

Analysis of Solar Energetic Particle Event on 2005 January 20

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Based on cosmic ray data observed by neutron monitors at the Earth's surface, near-relativistic electron's data observed by WIND satellite, solar X-ray burst data and radio burst data, the solar energetic particle (SEP) event on 2005 January 20 is analyzed. The results show that the SEP event is a mixed event with the flare being the dominative role in the acceleration of SEPs, and interplanetary shock accelerating mainly solar protons with energy lower than 130MeV, while the relativistic protons are only accelerated by the solar flare. The solar release time of relativistic protons was at about 06:40UT, while that of the near-relativistic electrons was at about 06:38UT which was slightly earlier than the former. The solar release time of near-relativistic coincides with the onset time of interplanetary type III burst.