Geophysical Research Abstracts, Vol. 9, 02320, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-02320

Occurence of catastrophic geophysical events

M. Mandea (1) and **G. Balasis** (2)

(1) GeoForschungsZentrum Potsdam, Germany, (2) Institute for Space Applications and Remote Sensing, National Observatory of Athens, Greece

SGRs are galactic X-ray stars that emit, during sporadic times of high activity, a large number of short-duration (around 0.1 s) bursts of hard X-rays. A SGR is thought to be a magnetar, being a strongly magnetized neutron star powered by a very strong magnetic field ($\geq 10^{15}$ Gauss). On 27 December 2004 a powerful burst of X- and γ-rays from one of the most highly magnetized neutron stars (SGR 1806-20) of our Galaxy reached the Earth's environment. The Solar system received a shock, which is thought to be due to a cataclysm in the magnetar that caused it to emit as much energy in two-tenths of a second as the Sun gives off in 250,000 years. The initial spike was followed by a hard-X-ray tail persisting for 380 s with a modulation period of 7.56 s. Recently, Mandea and Balasis (2006) by applying wavelet analysis to the high-resolution magnetic data provided by the CHAMP satellite, found that a modulated signal with a period of 7.5 s over the duration of the giant flare appears in the observed data (see also report http://www.sciencemag.org/content/vol314/issue5798/twil.dtl). In 2002, Sornette and Helmstetter presented a new kind of critical stochastic finite-time-singularity that accounts for aftershocks but also for a sequence of flares from SGR 1806-20. Here, the results on the earlier flares from SGR 1806-20 will be discussed in the light of the new findings regarding the SGR 1806-20 latest giant flare.