Fourth Symposium on Space Weather (Expanded View)

* - Indicates paper has been withdrawn from meeting

**Compact View of Conference**

**Sunday, 14 January 2007**

**7:30 AM-9:00 AM, Sunday**, East Registration  
Short Course Registration

**9:00 AM-6:00 PM, Sunday**, East Registration  
Conference Registration

**Monday, 15 January 2007**

**7:30 AM-6:00 PM, Monday**, East Registration  
Registration continues through Thursday, 18 January

**9:00 AM-10:15 AM, Monday**  
Plenary Session for the Presidential Forum (Presidential Forum will then run parallel to other sessions throughout the day)

**10:00 AM-10:45 AM, Monday**, 210A  
Coffee Break Reception - Sponsored by Ball Aerospace

**10:45 AM-12:00 PM, Monday**, 210A  
**Session 1 Agency Updates on Space Weather Activities**

Chair: Robert McCoy, Office of Naval Research, Arlington, VA; Genene Fisher, AMS Policy Program, Washington, DC

10:45  1.1 *The NSF and Emerging Opportunities in Space Weather*  
AM  
Richard Behnke, NSF, Arlington, VA

11:00  1.2 *Space Weather for the DoD Warfighter: An Agency Level Update*  
AM  
Mark Zettlemoyer, U.S. Air Force, Arlington, VA

11:15  1.3 *Recent Activities at the NOAA Space Environment Center*  
AM  
Thomas J. Bogdan, Space Environment Center, National Centers for Environmental Prediction, Boulder, CO

11:30  1.4 *NASA's contribution to Space Weather*  
AM  
Richard R. Fisher, NASA/Sun-Earth Connection Division, Washington, DC

11:45  1.5 *The global community of magnetic observatories*  
AM  
Jeffrey Love, USGS, Denver, CO

**12:15 PM-1:30 PM, Monday**  
Lunch Break

**1:30 PM-2:30 PM, Monday**, 210A

Session 2  space weather effects on aviation and impacts for the next generation air transportation system
Chairs: Joseph Kunches, NOAA/Space Environment Center, Boulder, CO; Marsha Korose, NorthropGrumman IT/TASC, Arlington, VA

1:30  2.1  Policy Issues in Integrating Space Weather Information into Aviation Operations
PM  Genene Fisher, AMS Policy Program, Washington, DC; and B. Jones

1:45  2.2  The FAA's Office of Commercial Space Transportation: recent activities, regulations, and current events in the commercial space sector
PM  Karen Shelton-Mur, FAA Commercial Space Transportation, Washington, DC

2:00  2.3  Pilot perspective on space weather affects on the future of commercial aviation
PM  Michael D. Holland, American Airlines, Double Oak, TX

2:15  2.4  Effectively Managing American Airline's High-Latitude, Long-Range Operations
PM  Ray Howland, American Airlines, Fort Worth, TX

2:30 PM-4:00 PM, Monday, Exhibit Hall C
Formal Poster Viewing with Coffee Break

2:30 PM-4:00 PM, Monday, Exhibit Hall C
Poster Session 1  Space weather posters

P1.1  Validation of the Community Radiative Transfer Model for Upper Air Sounding channels of the Special Sensor Microwave Imager (SSMIS)
Clay B. Blankenship, NRL, Monterey, CA; and S. D. Swadley and N. Baker

P1.2  Environmental Space Situational Awareness and Joint Space Effects
Kelly J. Hand, Headquarters Air Force Space Command, Peterson AFB, CO; and M. France, R. Benz, T. Holts, T. Longmire, and B. T. Hendrickson

P1.3  Estimation of solar wind pressure and its impact on geomagnetic field during energetic solar events
Hari Om Vats, Physical Research Laboratory, Ahmedabad, Gujarat, India

4:00 PM-5:45 PM, Monday, 210A
Session 3  developments in data assimilation
Chairs: Dean Pesnell, NASA, Greenbelt, Maryland; Marsha Korose, NorthropGrumman IT/TASC, Arlington, VA

4:00  3.1  Aspects of data assimilation peculiar to space weather forecasting
PM  George Siscoe, Boston University, Boston, MA

4:15  3.2  A Thermosphere-Ionosphere Data Assimilation Model Component for a Seamless Ocean-Atmosphere Model
PM  Robert W. Schunk, Utah State University, Logan, UT; and L. Scherliess, D. C. Thompson, J. J. Sojka, and L. Zhu

4:30  3.3  USU GAIM: An operational data assimilation model of the ionosphere
PM  Ludger Scherliess, Utah State University, Logan, UT; and R. W. Schunk, J. J. Sojka, and D. C. Thompson

4:45  3.4  Four dimensional imaging of Space Weather events using IDA3D
PM  Gary S. Bust, Atmospheric & Space Technology Research Associates, San Antonio, TX; and G. Crowley
5:00 PM  3.5 Radiation belt data assimilation with an ensemble Kalman filter
Josef Koller, LANL, Los Alamos, NM; and R. H. W. Friedel, G. D. Reeves, and Y. Chen

5:15 PM  3.6 Capabilities and Limitations of Ensemble Data Assimilation
Jeffrey Anderson, NCAR, Boulder, CO

5:30 PM  3.7 An "observation-nudging"-based FDDA for WRF-ARW for mesoscale data
assimilation and forecasting
Yubao Liu, NCAR, Boulder, CO; and A. Bourgeois, T. Warner, and S. Swerdlin

5:30 PM-7:30 PM, Monday, Exhibit Hall D
Formal Opening of Exhibits with Reception (Cash Bar)

5:30 PM, Monday
Sessions end for the day

Tuesday, 16 January 2007
8:30 AM-10:00 AM, Tuesday, 210A
Session 4 New Data Sources and Products
Chairs: Robert McCoy, Office of Naval Research, Arlington, VA; Genene Fisher, AMS Policy Program, Washington, DC

8:30 AM  4.1 Detecting equatorial plasma bubbles with GPS phase scintillation
Angeline G. Burrell, AER, Lexington, MA; and M. Colerico and G. M. Gugliotti Fishman

8:45 AM  4.2 Global measurement of the energetic ion precipitation from the storm time ring current using ENAs
Craig J. Pollock, Southwest Research Institute, San Antonio, TX; and J. M. Jahn and A. Isaksson

9:00 AM  4.3 Space Weather Effects of the Earth's Plasmasphere
Jerry Goldstein, Southwest Research Institute, San Antonio, TX; and B. R. Sandel

9:15 AM  4.4 Characterization of the Near-Earth Environment to provide an Ionospheric Specification for use in operational impact assessments
Gina M. Gugliotti Fishman, AER, Lexington, MA; and N. A. Bonito, K. M. Farnham, and B. W. Sheeley

9:30 AM  4.5 Mid-latitude electron density gradients and their impact on GPS signal strength
M. J. Colerico, AER, Lexington, MA; and N. A. Bonito, A. G. Burrell, and B. Reinisch

9:45 AM  4.6 Midlatitude Ionospheric Effects of SAPS Electric Fields
Geoff Crowley, Atmospheric & Space Technology Research Associates, San Antonio, TX; and T. Garner, A. D. Richmond, and R. G. Roble

9:45 AM-11:00 AM, Tuesday, Exhibit Hall C
Formal Poster Viewing with Coffee Break

11:00 AM-6:00 PM, Tuesday, Exhibit Hall D
Exhibits Open

11:00 AM-12:00 PM, Tuesday, 210A
Session 5 Constellation Observing System for Meteorology, Ionosphere and Climate (COSMIC)

Chairs: Robert McCoy, Office of Naval Research, Arlington, VA; Genene M. Fisher, AMS, Washington, DC

11:00 AM 5.1 Early Results of Ionospheric Measurements from the FORMOSAT-3/COSMIC Mission
Stig Syndergaard, UCAR, Boulder, CO; and C. Rocken, W. S. Schreiner, and D. C. Hunt

11:15 AM 5.2 Tiny Ionospheric Photometer science program, data products, and operations on COSMIC
Scott A. Budzien, NRL, Washington, DC; and K. F. Dymond, D. H. Chuah, and C. Coker

11:30 AM 5.3 JPL/USC GAIM 4DVAR: Using COSMIC Occultations To Estimate Ionospheric State and Drivers in Near Real-Time
Brian Wilson, JPL, Pasadena, CA; and V. Akopian, L. Mandrake, X. Pi, C. Wang, and G. Hajj

11:45 AM 5.4 Autonomous space-based radio monitors of the ionosphere
Paul A. Bernhardt, NRL, Washington, DC; and C. L. Siefring

12:00 PM-1:30 PM, Tuesday
Lunch Break

1:30 PM-3:00 PM, Tuesday, 210A
Session 6 new developments with physics-based forecast models

Chairs: Joseph Kunches, NOAA/Space Environment Center, Boulder, CO; Dean Pesnell, NASA, Greenbelt, Maryland

1:30 PM 6.1 Extending NOGAPS-ALPHA into the lower thermosphere
David E. Siskind, NRL, Washington, DC; and S. Eckermann, J. P. McCormack, L. Coy, and T. F. Hogan

1:45 PM 6.2 Chaotic divergence in a whole-atmosphere climate model
Han-Li Liu, NCAR, Boulder, CO; and F. Sassi, R. R. Garcia, and B. A. Boville

2:00 PM 6.3 Bridging terrestrial and space weather: A new coupled general circulation model (GCM) of Integrated Dynamics through Earth's Atmosphere (IDEA)
Rashid A. Akmaev, CIRES/Univ. of Colorado, Boulder, CO; and T. J. Fuller-Rowell, N. Maruyama, F. Wu, M. D. Iredell, S. Moorthi, and H. Juang

2:15 PM 6.4 Modeling equatorial spread F: New simulation results
J. D. Huba, NRL, Washington, DC; and G. Joyce

2:30 PM 6.5 Three dimensional space weather maps of large electron density gradients during magnetic storms obtained from Ionospheric Data Assimilation Three-Dimensional (IDA3D)
Gary S. Bust, Atmospheric & Space Technology Research Associates, San Antonio, TX; and G. Crowley
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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>3:00 PM-3:30 PM, Tuesday</td>
<td>Exhibit Hall D</td>
<td>Coffee Break in Exhibit Hall</td>
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<tr>
<td>3:30 PM-5:45 PM, Tuesday</td>
<td>210A</td>
<td>Session 7 Advances in Space Weather</td>
<td>Chairs: Joseph Kunches, NOAA/Space Environment Center, Boulder, CO; Robert McCoy, Office of Naval Research, Arlington, VA</td>
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<tr>
<td>3:30 PM</td>
<td>7.1</td>
<td>Report of Assessment Committee on National Space Weather Program</td>
<td>Louis J. Lanzerotti, New Jersey Institute of Technology, Newark, NJ</td>
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<td>4:00 PM</td>
<td>7.2</td>
<td>Fractal statistics of Sun and IMF, a practical storm prediction tool</td>
<td>Donald E. Cotten, City University of New York, Bayside, NY; and T. D. Cheung, P. J. Marchese, G. Tremberger, L. P. Johnson, S. A. Austin, G. Brathwaite, M. Chow, L. Corrales, J. Espinoza, and K. Leon</td>
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<tr>
<td>4:15 PM</td>
<td>7.3</td>
<td>New Low-cost Microsatellites for Possible Space Weather Applications</td>
<td>Robert McCoy, Office of Naval Research, Arlington, VA</td>
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<td>4:30 PM</td>
<td>7.4</td>
<td>Space science inputs to spacecraft design and anomaly resolution for high altitude spacecraft</td>
<td>Thomas Paul O'Brien III, The Aerospace Corporation, Chantilly, VA; and J. Mazur and C. Tschan</td>
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<td>5:00 PM</td>
<td>7.6</td>
<td>Space Weather and the Incidence of Reactive &quot;Off-Cost&quot; Operations in the PJM</td>
<td>Power Grid, Kevin F. Forbes, Catholic Univ., Washington, DC; and C. St Cyr</td>
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<td>5:15 PM</td>
<td>7.7</td>
<td>Polar Mesospheric Cloud Prediction and Observation</td>
<td>Michael J. Kendra, AER, Lexington, MA; and J. M. Griffin</td>
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<td>5:30 PM</td>
<td>7.8</td>
<td>Study of tropospheric turbulence using observation of shadow bands during a total solar eclipse</td>
<td>Hari Om Vats, Physical Research Laboratory, Ahmedabad, Gujarat, India</td>
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5:45 PM, Tuesday
Symposium Ends

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