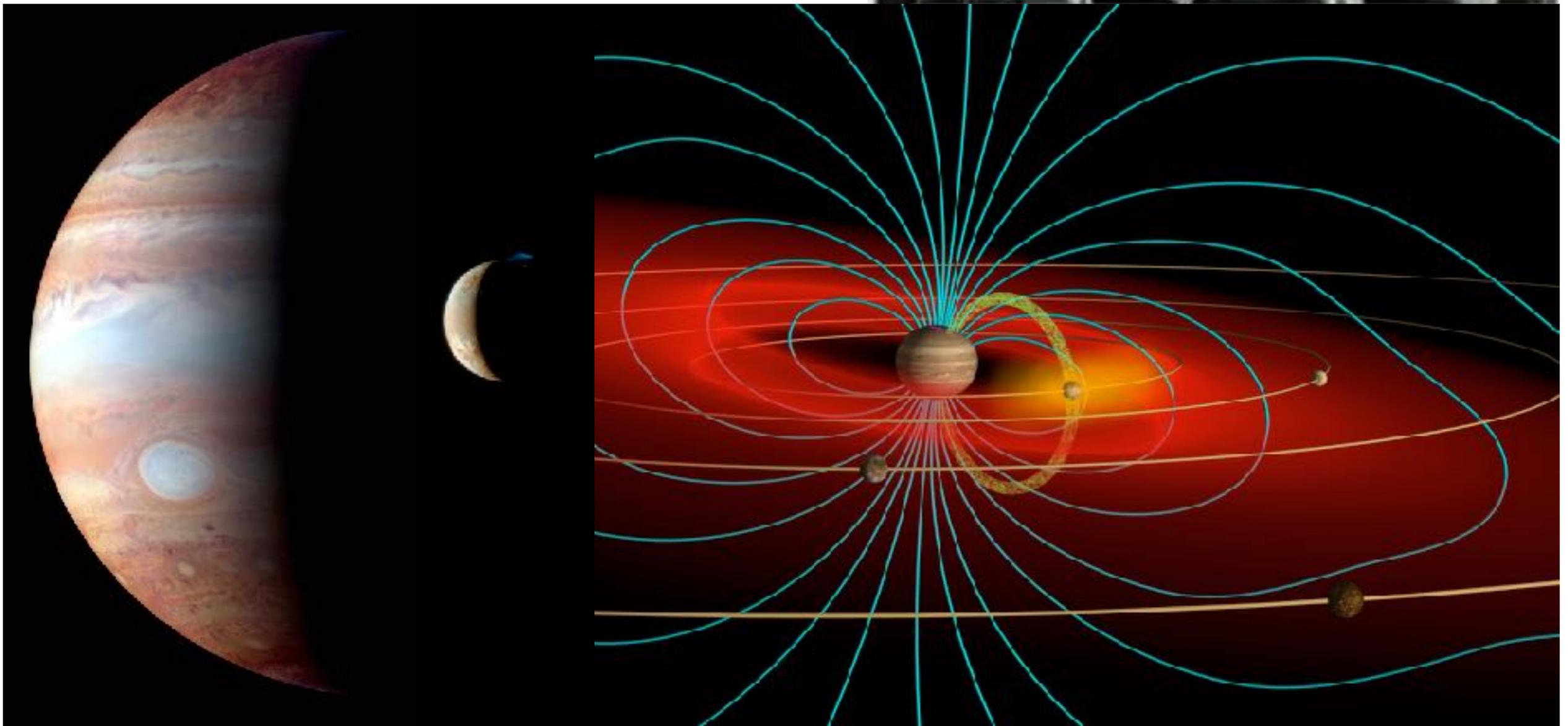


Wondering at the γ -ray sky and chasing unidentified sources with Neil Gehrels



Neil 1952 - 2017

- graduated from University of Arizona
majored in music, rather than physics
- PhD Cal'Tech 1982 with Ed Stone
cosmic-ray detectors on Voyager,
O+S energetic ions from Io to Jupiter
Ed would say that Neil was incredibly gifted



ambassador for γ -ray studies and sources

Compton Gamma-Ray Observatory

1991-2000 (project scientist)

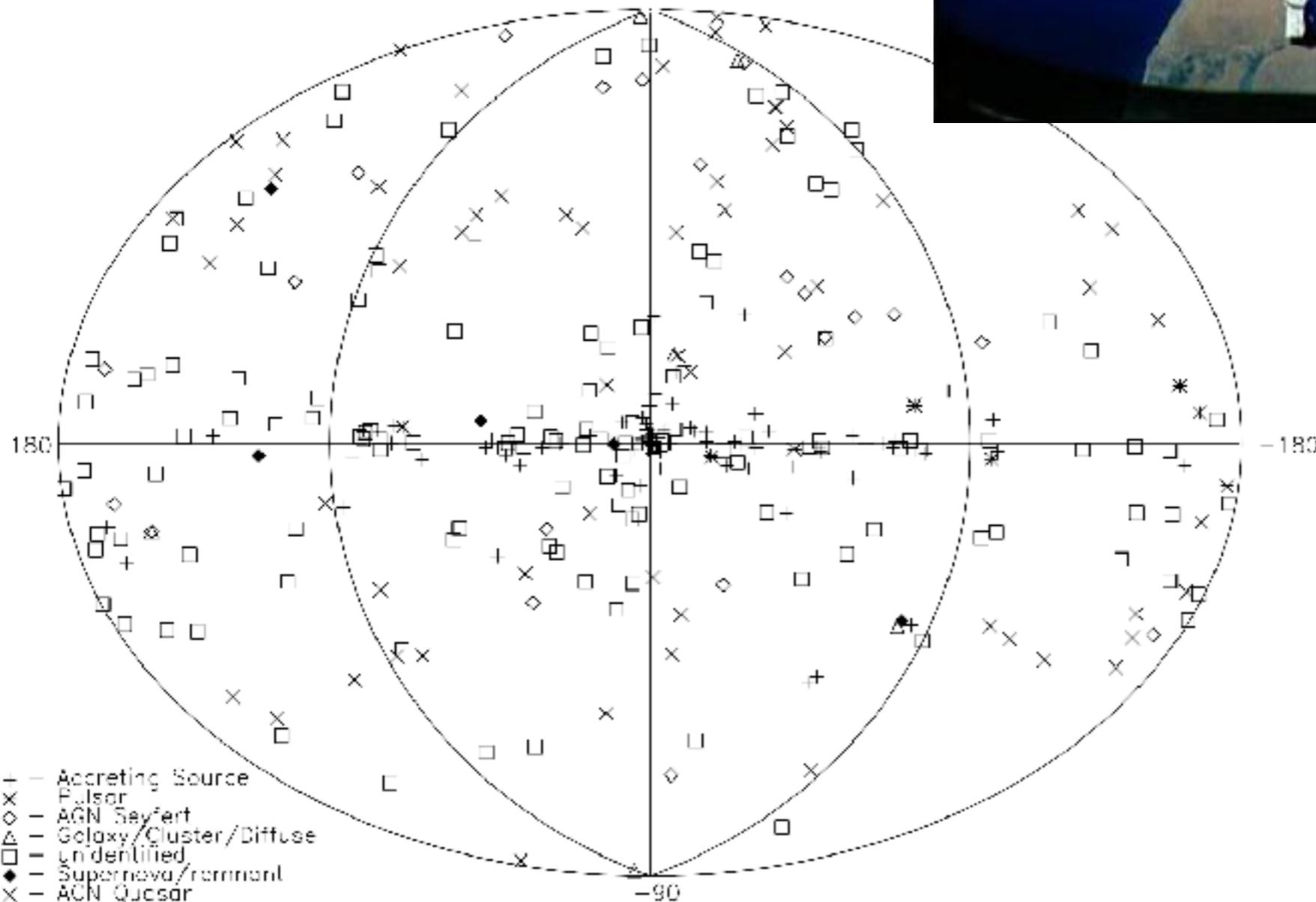
CGRO-EGRET

◆ AGN populations

Macomb & Gehrels 1999:

catalogue of 309 sources

from 50 KeV to 1 TeV

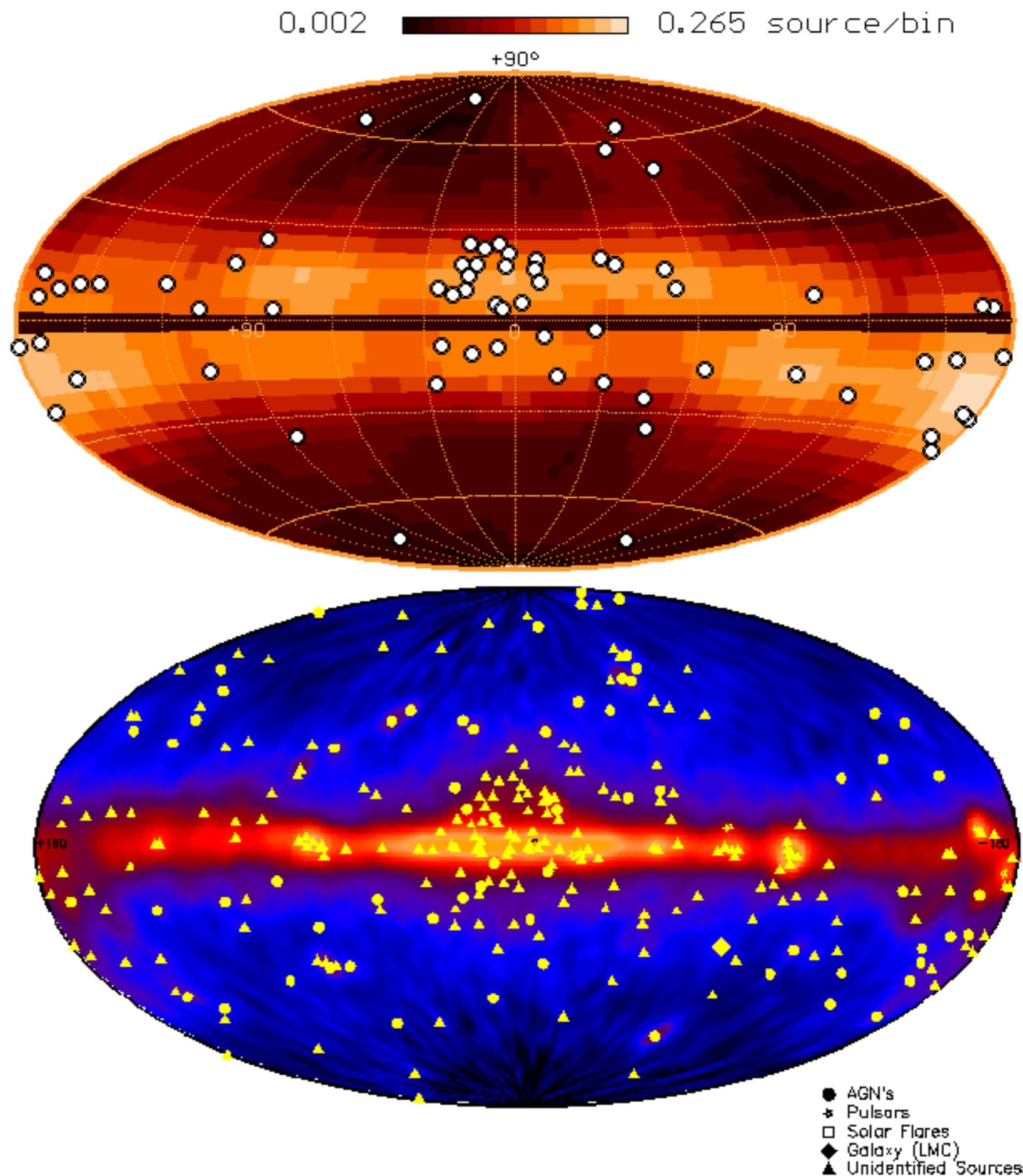


EGRET unidentified sources

- 3rd EGRET catalog:
 - ◆ 170 unidentified sources

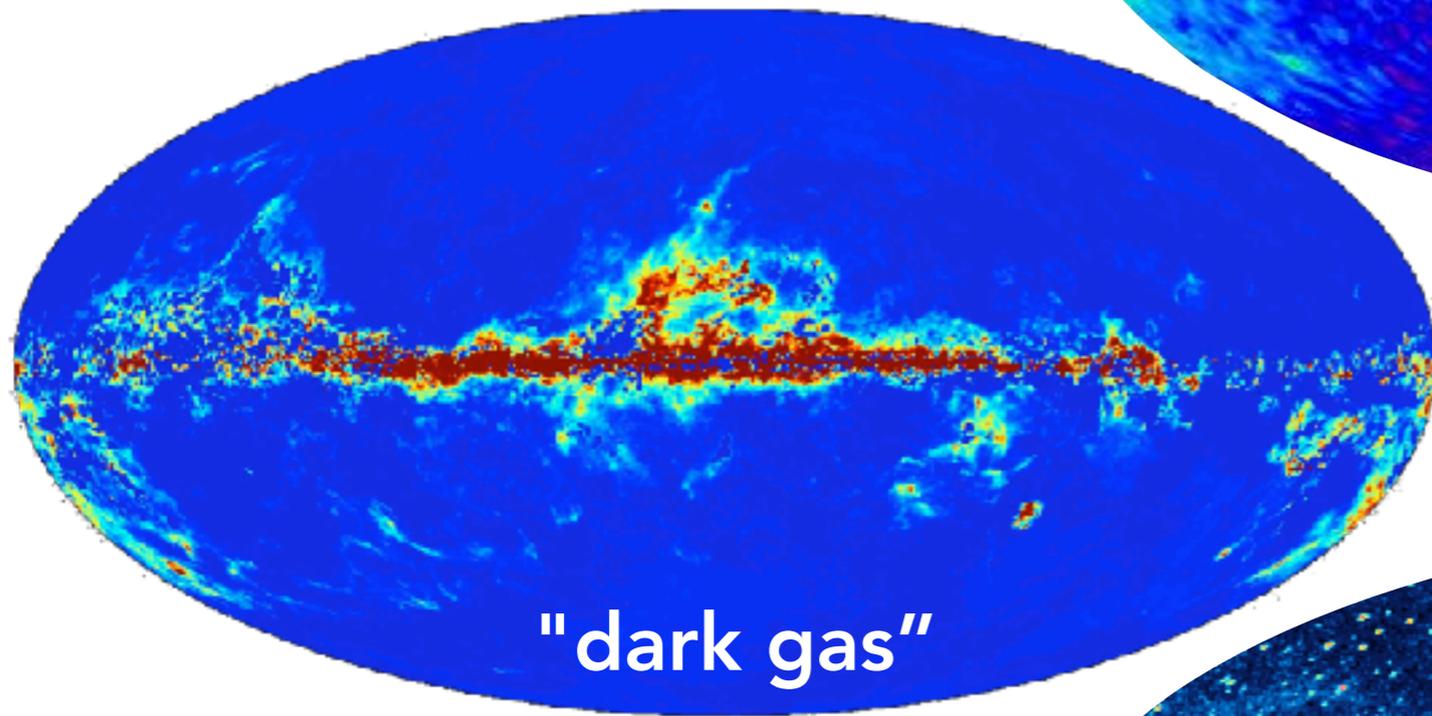
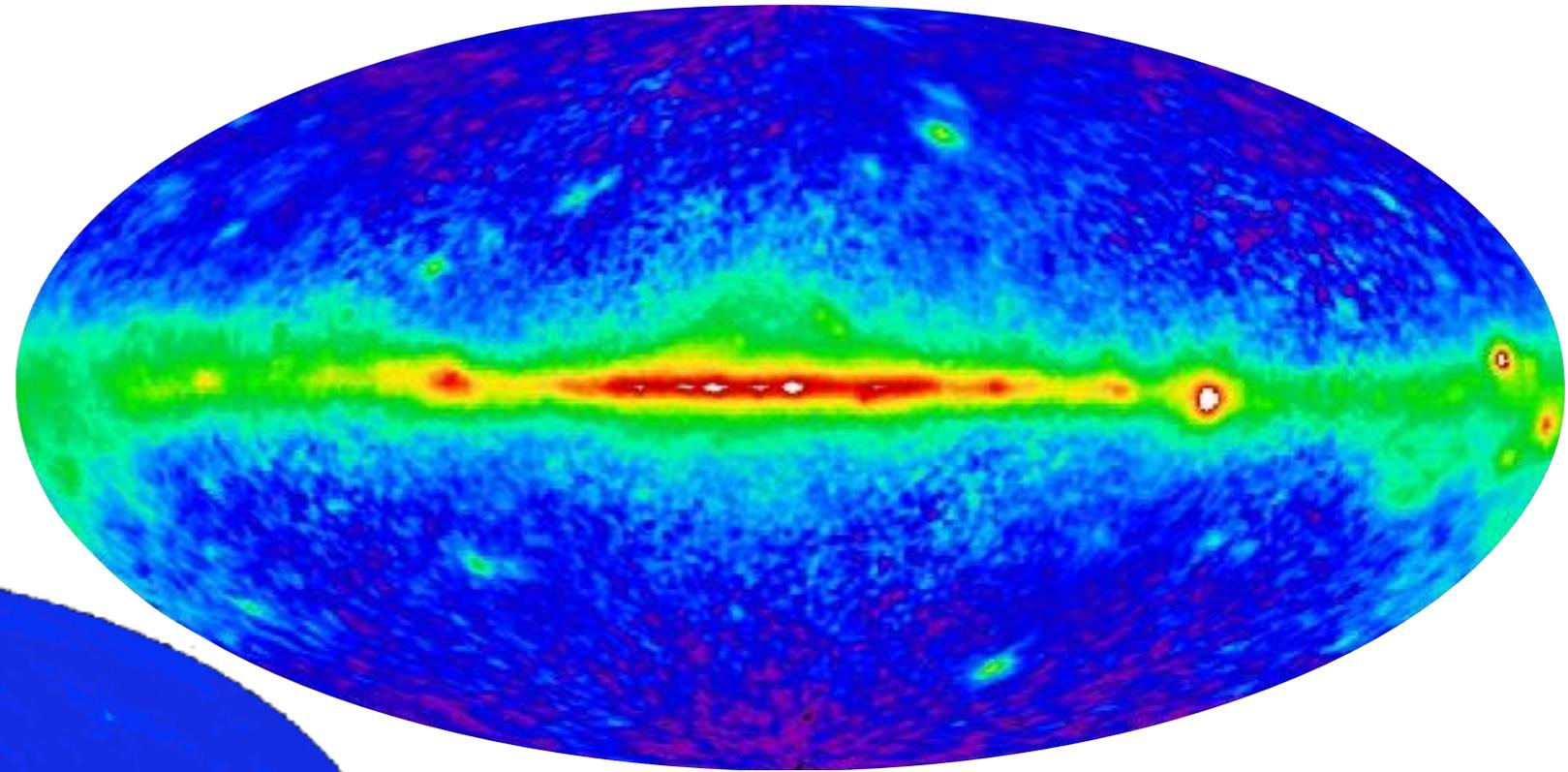
- Grenier 1997+99: 40 sources in the Gould Belt

- Gehrels et al. 2000: 20 mid-latitude sources are distinct from the population of bright unidentified sources along the Galactic plane. The distribution on the sky indicates that they are associated with the Gould Belt^{3,4} of massive stars and gas clouds at ~600 light years distance, as previously suggested⁵.

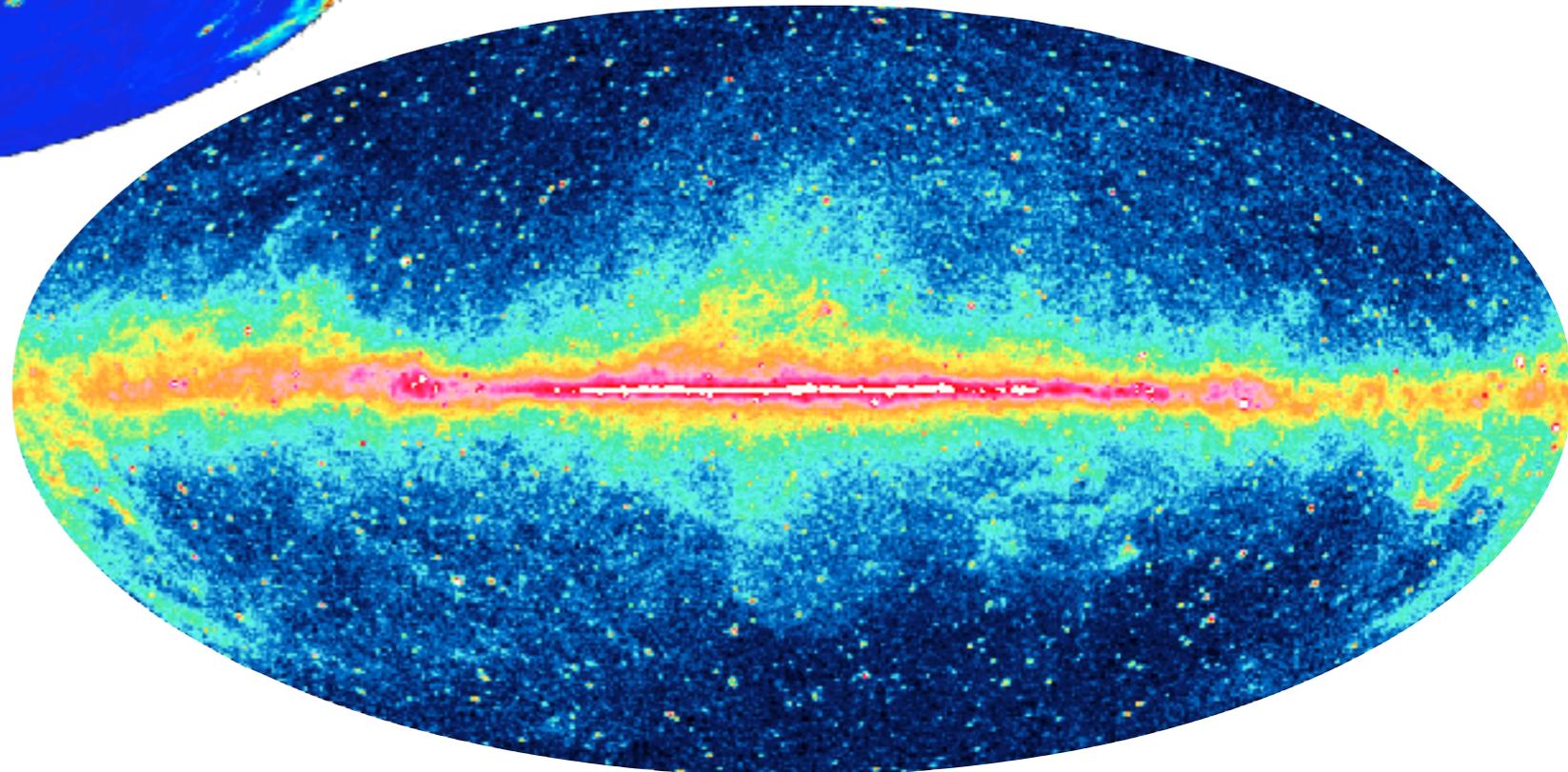


the confirmation of ignorance

● EGRET > 100 MeV



● Fermi > GeV



ambassador for GLAST

- setting GLAST on the right track
 - ◆ Gamma Ray Astrophysics Program Working Group (GRAPWG) 1999 (chair)
 - ◆ GLAST project science requirement document (2000)
 - ◆ science case for LAT, data right policy

Response to AO 99-OSS-03

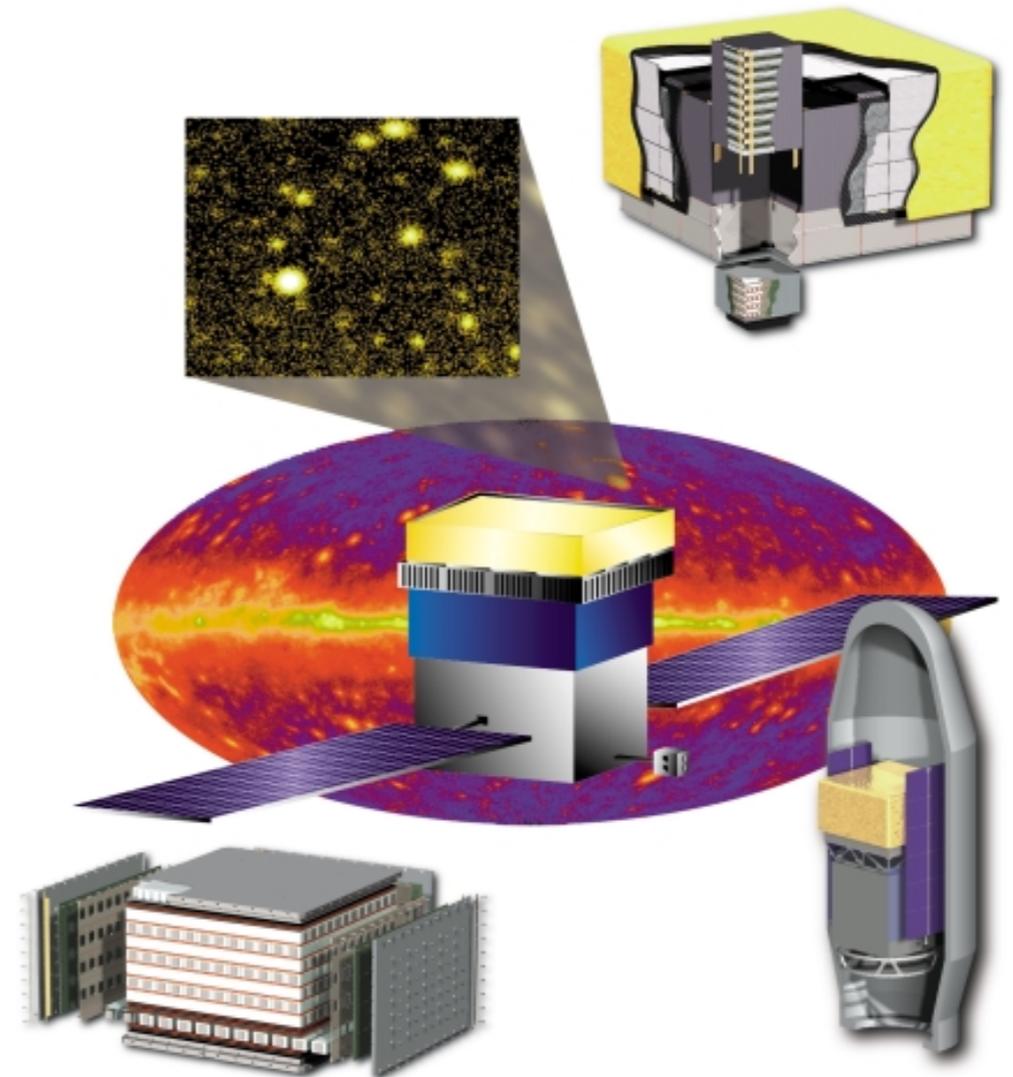
GLAST LARGE AREA TELESCOPE

Flight Investigation:

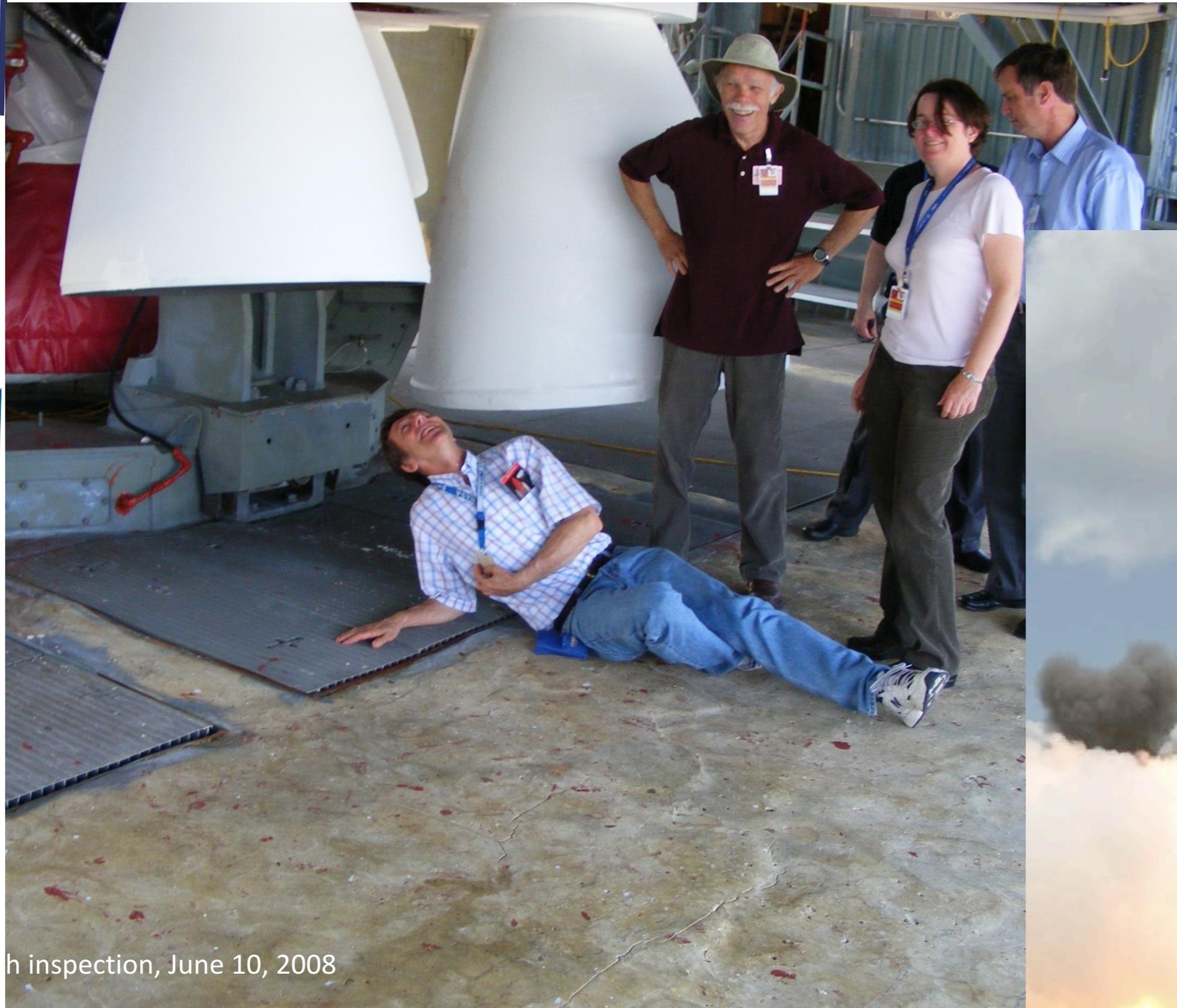
*An Astro-Particle Physics Partnership
Exploring the High-Energy Universe*

Volume 1: Scientific and Technical Plan

- GLAST → Fermi Gamma-ray Space Telescope (deputy project scientist)



Fermi launch, June 2008



h inspection, June 10, 2008



ambassador for X-ray transients and γ -ray bursts

● Swift (≥ 2004):

- ◆ a GRB observatory: 2005 a short GRB counterpart in elliptical galaxy at $z=0.225$
- ◆ turned into a multi-service transient observatory (UV+X) and counterpart search facility
- ◆ turned into a multi-messenger facility



downs and ups

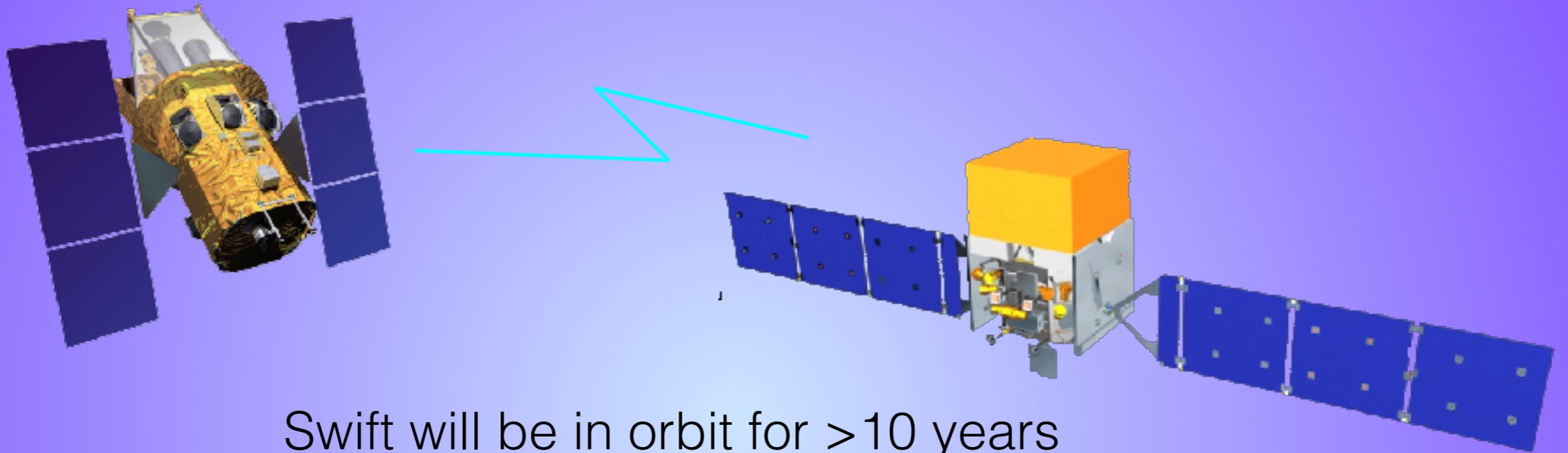
- hurricane Frances (Sept 4 2004)
- ◆ damage to Swift hall



- hurricane Jeanne (Sept 25 2004)
- ◆ damage to vehicle assembly building



Swift - GLAST Coordinated Science

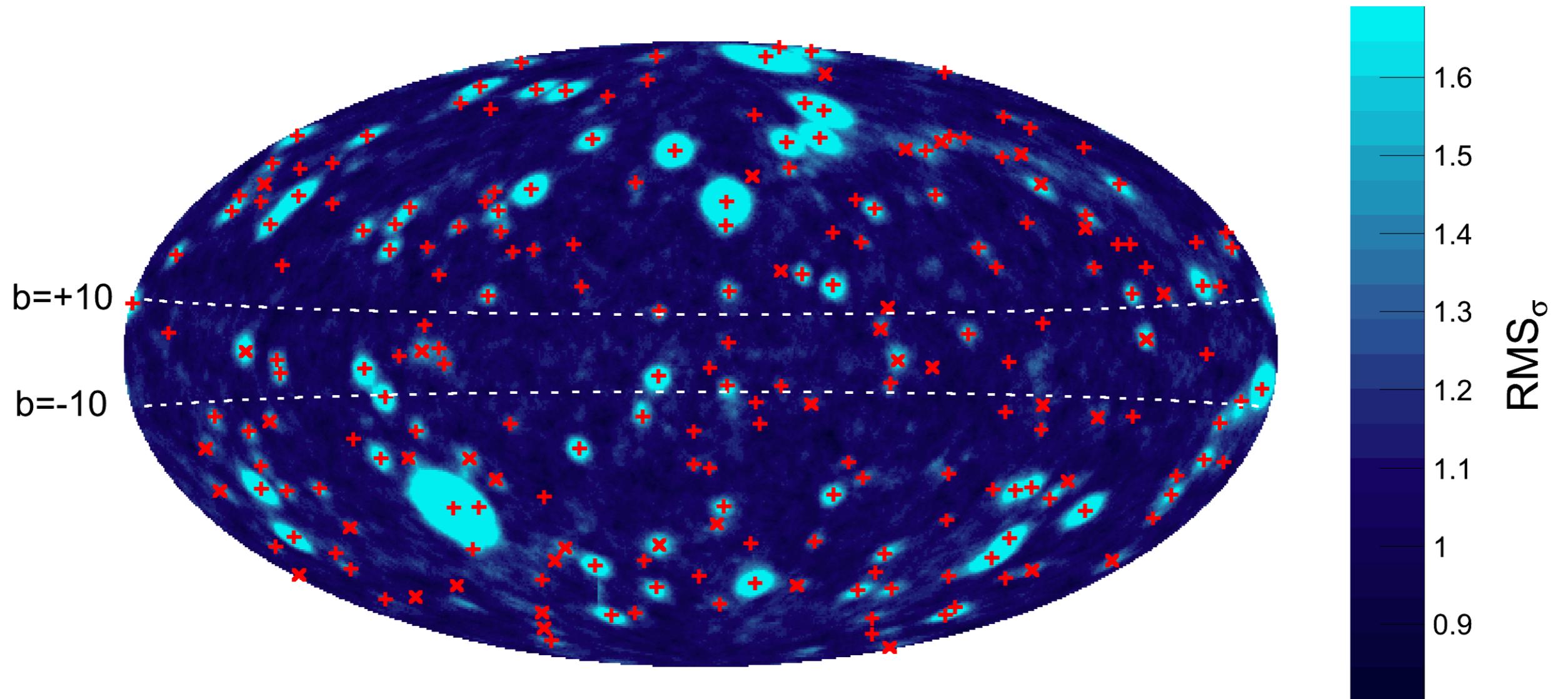


Swift will be in orbit for >10 years
 \Rightarrow Good overlap with GLAST

Significant emphasis is being given in the Swift planning to
joint observations with GLAST

Swift - Fermi joint puzzles

● Swift covered 30% of LAT unidentified sources



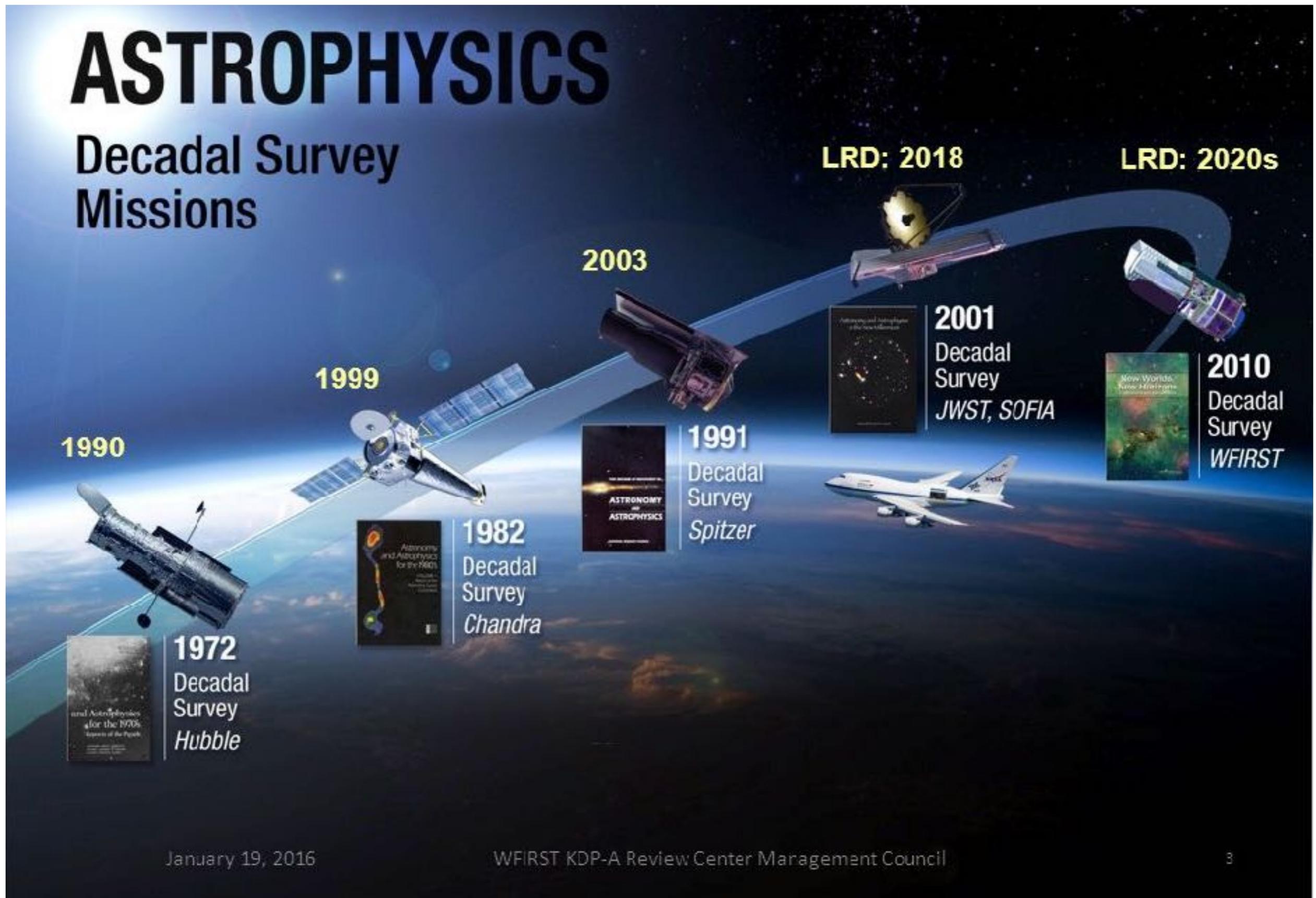
Swift TOO requests

🟡 answering anytime to TOO requests !



ambassador for the future of dark energy

- trying to unite the future of cosmological wide-field space surveys
- JDEM - WFIRST, also helping instead of competing with Euclid



Neil 3/10/52 - 6/2/17

- the peaceful efficiency of a broad smile
- amazingly efficient, friendly, and positive
- boldly looking forward

