

Geospace exploration by small satellite: ERG project

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In order to investigate the acceleration process of relativistic particles in the Van Allen belts and global dynamics of geospace, we are proposing the small-satellite ERG (Energization and Radiation in Geospace) project. Since it is expected that many geospace storm occur during the solar maximum, the ERG satellite will be launched during the next solar maximum. The planned apogee altitude is about 4 Re to measure the heart of the Van Allen belts. The ERG satellite is currently designed to carry a comprehensive set of particle, fields, and wave instruments that cover wide energy and frequency ranges. The project consists of not only the ERG satellite team but also ground network team and integrated data analysis team. Moreover, there are science coordination team and project data center team in the project. Aiming at understanding the complex regional interactions during geospace storms, the in-situ satellite data will be compared with the ground-based network observations, which give global-scale information of geospace plasma dynamics, utilizing numerical model/simulation from the integrated data analysis team.