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GLGBURST - GLAST Burst Monitor (GBM) Burst Catalog

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Overview

This table lists all of the triggers observed by one or more of the 14 GBM detectors (12 NaI and 2 BGO) which have been classified as Gamma-Ray Bursts. Note that there are two Browse catalogs resulting from GBM triggers. All GBM triggers are entered into the Trigger Catalog, while only those triggers classified as bursts are entered in to Burst Catalog. Thus a burst will be found in both the Trigger and Burst Catalogs. The Burst Catalog analysis requires human intervention and so GRBs will be entered into the trigger catalog before the burst catalog. The latency requirements are 1 day for triggers and 3 days for bursts.

The GBM consists of an array of 12 sodium iodide (NaI) detectors which cover the lower end of the energy range up to 1 MeV. The GBM triggers off of the rates in the NaI detectors. These detectors are placed around the GLAST spacecraft with different orientations to provide the required sensitivity and FOV. The cosine-like angular response of the thin NaI detectors is used to localize burst sources by comparing rates from detectors with different viewing angles. To cover higher energies, the GBM also includes two bismuth germanate (BGO) detectors.

The signals from all 14 GBM detectors are collected by a central Data Processing Unit (DPU). This unit digitizes and time-tags the detectorsÕ pulse height signals, packages the resulting data into several different types for transmission to the ground (via the GLAST spacecraft), and performs various data processing tasks such as autonomous burst triggering.

References

See The GLAST Science Data Product Interface Control Document (http://glast.gsfc.nasa.gov/ssc/dev/current_documents/Science_DP_ICD_RevA.pdf).

Provenance

GLAST Burst Monitor Instrument Operations Center (GIOC) and the GLAST Science Support Center (GSSC). The information in this table comes from a burst catalog entry file provided by the GIOC. These are FITS files which may contain additional data in extensions for bursts (see the spectrum_flag and fit_flag columns) and are available for download.

Parameters

Version

This parameter specifies the current version of the catalog entry file. New versions are provided by the GIOC as additional data are added or further analysis done. Thus the early versions might have only basic burst quantities such as duration in the header, while later versions will have spectra in extensions (which are not provided in earlier versions).

Trigger_Name

This parameter contains the GLAST trigger designation that is assigned for each new trigger detected. The naming scheme used is bnyymmddfff, where yymmdd is the date of the burst (yy, the year minus 2000; mm, the two-digit month; and dd, the two-digit day of the month) and fff = fraction of day.

Name

The designation of the source of the trigger. The name will initially be GRByymmddfff, where yymmdd is the 2-digit year, month and day of the burst and fff the fraction of the day, as assigned by pipeline processing. The name will eventually be changed to the GRByymmddx format, where x is null or 'A' or 'B' etc. Re-naming to this format requires human intervention, noting whether another burst was detected on the same day.

RA

Right Ascension

Dec

Declination

LII

Galactic Longitude

BII

Galactic Latitude

Error_Radius

This parameter contains the uncertainty in the position, in degrees.

Time

Observation Start Time

End_Time

Observation End Time

Trigger_Time

Observation Trigger Time

Trigger_Type

The classification of the trigger. The following trigger types are given in the GLAST File Format Document for this file (GS-105):

```
        ERROR       Error
        UNRELOC     Unreliable location
        LOCLPAR     Local particles
```

```
                    BELOWHZ      Source below the horizon
                    GRB                  Gamma-ray burst
                    SGR                  Generic soft gamma repeater
                    TRANSNT      Generic transient
                    DISTPAR      Distance particle event
                    SFL                    Solar flare
                    CYGX1        Variation of Cyg X-1
                    SGR1806      Burst from SGR1806+20
                    GROJ422      Variation of GRO J0422+32
```

Reliability
Reliability of the Classification

Trigger_Timescale
Triggered Timescale (milliseconds)

Trigger_Algorithm
Triggered Algorithm Number

Channel_Low
Trigger Channel: Low

Channel_High
Trigger Channel: High

Adc_Low
Trigger Channel: low (ADC: 0 - 4095)

Adc_High
Trigger Channel: high (ADC: 0 - 4095)

Detector_Mask
This field contains a series of flags which indicate which NaI detectors (0-11) were triggered. The value 1 at a particular position indicates that that detector was triggered. Similarly, the value 0 indicates that that dectector was not triggered.

Fluence_25_1000
25-1000 keV Fluence

Fluence_25_1000_Error
Error on Fluence

Peakflux_25_1000
25-1000 keV Peak Flux

Peakflux_25_1000_Error
Uncertainty in the 25-1000 keV Peak Flux

Peakflux_Interval

Time Interval for Peak Flux (s)

Peakflux_50_300
50-300 keV Peak Flux

Peakflux_50_300_Error
Error on the 50-300 keV Peak Flux

T90
90% Burst Duration (s)

T90_Error
Uncertainty in T90 Duration

T90_Start
Start of T90 Interval (s)

T50
50% Burst Duration (s)

T50_Error
Uncertainty in T50 Duration

T50_Start
Start of T50 Interval (s)

Back_Interval_Low
Duration for Lower Background Selection Interval (s)

Back_Interval_High
Duration for Upper Background Selection Interval (s)

Spectrum_Flag
This flag parameter contains a value, either 'Y' or 'N', which indicates that a DETECTOR DATA extension exists in the burst catalog entry file. This extension provides deconvolved spectra over the burst.

Fit_Flag
This flag parameter contains a value, either 'Y' or 'N', which indicates that a FIT PARAMETERS extension exists in the burst catalog entry file. This extension provides the spectral parameters resulting from fitting spectra over the burst.

Contact Person

Questions regarding the GLGBURST database table can be addressed to the HEASARC User Hotline.

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