Serendipitously discovered 20 years ago by the BATSE experiment onboard the CGRO, Terrestrial Gamma-ray Flashes (TGFs) have been observed by several spacecraft, such as RHESSI, AGILE and the Fermi Space Telescope. The Italian/Dutch satellite BeppoSAX, operational in space during the period 1996-2002, represented one of the most important missions in the field of high-energy astrophysics. Its payload housed the Gamma-Ray Burst Monitor (GRBM), a segmented detector that can be considered a sort of "blood relative" of BATSE and that could, in principle, have observed TGFs as well. Motivated by this possibility, we carried out for the first time a systematic quest of possibly observed TGFs throughout the BeppoSAX GRBM data archive. After pointing out the major drawbacks of the GRBM for what concerned the TGF detection, we developed a search algorithm to look for events in the available dataset and performed a set of cross-checks to evaluate the goodness of the selected events. 

**Our search ended up with a sample of 12 TGF candidates.** Among these events, we also found a peculiar candidate occurring over Africa, whose temporal and directional features may be the signature of a mirrored electron TGF.

---

**The BeppoSAX Gamma-Ray Burst Monitor (GRBM)**

- 4 CsI(Na) scintillators
- GRBM band
  - 40 keV - 700 keV
- AC band
  - > 100 keV

**Spikes in the 7.8 ms light curves can be produced by:**
- TGFs
- Statistical fluctuations of the background: discriminated by imposing a threshold level. Thresholds are chosen in order to select spikes with a statistical significance of 5σ (or 4σ) over the background.
- High-energy charged particles: discriminated by considering the GRBM as a segmented detector. Typically, a particle cannot cross more than 2 slabs out of 4. We just consider spikes simultaneously occurring in all 4 units (or at least 3).

**Expected number of detected TGFs**

- Effective exposure time in 6 years activity of SAX: $\tau_{\text{exp}} = n_{\text{trigger}} \cdot \Delta t_{\text{trigger}} \sim 24$ d
- Geographic TGF density obs. by SAX and RHESSI: $n_{\text{TGF}} = 2.15$ TGF $\pm 38σ_{\text{SAX}}$ over the background.
- Minimum fluence needed to trigger the selection criteria: $F_{\text{min}} \sim 0.2$ ph/cm$^2$

$$N_{\text{exp}} < 10$$

- **TGFs do not trigger the GRBM**
- **TGF light curves look like spikes only one energy band (40 - 700 keV)** available for analysis

---