

Taiwanese Participation in the ERG Project

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The upcoming ERG (Energization and Radiation in Geospace) satellite mission is a collaboration between Japan and Taiwan, as one of the instruments aboard the Japanese satellite, the Low-Energy Electron Instrument (LEP-e), is developed by a team in Taiwan that features the joint effort by Academia Sinica and National Cheng Kung University. The mission aims to investigate the dynamics in the inner magnetosphere, including the Van Allen Radiation Belts where the existence of highly energetic particles is common, with the primary goal to understand the acceleration and loss mechanisms of such energetic particles, especially electrons with energies in the relativistic range. The satellite is part of the ERG project, which will integrate data analyses and simulations based on the satellite measurements as well as ground-based network observations. With a variety of instruments aboard the satellite to provide measurements of electromagnetic fields as well as ions and electrons of a wide range of energies, ERG has the potential to contribute to space science research beyond its primary objective. For this reason, the Taiwanese team, has continually made efforts to promote the significance of ERG to its local space science community and to collaborate with Japanese scientists in the ERG team to explore the scientific potential of the project. Past efforts, for instance, included the organization of two science workshops in Taipei, Taiwan. Hence, the contribution by the Taiwanese team to the ERG project will not only be limited to the development of the LEP-e hardware and data pipeline processing, but will also include actively participating in the study of the radiation belts and raising the interest of other space scientists in the relevant research topics. This presentation by the Taiwanese team reports its past ERG-related activities beyond the instrumentation and discusses its future plan to facilitate the use of ERG data by scientists in Taiwan for the research of the radiation belts.