Extreme TGF Imaging by ASIM

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One year after the starting of ASIM operational phase, we have succeeded to perform accurate Imaging of 54 TGF. Among them, some have been analysed at extreme imaging conditions in terms of TGF position at the MXGS partially coded field of view. 20 TGF events have angular distances larger than 40° respect to the MXGS FOV centre. Extreme cases at angular distances larger than 50° are presented. Validation of TGF position by WLN data is included in the discussion.

The canonical value of 32 LED cnts as the minimum fluency for TGF imaging defined during MXGS development was checked using low luminosity TGF. At the present, we have succeeded to obtain imaging solution for 7 TGF with less than 20 cnts. A sample is presented with indication of position accuracy and S/N ratios.

Last part of the presentation is the discussion of a TGF with a very large and asymmetric probability distribution at the MXGS FOV that suggest the TGF as an extended source. Imaging data projected to the Earth surface is compared with GOES data, showing that the TGF is at the edge of a large convective cell, close to the TGF imaging data map. Therefore, we can conclude that for some bright TGF it is possible to estimate the TGF fireball dimensions generated by the iteration of TGF photons with local atmospheric asymmetric matter distributions. The presence of a large CZT tail is coherent with the size of the convective cell.