

Fermi Solar Data Archive

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The [Fermi Gamma-ray Space Telescope](#) was launched in June 2008 to explore high-energy phenomena in the Universe. The RHESSI group was funded by the Fermi GI program to facilitate access to Fermi observations of high-energy solar phenomena, primarily solar flares. We provide quicklook products, data archives, and analysis software covering the solar X-ray and gamma-ray observations of both the [Gamma-ray Burst Monitor \(GBM\)](#) and [Large Area Telescope \(LAT\)](#).

Please see [Fermi Solar Flare X-Ray and Gamma-Ray Observations](#) for links to descriptions of the GBM and LAT instruments and an explanation of the items we provide, which include

- GBM and LAT quicklook plots
- GBM and LAT response matrices
- GBM solar flare list
- LAT significant event list
- LAT daily spectrum and lightcurve FITS files
- OSPEX spectral analysis software package

The [OSPEX](#) (Object Spectral EXecutive) Package can be used to analyze the Fermi data. Input to OSPEX for GBM analysis are the daily CSPEC or CTIME PHA files provided in the [HEASARC GBM archive](#) and the response matrix files .rsp (or .rsp2) files in these directories. Input to OSPEX for LAT analysis are the spectrum FITS files and the LAT detector response matrix .rsp (or .rsp2) files provided in these directories. For both GBM and LAT, the OSPEX GUI will automatically find the input files once you specify the time interval and data type.

The directories here contain the following files:

gbm	Qlook directory contains the GBM solar flare list and daily and orbital (on RHESSI orbit times) plots; rsp directory contains detector response matrix files (called ...cspec... but used for ctime data as well) for each solar flare time interval for each separate GBM detector.
lat	Qlook directory contains the LAT significant event list and 4-day plots of LAT flux of >100 MeV solar gamma rays computed by two methods - light-bucket and maximum-likelihood . Year directories contain the LAT lightcurve and spectrum FITS files for each day of the Fermi mission and detector response matrix files for each solar exposure period.
lat_pass8_solar_class	For specific requested intervals, the daily LAT FITS files and response matrix files were created using the "Solar Class" specification in the Fermi software (instead of the "Source class"; solar class is for transients, compensates for high dead time during

	flares, and introduces a higher background). Time bins are 60 seconds.
lat_pass8_solar_class_20sbins	Same as lat_pass8_solar_class, but with 20 second bins..