

Results of Detection of a Soft Gamma Ray Repeater and Two Gamma Ray Bursts from Kolkata Using VLF

Sushanta K. Mondal¹, Sandip K. Chakrabarti^{2,1}, Sudipta Sasmal¹, Debashis Bhowmick¹

¹Indian Centre for Space Physics, 43 Chalanatika, Garia Station Road, Kolkata-700084

²Senior Prof., S.N. Bose National Centre for Basic Sciences, JD Block Salt Lake, Sector-III, Kolkata 700098

On 22nd January 2009, a new soft Gamma Ray Repeater (SGR) later named SGR 1550-5418 produced a series of strong flares. The flares were detected by several satellites and in some cases saturated the detectors also. We looked into the VLF signal of VTX at 18.2KHz (Vijayanarayanam, India) received at ICSP Kolkata. We have detected 73 events which agree with the satellite events time. Some of these events last only tens of seconds while others last longer. Very often successive events occurred even before the earlier one decayed. We will present these results.

In April, 2009, we detected two GRBs (GRB090424 & GRB090427). The detection of the single burst from the GRB090424 was made by three of our receivers (ICSP in South Kolkata, Saltlake in East Kolkata and ICSP, in Malda which is 200 miles away). All three receiver exhibited the same signatures during the event.

Similarly, the GRB090427 detection was made by the receivers which are thousand miles apart -- one at Saltlake, Kolkata (eastern India) and the other at Pune (western India). For both the cases we found very good correlation among the data from various places for about a minute from the triggering of the event.

References :

[1] G. J Fishman and U. S. Inan, Nature, VOL. 331, Feb, 1988.

[2] Y. T. Tanaka and T. Terasawa, et al., GRL, VOL .113, 2008.