

Data archive and integrated data analysis tools developed by ERG Science Center

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The ERG (Exploration of energization and Radiation in Geospace) is a Japanese geospace exploration project. Its core component is the ERG satellite, also known as Arase, an inner magnetosphere satellite with the full set of particle and field instruments launched on December, 2016. The ERG project consists of the satellite observation team, the ground-based network observation team, and the integrated data analysis/simulation team. Besides these research teams, ERG Science Center (ERG-SC) has been organized and operated by ISAS/JAXA and ISEE/Nagoya University from the very beginning of the ERG project. Since then, ERG-SC has been playing an essential role in managing the data center for all kinds of scientific data as well as promoting close collaborations of the three teams and other research projects, maximizing scientific output from the ERG project. For studies of Geospace, where different plasma populations are interacted with each other via cross-energy and cross-regional coupling processes, the integrated data analysis combining various kinds of data sets is key to comprehensive understanding of multiscale dynamical processes. For these purposes, the level-2 (calibrated, in physical unit) science data and higher level data products of the Arase satellite as well as the ground observation network data are archived in the Common Data format (CDF), which was developed by NASA, and are basically open freely to the international science community from the ERG-SC data repository. The integrated data analysis tool is also developed on the basis of the Space Physics Environment Data Analysis Software (SPEDAS), which is de facto standard software of the space physics community, enabling the data users to combine Arase data with the other satellite, ground, modeling data seamlessly in plotting and manipulating them.

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