**
  - **~8° onboard, real-time**
  - **~5°, near real-time**
  - **~3° after manual intervention** ← IPN, ~arcminutes

A QUICK REVIEW OF IPN – BATSE RESULTS

- 919 BATSE GRBs observed and localized by the IPN, + many SGR bursts

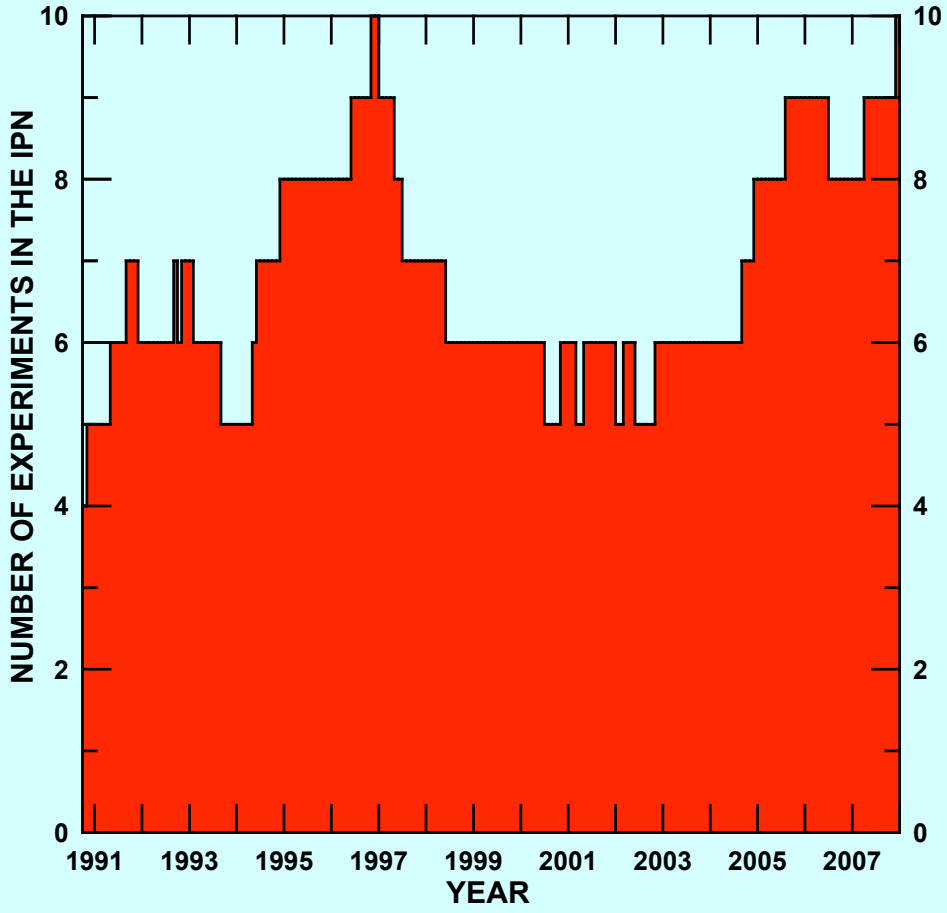
- Data used to refine the BATSE localization error model (Pendleton et al. 1999)

- IPN Results published in four catalogs



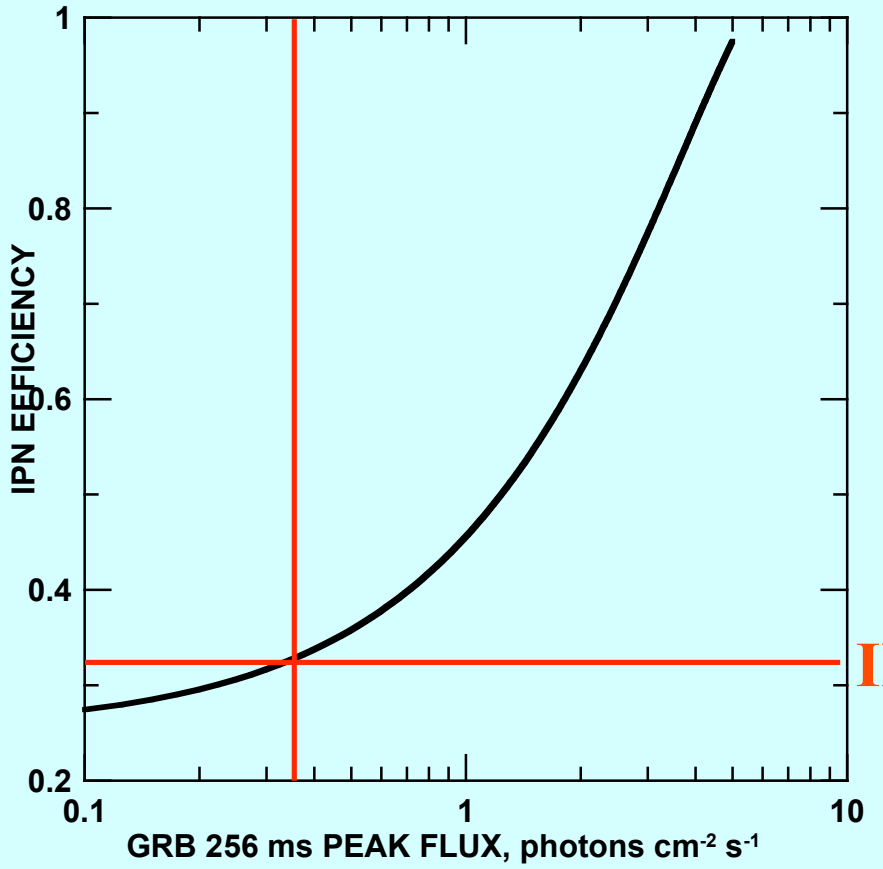
THE 3rd INTERPLANETARY NETWORK IN 2007

- **Mars Odyssey, Ulysses, Wind, MESSENGER, Suzaku, INTEGRAL, RHESSI, Swift , + AGILE, GLAST, and a possible Space Station experiment**



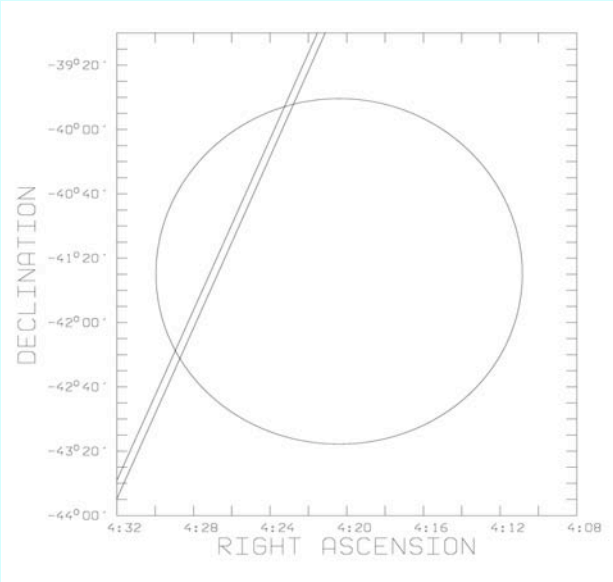
IPN EFFICIENCY (FLUX UNITS)

GLAST THRESHOLD (0.35, UNTRIGGERED)



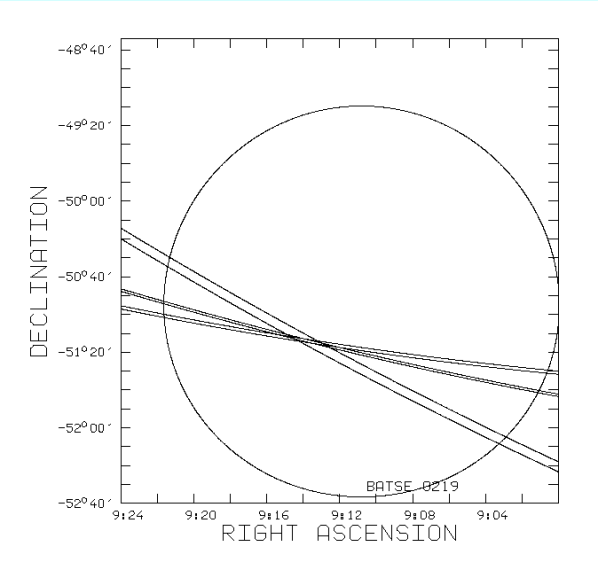
IPN EFFICIENCY ~32%

GRBM + 1 DISTANT IPN SPACECRAFT



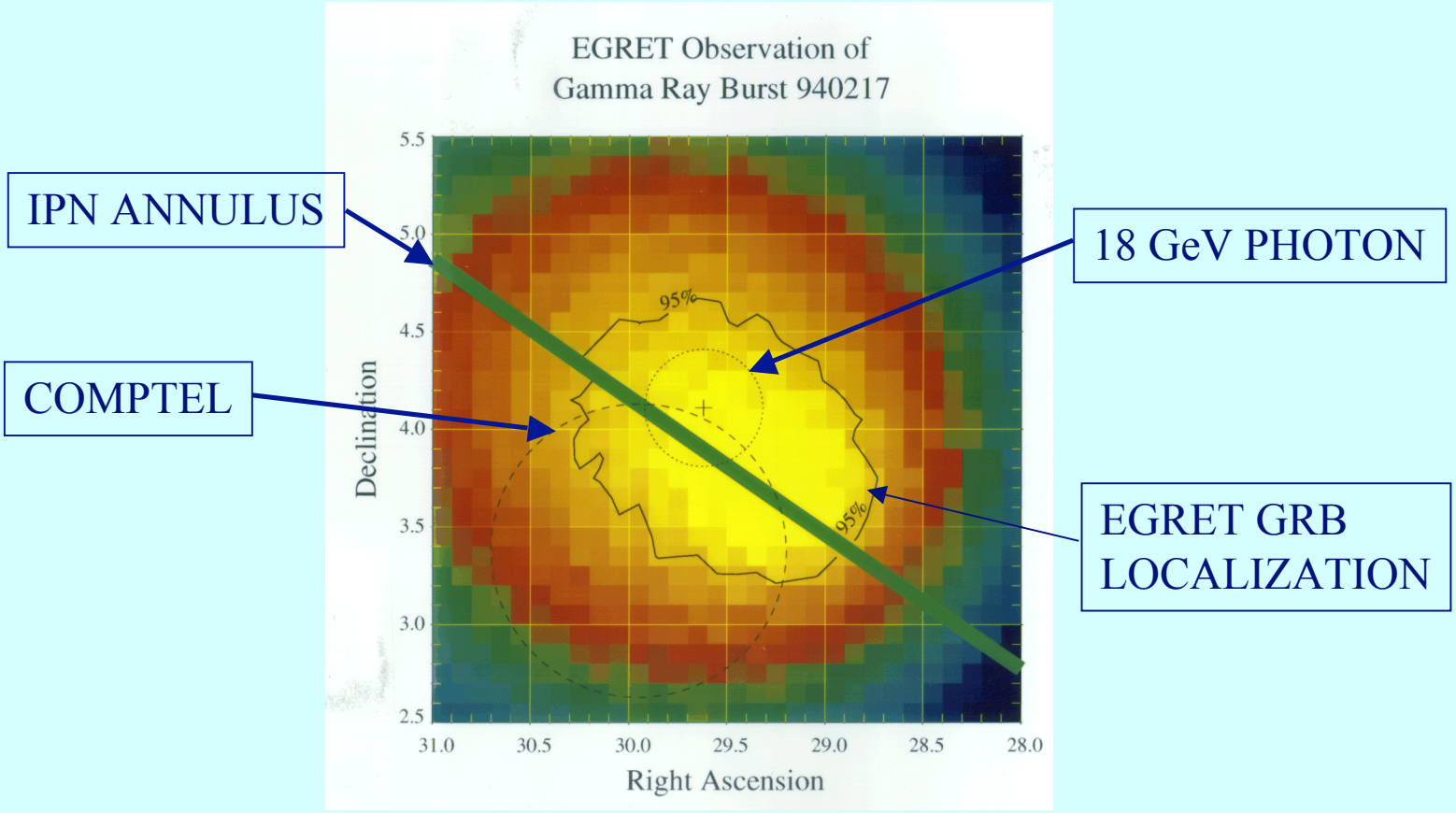
REDUCTION IN AREA X 30 - 100

GRBM + 2 OR MORE SPACECRAFT



REDUCTION IN AREA 3 – 4 ORDERS OF MAG.

EVEN A SINGLE IPN ANNULUS CAN MAKE A DIFFERENCE

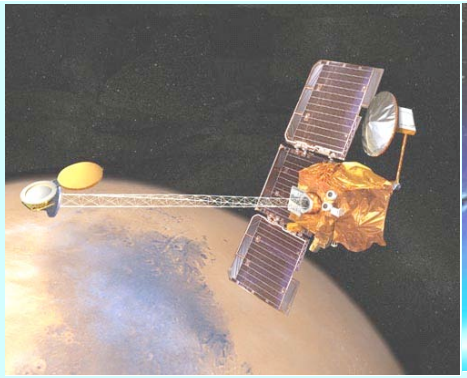


UTILISATION OF GLAST & IPN LOCALIZATIONS

- REFINING THE GRBM LOCALIZATION UNCERTAINTY
- LAT OBSERVATIONS OF GRBM ERROR BOXES
- AMANDA, ICE CUBE, RICE, ANITA ν OBSERVATIONS
- MILAGRO SEARCHES FOR VHE EMISSION
- LIGO
- SWIFT ToO OBSERVATIONS

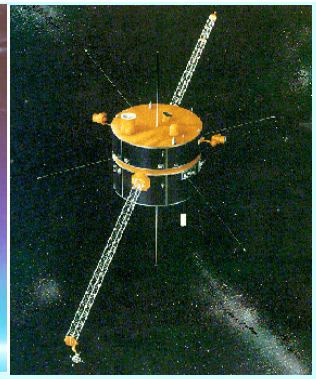
SUMMARY

- GRBM WILL BE THE 28th EXPERIMENT TO JOIN THE 3rd IPN SINCE 1990
- IPN/GRBM PERFORMANCE CAN BE PREDICTED BASED ON BATSE RESULTS
- GRBM ERROR BOXES CAN BE SUBSTANTIALLY IMPROVED FOR ~70 GRBs/YEAR
- IPN/GRBM LOCALIZATIONS CAN BE USED BY A WIDE COMMUNITY

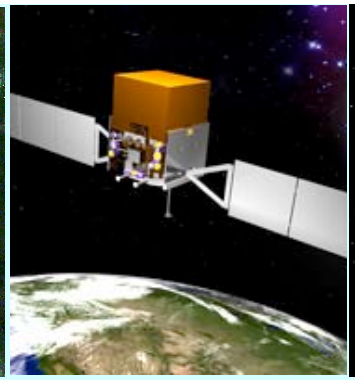


MARS ODYSSEY

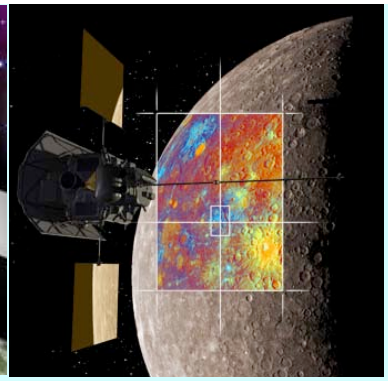
ULYSSES



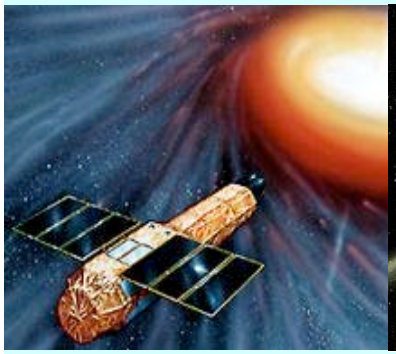
WIND



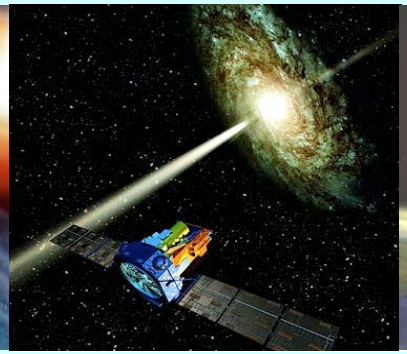
GLAST



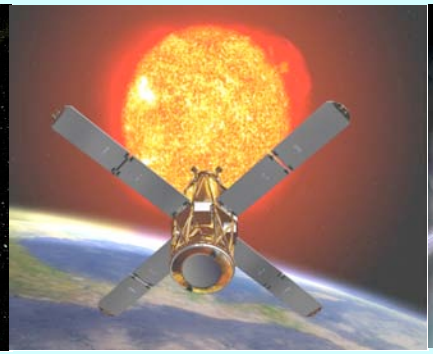
MESSENGER



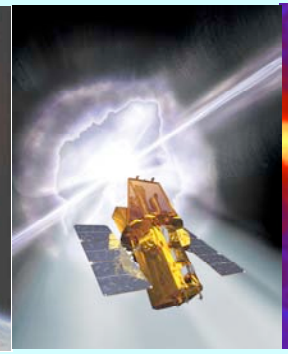
SUZAKU



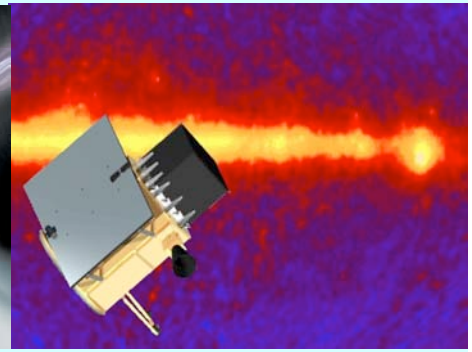
INTEGRAL



RHESSI



SWIFT



AGILE

IPN EFFICIENCY (FLUENCE UNITS)