



Correlation of AGILE TGFs and global lightning activity across the equatorial belt

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The AGILE satellite is one of the three currently active space missions detecting Terrestrial Gamma-ray Flashes (TGFs). Using the Mini-Calorimeter (MCAL) instrument, sensitive in the 0.35-100 MeV energy range, AGILE records an average detection rate of 10 TGFs/month. Thanks to its Low Equatorial Orbit with only 2.5 degree inclination, AGILE guarantees an unprecedented exposure above the equator, where both lightning activity and TGF peak, with a total of 118 TGFs detected in twelve months of observation. Here we discuss the comparison between AGILE TGFs and LIS/OTD annual average global lightning distributions. Based on bi-dimensional cross-correlation analysis, we show that AGILE TGFs in the equatorial area are well compatible with the lightning distribution. This result, which is complementary to the one-to-one TGF/lightning correlations by ground-based sferics measurements, further supports the scenario of TGF production by lightning leader channels.