

Geotail observation of SGR 1900+14 giant flare on 27 August 1998

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SGR 1900+14 emitted the giant flare on 27 August 1998. This giant flare saturated most of the X-ray or gamma-ray detectors on any satellites so that its peak profile was not observed and only the lower limits of physical quantities such as a total emitted energy were reported. However the plasma particle detectors onboard Geotail, which is a magnetospheric satellite, observed the first 300 ms of the giant flare and determined the peak profile with 5.58 ms resolution. Based on our calibrations using Monte Carlo simulations and laboratory experiments, we obtained the total energy of this flare, which was found to be about one hundredth of that of the giant flare emitted from SGR 1806-20 on 27 December 2004. We also present a comparative study on the SGR 1806-20 and SGR 1900+14 giant flare observed with Geotail, and try to extract the characteristics of the initial spikes of SGR giant flares.