

**Agenda for 2009 CEDAR Workshop**  
**28 June - 2 July 2009**  
**Eldorado Hotel**  
**Santa Fe, New Mexico**

**Sunday, 28 June 2009**

	<b>CEDAR Student Workshop (Non-students Welcome)</b> <b>Theme - Instrumentation: How Can We Probe the Upper Atmosphere?</b>  <b>All Student Workshop sessions will be held in Zia unless otherwise noted</b>	<b>Co-Chairs:</b> <b>Marco Milla (U IL)</b> <b>Jonathan Fentzke (U CO)</b> <b>(CEDAR student reps)</b>
08:00 and 08:30	Bus departs from Fort Marcy Suites to Eldorado	
08:00-09:00	Breakfast, Registration, Sign Travel Vouchers Put up posters in the Pavilion	concourse
09:00-09:10	Student Welcome from NSF	Rich Behnke/Bob Robinson (NSF)
09:10-09:30	Introduction to the CEDAR Program	Jeff Thayer (CSSC chair)
09:30-09:40	Agenda information and organizational details	Jonthan Fentzke/Marco Milla
09:40-10:40	<i>Keynote Talk #1: A Historical Overview on Aeronomy Instrumentation</i>	Mike Kelley (Cornell)
10:40-10:55	--- Break ---	
10:55-11:55	<i>Student Tutorials 1</i>	
	Radars: Powerful Tools to Study the Upper Atmosphere ( <b>Zia</b> )	Jorge Chau (Jicamarca)/Roger Varney (Cornell)
	A New Horizon: LIDAR Exploration of Atmosphere and Space ( <b>Sunset</b> )	Xinzhao Chu /Wentao Huang (U CO)
	In situ Measurements in the Ionosphere and Thermosphere on Satellites ( <b>Anasazi North</b> )	Robert Pfaff (GSFC)
11:55-13:30	Lunch on own at area restaurants	
13:30-14:30	<i>Student Tutorials 2</i>	
	GPS systems ( <b>Zia</b> )	Jonathan Makela (U IL)
	Imagers ( <b>Sunset</b> )	Carlos Martinis (BU)
	Rockets: Rocket Instrumentation for the Mesosphere and Thermosphere ( <b>Anasazi North</b> )	Gerald Lehmacher (Clemson)
14:30-14:45	--- Break ---	
14:45-15:45	<i>Keynote Talk #2: Next-Generation Instruments for Geospace Science</i>	John Foster (MIT)
15:45	Adjourn	
16:00	Bus departs Eldorado for Fort Marcy Suites	
16:00-19:00	Free time for student recreation (Annual CEDAR Soccer Game, Ultimate Frisbee; 16:30-17:30: volleyball or swimming (\$1.85 pp, bring towel), etc)	Ft. Marcy Park soccer field Ft. Marcy Recreation Center
19:15	Bus departs Fort Marcy Suites for Eldorado	
19:30-21:00	Reception/Icebreaker/Buffer for all participants. The cost of the reception for one person is included with registration. Extra guests must pay \$30 at the registration desk.	Anasazi and Zia
21:00	Bus from Eldorado to Fort Marcy Suites (via grocery store)	

## Monday, 29 June 2009

All sessions will be held in Anasazi unless otherwise noted

07:15 and 07:45	Bus departs from Fort Marcy Suites to Eldorado	
07:15-08:00	Registration/breakfast	
08:00-08:10	Welcome from NSF/CSSC	R. Behnke (NSF) J. Thayer (CSSC)
08:10-08:20	Introduction of Students by Institution	J Fentzke (U CO)
08:20-09:05	CEDAR Prize Lecture: New Observational Capabilities for Studying Plasma and Neutral Dynamical Processes using Incoherent Scatter Radar	M. Nicolls (SRI)
09:05-09:15	Report of Student Workshop	M. Milla (U IL)
09:15-09:30	Update from the National Science Foundation (NSF)	C. Fesen (NSF)
09:30-10:00	--- Break (Posters must be up in Pavilion) ---	
10:00-10:20	Programmatic #1: Integrative Aeronomy	J. Thayer (CSSC chair)
10:20-10:40	Science Highlight #1: Lightning-related Transient Luminous Events at High Altitude in the Earth's Atmosphere	V. Pasko (PSU)
10:40-11:00	Science Highlight #2: The role of Incoherent Scatter Radars During the International Polar Year: Past Successes and Future Plans	A. van Eyken (SRI)
11:00-13:00	Lunch on own	
	--- OR ---	
11:05	bus departs for shopping at Tin-Nee-Ann Trading Company	
12:30	bus departs Tin-Nee-Ann Trading Company for Eldorado	
13:00-15:00	<ul style="list-style-type: none"> <li>▪ CEDAR and ITM Strategic Planning (<b>Anasazi South</b>)</li> <li>▪ South American Initiative to Study the Casual Linkage Between Thermospheric Gravity Activity and Equatorial Spread F Development – Part 1 (<b>Anasazi North</b>)</li> <li>▪ Magnetosphere Ionosphere Coupling – Part 1 (<b>Zia</b>)</li> <li>▪ Ionospheric/Thermospheric (IT) Modeling (<b>Sunset</b>)</li> </ul>	<ul style="list-style-type: none"> <li>▪ J. Thayer and L. Paxton</li> <li>▪ J. Meriwether, D. Fritts, M. Mendillo, J. Makela, A. Gerrard, C. Valladares</li> <li>▪ J. Semeter and W. Bristow</li> <li>▪ J. Huba, A. Ridley, R. Schunk</li> </ul>
15:00-16:00	--- Networking Break ---	
16:00-19:00	Poster Session #1 (MLT) and Reception	Pavilion
19:35	Bus departs Eldorado for Fort Marcy Suites after poster session	
19:30-21:30	<ul style="list-style-type: none"> <li>▪ CEDAR Electrodynamics Thermosphere Ionosphere Modeling Challenge (<b>Anasazi South</b>)</li> <li>▪ South American Initiative to Study the Casual Linkage Between Thermospheric Gravity Activity and Equatorial Spread F Development – Part 2 (<b>Anasazi North</b>)</li> <li>▪ Magnetosphere Ionosphere Coupling – Part 2 (<b>Zia</b>)</li> </ul>	<ul style="list-style-type: none"> <li>▪ M. Kuznetsova, B. Emery, J. Sojka, A. Ridley, J. Holt, J. Lei</li> <li>▪ J. Meriwether, D. Fritts, M. Mendillo, J. Makela, A. Gerrard, C. Valladares</li> <li>▪ J. Semeter and W. Bristow</li> </ul>
21:45	Bus departs Eldorado for Fort Marcy Suites	

## Tuesday, 30 June 2009

All sessions will be held in Anasazi unless otherwise noted

07:15 and 07:45	Bus departs from Fort Marcy Suites to Eldorado	
07:15-08:00	Registration/breakfast	
08:00-09:00	Tutorial #1: Whole Atmosphere Community Climate Model (WACCM) Studies of the Upper Atmosphere	D. Marsh (NCAR)
09:00-09:20	CEDAR Post-Doc Final Report #1: Coordinated Space-Based Observations of Equatorial Plasma Bubbles Using TIMED/GUVI and DMSP	J. Comberiate (JHU/APL)
09:20-09:30	CEDAR Post-Doc Interim Report #1: Modulations of the Longitudinal Structure in F2 Peak Height in the Equatorial Ionosphere	G. Liu (UCB)
09:30-10:00	--- Break ---	
10:00-10:10	Programmatic #2: AMPERE: Active Magnetosphere and Planetary Electrodynamics Response Experiment	B. Anderson (JHU/APL)
10:10-10:20	Programmatic #3: Mid-latitude SuperDARN Radar Infrastructure for the Study of Ionospheric Electrodynamics and Atmospheric Processes on Global Scales	W. Bristow (U AK)
10:20-10:40	Science Highlight #3: Measuring MLT Winds by Tracking Meteor Trails with Incoherent Scatter Radar: A New Method Observes Rapidly Changing Winds Exceeding 500km/Hr	M. Oppenheim (BU)
10:40-10:50	Programmatic #4: Achievements in Equatorial Aeronomy during the IHY	R. Smith (U AK)
10:50-11:00	Programmatic #5: The Benefits of Scientific Instrumentation in Africa	E. Yizengaw (UCLA)/ J. Makela (U IL)
11:00-13:00	Lunch on own	
13:00-15:00	<ul style="list-style-type: none"> <li>▪ Upper Atmosphere Facilities (UAF) – Integrating Management, Operations and Science (<b>Anasazi South</b>)</li> <li>▪ Ionospheric Electrodynamics and Disturbances and Middle and Low Latitudes During Magnetic Storms (<b>Anasazi North</b>)</li> <li>▪ Meteors and the Upper Atmosphere (<b>Zia</b>)</li> <li>▪ Atomic Hydrogen in the Thermosphere and Exosphere (<b>Sunset</b>)</li> </ul>	<ul style="list-style-type: none"> <li>▪ A. vanEyken/J. Foster</li> <li>▪ C.-S. Huang, N. Maruyama, T. Fuller-Rowell</li> <li>▪ L. Dyrud/D. Janches</li> <li>▪ E. Mierkiewicz</li> </ul>
15:00-16:00	--- Networking Break ---	
16:00-19:00	Poster Session #2 (IT) and Reception	Pavilion
20:00-21:00	<p><b>All posters must be down no later than 21:30</b></p> <p><b>All competition posters must stay up until 21:00</b></p>	
19:35	Bus departs Eldorado for Fort Marcy Suites after poster session	
19:30-21:30	<ul style="list-style-type: none"> <li>▪ The Equatorial Ionosphere During Solar Minimum – C/NOFS and Jicamarca Amigos – Part 1 (<b>Anasazi South</b>)</li> <li>▪ Small-scale Dynamics of the MLT: Observation, Modeling and Theory (<b>Anasazi North</b>)</li> <li>▪ M-I Coupling at the Plasmasphere Boundary Layer (<b>Zia A</b>)</li> <li>▪ Comparative Meteor Science – The Effects of Meteoroids on Planetary Atmospheres and Ionospheres (<b>Zia B-C</b>)</li> <li>▪ Measurement and Modeling of Neutral Winds in the MLT and IT Regions (<b>Sunset</b>)</li> </ul>	<ul style="list-style-type: none"> <li>▪ O. de la Beaujardiere, D. Hysell, J. Chau</li> <li>▪ J. Snively, D. Fritts, M. Taylor</li> <li>▪ A. Coster /J. M. Ruohoniemi</li> <li>▪ P. Withers and M. Oppenheim</li> <li>▪ G. Crowley, M. Kelley, J. Meriwether, D. Drob, G. Earle, A. Ridley, C. Huang</li> </ul>
21:45	Bus departs Eldorado for Fort Marcy Suites	

## Wednesday, 1 July 2009

All sessions will be held in Anasazi unless otherwise noted

<b>07:00 and 08:00</b>	Bus departs from Fort Marcy Suites to Eldorado	
07:30-08:00	Registration/breakfast	
07:15-08:30	Student Breakfast with NSF – pick up breakfast from concourse	Sunset
08:30-09:30	Tutorial #2: Mid-Latitude Electrodynamics	A. Coster (MIT)
09:30-09:40	Announcement of Poster Prize Winners	D. Janches, W. Bristow, J.M. Ruohoniemi, S. Skone
09:40-10:00	--- Break (winning posters go in hallway) ---	
10:00-10:20	Science Highlight #4: Comparative Aeronomy	A. Nagy (U MI)/M. Mendillo (BU)
10:20-10:40	Science Highlight #5: The Impact of High Speed Solar Wind Streams on the Thermosphere/Ionosphere	J. Lei (U CO)
10:40-10:55	Science Highlight #6: Two-dimensional Turbulence, Space Shuttle Plume Transport in the Thermosphere, and a Possible Relation to the Great Siberian Impact Event	M. Kelley (Cornell)
10:55-11:00	Announcement of new CSSC members	NSF
11:00-13:00	Lunch on own (CSSC lunch at O'Keefe Cafe)	
13:00-15:00	<ul style="list-style-type: none"> <li>▪ Passive Optical Calibration Techniques and Error Assessment – Part 1 (<b>Anasazi South</b>)</li> <li>▪ GOLD Community Interactions (<b>Anasazi North</b>)</li> <li>▪ Ionosphere and Mesosphere Polar Aeronomy Campaign (IMPAC) 2009 (<b>Zia</b>)</li> <li>▪ The Equatorial Ionosphere During Solar Minimum – C/NOFS and Jicamarca Amigos – Part 2 (<b>Sunset</b>)</li> </ul>	<ul style="list-style-type: none"> <li>▪ J. Baumgardner and S. Nossal</li> <li>▪ A. Burns and R. Eastes</li> <li>▪ Q. Wu and W. Wang</li> <li>▪ O. de la Beaujardiere, D. Hysell, J. Chau</li> </ul>
15:00-16:00	--- Networking Break (coffee only) ---	
16:00-18:00	<ul style="list-style-type: none"> <li>▪ Passive Optical Calibration Techniques and Error Assessment – Part 2 (<b>Anasazi South</b>)</li> <li>▪ Estimating Physical Drivers from Ionospheric Imaging and Data Assimilation (<b>Anasazi North</b>)</li> <li>▪ Thermospheric and Ionospheric Effects of Solar Wind Shocks and Pressure Pulses During the Declining Phase of Solar Cycle 23 (<b>Zia</b>)</li> <li>▪ World Day Planning (<b>Sunset</b>)</li> </ul>	<ul style="list-style-type: none"> <li>▪ J. Baumgardner and S. Nossal</li> <li>▪ G. Bust and A. Komjathy</li> <li>▪ D. Knipp and C. Huang</li> <li>▪ I. Haggstrom</li> </ul>
18:00-20:30	Dinner on own	
20:30-21:30	CEDAR Distinguished Lecture: The NCAR Thermospheric General Circulation Models (TGCMs): Past, Present and Future	▪ R. Roble (NCAR)
21:45	Bus departs Eldorado for Fort Marcy Suites	

## Thursday, 2 July 2009

All sessions will be held in Anasazi unless otherwise noted

07:15 and 07:45	Bus departs from Fort Marcy Suites to Eldorado	
07:15-08:00	Registration/breakfast	
08:00-09:00	Tutorial #3: Strategies for Successful CubeSat Development	J. Puig-Suari (Cal Poly)
09:00-09:20	CEDAR Post-Doc Final Report #3: Imaging Studies of Ionospheric Instabilities	C. Martinis (BU)
09:20-09:30	CEDAR Post-Doc Interim Report #2: Nocturnal Oxygen Spatial Heterodyne Interferometry Techniques	S. Briczinski(U WI)
09:30-10:00	--- Break ---	
10:00-10:20	Science Highlight #7: New Results from the C/NOFS Program	R. Heelis (UTD)
10:20-10:40	Science Highlight #8: Connections Between the Stratosphere and Ionosphere	L. Goncharenko (MIT)
10:40-10:50	Programmatic #6: RAIDS Preview: Lower Thermosphere/Ionosphere Observations and Potential Collaborations	R. Bishop (Aero)
10:50-12:30	Lunch on own (Please note shorter time)	
12:30-17:00	Tentative Extracurricular Activity	
12:30-14:30	<ul style="list-style-type: none"> <li>▪ Arecibo Friends – Part 1 (<b>Anasazi South</b>)</li> <li>▪ Cubesat Constellations and Communications – Part 1 (<b>Anasazi North</b>)</li> <li>▪ Science Rational for an Antarctic ISR – Part 1 (<b>Zia</b>)</li> <li>▪ Ionospheric and Thermospheric Response to Large Stratosphere Changes – Part 1 (<b>Sunset</b>)</li> </ul>	<ul style="list-style-type: none"> <li>▪ M. Sulzer</li> <li>▪ G. Swenson/D. Klumpar</li> <li>▪ A. Stromme, A. van Eyken, J. Kelly, R. Clauer, E. Sanchez</li> <li>▪ L. Goncharenko, J. Chau, H. Liu</li> </ul>
14:30-15:00	--- Short Networking Break (coffee only) ---	
15:00-17:00	<ul style="list-style-type: none"> <li>▪ Arecibo Friends – Part 2 (<b>Anasazi South</b>)</li> <li>▪ Cubesat Constellations and Communications – Part 2 (<b>Anasazi North</b>)</li> <li>▪ Science Rational for an Antarctic ISR – Part 2 (<b>Zia</b>)</li> <li>▪ Ionospheric and Thermospheric Response to Large Stratosphere Changes – Part 2 (<b>Sunset</b>)</li> </ul>	<ul style="list-style-type: none"> <li>▪ M. Sulzer</li> <li>▪ G. Swenson and D. Klumpar</li> <li>▪ A. Stromme, A. van Eyken, J. Kelly, R. Clauer, E. Sanchez</li> <li>▪ L. Goncharenko, J. Chau, H. Liu</li> </ul>
17:00	ADJOURN	
17:15	Bus departs Eldorado for Fort Marcy Suites	

## Friday, 3 July 2009

08:45	Bus departs Fort Marcy Suites for Eldorado	
09:00	Bus departs Eldorado for drive back to Colorado	