ERG Science Center and Modeling/Theory Team Activities: A basis to investigate particle acceleration and dynamics of the inner magnetosphere during geospace storms

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Outline of the ERG Project

ERG (Energization and Radiation in Geospace) - JAXA geospace exploration project with a small science satellite

Trinity Collaboration

- Created and archived in a web server of STEL.
- Level-2 data (after calibration and PI check) are available for analysis.
- Framework of the ERG data center and provides integrated analysis tools.

Current Status of Ground-Based Observation Database and Analysis Tools

ERG Science Center Function

- Development of Tools for Integrated Analyses of Data Analysis and Applications

Current Status and Future Plan of CDF Database and TDAS Plug-In

- Implemented in TDAS version 6.0 (the latest official version)
- Implemented in TDAS version 7.0 (beta version is being tested)
- Dialogue collaborations between ISAS and STEL
- Open to all users
- Implemented in TDAS.

ERG Integrated Data Analysis Tools

- Plug-In for IDL-based THEMIS Data Analysis Tool (TDAS)
- TDAS is developed and distributed by UCB and UCLA.

Procedure of Converting to CDF Files and Developing TDAS Plug-In

- Checking by PIs
- Developing TDAS Plug-In
- Developing CDF lead and visualization procedures for TDAS
- Testing by ERG, IUDEM, and THEMIS-J

Example of Analysis with TDAS Plug-In for HF radars

CDF file: sd_hok_20070726_v01.cdf

Example of Analysis of HF radars

- Trinets/ranges: 2007-07-26 16:00-16:30, J/J
- Pole: 80°N, 180°W
- Choose a plot for a spinner plot or movie-creating

Development of ERG Web Analysis Tool (ERG WAT)

An interactive tool for analysis and visualization on web browsers
- ERG science center function
- Accessible over the Internet
- Allows plotting of satellite and ground-based observations
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- Allows plotting of satellite and ground-based observations

Policy of Data Archives

- For related ground-based data, CDF files of level-2 data (after calibration and PI check) are created and archived in a web server of STEL.
- The CDF files can be downloaded with TDAS.

Framework of the ERG Science Center

Tasks of the ERG Science Center

- Development and maintenance of database of the ERG satellite and related ground-based observations and modeling
- Development and distribution of analysis tools for satellite, ground, and numerical modeling data.

Subgroups

- Core, PI groups of onboard instruments, PI groups of related ground-based instruments, PIs of modeling, and support team for analysis tools.

To Promote the Trinity Collaboration

The ERG science center at STEL archives all kinds of science data including related ground-based observations and modeling and provides integrated analysis tools.

ERG Science Center Function

- Objective: Understanding of particle acceleration and dynamics of the inner magnetosphere

ERG Science Center Function

- Integrated Data Analysis Tools
- ERG Science Center Function

ERG Science Center Function

- Development of Tools for Integrated Analyses of Data Analysis and Applications
- Development of Tools for Integrated Analyses of Data Analysis and Applications
- Development of Tools for Integrated Analyses of Data Analysis and Applications

ERG Science Center Function

- Development of a Space Radiation Forecast Algorithm
- Development of a Space Radiation Forecast Algorithm
- Development of a Space Radiation Forecast Algorithm

ERG Science Center Function

- Studies in GEMSIS
- Studies in GEMSIS
- Studies in GEMSIS

ERG Science Center Function

- CDF + TDAS
- CDF + TDAS
- CDF + TDAS

ERG Science Center Function

- TDAS plug-in
- TDAS plug-in
- TDAS plug-in

ERG Science Center Function

- Example of Analysis of HF radars
- Example of Analysis of HF radars
- Example of Analysis of HF radars

ERG Science Center Function

- Related Ground-Based Observations
- Related Ground-Based Observations
- Related Ground-Based Observations

ERG Science Center Function

- Radar Network: SuperDARN, FM-CW radars
- Radar Network: SuperDARN, FM-CW radars
- Radar Network: SuperDARN, FM-CW radars

ERG Science Center Function

- Magnetometer Network: 210 MM, MAGDAS, etc.
- Magnetometer Network: 210 MM, MAGDAS, etc.
- Magnetometer Network: 210 MM, MAGDAS, etc.

ERG Science Center Function

- Camera Network: Canada, Hawaii, STEL, etc.
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ERG Science Center Function

- Polarimetry: Antarctic, Canada, Asia, etc.
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ERG Science Center Function

- Related Ground-Based Observations
- Related Ground-Based Observations
- Related Ground-Based Observations

ERG Science Center Function

- Current Status of Ground-Based Observation Database and Analysis Tools
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ERG Science Center Function

- Current Status and Future Plan of CDF Database and TDAS Plug-In
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ERG Science Center Function

- Plugin for IDL-based THEMIS Data Analysis Tool (TDAS)
- Plugin for IDL-based THEMIS Data Analysis Tool (TDAS)
- Plugin for IDL-based THEMIS Data Analysis Tool (TDAS)

ERG Science Center Function

- Example of Analysis of HF radars
- Example of Analysis of HF radars
- Example of Analysis of HF radars

ERG Science Center Function

- Development of ERG Web Analysis Tool (ERG WAT)
- Development of ERG Web Analysis Tool (ERG WAT)
- Development of ERG Web Analysis Tool (ERG WAT)

ERG Science Center Function

- Analyzes and plots ERG-related ground-based and satellite data
- Analyzes and plots ERG-related ground-based and satellite data
- Analyzes and plots ERG-related ground-based and satellite data

ERG Science Center Function

- History
- History
- History

ERG Science Center Function

- TDAS plug-in
- TDAS plug-in
- TDAS plug-in

ERG Science Center Function

- TRINITY collaboration of satellite and ground-based observations and modeling/theory is important.