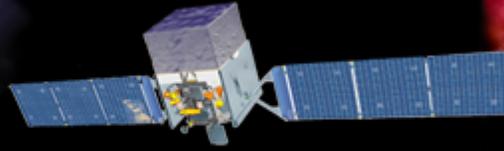


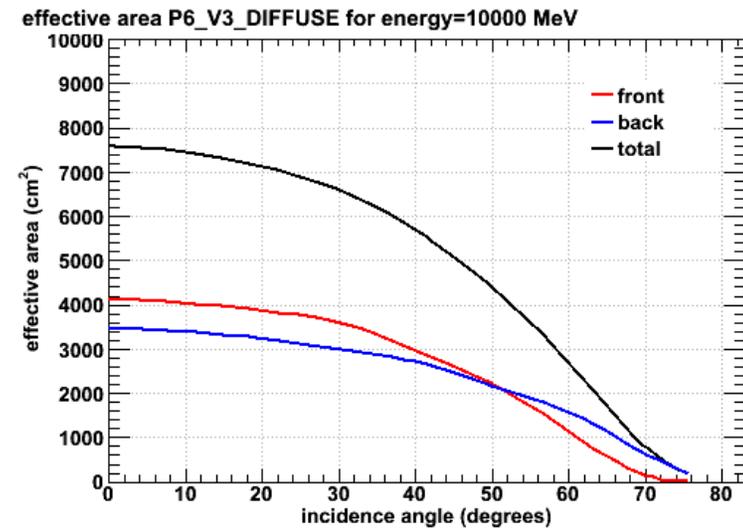
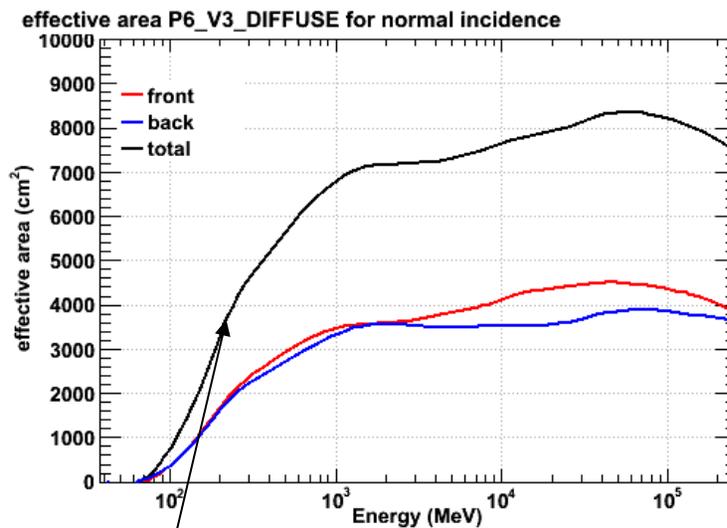
FSSC Science Tools

Data Selection and Caveats

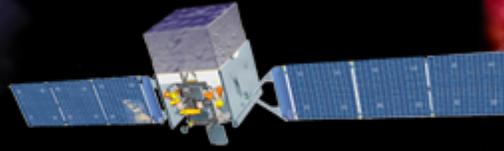


Event selection

- Use Events >100 MeV for spectral analysis
 - To avoid spurious features due to rapidly changing effective area with energy and because of residual uncertainty in the instrument response.

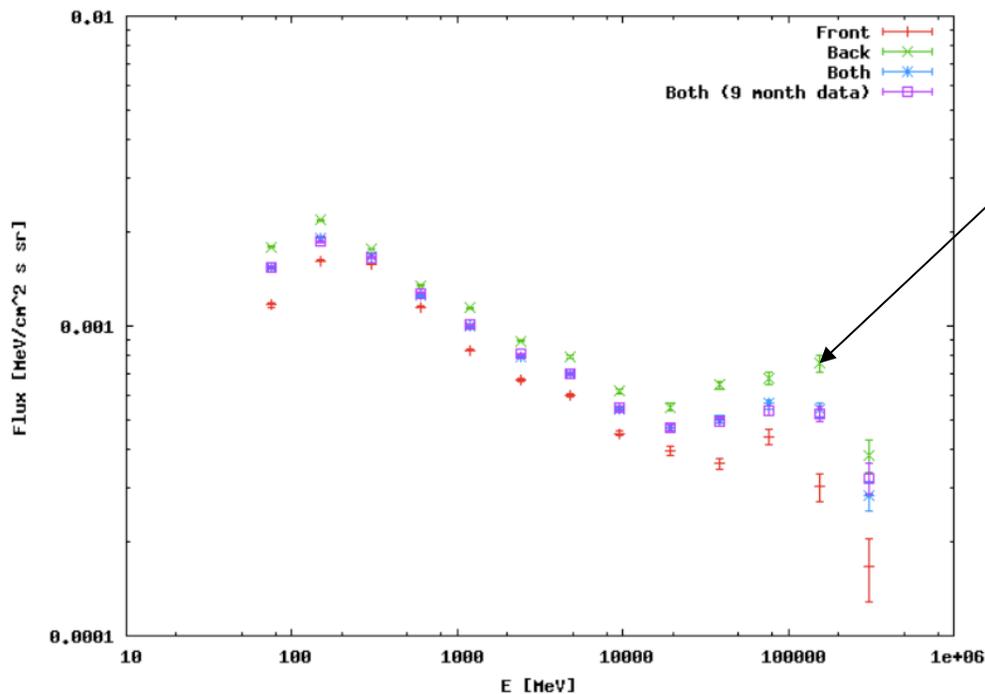


Small uncertainty in energy scale results in relatively large systematic error in final result.



Event selection

- Use "Diffuse" class for diffuse, extended, and point source analysis. ($evclsmin=3$, $evclsmax=4$). **NOTE - this applies to P6 IRFs only, future recommended event selections might change.**
 - "Transient" and "Source" event classes have higher charged-particle background contamination and may result in spurious spectral features.

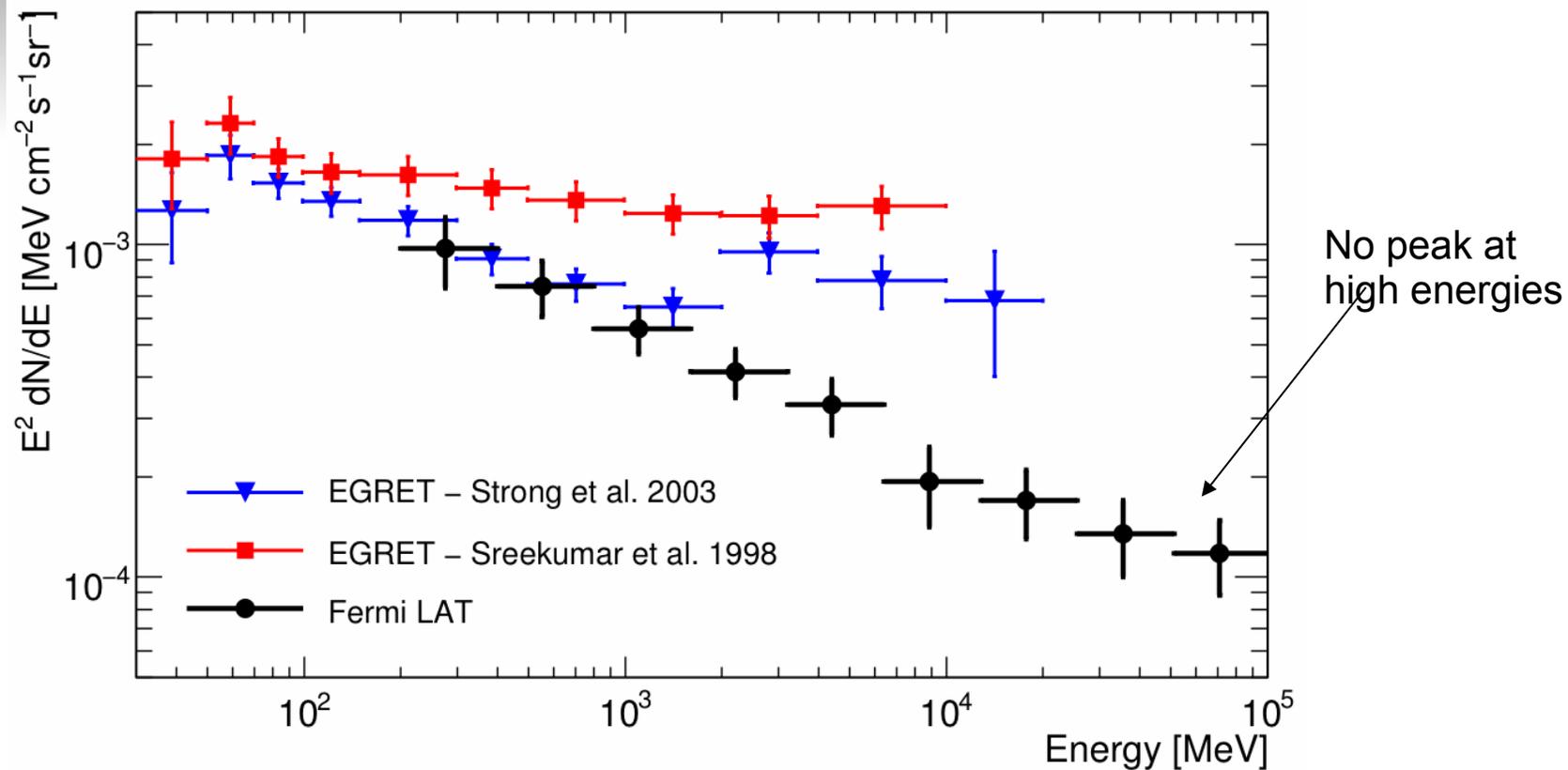


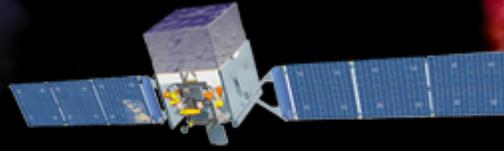
Residual cosmic-ray
(charged particle)
background.

Spectral templates are provided for the **diffuse class** event selection that allow you to account for the presence of residual cosmic-ray backgrounds in your model fits.



Isotropic gamma-ray spectrum (for comparison)





NEW! “DataClean” Event Class

“DataClean” Selection (EVENT_CLASS=4) available in Nov 2010 data release

- *Subset of the Pass 6 “Diffuse” class reduces spurious spectral features*
- *Useful for spectral analysis that integrates large regions of sky and for Galactic diffuse analysis above 20 GeV. See LAT data caveats: http://fermi.gsfc.nasa.gov/ssc/data/analysis/LAT_caveats.html*
- *Not generally recommended for analysis of point sources or moderately extended sources (e.g. SNR) because of reduced effective area*

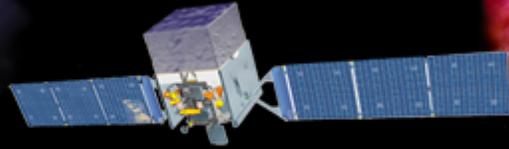
Nov 17 2010 Science Tools include P6_V3_DATACLEAN IRFs.

Corresponding isotropic spectral template available with FSSC Documentation

Caution: Don’t exclude “DataClean” events from “Diffuse” or “Transient” class analysis. Maximum event class is 4. To select “Diffuse” class events for standard analysis, use `gtselect evclsmin=3 evclsmax=4`

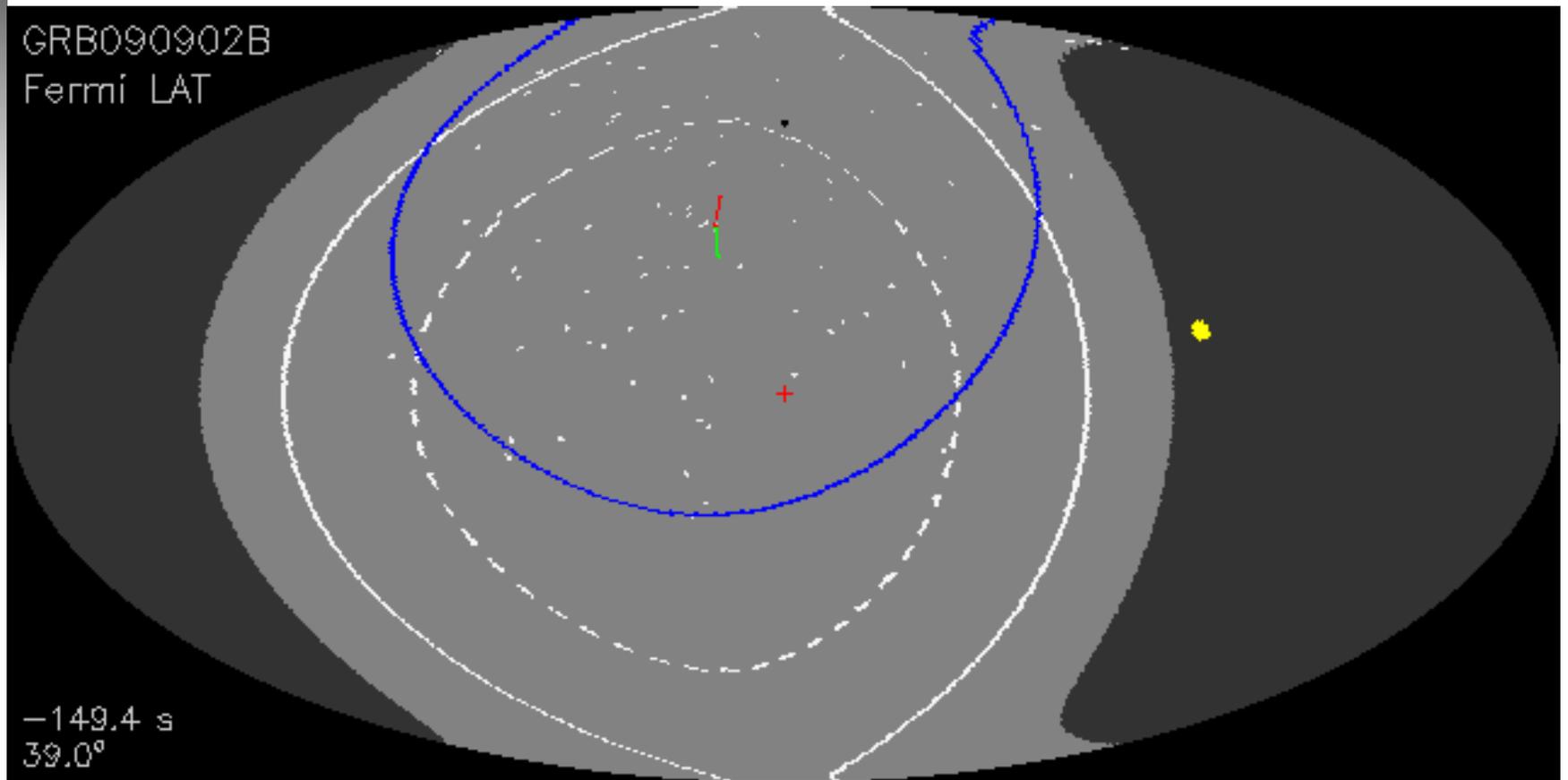
Fermi

Science Support Center

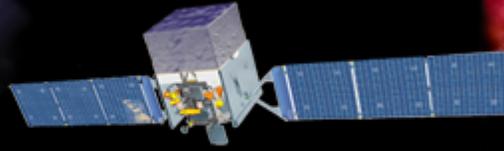


The Earth is Bright!

GRB090902B
Fermi LAT



Exclude all periods where the edge of your region of interest comes within 8 deg of the Earth's limb (zenith angle of 105 deg)



Caveats Documentation

Updated Nov.
2010 for
"DataClean"
data release

FSSC: Data » Data Analysis » Software Download » Caveats

http://fermi.gsfc.nasa.gov/ssc/data/analysis/LAT_caveats.html

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+ Analysis Threads

+ User Contributions

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FAQ

Caveats About Analyzing LAT Data

Caveats for the LAT are included for the following topics:

- Event Selection
- Systematic effects and uncertainties
- Diffuse Model
- GRB analysis
- LAT Monitored Source List

Event Selection

Prescriptions for event selection for analysis of Fermi-LAT data are provided in the [data preparation](#) section of the Cicerone.

The Fermi-LAT performance associated to the released Pass6_V3 Instrument Response Functions (IRF) are documented on the [LAT Performance Page](#). These IRFs were derived using MonteCarlo generated samples of photons between 18 MeV and 562 GeV. However, the validity of these IRFs when performing analysis of LAT data, in terms of usable event classes and energy range, is determined by the caveats discussed below.

- Use "Diffuse" class for diffuse, extended, and point source analysis. Other event classes have higher charged-particle background contamination and may result in spurious spectral features.
- Data below 100 MeV can **not** be used for spectral analysis because of the rapidly changing effective area with energy and because of residual uncertainty in the instrument response. Inclusion of these data will result in the creation of spurious spectral features under the