

Terrestrial Gamma rays in FERMI GBM

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We present refined analyses of TGFs detected by the Gamma-ray Burst Monitor (GBM) instrument onboard Fermi. Of a sample of ~300 bright TGFs that triggered GBM, 19% are found to have multiple pulses. The individual pulses can be either be symmetric or asymmetric and are well fit with Gaussian or log-normal functions. A new data mode has been used to detect TGFs with GBM 10 times more frequently than previously. Using a sample of ~100 TGFs we obtain the fluence distribution in a model independent manner, correcting for detection efficiency, deadtime and pulse pileup. Detection efficiency causes GBM not to detect some faint TGFs while deadtime and pulse pileup cause the intensities of TGFs to be underestimated. The corrected fluence distribution is well fit with a power-law of index -2.20 ± 0.13 .

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