



Observation of a TGF from the convective core of a thundercloud

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On 25 October 2012 the Reuven Ramaty High Energy Solar Spectroscopy Imager (RHESSI) and the Tropical Rainfall Measuring Mission (TRMM) satellites passed over a thunderstorm on the coast of Sri Lanka. RHESSI observed a Terrestrial Gamma ray Flash (TGF) originating from this thunderstorm. IR, microwave and radar data for the thundercloud were also measured by TRMM. Optical measurements of the causative lightning stroke were also made by the Lightning Imaging Sensor (LIS) on TRMM. The World Wide Lightning Location Network (WWLLN) detected the VLF radio emissions from the lightning stroke, resulting in a location, which we also assume is the TGF source location in the convective core of the cloud. The core of the cloud rises to 15 km altitude. By comparing the time between the TGF, the WWLLN sferic and the optical stroke, measured by LIS, we find that WWLLN is simultaneous to the TGF while the optical signal occurs shortly afterwards. This is consistent with our previously study of RHESSI TGF and LIS by Østgaard et al [2013].