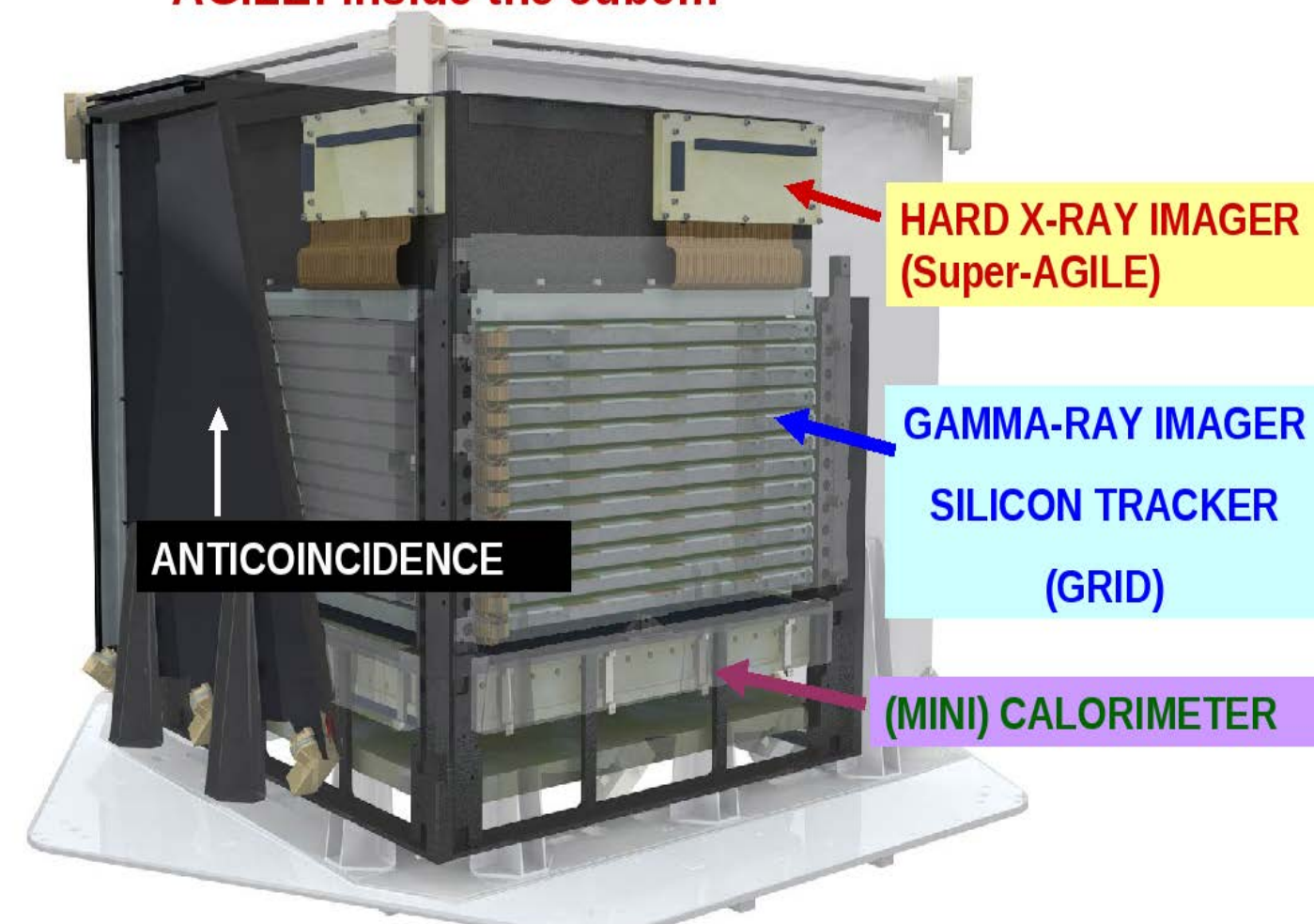
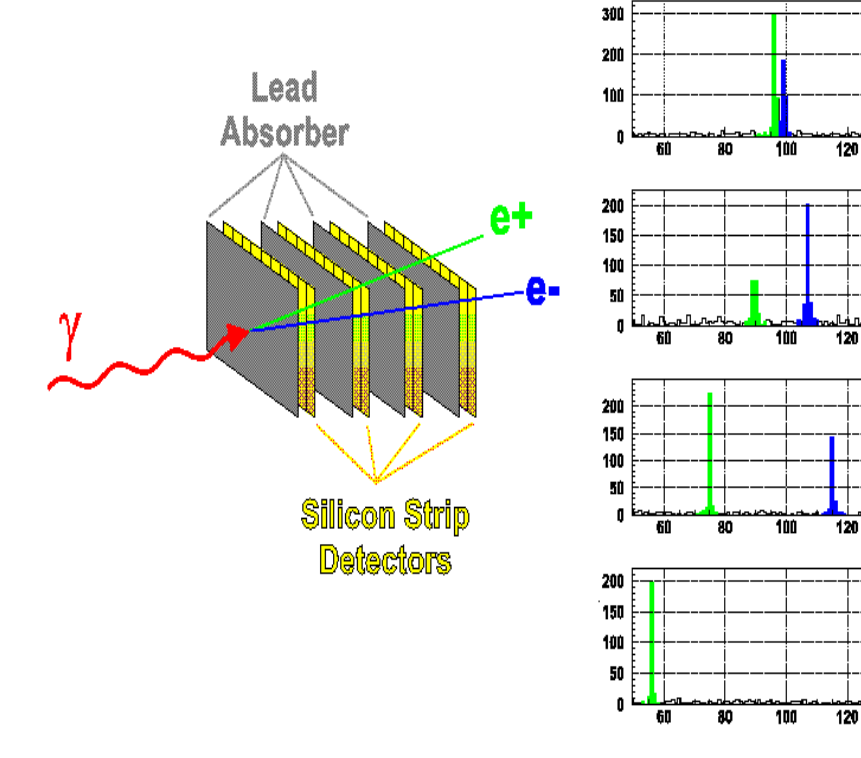


AGILE is a space mission of the Italian Space Agency (ASI) in joint collaboration with INAF, INFN and CIFS, dedicated to the observation of the high-energy Universe. The AGILE satellite was launched on April 23rd, 2007, and is devoted to gamma-ray astrophysics in the 30 MeV - 50 GeV energy range, with simultaneous X-ray imaging capability in the 18-60 keV band. Despite the small size and budget, AGILE produced several important scientific results, among which the unexpected discovery of strong flares from the Crab Nebula. This discovery won to the AGILE PI and the AGILE Team the prestigious "Bruno Rossi Prize" in 2012. Thanks to its sky monitoring capability and fast ground segment alert system, AGILE is substantially improving our knowledge of the gamma-ray sky. *C. Pittori, on behalf of the AGILE Collaboration*

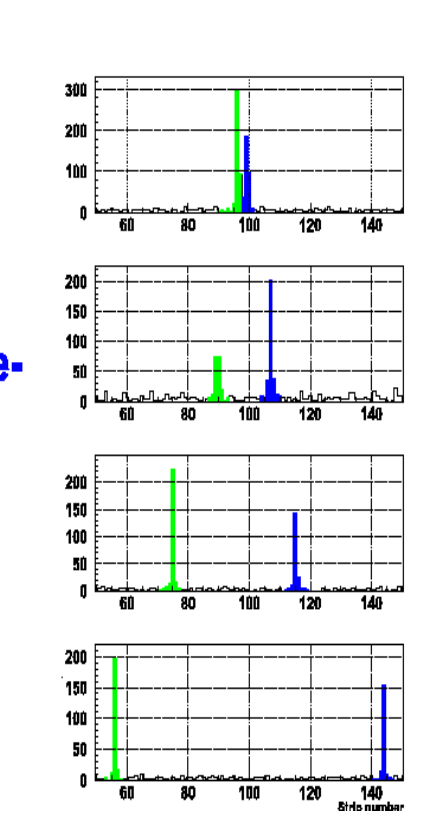
AGILE: inside the cube...




HARD X-RAY IMAGER (Super-AGILE)
GAMMA-RAY IMAGER SILICON TRACKER (GRID)
(MINI) CALORIMETER
ANTICOINCIDENCE



Lead Absorber
 γ
 e^+
 e^-
 Silicon Strip Detectors

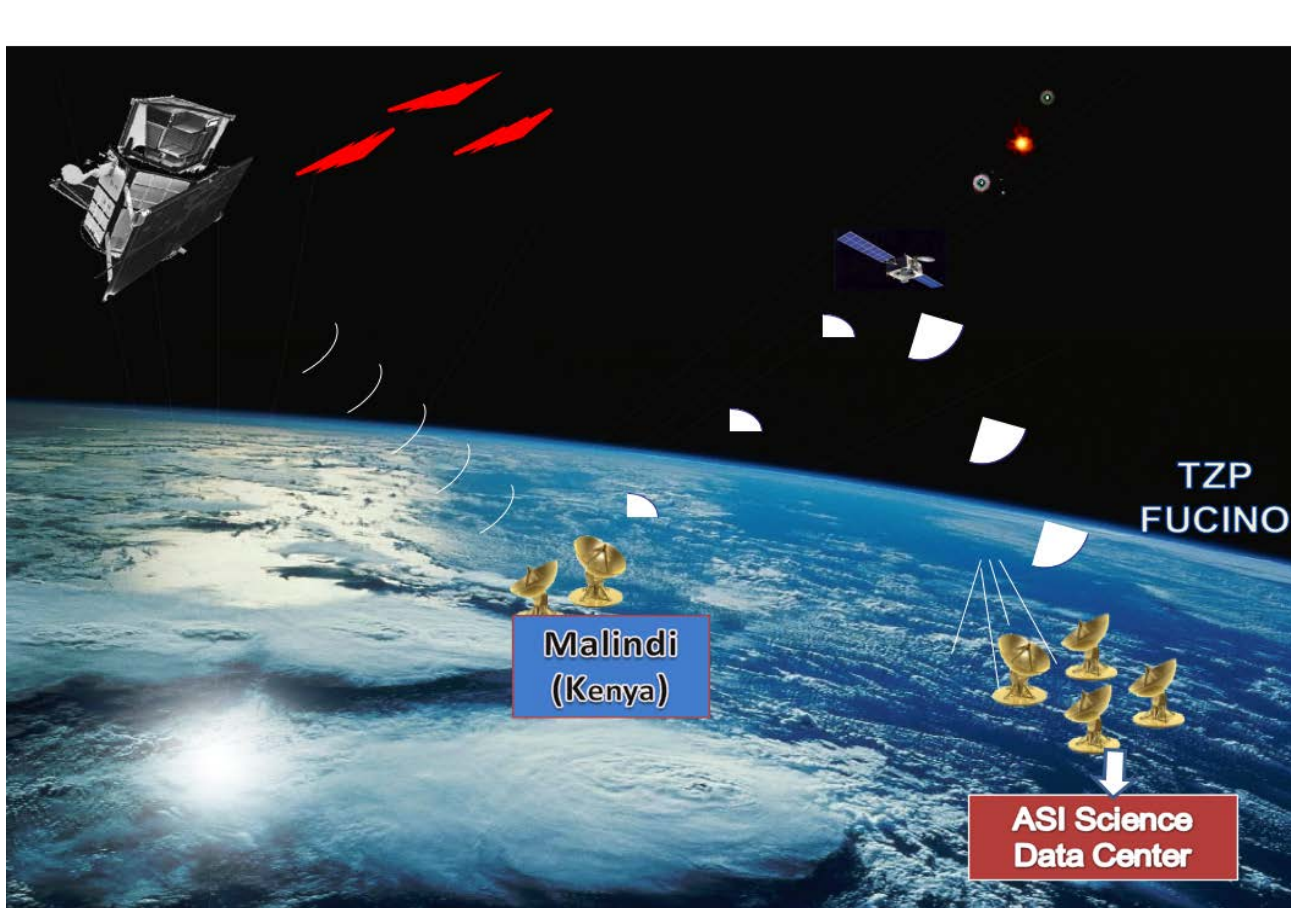


AGILE (Astrorivelatore Gamma a Immagini LEggero): the most compact instrument for high-energy astrophysics: Payload ~ 130 kg - Total ~ 300 kg



AGILE Data Center @ ASDC

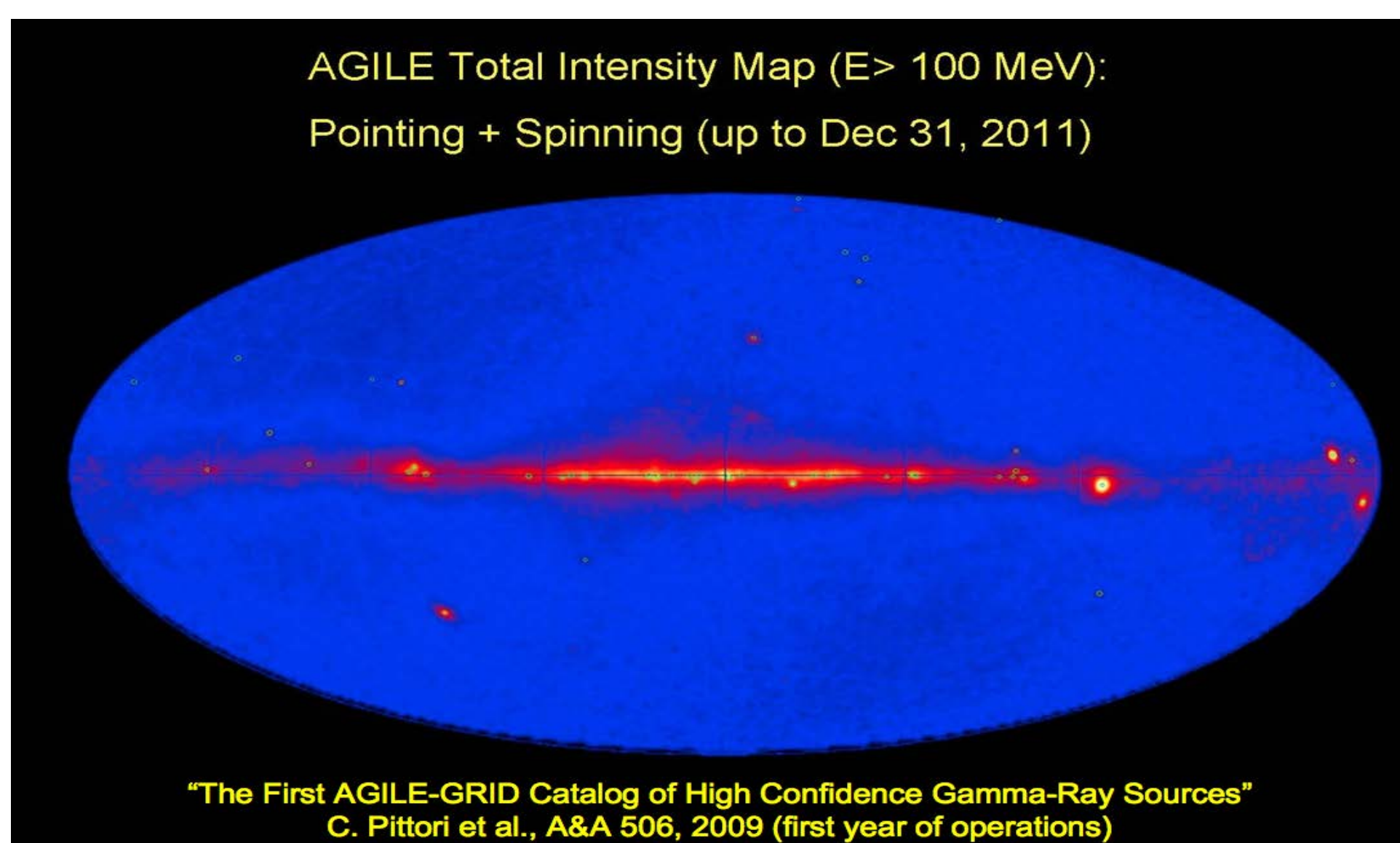
The AGILE Data Center (ADC), part of ASDC, located in Frascati, Italy, is the scientific part of the AGILE Ground Segment. ADC is in charge of all the scientific oriented activities related to the analysis, archiving and distribution of AGILE data:




Malindi (Kenya)
 TSP FUCINO
 ASI Science Data Center

```

  INPUT: raw data (TM Level-0)
  Preprocessing: Level-1 data
  Primary data generation: Quicklook & Standard analysis Level-2 data (photon list and loglike)
  Scientific analysis: Level-3 data
  OUTPUT: High level data products (count maps, spectra, light curves...)
  
```

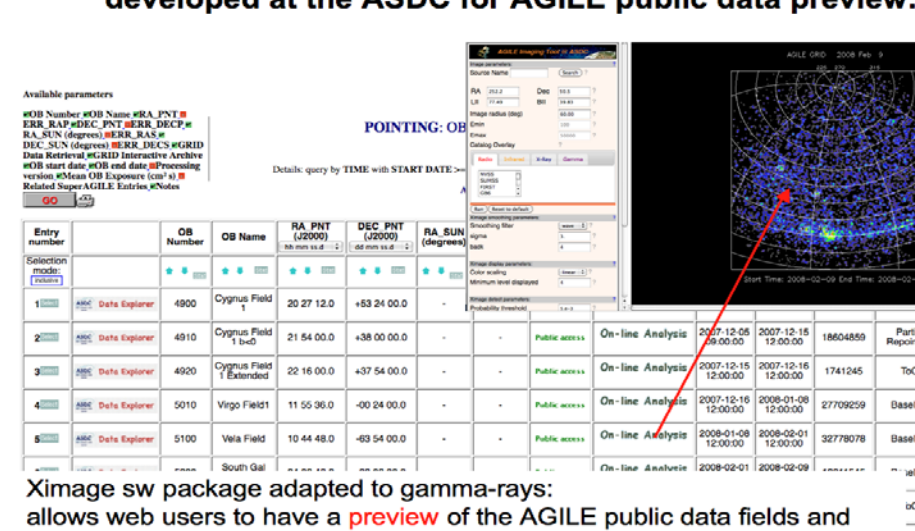


The First AGILE-GRID Catalog of High Confidence Gamma-Ray Sources



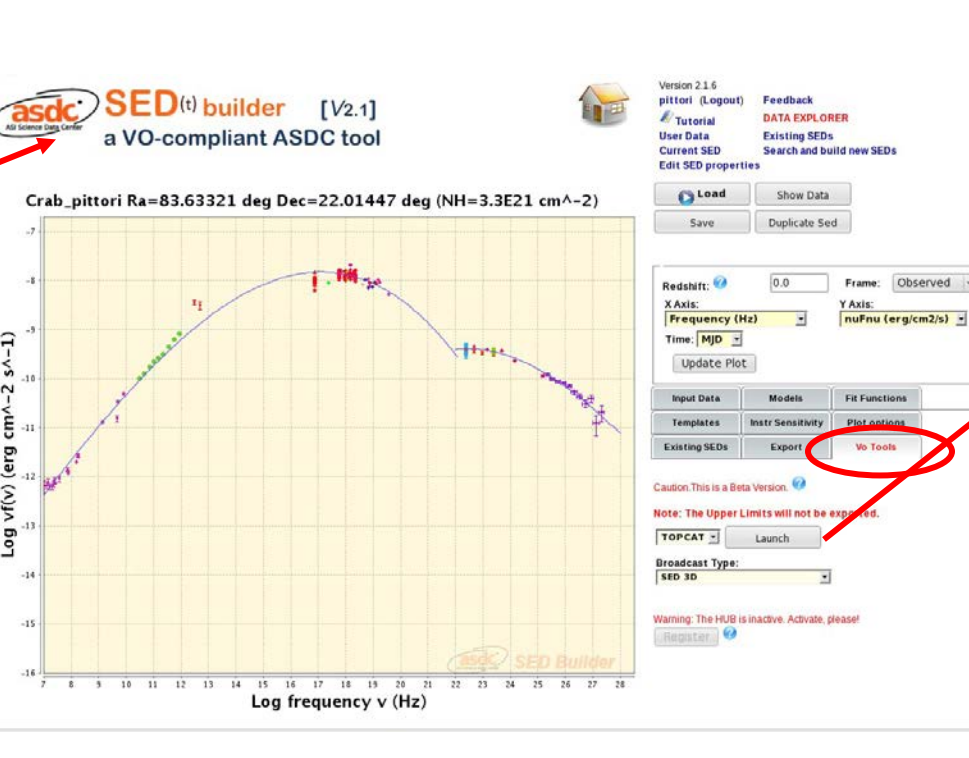
ASDC interactive catalogs webpages

New interactive on-line analysis tool in MMIA developed at the ASDC for AGILE public data preview:

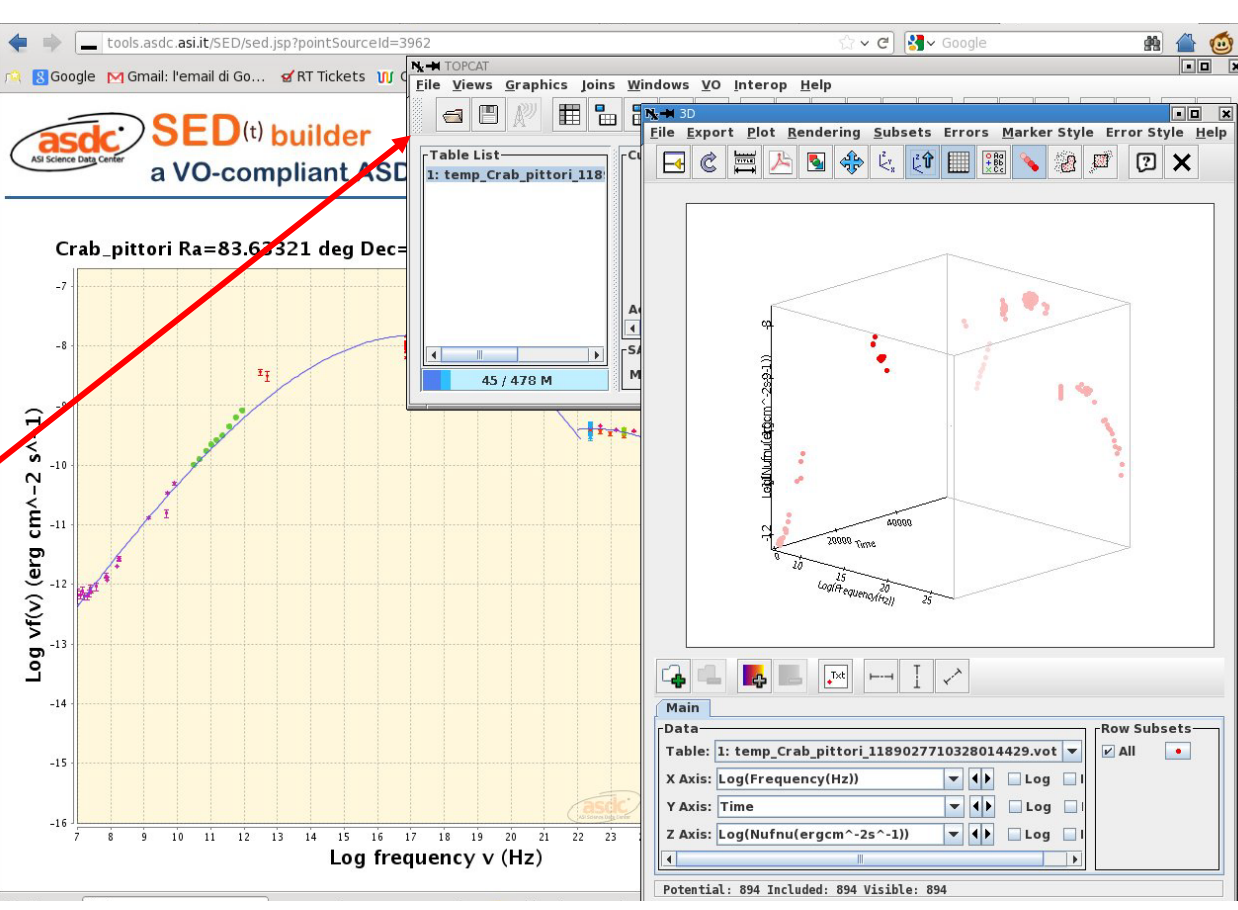


Ximage sw package adapted to gamma-rays: allows web users to have a preview of the AGILE public data fields and perform an interactive preliminary analysis around a chosen sky position.

ASDC interactive tools



ASDC SED builder [V2.1] a VO-compliant ASDC tool

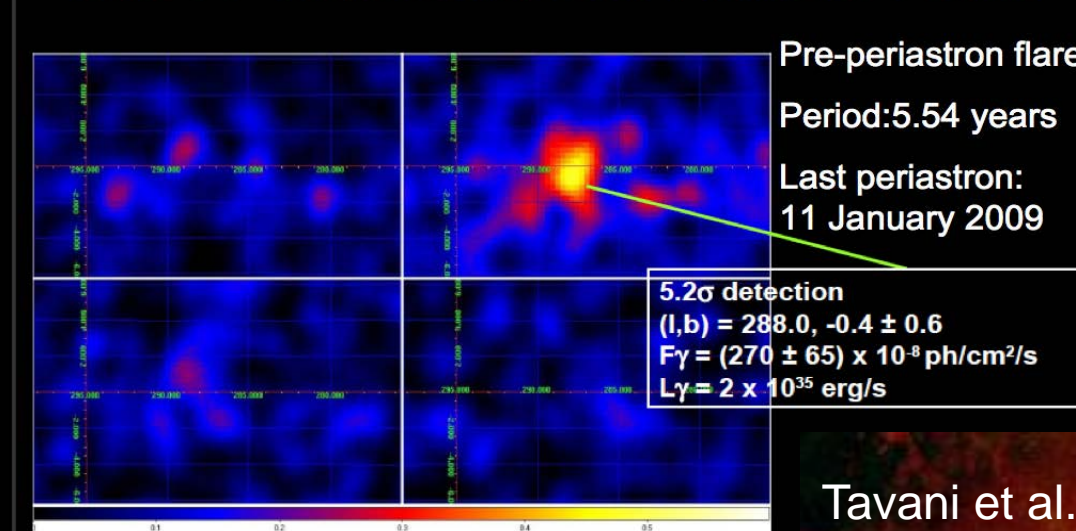


ASDC SED builder a VO-compliant ASDC tool

<http://www.asdc.asi.it>

Eta-Car Colliding Wind Binary System

The 11-13th Oct 2008 Eta Car Flare

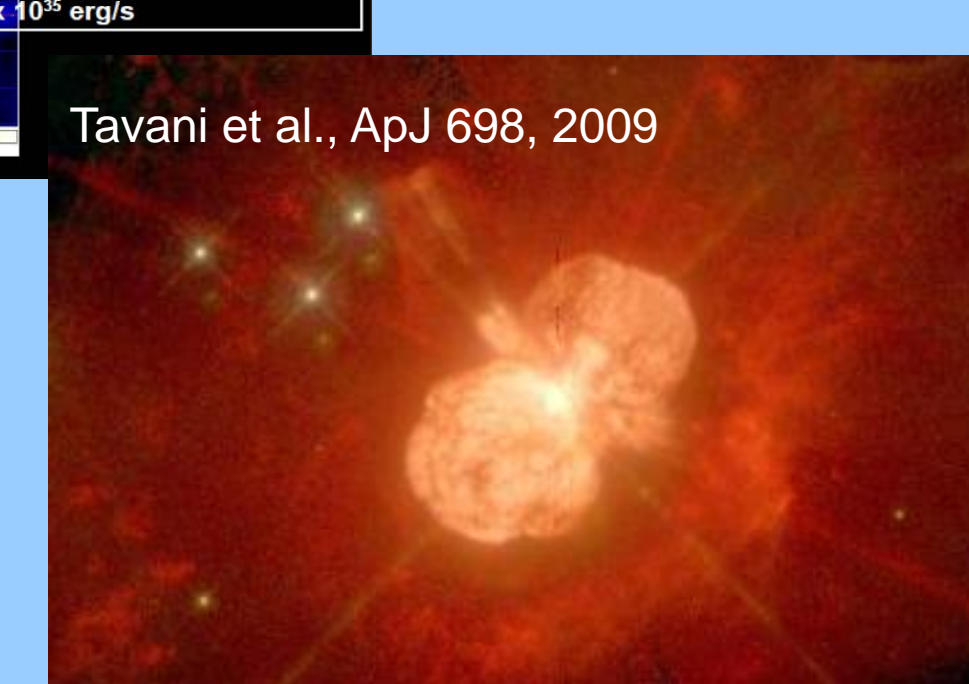


Pre-periastron flare
 Period: 5.54 years
 Last periastron: 11 January 2009

5.2 σ detection
 $(L_b) = 288.0 \pm 0.4 \pm 0.6$
 $P_\gamma = (270 \pm 65) \times 10^{-11}$ ph/cm²/s
 $L_\gamma = 2 \times 10^{36}$ erg/s

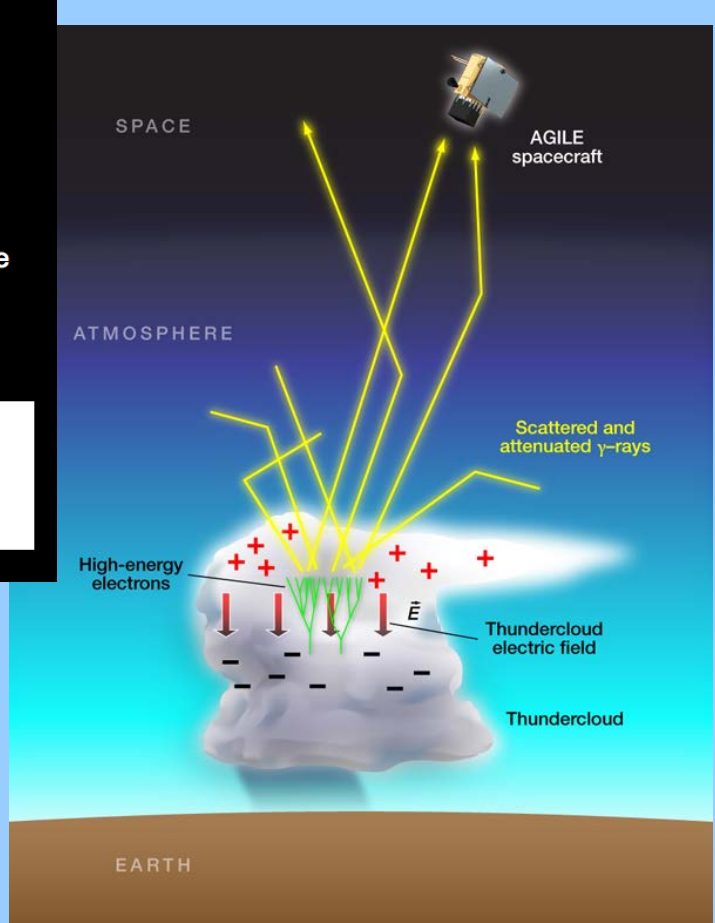
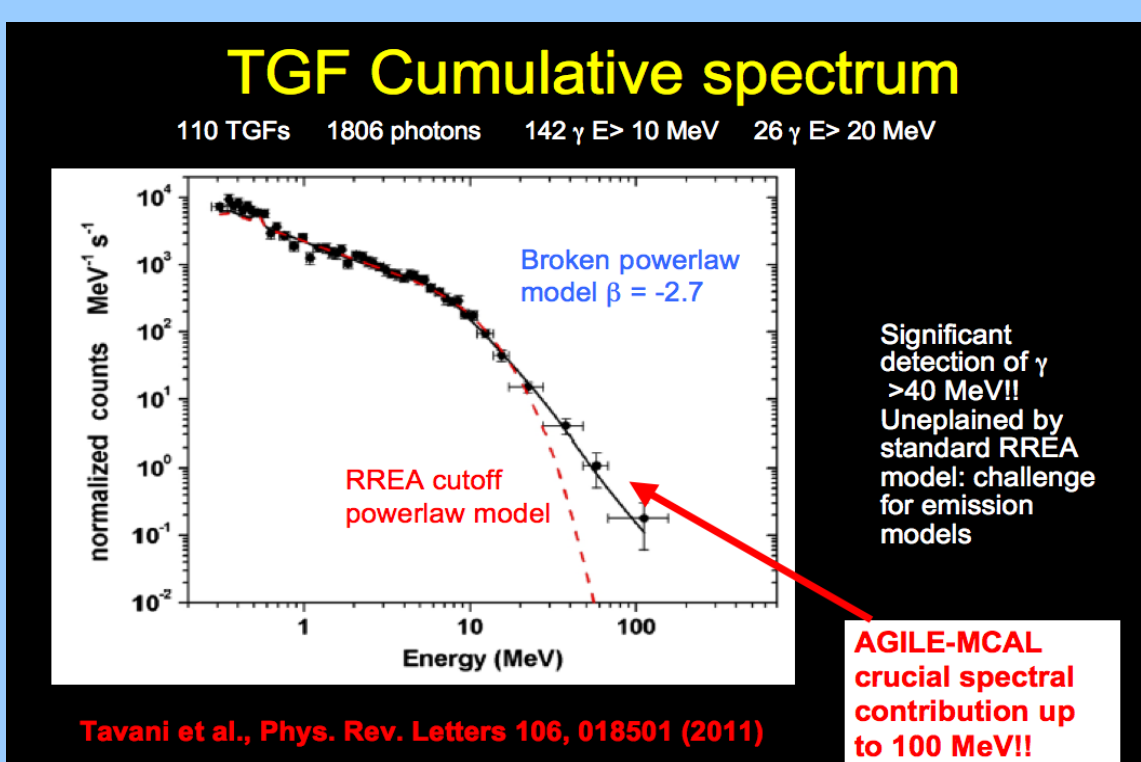
Tavani et al., ApJ 698, 2009

AGILE detects γ -ray emission from the Eta-Carinae region.



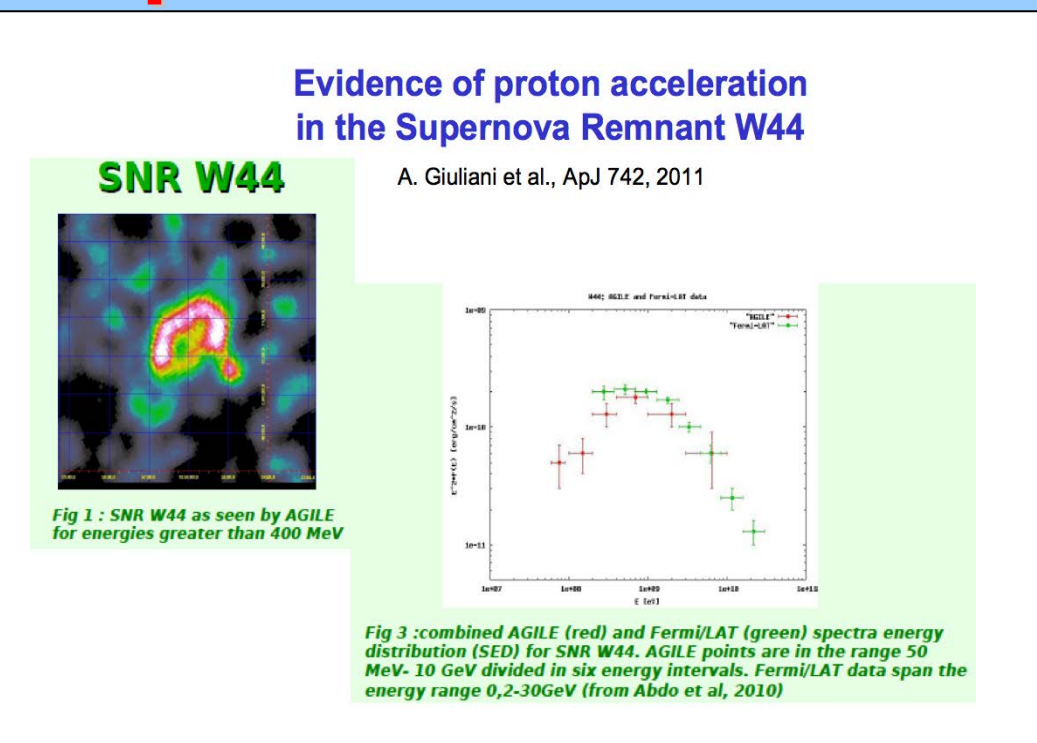
Emission above 100 MeV from the collision wind of a binary star was observed for the first time.

Terrestrial Gamma-ray Flashes

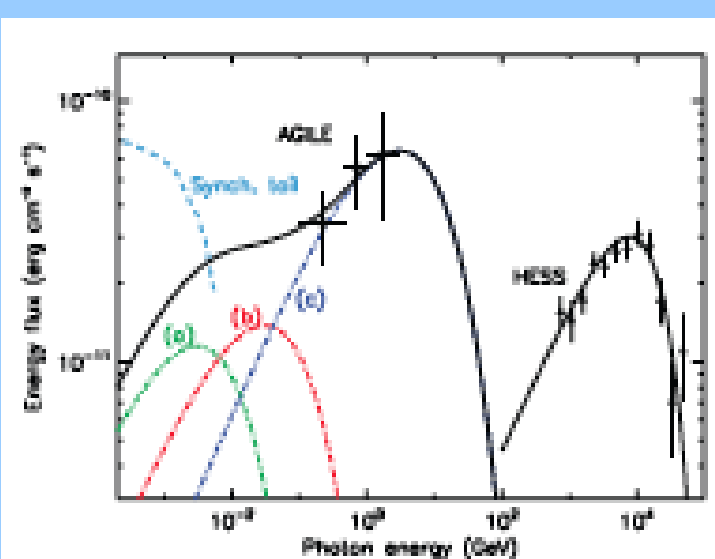


Main AGILE Discoveries:

Supernova Remnants

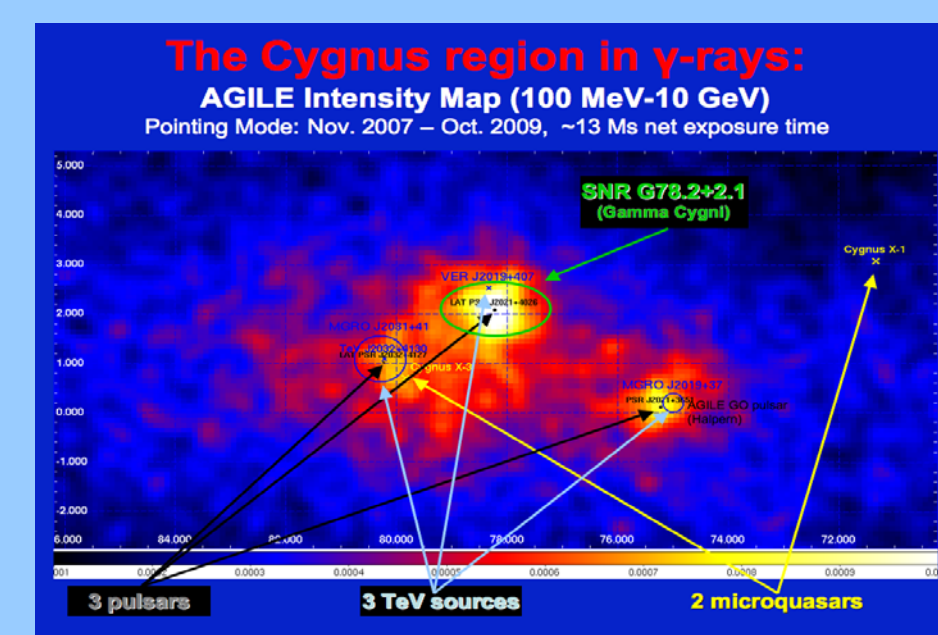


Vela-X Pulsar Wind Nebula

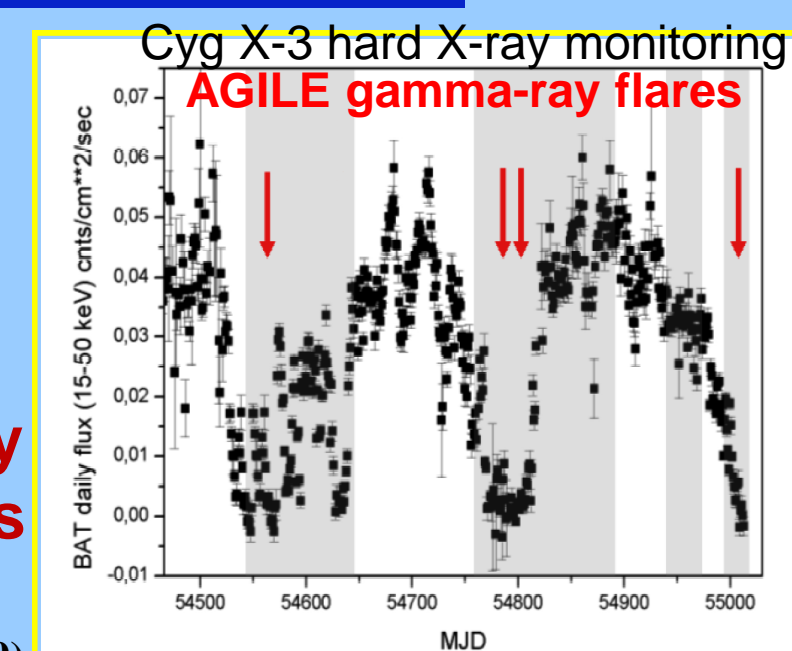


AGILE has provided the first experimental confirmation of emission above 100 MeV from a pulsar wind nebula (Pellizzoni et al., Science 327, 2010)

Cygnus Region Microquasars

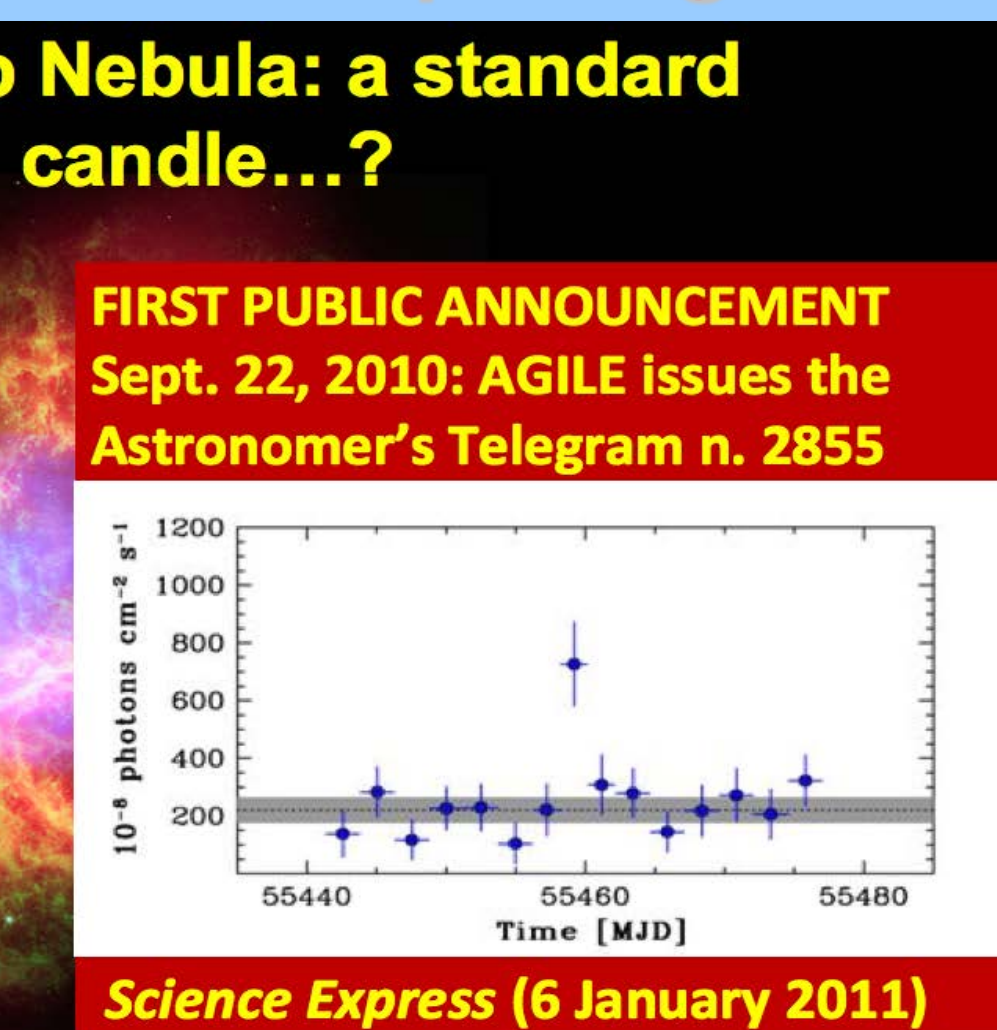


- AGILE detects weak persistent emission above 100 MeV and several gamma-ray flares from Cygnus X-3 microquasar (Tavani et al., Nature 462 (2009))
- Fermi confirms AGILE detections, and measures the orbital period of the binary system. (Abdo et al., Science 326 (2009))



Cygnus X-3 is able to accelerate particles up to relativistic energies and to emit γ -rays above 100 MeV.

The surprising Crab Nebula in gamma rays



The variable Crab Nebula !

