

Solar energetic particles measured by NOZOMI spacecraft between earth and Mars orbit in the period from 1998 to 2002

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NOZOMI spacecraft that was the first Japan Mars mission observed 1) interplanetary magnetic field, 2) solar wind 3) energetic particles between earth and Mars orbit continually, until, unfortunately, the mission was terminated by power line troubles in 2003. NOZOMI" was installed with fifteen observation means. During five years' unexpected staying in heliocentric orbit after the mishap of several times of the earth swing-by in 1998, the probe conducted a number of scientific observations partly for the purpose of checking up the equipments. In that period, Solar Particle Monitor (SPM) observed several solar flares and particles accelerations associated with CME in the interplanetary orbit. The SPM used 200um thickness silicon photo diode to detect high-energy particles and that had sensitivity not only ions but also electrons. Measurement energy range had 4 threshold levels that correspond deposited energy of 25keV, 96keV, 464keV and 514keV, respectively. Using the SPM data, transport and modulation of solar energetic particles around the Mars orbit is important and interest for an explorations to solar system. We will report and discuss that a monitoring of solar energetic events from Mars and earth orbit by NOZOMI and other spacecraft provides new insights into the transport of energetic particles in the interplanetary medium.