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The 3rd AGILE TGF Catalogue: New Selection Criteria and Characteristics of the Sample

Carolina Maiorana (1), Martino Marisaldi (1), Anders Lindanger (1), Nikolai Østgaard (1), Alessandro Ursi (2), and Marco Tavani (2)

(1) University of Bergen, Birkeland Centre for Space Science, Bergen, Norway, (2) INAF IAPS, Rome, Italy

Terrestrial Gamma-ray Flashes (TGFs) are submillisecond bursts of high energy (up to a few tens of MeV) photons; they are produced by lightning inside thunderclouds and are typically recorded by space-born instruments such as AGILE, Fermi, RHESSI and ASIM.
AGILE is detecting TGFs since 2009. Due to a major hardware configuration change in March 2015, the detection rate increased by one order of magnitude. At the same time it became clear by looking at triggers associated to lightning sferics detected by the WWLLN network that the previously used selection criteria were too strict and rejected a large fraction of TGFs.

In this presentation, we introduce the new selection criteria, designed from the characteristics of those WWLLN-identified TGFs and then applied on all data from March 2015 to September 2018; association with sferics was verified by an independent search.
The obtained sample includes thousands of events and constitutes the 3rd AGILE TGF catalog. Here we present the newly adopted selection criteria and the characteristics of the sample.