



Analysis of a subset of BATSE TGFs that do not suffer from instrumental limitations.

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By combining modeling of X-ray propagation through the atmosphere we (Østgaard et al., 2008) analyzed 21 TGF measured by BATSE and concluded: 1) Observed time delays can be explained qualitatively by Compton scattering effects of the Xrays as they propagate through the atmosphere. 2) BATSE TGFs are most likely produced at 10-20 km, but a significant number can be produced at higher altitudes; 30-40 km.

3) The initial X-ray distribution (at the production altitude) is most likely beamed. Both the time delays and the fact that a softening of observed spectra for larger zenith angles support this conclusion.

Since then it has been shown that the BATSE instrument suffered from a significant dead time problem, i.e., that the electronics of BATSE are not fast enough to detect all the photons that enter the detector.

We have therefore developed a method to find the TGFs where the detector is not paralyzed and the dead-time effects can be corrected. We have reanalyzed this subset of TGFs with the corrected count rates to find solutions for production altitude which are consistent with both the observed spectra and time delays.