2011 Workshop: World Day planning

Long title
World Day planning
Conveners
Ingemar Häggström
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Description

World Day planning session -- Workshop to discuss the proposed coordinated incoherent-scatter radar observations for 2012.

The URSI Incoherent Scatter Working Group (ISWG) will have its usual planning meeting at CEDAR to coordinate the World Day experiments involving the world's upper atmospheric observatories. The procedures for scheduling World Day observations are described at

http://www.eiscat.se/Members/ingemar/skedule/RequestingWD.htm

and the other links referenced therein which include a sample proposal.

Written proposals are requested for meeting specific research needs using the World Day observations. These proposals should be submitted by 5 June. The planning meeting is for the ISWG and UAF staffs to review all the proposals submitted and determine how the global network of ISRs can best satisfy the approved observational requests. The proposer's presence during this discussion is not required, but all are welcome, especially students.

Please feel free to consult with any facility staff member or the ISWG chair for clarification on the process for requesting ISR observing time within the World Day program.

Justification

World Day planning session -- Workshop to discuss the proposed coordinated incoherent-scatter radar observations for 2012.

The URSI Incoherent Scatter Working Group (ISWG) will have its usual planning meeting at CEDAR to coordinate the World Day experiments involving the world's

upper atmospheric observatories.

Summary

WD proposals

Title: Swarm Electric Field and Plasma Instrument Validation

Principle Investigator: David J. Knudsen, Department of Physics and Astronomy, University of Calgary, 2500 University Drive NW, Calgary Alberta T2N 1N4 Canada

Co-Investigators: William Archer (student) and Johnathan Burchill, University of Calgary; Stephan Buchert, IRF Uppsala; Anders Eriksson, IRF Uppsala.

Point Person: D. J. Knudsen
Key Objectives:

- To provide as many Swarm/ISR conjunctions as possible in order to validate Swarm data products including ion velocity, ion and electron temperature, and density
- **Backgound Conditions:** Quiet and homogeneous ionosphere desired in order to minimize geophysical differences between the two measurement points

UAFs Needed: All for which good satellite conjunctions are available.
Primary Parameters to Measure: Ne, Te, Ti, vi at points along the satellite trajectories for at least one hour preceding and following the pass. The Swarm EFIs measure ion velocity in 3D; the velocity projected along the radar line of sight can be used for comparison.

Secondary Parameters to Measure: None

Need for Simultaneous Data: Requires data from only one ISR at a time.

Existing Data Meeting Objectives: None.

Existing Data Closest to Objectives: None

Relavance of Baseline WD Schedule: There is a possibility to "piggy back" on other experiments, though it will be crucial to sample as close to satellite

trajectories as possible.

Participant Duties: PI (Point Person in this case) will coordinate the experiments to ensure proper modes are used at each UAF. Archer and Burchill will carry out detailed comparisons of radar and ion data. Eriksson will consult on the interpretation of electron (Langmuir probe) data. Buchert will consult on the topic of ISR operations and spacecraft comparisons.

Facility Personel Contacted: Discussions have been initiated with Phil Erickson, Dave Hysell, John Kelley, Mike Nicholls, Craig Heinselman, and Eric Donovan

Further Details and Background: Swarm consists of three satellites carrying identical instrumentation including precision magnetometers and accelerometers (like CHAMP), plus an Electric Field Instrument that in fact measures ion drift and temperature in three directions (vertical, horizontal, and ram) using a new technique that images thermal ion distribution functions using a CCD device. See attached paper by Friis-Christensen et al. Summary:

-Launch as soon as July 2012.

-Three-month commissioning period during which data validation must take place, requiring dozens of ISR overflights.

-Satellites will operate continuously, at all latitudes, for four years, nominally.

-Three satellites in circular polar orbits.

-Two satellites at 400-450 km; these are separated laterally by a few degrees of longitude.

-One satellite at 530 km altitude displace from the other two by several hours in local time, nominally.

-Data products: Ne, Ti, Te and vi at 2 Hz; precision B at 50 Hz; acceleration similar to CHAMP.

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