



Highlights and new science from first year of TGF observations by ASIM

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The Atmosphere-Space Interactions Monitor (ASIM) was successfully launched to the International Space Station on April 2, 2018. The ASIM payload consists of two main instruments, the Modular X- and Gamma-ray Sensor (MXGS) for imaging and spectral analysis of terrestrial gamma-ray flashes (TGFs) and the Modular Multi-spectral Imaging Array (MMIA) for imaging and spectral analysis with high temporal resolution of transient luminous events (TLEs) and lightning. ASIM is the first space mission designed for simultaneous observations of TLEs, TGFs and lightning.

Since early June 2018, the MXGS has observed hundreds of TGFs. Many of these are multi pulse TGFs and many very bright ones (hundred of counts). In his paper we will focus on highlights from the first year of operation, where ASIM already has provided unprecedented observations and new scientific results. These includes 1) two simultaneous observations of TGFs by ASIM and Fermi where ASIM is seeing about 10 times the intensity of Fermi. 2) ASIM has also observed more than 10 TGFs and TLEs originating from same thundercloud system. 3) Based on more than 40 TGF observations where also high temporal resolution measurements in the optical bands of MMIA were available ASIM has solved the sequence of TGF and optical signature of lightning.