



Constraints for observing Terrestrial Gamma-ray Flashes by a high-altitude aircraft.

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Terrestrial Gamma-ray Flashes (TGFs) are bursts of gamma rays originating from the atmosphere. The bursts are thought to be connected to thunderstorms and lightning activity, but the production mechanism is not fully understood. So far observations have been done from space. Another promising way to measure TGF would be from aircrafts flying above and/or close to the thunderstorms. In this paper we will model the predicted count rates from TGFs a high-altitude aircraft will be able to measure. A Monte Carlo model of photon propagation in air will be used to estimate the intensities along the path of an aircraft flying in different altitudes. The TGF intensities at the production altitude will be derived from the RHESSI and BATSE measurements. Predictions for various TGF production altitudes and aircraft altitudes will be presented. As it is still not known how beamed the TGF are, we will show how the half-cone angle of initial TGF will affect our ability to measure TGF from aircraft at different altitudes and distances.