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Properties of Lightning Associated with TGFs as Observed by ASIM

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The Atmosphere-Space Interactions Monitor (ASIM), installed on the ISS on April, 13th, 2018, is designed to observe lightning, Transient Luminous Events (TLEs) and Terrestrial Gamma-Ray Flashes (TGFs).
Thousands of lightning observations and hundreds of TGF events allow us to characterize properties of lightning with and without simultaneous TGF detections as seen by the ASIM optical module: The Modular Multi-spectral Imaging Array (MMIA).
For the cases with simultaneous TGF events, we show that they occur in general at the onset of optical emissions interpreted as breakdown pulses. Further, we show that blue (337/4nm) emissions dominate over red (777.4/5nm) in the majority of TGF associated cases. This suggests radiation from streamers in agreement with the end of upward directed negative intracloud lightning and high production altitudes of TGFs, as suggested by others.
In our discussion, we will further include simultaneous detections of lightning events by lightning location networks, e.g. VAISALA/GLD, and NASA's Lightning Imaging Sensor (ISS-LIS) to support the interpretation of the source lightning properties.