



Characterization of lightning with ISUAL data in order to identify the Transient Luminous Events for the future TARANIS mission

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The main objective of the TARANIS (Tool for the Analysis of RAdiation from lightNing and Sprites) satellite is to understand transient event energetic mechanisms that generate transient luminous emissions (TLEs) and gamma ray flashes (TGFs) in the terrestrial atmosphere above thunderstorm areas. These emissions are a manifestation of a coupling between atmosphere, ionosphere and magnetosphere. However, as the TARANIS microsatellite will observe from nadir, TLE identification is not easy using only images because TLEs and lightning are superposed. On board triggering using photometers is set up to further TLEs recording. It is necessary to take into account the temporal and spectral characteristics of lightning and TLEs. For this purpose, a dataset from a previous space mission called ISUAL is used. ISUAL is dedicated to the study of sprites from limb observation on the FORMOSAT-2 satellite. We have access to photometric and also imaging data. A database only dedicated on lightning was made. Several information was identified, such as the photometric responses, the number of photons emitted or the duration of different events analyzed. The main objective of the presented work is to show that a better knowledge about lightning signal is an asset for TLEs recognition.