



GLAST Burst Monitor

Charles Meegan

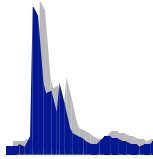
GLAST

<http://glast.sonoma.edu>



Exploring the High Energy Universe

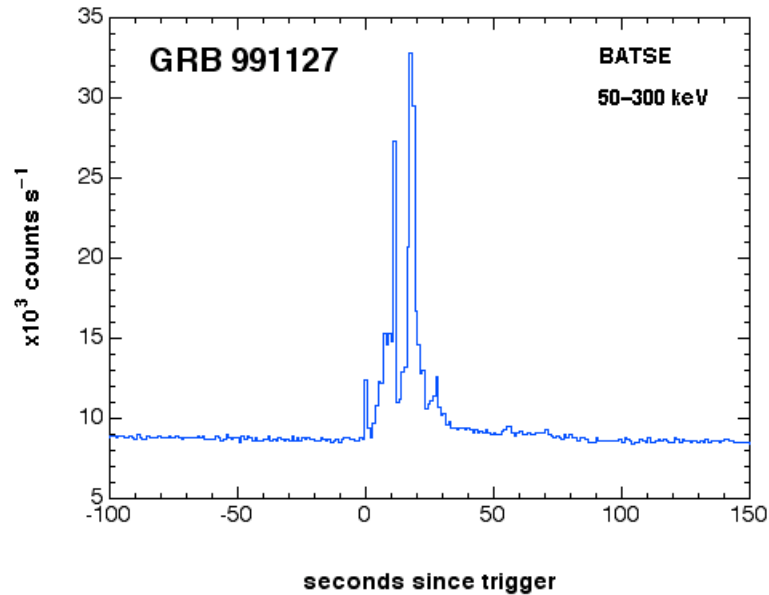




GLAST Instruments

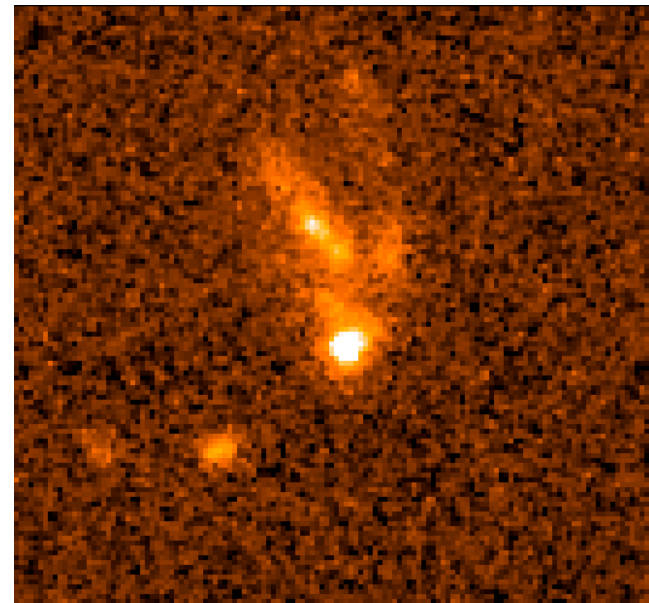
- ✦ **Large Area Telescope**
 - Study AGNs, GRBs, pulsars
 - Energy range: ~20 MeV to ~1000 GeV
 - Pair conversion telescope – Si strip detectors
- ✦ **Burst Monitor**
 - GRBs
 - Energy Range: ~10 keV to ~25 MeV
 - Scintillation detectors

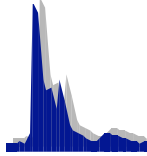
Gamma-Ray Bursts



- Durations <1 s to > 100 s
- Energy primarily 10-1000 keV
- Rate of a few per day

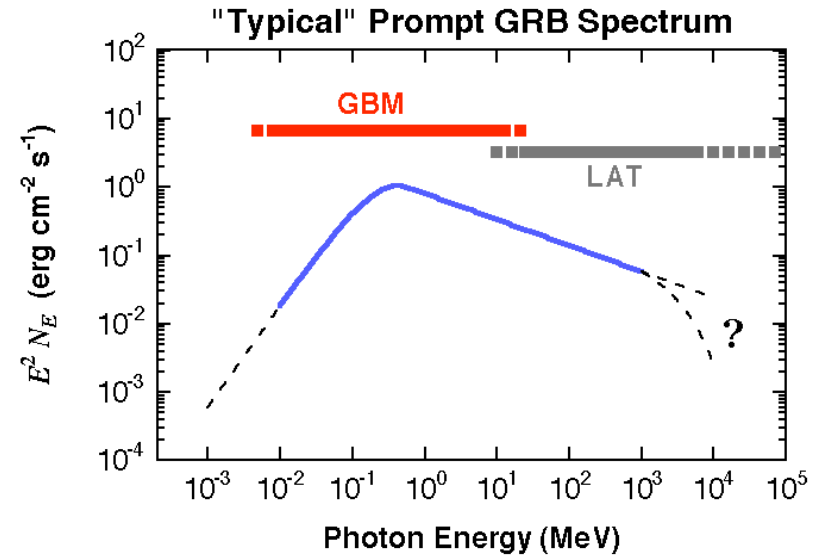
- Most powerful events known
- Probably explosions of massive stars
- Often have optical & X-ray afterglows



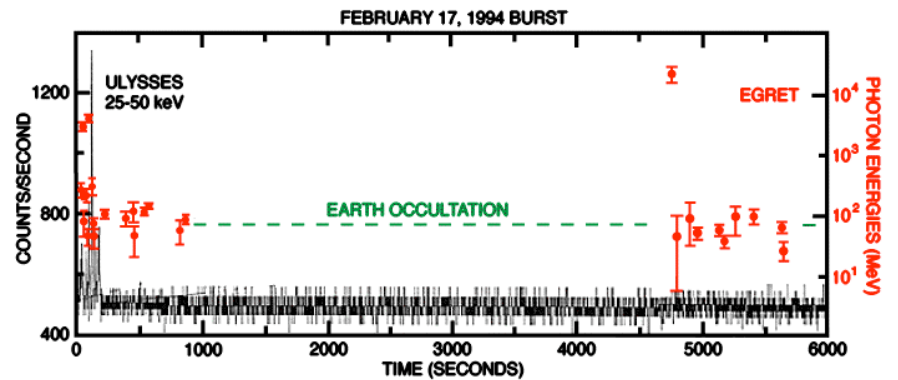


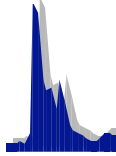
GBM Science Rationale

GBM extends the energy range of GRB observations.



GBM provides real-time GRB localizations to allow repointing the spacecraft.





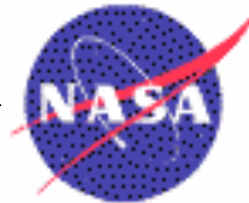
GBM Collaboration



National Space Science & Technology Center

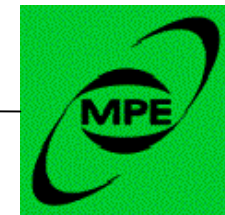


University of Alabama
in Huntsville



Marshall
Space
Flight
Center

NASA
Marshall Space Flight Center

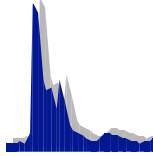


Max-Planck-Institut für
extraterrestrische Physik

Michael Briggs
William Paciesas
Robert Preece
Narayana Bhat
Marc Kippen (LANL)
Valerie Connaughton
(Science Support Center)

Charles Meegan (PI)
Steve Elrod (PM)
Alton English (LSE)
Gerald Fishman
Chryssa Kouveliotou
Colleen Wilson-Hodge

Giselher Lichti (Co-PI)
Andreas von Keinlin
Volker Schönfelder
Roland Diehl
Jochen Greiner
Helmut Steinle

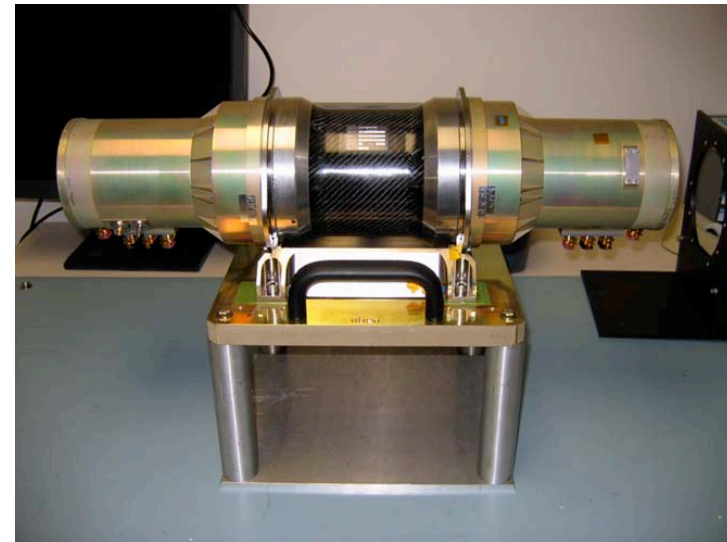


Detectors



Sodium Iodide (NaI)

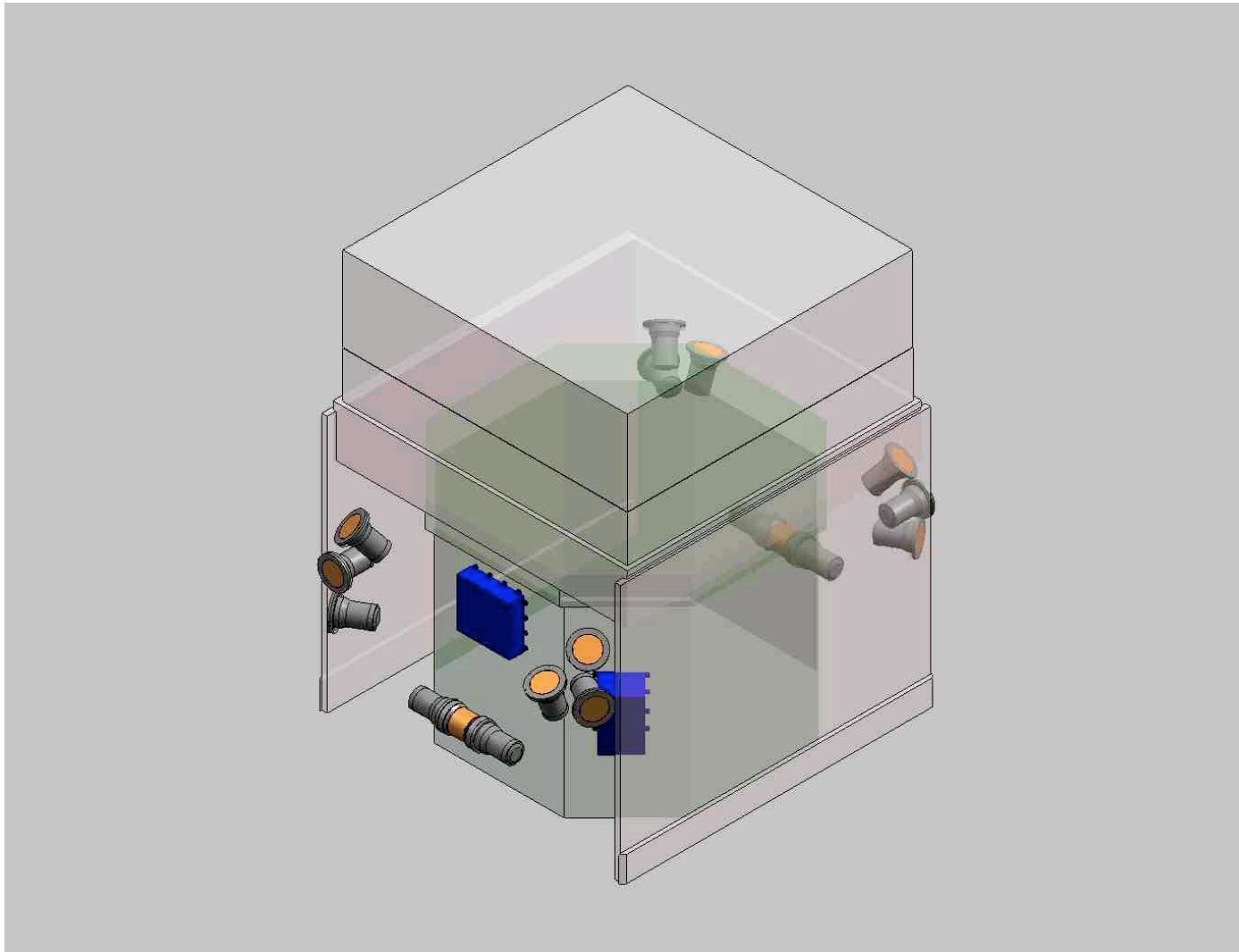
12 detectors
5" diameter by 1/2 " thick
Cover low energy range
Thin Be window
Determines burst directions

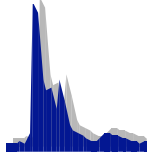


Bismuth Germanate (BGO)

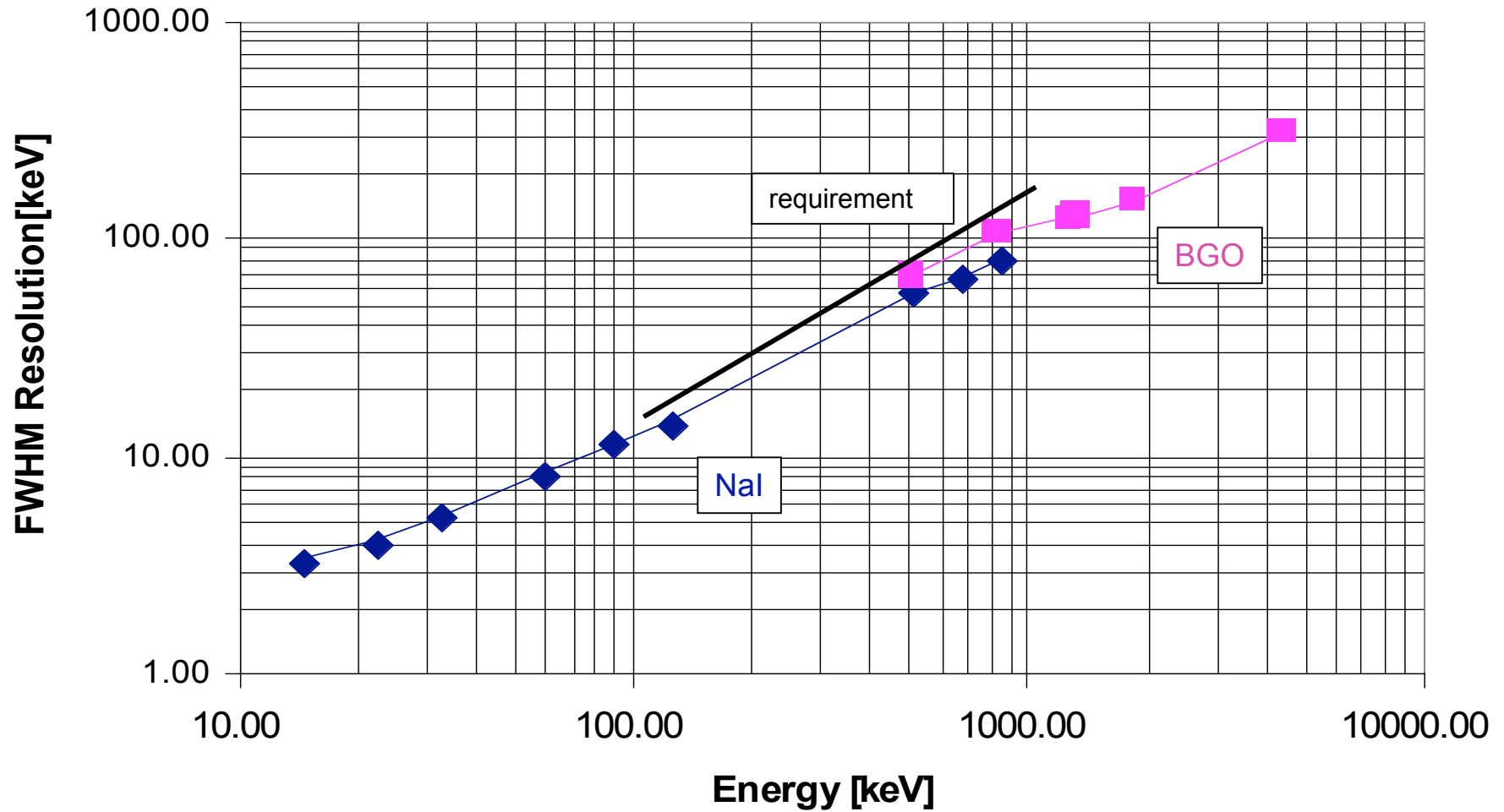
2 detectors
5" diameter by 5 " thick
Cover high energy range
Two PMTs for redundancy

GBM Component Placement

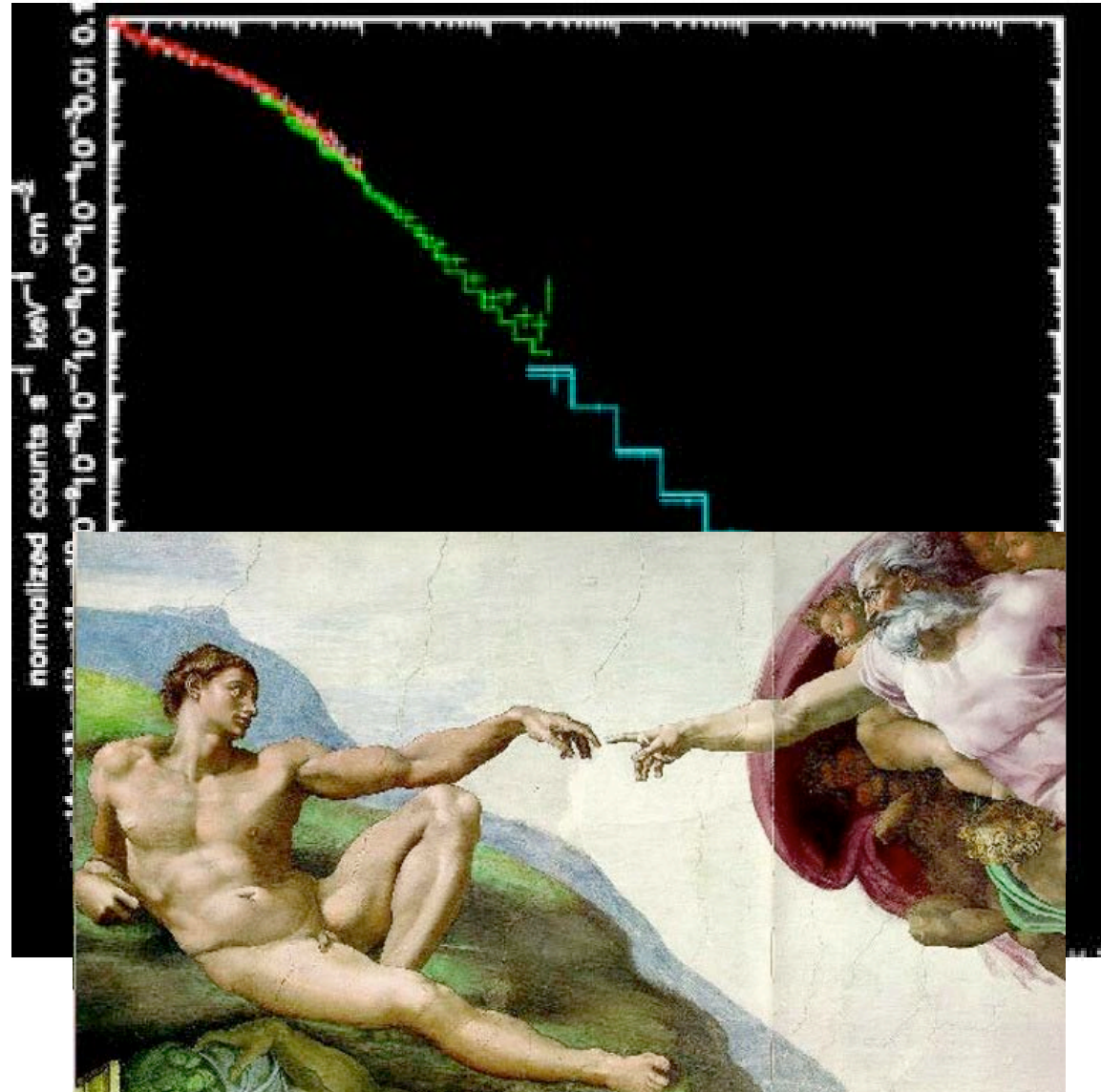




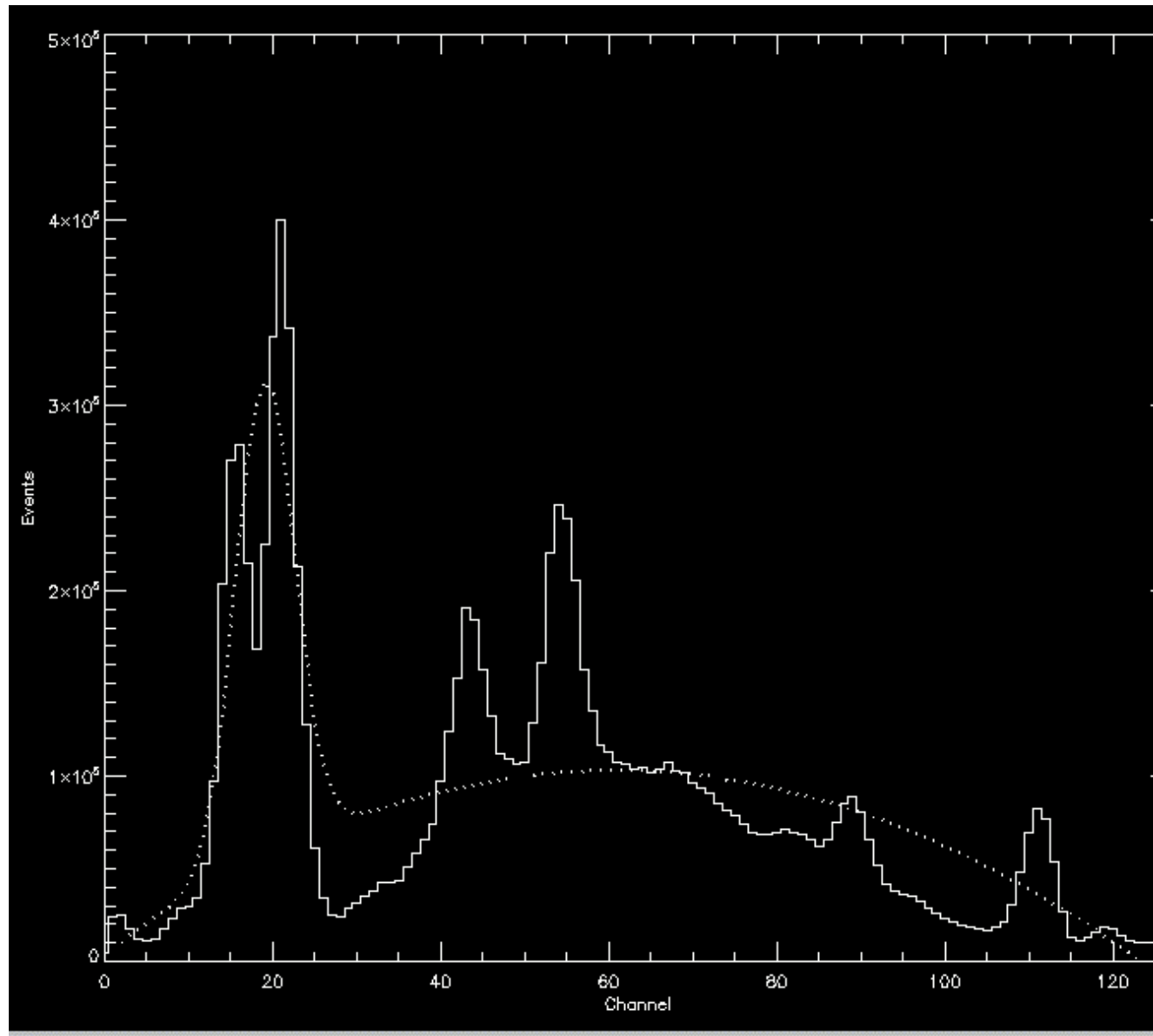
Energy Resolution Measurements

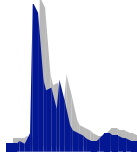


Simulated LAT/GBM Joint Spectrum

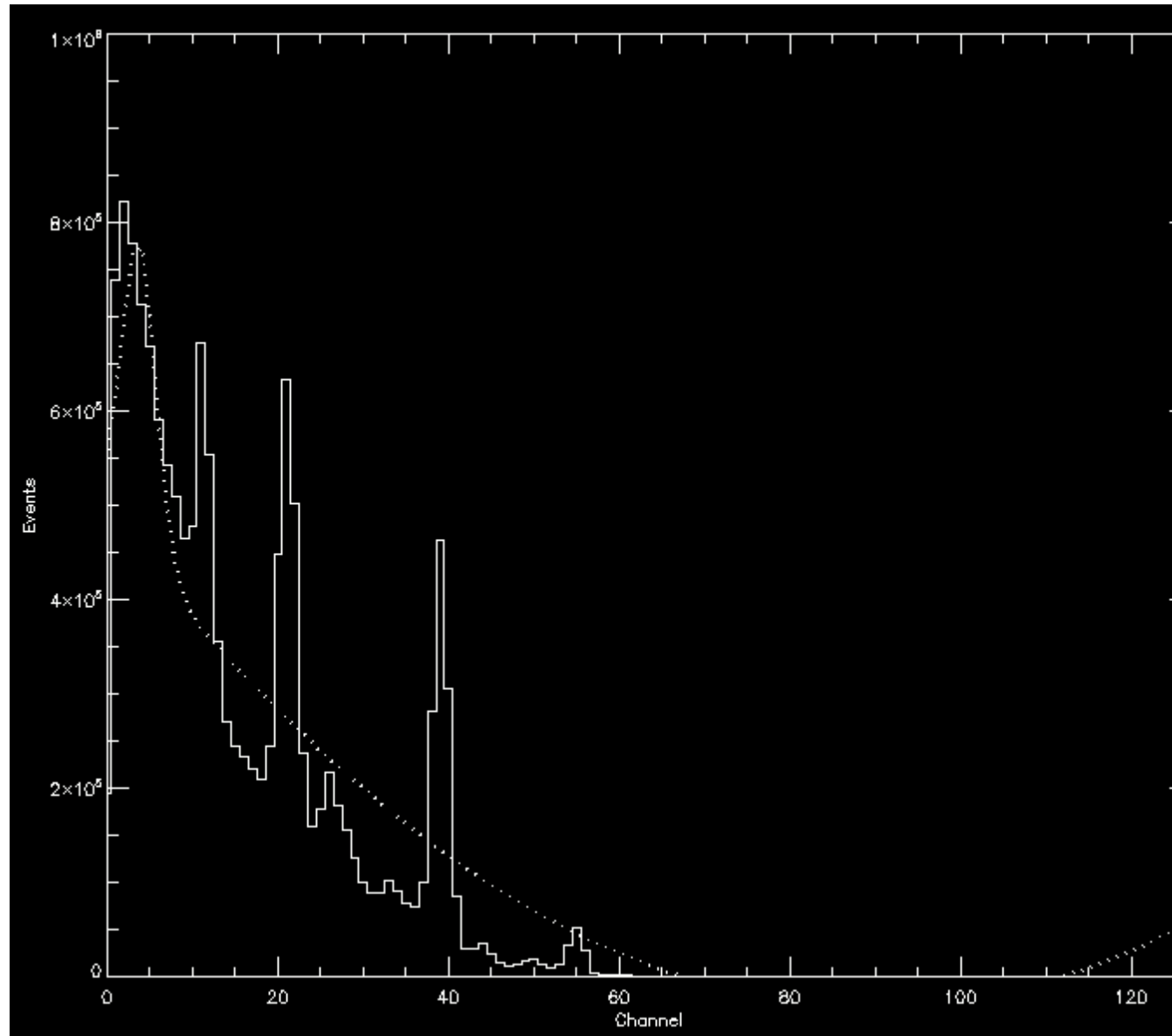


NaI Detector Spectrum

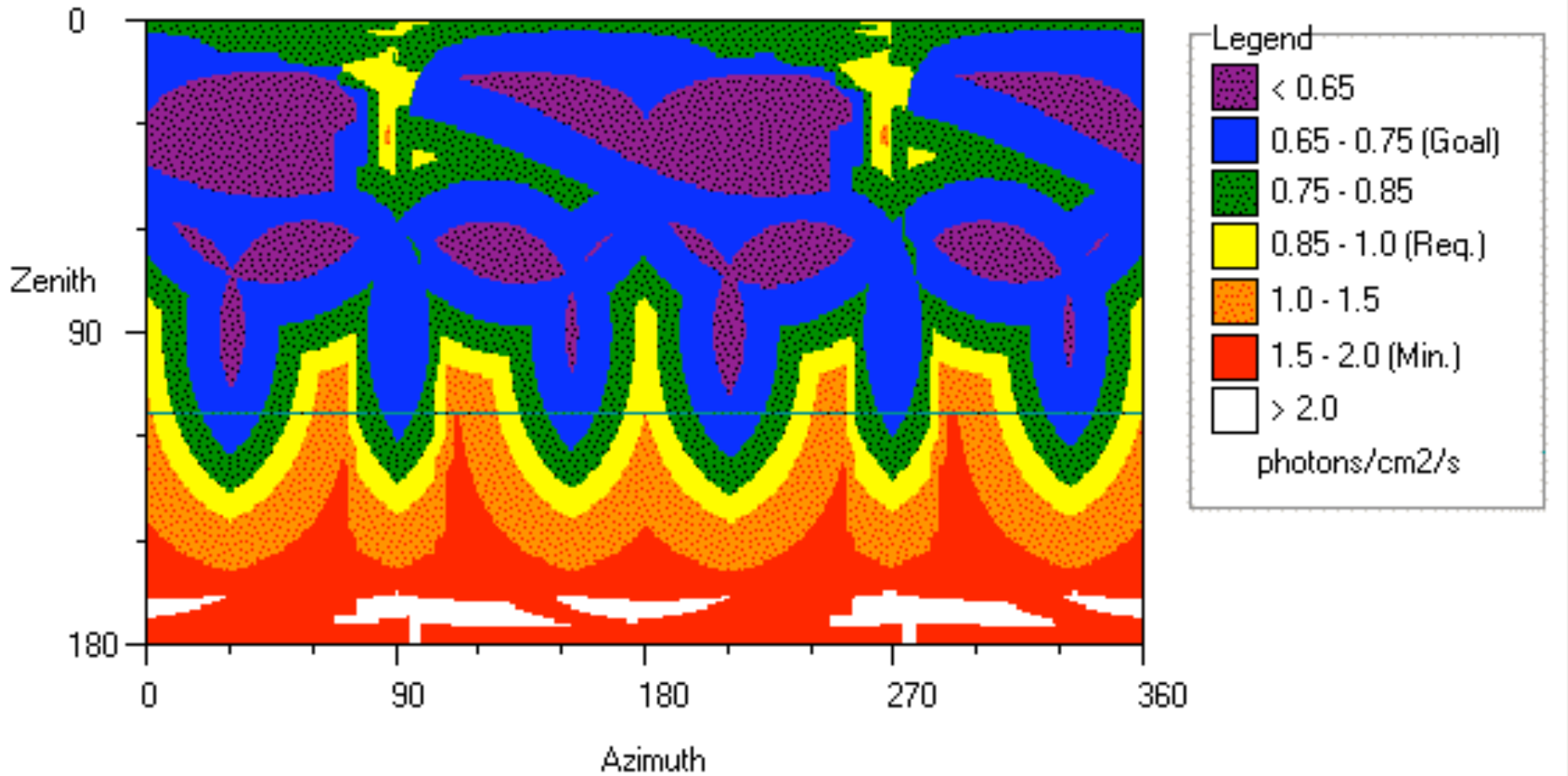


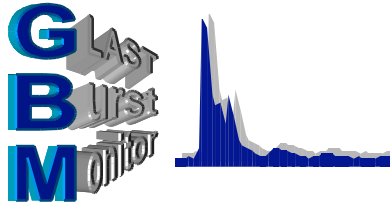


BGO Detector Spectrum



On-Board Trigger Threshold





**Gamma-ray Large Area Space Telescope (GLAST)
Integrated on the Space Craft at Spectrum Astro Space Systems
December 2006**