A Message from the Director*

LASP continues to grow and evolve as a research institute. New scientific programs have been added and excellent staff members have joined the Lab. We can point with pride to the successful designing, building, and testing of new spacecraft instruments and to the exciting scientific results from numerous ongoing projects. The combination of experiments, data analysis, and theoretical investigations provides a remarkably complete scientific approach within LASP. Based on our widely recognized engineering, mission operations, and information systems work and our science leadership, we believe that LASP is nearly unique in its abilities as a space research enterprise.

In order to carry out the wide range of work undertaken by the Laboratory, it has been clear for some time that more office and laboratory space has been (and will be) necessary. We have been supported by the University administration to help meet these needs. I am very pleased that the Chancellor and others have helped to move aggressively toward meeting our office and laboratory space needs. We have now completed a new building adjacent to the original LASP Space Technology Building in the Research Park. This new facility provides new space nearly comparable in area to the present LSTR building and should allow us to move smoothly to the next level of engineering, operations, and science that we have been striving for.
We here at CU, and at LASP in particular, are very concerned about research and analysis funding, about smaller Principal Investigator-led missions, and other such NASA programs. We tend to think that these are among the most important programs that NASA undertakes. Consequently, we have already been working vigorously with our congressional delegation and with congressional staff to help assure proper federal budget directions. I have great optimism that we will be successful in producing good effects. By serving on NASA and National Research Council committees and panels, many of us in the Lab are helping to advise and steer NASA on a good course. I think we can do that in important ways and we will redouble our efforts toward this goal.

As was seen at the new building dedication in March 2006, LASP enjoys a very warm and special relationship with the Colorado Lt. Governor, the CU/Boulder Chancellor, and with countless partners in the Front Range community. LASP has never been busier, or more productive, or more capable than it is now. We are working diligently to get new programs and new missions — and I have every confidence we will do that. We have the best people, the best ideas, and the best facilities in the world.

There are many challenges that must be confronted as an organization grows. Adding new people and facilities while maintaining the traditional LASP culture is a top concern for all of us. I have appreciated the strong support and thoughtful advice in these matters both by the University administration and by our External Advisory Committee. I have particularly appreciated the patience and good spirit of our tireless staff here at LASP.

I wish to express sincere appreciation to the University, to the local Boulder community, and to the national agencies for the continuing support that we receive. We look forward to working actively with the broad space research community in many new endeavors.

Thank you to the students, staff, and faculty of LASP for all their hard work. Special thanks go to Ann Alfaro for her thorough and careful efforts in preparing this report.

Daniel N. Baker

*Please visit LASP’s Website for the latest developments: http://lasp.colorado.edu. For information about LASP’s projects and missions, visit http://lasp.colorado.edu/mission_history/index.htm

LASP: A Brief History

In 1946-47, a handful of American universities joined with the military and with industry to initiate the era of space exploration. The University of Colorado was one of those pioneering universities. The first experiments to be performed in space were lofted by suborbital rockets. A key obstacle to these first rocket flights was providing a stabilized platform for cameras and other experiments. With support from the Naval Research Center and the Air Force Cambridge Research Laboratory (now the Phillips Laboratory), the University of Colorado formed a research group called the Upper Air Laboratory (UAL) to solve this problem. Their solution — called the biaxial pointing platform — cleared the way for some of the first major scientific discoveries made in space. Researchers and engineers from the UAL flew experiments into space on over 50 rocket flights before Sputnik. By 1965, the UAL had grown substantially. Along with this growth came a new building on campus and a new name: the Laboratory for Atmospheric and Space Physics. The public is invited to tour our facility and to observe the work that LASP does today.

In Memoriam

Austin Barker, an AERO graduate student and employee of LASP for three years, died in a tragic climbing accident in Boulder Canyon on May 28, 2005.

Austin was an excellent student and researcher. An enthusiastic participant in life, he will be sorely missed and long remembered.
LASP Appropriated Funding

During the period 1/1/2005 to 12/31/2005 LASP appropriated funding totaled $50M for support of 113 grants and contracts.

Research Support: 2005 Fiscal Year

<table>
<thead>
<tr>
<th>Source of Funding</th>
<th>Total Grant Dollars</th>
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<td>Boston University</td>
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<td>University of Arizona</td>
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<td><strong>Non-Federal Total</strong></td>
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<td><strong>GRAND TOTAL</strong></td>
<td>$50,050,183</td>
</tr>
</tbody>
</table>
Daniel N. Baker  
Director  

LASP Faculty  

Laila Anderssen  Kazunori Iwasaki  Sean Raymond  
Linnea M. Avallone  Bruce M. Jakosky  Erik C. Richard  
Frances Bagenal  Shri Kanekal  E. Joshua Rigler  
Charles A. Barth  Greg Kopp  Gary J. Rottman  
Phil Chamberlin  Kristopher Larsen  David W. Rusch  
Emily CoBabe-Ammann  George M. Lawrence (Ret.)  Theodore Sarris  
Joshua E. Colwell  Steven W. Lee  Nicholas M. Schneider  
Peter Delamere  Xinlin Li  Jamison Smith  
Scot Elkington  William E. McClintock  Martin Snow  
Francis G. Eparvier  Tom McCollom  Miodrag Sremcevic  
Robert Ergun  Sara Martinez-Alonzo  Zoltan Sternovsky  
Stefan Eriksson  Michael Mellon  A. Ian F. Stewart  
Larry W. Esposito  Michael Mills  Glen R. Stewart  
Juan Fontenla  Steve Mojzsis  Yi-Jin Su  
Jack Gosling  Keiji Ohtsuki  Gary E. Thomas (Ret.)  
Janet C. Green  Robert T. Pappalardo  Feng Tian  
Jerald W. Harder  Alexander Pavlov  O. Brian Toon  
Lynn Harvey  William Peterson  Robert Weigel  
Noel Hinners  Peter Pilewskie  Thomas N. Woods  
Mihály Horányi  Cora E. Randall  
Brian Hynek  Mark P. Rast  

Visiting Scholars  

Joseph Ajello, Jet Propulsion Laboratory, Pasadena, California  
Antal Juhasz, Research Institute for Particle and Nuclear Physics, Hungary  
Markus Landgraf, European Space Agency, Germany  
Wayne Pryor, Central Arizona College, Coolidge, Arizona  
Annika Seppala, Finland  
Chao Shen, China
Research/Technical/Administrative Support Staff

Ann Alfaro
Gregg Allison
Michael D. Anfinson
Judy Antman
Richard Arnold
Dennis L. Baker
Susan Batiste
Douglas Bausch
Helmut P. Bay
Kathryn Becker
Christopher Belting
Timothy Bendel
Robert P. Biro
Laura Bloom
Bryce Bolton
Mary Bolton
James S. Bowers
Brian D. Boyle
John Boynton
Shelley Bramer
Catherine Brant
Vanessa Briggs
Nancy Brooks
Jeff Brown
Patrick Brown
Chelsey Bryant
Karen Beth Turk Bryant
Michael T. Callan
Zachary G. Castleman
Tinapan Chanthawanich
Zhangzhao Chen
Matthew Chojnacki
Wesley Cole
Lillian Connelly
Christopher Converse
Pamela Crandall
David Crotsper
Anita Davis
Randal L. Davis
Kip W. Denhalter
Lindsay DeRemer
Vincent Dols
John Donnelly
Sharon Dooley
Michael Dorey
Virginia Drake
Peter Elespuru
Steve Ericksen
Brian Evans
Phillip L. Evans
Jack Faber
Tawnya Ferbiak
Tim Flaherty
Rodney Freeman
David Gathright
Michael Gehmeyer
Vanessa George
Judith (Dede) Gleason
Jeff Graw
Ken Greist
Elizabeth Grogan
Bonnie Kae Grover
Roger Gunderson
Scott Gurst
David Harber
Christine Hathaway
Karl Heuerman
Caroline Himes
Rose A. Hoag
Timothy Holden
Bonnie W. Hotard
Vaughn Hoxie
Christian Jeppeson
Edgar Johansson
James Johnson
Alain J. Jouchoux
David E. Judd
Michelle Kelley
Marjorie K. Klemp
Barry Knapp
Richard Kohnert
Jay Kominek
Bret Lamprecht
Mark R. Lankton
Sally Lasater
Ryan Lewis
Kathy Lozier
Debra McCabe
Beth McGilvray
Sherry McGlochlin
Michael McGrath
James Mack
Melanie McKinney
Deborah Marohnich
Jack Marshall
Patrick Meagher
Willie Mein
Hannah Meyer
Marissa Meyer
Nathaniel Miller
Jerel Moffatt
Steve P. Monk
Aref Nammari
Doan Nguyen
Brian Nuel
Sara Ohrman
John M. Padgett
Chris Pankratz
Heather Passe
Ann Perez de Tejada
Norman C. Perish
Nicole Ramos
Thomas Reese
Dwight Reinhardt
Randy Reukauf
Pat Ringrose
Hans Rohner
Timothy Ruske
Marissa Rusinek
Cynthia Russell
Jill Ryan
Sean Ryan
Judith A. Salazar
Patti Sicken
John D. Smith
Patrick Smith
Thomas Sparn
Stephen Sleg
Kenneth Stevens
David Street
Gail Tate
Trenton Taylor
Brian Templeman
Feng Tien
Wayne Tighe
Susan Tower
Matt Trippett
Dale Troyer
Scott A. Tucker
Gregory Ucker
Douglas Vincent
Tracy Vincent
Pamela J. Wagner
Paul Weidmann
Heather Weisacosky
James Westfall
Neil White
Ann Williams
Ann Windnagel
Heather Reed Withnell
Peter Withnell
Donald Woodraska
Mia Woody
Ed Wullschleger
2005 Graduates

Chamberlin, Phillip C., Ph.D., Aerospace Engineering Science
December 16, 2005
*The Flare Irradiance Spectral Model (FISM)*
Thesis Advisor: Thomas N. Woods

Gamblin, Brandy Elizabeth, Ph.D., Chemistry
May 6, 2005
*Nitric acid condensation on upper tropospheric/lower stratospheric cirrus clouds*
Thesis Advisor: Owen B. Toon

Segura, Teresa Lynn, Ph.D., Astrophysical, Planetary, and Atmospheric Sciences
May 6, 2005
*Impact-triggered greenhouses on Mars*
Thesis Advisor: Owen B. Toon

Steffl, Andrew J., Ph.D., Astrophysical, Planetary, and Atmospheric Sciences
May 6, 2005
*The Io plasma torus during the Cassini encounter with Jupiter; Temporal, radial and azimuthal variations*
Thesis Advisor: Frances Bagenal

Tian, Feng (Teddy), Ph.D., Astrophysical, Planetary, and Atmospheric Sciences
May 6, 2005
*Hydrodynamic escape from planetary atmospheres*
Thesis Advisor: Owen B. Toon

Weiss, John Wilfred, Ph.D., Astrophysical, Planetary, and Atmospheric Sciences
May 6, 2005
*The physics of unconstrained edges in planetary rings*
Thesis Advisor: Glen Stewart

Graduate Students

<table>
<thead>
<tr>
<th>Austin Barker</th>
<th>Nathan Farr</th>
<th>David James</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles Bardeen</td>
<td>Joe Flasher</td>
<td>Lars Kalnajs</td>
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<tr>
<td>Todd Bradley</td>
<td>Alicia Frazier</td>
<td>Bruce Kindel</td>
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<td>Jeremy Carnahan</td>
<td>Brandy Gamblin</td>
<td>Ervin Krauss</td>
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<tr>
<td>Nicole Cates</td>
<td>Jennifer Gannon</td>
<td>Lindsey Link</td>
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<td>Phillip Chamberlin</td>
<td>Brennan Gantner</td>
<td>Kevin McGouldrick</td>
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<tr>
<td>Steve Chappell</td>
<td>Damhnait Gleeson</td>
<td>Kevin McWilliams</td>
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<tr>
<td>Seth Claudepierre</td>
<td>Anna Haugsjaa</td>
<td>Lansing Madry</td>
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<tr>
<td>Zane Crawford</td>
<td>Alexa Halford</td>
<td>Daniel Main</td>
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<tr>
<td>Christopher Cully</td>
<td>Odelle Hoffman</td>
<td>Andrew Marshall</td>
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<tr>
<td>Samik Dasgupta</td>
<td>Monica Hoke</td>
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<tr>
<td>Sean Davis</td>
<td>Gregory Holsclaw</td>
<td></td>
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<tr>
<td>Tina (Tianyi) Fan</td>
<td>Courtney Hoskins</td>
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</tbody>
</table>
Rebecca Matichuk
Patrick Meagher
Colin Mitchell
Nate Murphy
Katherine Nauert
Tania Nowell
Heather Passe
Radu Popescu
Manny Presicci
Than Putzig
Laurel Rachmeier
Licia Ray
Jason Reimuller
Lonnie Riesberg
Stuart Robbins
Eric Schleicher
Karen Schmidt
Teresa Segura
Supreet Kaur Sidhu
Cynthia Shaw Singleton
Karie Michelle Shipley
Hanna Sizemore
Andrew Steffl
Lin Su
Sarah Thomas
Heather Tollerud
Dustin Trail
Jennifer Uchida
John Weiss
Kaj Williams

Undergraduate Students

John Adam
Keegan Amyx
Jeffrey Baxter
Allyson Bieryla
Brandon Bobian
Michelle Bourgeois
Lottie Brown
Karen Beth Bryant
Christopher Bunch
Laura Bush
Samuel Califf
Bryan Callahan
Anthony Carosa
Rhain Carpenter
Scott L. Chamberlin
Matthew Chojnack
Zane Crawford
Jane Crayton
Joshua Christofferson
Sarah Cox
Kimdao Dang
Tera Dunn
Jason Durrie
Matthew Edwards
Negar Ehsan
Attila Elteto
Neal Evans
James Everton
Nathan Farber
David Goluskin
Jessica Harano
Tyler Harrison
Ryan Hickman
Andrew Jenkins
Matthew Kelly
Lang Kenney
Wendy Krauser
Otto Krauss
Davis Lawry
Dustin Leverman
Jacob Lilevjen
Anthony Lindell
Lucy Logan
Kurt Lorhammer
Jennifer Lowell
Brooks Lustig
Grant McGilvray
Ben Marsh
Danielle Massey
David Motta
McCall Mullen
Larissa Myers
Katherine Nauert
John Neice
Jacob Niece
Jonathan Nikkel
Kostas Pagratis
Jason Patterson
Brian Payne
Michael Phan
Ryan Phillips
Andrew Poppe
Therese Possel
Scott Potter
Kathryn Rash
Tyler Redick
Lauren Roemer
Alex Romanov
Teresa L. Ross
Patricia Rubi
Joshua Rubin
Crystal Salcido
Peter Schwinn
Molly Selting
John Shelton
Patrick Smith
Jordan Spatz
Jastsch Sud
Timothy Sullivan
Linda Te
Edward Thiemann
Dustin Trail
Thu Yen Tran
Melina Tremblay
Veronica Vertucci
Christopher White
Geneva Wilkesanders
Jennifer Wilson
Tom Wisniewski
Faculty Research Interests

**Laila Andersson**
Kinetic processes in space plasmas such as double layers, electron phase space holes and Alfvén waves (anywhere where measurement has or will be made). Atmospheric loss through ion outflow for objects such as Earth and Mars. Instrumentation for space plasma missions, for the moment to develop new techniques for future missions.

**Linnea Avallone**
Experimental and theoretical studies of tropospheric and stratospheric chemistry, particularly of halogens and related species. Analyzing measurements of chemical species to understand dynamical processes in the stratosphere and troposphere. Development of instrumentation for autonomous in situ measurements of trace species related to understanding the lifetimes of anthropogenic pollutants.

**Frances Bagenal**
Magnetic fields and plasma environments of solar system objects—mainly Jupiter and the Sun, but more recently, other planets, comets and asteroids.

**Daniel N. Baker**
Research in space instrument design and calibration, space physics data analysis, and magnetospheric modeling. Study of plasma physical and energetic particle phenomena in the magnetospheres of Jupiter and Mercury, along with the plasma sheet and magnetopause boundary regions of the Earth’s magnetosphere. Analysis of large data sets from spacecraft; involvement in missions to Earth’s deep magnetotail and comets; the study of solar wind-magnetospheric energy coupling; theoretical modeling of magnetotail instabilities. Study of magnetosphere-atmosphere coupling; applying space plasma physics to study of astrophysical systems. Research to understand space weather and effects on human technology. Teaching of space physics and public policy, as well as public outreach to space technology community and general public.

**Charles A. Barth**
Planetary ultraviolet spectroscopy; observation and theory of nitric oxide in the Earth's upper atmosphere; research on planetary atmospheres.

**Joshua E. Colwell**
Origin and evolution of planetary rings, observational and theoretical studies of planetary rings, comets, and satellites including Earth's moon. Impact processes on asteroids, satellites, and ring particles. Dynamics of dust in ring-satellite systems. Dusty plasma dynamics. Thermal models of airless bodies.

**Scot Elkington**
Space physics theory and modeling, primarily understanding energetic particle dynamics in the inner magnetosphere in the context of radial diffusion and adiabatic transport processes within the radiation belts. Also working on models of plasma sheet access of energetic particles to the inner magnetosphere through convection/substorm injection, development of physical space weather radiation belt models, and magnetohydrodynamic/particle simulations.

**Francis G. Eparvier**
Research interests include the aeronomy of the upper atmosphere, the effects of solar irradiance and particle flux variability on the upper atmosphere, and the sources of that solar variability. Approaches include rocket and satellite measurements of the solar outputs and of the atmosphere, and data analysis and theoretical modeling. Currently Co-Investigator on the Thermosphere-Ionosphere-Mesosphere Energetics and Dynamics (TIMED) satellite Solar EUV Experiment (SEE).

---

daniel.baker@lasp.colorado.edu (303) 492-4509
Charles A. Barth
charles.barth@lasp.colorado.edu (303) 492-7502
Joshua E. Colwell
josh.colwell@lasp.colorado.edu (303) 492-6805
Scot Elkington
elkingto@lasp.colorado.edu (303) 735-0810
Francis G. Eparvier
eparvier@colorado.edu, (303) 492-4546, http://stripe.colorado.edu/~eparvier
**Stefan Eriksson**

Space physics problems related to magnetic reconnection and its effects on the magnetosphere (convection, field-aligned currents, particle precipitation) as well as in the solar wind. The work involves data analysis as well as reconnection simulations using VORPAL (3-D electromagnetic fully kinetic particle code) in collaboration with Dr. Messmer at the Tech-X Corporation. The research is focused on magnetospheric and solar wind physics, such as magnetopause reconnection away from the subsolar region and the link between substorm onsets and tail reconnection. Examples include whether antiparallel merging for dominant IMF By conditions can explain high-latitude lobe cell convection and the related NBZ field-aligned current system in the polar cap, whether slow-mode shocks are observed at times of near-Earth tail reconnection and the analyses of solar wind reconnection events with Dr. Gosling.

*eriksson@lasp.colorado.edu (303) 492-8573*

**Larry W. Esposito**

Observational and theoretical studies of planetary atmospheres and rings; chemistry and dynamics of the Venus clouds; waves in Saturn's rings; numerical methods for radiation transfer.

*espo@lasp.colorado.edu (303) 492-7325*

**John T. Gosling**

Space plasma physics; observational studies of the Sun, the solar wind and Earth's magnetosphere using satellite and space probe data; solar-terrestrial physics; magnetic reconnection; collisionless shocks; coronal mass ejections; corotating interaction regions.

**Jerald Harder**

Measurement and interpretation of solar spectral irradiance; Development of space-borne prism spectrometers.

*jerry.harder@lasp.colorado.edu (303) 492-1891*

**Mihaly Horanyi**

Dusty space and laboratory plasmas. Electrodynamic processes and their role in the origin and evolution of the solar system. Comets, planetary rings, plasma surface interactions at moons and asteroids. Aerosol charging, in situ and remote observations of dust.

*mihaly.horanyi@lasp.colorado.edu (303) 492-6903*

**Bruce M. Jakosky**

Teaching and research activities focus on understanding the nature of planetary surfaces and atmospheres and the possibility for the existence of life in the universe. Specific activities include teaching undergraduate and graduate courses, training graduate students, research and grant activity pertaining to planetary science and exobiology, leading the campus effort in astrobiology, exploring the nature of the interactions between science and society, and outreach to the public.

*bruce.jakosky@argyre.colorado.edu (303) 492-8004*

**Greg Kopp**


*Greg.Kopp@lasp.colorado.edu, 303-735-0934*

**George M. Lawrence**

Physical chemistry, laboratory spectroscopy, experiment design and analysis, signal conditioning, vacuum technology, IR detectors, UV detectors, imaging detectors, microchannel plates.

*george.lawrence@lasp.colorado.edu (303) 492-5389*

**Steven W. Lee**

Development of computer techniques for analysis and correlative study of multiple remote-sensing data sets; Digital image processing techniques; Physics of atmosphere/surface interactions; Mechanisms and rates ofolian sediment transport; Effects of topography on regional atmospheric circulation; Educational outreach: incorporating planetary science into K-12 curricula.

*steve.lee@lasp.colorado.edu (303) 492-5348*

**Xinlin Li**

Space physics, data analysis and modeling. Especially interested in understanding the dynamics of relativistic electrons in the magnetosphere: the source, loss, and transportation of these MeV electrons; also interested in charged particle injections.
into inner magnetosphere during magnetic storms and substorms, and magnetosphere-atmosphere coupling due to energetic particle precipitations.

William E. McClintock
Observational Astrophysics - Ultraviolet observations of the outer atmospheres of cool stars and the very local (d<20pc) interstellar medium. Ultraviolet Observations of Planetary Atmospheres. Development of state-of-the-art instrumentation for high resolution spectroscopy for the 900-2500/ wavelength range.

Michael Mellon
The history of water on Mars, the martian permafrost, surface-atmosphere interactions and the martian climate. Periglacial geology and geophysics on Earth and Mars. Use of ice-related geomorphic features as an indicating of the distribution of subsurface ice. Antarctic analogs to martian geomorphology. Laboratory research in transport processes in frozen soils, including gas diffusion and solute migration and the effects of water vapor, ice, and adsorbate on transport physics. Remote sensing and thermophysical properties of planetary regoliths, with specific emphasis on martian surface material. Planetary surface temperature behavior and geothermal heat flow.

Michael Mills
Research has focused on stratospheric sulfate aerosol. The current research tool is a 2D microphysical model of the troposphere, stratosphere, and mesosphere. A primary goal has been to assess the sources of the nonvolcanic stratospheric sulfate layer, and understand anthropogenic contributions. Because of the role of aerosol in stratospheric chemistry and radiative balance, this knowledge of its sources is critical to understanding global change. Recent efforts have attempted to understand discrepancies between observed and calculated aerosol mass at the top of the layer. Other work has examined the causes of observed particle nucleation in polar winter, the implications for aerosol of recently measured photolysis rates for H2SO4 and SO3, and volcanic aerosol as a potential source for polar mesospheric clouds.

Keiji Ohtsuki
Theoretical studies of planet formation; origin and dynamical evolution of ring-satellite systems.

Robert T. Pappalardo
Processes that have shaped the surfaces of icy outer planet satellites. The nature, origin, and evolution of bright grooved terrain on Jupiter's moon Ganymede, specifically the style of tectonism and implications for the satellite's geological history. The role of solid-state convection in the history of Europa, investigation of regions of separation and spreading of the Europa's icy lithosphere, and implications of the surface geology for lithospheric properties and the existence of a liquid water ocean beneath Europa's icy surface.

William K. Peterson
Research Interests: (Missing on last years:) Obtaining and using observations from ground and space based instruments to characterize the Earth's plasma environment to test models and theories attempting to describe it.

Cora E. Randall
Remote sensing of the Earth's middle atmosphere focusing on satellite data analysis. Primary research areas include the effects of energetic particle precipitation on stratospheric ozone, polar mesospheric clouds, satellite data validation, and global chemistry-climate model validation.

Gary J. Rottman
Accurately measure the solar spectral irradiance (Principal Investigator on sounding rockets, UARS, EOS, SORCE, TSIM, and GLORY and Co-Investigator on SME, TIMED, and SDO). Special emphasis is given to solar variability on all time scales and to comparisons of the solar irradiance with the output of other late type stars. Past work has concentrated on the ultraviolet (λ<300) irradiance, but emphasis has not extended to the visible and near-infrared. Application of ultraviolet spec-
troscopy and the development of new instrumentation for remote sensing.
gary.rottman@lasp.colorado.edu (303) 492-8324

David W. Rusch

The general fields of spectroscopy and aeronomy, emphasizing the measurements of minor constituents and aerosols in planetary atmospheres such as nitric oxide and ozone and the physical and chemical phenomena which determine their densities and temporal variations. Research in the atmospheric sciences including stratospheric, mesospheric, and thermospheric data analysis and modeling. Application of the principles of molecular and atomic spectroscopy in the measurement of ultraviolet, visible, and near-infrared emission and absorption features to obtain understanding of atmospheric phenomena. Current research involves the determination of atmospheric processes affecting ozone and the reevaluation of ozone trends from long-term satellite measurements.
rusch@sertan.colorado.edu (303) 492-8627
http://lasp.colorado.edu/~rusch/dwr.html

Nicholas M. Schneider

The physics of planetary magnetospheres, particularly the interactions between planetary plasmas and the satellites of the outer planets. Extensive groundbased observations of the Jupiter/Io system, especially imaging and spectroscopy of the Io atmosphere and plasma torus. Program has been expanded to include Hubble Space Telescope observations. Designing and building of a spacecraft to study the Jupiter/Io system.
nick.schneider@lasp.colorado.edu (303) 492-7672
http://ganesh.colorado.edu/nick

Martin Snow

Primary research interests include ultraviolet spectroscopy of stars and the sun and the interaction of comets with the solar wind. The SOLSTICE instruments on UARS and SORCE provide a wealth of information about solar activity in the 115-300 nm range on a variety of timescales, ranging from minutes (solar flares) to decades (solar cycle). Understanding the variation in the solar output will lead to understanding its influence on the Earth. The interaction of comets with the solar wind is best studied using wide-field photography. Both amateur and professional astronomers contribute to this effort, and one research activity has been to help coordinate the interaction of the two groups.
marty.snow@lasp.colorado.edu 303-735-2143

A. Ian F. Stewart

The investigation by ultraviolet emissions of the aeronomy of planetary and satellite atmospheres, cometary comae, and Io’s plasma torus.
stewart@viralf.colorado.edu (303) 492-4630

Glen R. Stewart

Origin and evolution of the solar system, with an emphasis on modeling the solid-body accretion of the terrestrial planets and the solid cores of the giant planets. Accretion of the Moon after a giant impact on the Earth. Modeling of satellite wakes and spiral density waves in planetary rings. Nonlinear dynamics of the three-body problem as applied to problems in solar system dynamics.
glen.stewart@lasp.colorado.edu (303) 492-3737

Gary E. Thomas

Research concerning the middle atmosphere of Earth, in particular the mesosphere (50-100 km). Of interest are noctilucent clouds which occur in the high-latitude summertime mesopause region, around 83 km. These clouds were observed for five years by a CU LASP ultraviolet experiment onboard the LASP SME satellite, and more recently by instruments onboard the POAM II and UARS (Upper Atmosphere Research Satellite) spacecraft. In the last decade, interest involves global change in this region, possibly caused by anthropogenic emissions and by climate changes in the troposphere. Critical parameters studied are solar UV flux, water vapor, temperature and ozone which are being monitored by instruments onboard the UARS.
gary.thomas@lasp.colorado.edu (303) 492-7022
http://lasp.colorado.edu/noctilucent_clouds

Owen B. Toon

Theoretical studies of stratospheric aerosols; investigations of volcanic aerosols and studies of polar stratospheric clouds; theoretical studies of tropospheric clouds, aerosols and radiative transfer; experimental investigations of stratospheric and tropospheric phenomena; theoretical investigations of planetary atmospheres.
btoon@lasp.colorado.edu (303) 492-1534
Robert Weigel

Robert.Weigel@lasp.colorado.edu (303-492-2159)

Thomas N. Woods
Observational studies of the solar ultraviolet (UV) radiation, its variability, and its interaction with Earth's atmosphere. Principal investigator of NASA suborbital program to study the solar irradiance and thermospheric airglow. Principal investigator of the Solar EUV Experiment (SEE) on the TIMED mission. Co-investigator of the Solar Stellar Irradiance Comparison (SOLSTICE) experiment currently making solar UV irradiance measurements on the Upper Atmosphere Research Satellite (UARS) and planned for the Earth Observing System (EOS) missions.
tom.woods@lasp.colorado.edu (303) 492-4224

FACULTY SERVICE ACTIVITIES

Aerospace Engineering Sciences Department (AES)
Li, X. (Member; Graduate Committee on Curriculum)
Li, X. (Member; AES/LASP Cooperation Committee)

Air Force Technical Applications Center (AFTAC) Satellite Review Panel
Baker, Daniel (Chair)

American Association for the Advancement of Science (AAAS)
Gosling, John T., (Member)
Jakosky, Bruce (Member; Advisory Committee, Program on Dialogue on Science, Ethics, and Religion)

Association of American Universities (AAU)
Esposito, Larry (Member; Science Working Group)

American Geophysical Union (AGU)
Avalone, Linnea (Member; Sullivan Award Committee)
Baker, Daniel (Past President; Space Physics and Aeronomy Section, 2004-2006)
Baker, Daniel (Chair; SPA Nominations Committee)
Baker, Daniel (Convenor; Special sessions)
Ergun, Robert (Member; Press and Public Affairs Committee)
Esposito, Larry (Main Organizer and Chair; AGU Chapman Conf. on Venus exploration)
Esposito, Larry (Session Organizer; 2005 Fall Meeting, Planetary Rings)
Gosling, John T. (Member)
Gosling, John T., (Member: Nominations Committee, Space Physics and Aeronomy)
Li, X., (Co-convenor of special session (2005 Fall Meeting))
American Meteorological Society (AMS)
Avallone, Linnea (Member; Committee on the Middle Atmosphere)

Asia Oceania Geosciences Society (AOGS)
Li, X., (Co-convenor for 2005 Annual Meeting)

Astrophysical and Planetary Sciences Department (APS)
Pappalardo, Robert (Department Representative, CU Geophysics Ph.D. Program)
Pappalardo, Robert (Member; Admissions Committee)
Pappalardo, Robert (Member; Course fees Committee)
Schneider, Nicholas (Major and Minor Advisor)
Schneider, Nicholas (Member; Telescope Allocation Committee)
Schneider, Nicholas (Co-Chair; Colloquium)
Schneider, Nicholas (Member; Newsletter Committee)
Schneider, Nicholas (Member; Reappointment Committee)

Atmospheric and Oceanic Sciences (ATOC)
Pilewskie, Peter (Member; Admissions Committee)
Pilewskie, Peter (Member; Comprehensive Exams Committee)
Pilewskie, Peter (Member; Distinguished Lecturers Committee)
Toon, Owen B. (Director; Program in Atmospheric and Oceanic Science)

Committee on Space Research (COSPAR)
Esposito, Larry (Main Scientific Organizer; COSPAR 34)

CIRES Earth Sciences Institute
Avallone, Linnea (Lecturer)

CLUSTER Science Working Team
Baker, Daniel (Member)

Editor
Avallone, Linnea (Associate Editor; J. of Geophysical Research – Atmospheres)
Baker, Daniel (Regional Editor: J. of Atmospheric and Solar Terrestrial Physics)
Baker, Daniel (Associate Editor; Space Weather)
Baker, Daniel (Co-Editor; Space Science Review Special Issue)
Jakosky, Bruce (Member; Editorial Board – Geobiology, Astrobiology, International J. of Astrobiology)
Pappalardo, Robert (Guest Editor; Special Issue Journal of Structural Geology)

Electronic Geophysical Year Steering Committee
Baker, Daniel (Chair)

Global Chinese Aerospace Weather Science Meeting
Li, X. (Co-convenor for 2005 meeting session)
Huntsville Conference on Space Physics
Baker, Daniel (Member; Organizing Committee)

International Assoc. for Geomagnetism and Aeronomy (IAGA)
Baker, Daniel (Ex Officio Member; Bureau)
Baker, Daniel (Chair; IGY + 50 Task Force)

International Astronomical Union (IAU)
Gosling, John T., (Member)

Institute of Geophysics and Planetary Physics (IGPP)
Gosling, John T. (Member: Workshop on the Physics of Collisionless Shocks)

International Union of Geodesy and Geophysics (IUGG)
Baker, Daniel (Member; IGY+50 Advisory Committee)
Baker, Daniel (U.S. Representative)

International Heliophysical Year Planning Group
Baker, Daniel (Member)

International Probe Workshop
Esposito, Larry (Member; Scientific Organizing Committee)

International Space Science Institute Working Group
Baker, Daniel (Member)

International Space Weather Conference
Baker, Daniel (Member; Organizing Committee)

Jupiter Icy Moon Orbiter, NASA Science Definition Team
Pappalardo, Robert, Member

Laboratory for Atmospheric and Space Physics (LASP)

Business Committee
Baker, Daniel (Chair)
Davis, Randal
Himes, Caroline
Jakosky, Bruce
McGrath, Michael
Woods, Tom

Computer Services Advisory Committee (CSAC)
Colwell, Josh (Chair)
Bardeen, Charles
Delamere, Peter
Elkington, Scot
Himes, Caroline
Kopp, Greg
Lankton, Mark
Lewis, Ryan
Pankratz, Chris

**Education and Public Outreach Advisory Committee**
Eparvier, Francis (Chair)
Avallone, Linnea
Bagenal, Fran
CoBabe-Ammann, Emily
Himes, Caroline
Li, Xinlin
Randal, Cora
Reed, Heather
Stewart, Glen
Stewart, Ian

**Engineering Managers Meeting**
McGrath, Michael (Chair)
Anfinson, Mike
Bolton, Mary
Bramer, Shelly
Drake, Ginger
Himes, Caroline
Lankton, Mark
McGilvray, Beth
Reed, Heather
Sparn, Tom
Tate, Gail
Taylor, Trent
Westfall, Jim
Williams, Ann
Woods, Tom

**Executive Committee**
Baker, Daniel (Chair)
CoBabe-Ammann, Emily (Member)
Colwell, Josh (Member)
Davis, Randall (Member)
Ergun, Robert (Member)
Esposito, Larry (Member)
Grover, Bonnie Kae (Member)
Himes, Caroline
Horanyi, Mihaly
Jakosky, Bruce
Li, Xinlin
McClintock, William
McGrath; Michael
Randal, Cora
Rottman, Gary
Stewart, Ian
Woods, Thomas

**LASP Seminar Series**
Andersson, Laila (Coordinator)

**Library Committee**
Snow, Marty (Chair)
Eparvier, Francis
George, Vanessa
Horanyi, Mihaly
Knapp, Barry
Rohner, Hans
Simmons, Karen
Wullschleger, Ed
Proposal Development Committee
  Woods, Tom, (Chair)
  Anfinson, Mike
  Baker, Daniel
  CoBabe-Ammann, Emily
  Davis, Randal
  Ergun, Bob
  George, Vanessa
  Himes, Caroline
  Jakosky, Bruce
  Kopp, Greg
  McClintock, Bill
  McGilvray, Beth
  McGrath, Michael
  Pankratz, Chris
  Perez de Tejada, Ann
  Reed, Heather
  Richard, Erik
  Ryan, Sean
  Sparn, Tom
  Tate, Gail
  Westfall, Jim

Self-Study Committee
  Jakosky, Bruce (Chair)
  Bagenal, Fran
  Baker, Daniel
  CoBabe-Ammann, Emily
  Davis, Randal
  Esposito, Larry
  Himes, Caroline
  Horanyi, Mihaly
  McGrath, Michael
  Randall, Cora
  Rusch, David
  Schneider, Nick
  Woods, Tom

Langley Distributed Active Archive Center
  Randall, Cora (Member; User Working Group)

MESSENGER/Mercury Orbiter Science Working Team
  Baker, Daniel (Member)

National Academy of Science
  Baker, Daniel (Member; Space Studies Board)
  Baker, Daniel (Chair; NAS/NRC Committee on Solar and Space Physics)
National Aeronautics and Space Administration (NASA)
Baker, Daniel (Member; NASA Magnetospheric Multiscale Mission, Science Team)
Baker, Daniel (Advisor, Sun-Earth Connections Roadmap Committee)
Jakosky, Bruce (Chair; Mars Exploration Program Analysis Group)
Jakosky, Bruce (Member; MEPAG Mars Sample Return Science Steering Group)
Jakosky, Bruce (Member; MEPAG Mars Pathways AdHoc Working Group)
Jakosky, Bruce (Member; MEPAG Program Planning Science Analysis Group)
Jakosky, Bruce (Convenor and Meeting Chair; Astrobiology Institute Biannual meeting)
Pappalardo, Robert (Member; Astrobiology institute Local Organizing Committee)
Pappalardo, Robert (Member; Solar System Exploration Subcommittee)
Pappalardo, Robert (Member; Solar System Exploration Strategic Roadmap Committee)
Pappalardo, Robert (Member; Jupiter Icy Moon Orbiter, NASA Science Definition Team)
Pappalardo, Robert (Member; Outer Planets Assessment Group – Europa Subgroup)
Randall, Cora, (Chair; Validation session at NASA Solar Occultation Satellite Science Team (SOSST) annual meeting)
Randall, Cora (Member; EOS/Aura education/outreach working group)
Randall, Cora (Member, Solar Occultation Satellite Science Team Executive (SOSST) Committee)
Toon, Owen B. (Member, Tropical Clouds Mission Organizing Committee)

National Center for Atmospheric Research (NCAR)
Avallone, Linnea (Member; External Advisory Committee for Inst. For Integrative and Multidisciplinary Earth Sciences)

National Oceanic and Atmospheric Administration (NOAA)
Baker, Daniel (Member; Strategic Planning Group (External))

National Science Foundation (NSF)
Avallone, Linnea (Member; NSF Observing Facilities Advisory Panel (OFAP))
Baker, Daniel (Member; Advisory Panel on Faculty Development)
Peterson, William K. (Co-Chair: Global Environmental Modeling Magnetospheric-Ionospheric Campaign Working Group)

National Research Council (NRC)
Pilewskie, Peter (Member; Space Studies Board (SSB), Comm. On Large Optical Systems in Space)
Pilewskie, Peter (Member; Steering Committee, Achieving Satellite Instrument Calibration for Climate Change)

National Space Weather Program Assessment
Baker, Daniel (Member; Joint Action Group)

Outer Planets Assessment Group – Europa Subgroup
Pappalardo, Robert, Member

Phi Beta Kappa
Gosling, John T., (Member)
Planetary Society
Jakosky, Bruce (Member; Advisory Board)

Polar Science Working Team
Baker, Daniel (Member)

Program in Atmospheric and Oceanic Sciences (PAOS)
Randall, Cora (Member; PAOS graduate student admissions Committee)
Randall, Cora (Member; PAOS reappointment Committee for Peter Pilewskie)

Reviewer of Manuscripts, Grants, or Creative Work
Andersson, Laila (proposals: NSF and NASA)
Avallone, Linnea (proposals: Natural Environmental Research Council Centers for Atmospheric Sciences (UK))
Avallone, Linnea (proposal: US Civilian Research and Development Foundation)
Avallone, Linnea (manuscripts: Geophysical Research Letters, J. of Atmospheric and Oceanic Technology)
Avallone, Linnea (Canadian Foundation for Climate and Atmospheric Sciences (CFCAS) proposal)
Baker, Daniel (Member; Space Physics Research lab (U. of Michigan) Review Committee)
Stefan Erikksen (proposals: National Science Foundation)
Horanyi, Mihaly (proposals: National Science Foundation, Dept. of Energy, and NASA)
Jakosky, Bruce (proposal: NASA Mars Fundamental Research Program)
Li, Xinlin (proposals: NASA and NSF)
Pappalardo, Robert (proposals: NASA’s Outer Planet Research Program and Planetary Geology and Geophysics Program)
Peterson, William K. (proposals: National Science Foundation)
Pilewskie, Peter (proposals: National Science Foundation and UK Natural Environmental Research Council)
Randall, Cora (proposals: Swedish National Space Board, NSF, NERC (UK))

SAMPEX Science Working Team
Daniel Baker (Member)
Space Science Institute (SSI)
Schneider, Nicholas (Advisor; Museum exhibit on Giant Planets)

University of Colorado
Avalone, Linnea (Member; BFA Committee on Women)
Baker, Daniel (Member; Graduate School/Institute Directors Group)
Baker, Daniel (Deputy Director; Center for Limb Atmospheric Sounding)
Baker, Daniel (Member; External Advisory Board, Aerospace Engineering Department)
Baker, Daniel (Member; Chancellor’s Federal Relations Advisory Committee)
Baker, Daniel (Chair; Boulder Matrix Space Advisory Group)
Baker, Daniel (Member; VCR Research Cabinet)
Esposito, Larry (Chair; BFA Compensation and Benefits Committee)
Himes, Caroline (Member; BFA Budget and Finance Committee)
Himes, Caroline (Co-Chair; Meetings of Institute Administrators)
Horanyi, Mihaly (Member; Physics Department Undergraduate Committee)
Horanyi, Mihaly (Chair; Comps Committee)
Horanyi, Mihaly (Associate Chair; Physics Department, Graduate Studies)
Horanyi, Mihaly (Member; BFA Library Committee)
Jakosky, Bruce (Organizer and Moderator; CU Center for Astrobiology Symposium)
McGilvray, Beth (Member; BFA Committee)
Pilewskie, Peter (Member; BFA Academic Affairs Committee)

Universities Space Research Association (USRA)
Baker, Daniel (Member; Astronomy and Space Physics Council)
Baker, Daniel (Member; Council of Institutes)
Baker, Daniel (Representative, Council of Institutes)
Jakosky, Bruce (Member; Lunar and Planetary Institute Science Council)

Faculty Honors/Awards
Avalone, Linnea (Recipient, NASA Goddard Space Flight Center Group Achievement Award, 2005)
Esposito, Larry (Fellow; American Geophysical Union)
Horanyi, Mihaly (SPS Physics Professor of the Year)
Pilewskie, Peter (NASA Group Achievement Award, INTEX-NA Science Team)
Randall, Cora (Certificate of Recognition, NASA Aura Project)
Randall, Cora (NASA Group Achievement Award, NASA Aura Project)
Rottman, Gary (University of Colorado Robert L. Stearns Award)
Toon, Owen B. (NASA Group Achievement Award, NASA Aura Satellite)

Courses Taught by LASP Faculty
Spring 2005

<table>
<thead>
<tr>
<th>Name</th>
<th>Course #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linnea Avallone</td>
<td>ATOC 6020</td>
<td>Group Meeting/Journal Club</td>
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<tr>
<td>Linnea Avallone</td>
<td>ATOC 5900</td>
<td>Independent study Advanced Atmospheric Chemistry</td>
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<tr>
<td>Emily CoBabe-Ammann</td>
<td>ATOC 6020</td>
<td>Teacher Professional Development Workshop on the Outer Planets</td>
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<tr>
<td>Robert Ergun</td>
<td>ASTR 6000</td>
<td>Seminar</td>
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<tr>
<td>Name</td>
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<td>Description</td>
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<tr>
<td>Robert Ergun</td>
<td>ASTR 5140</td>
<td>Plasma Astrophysics</td>
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<tr>
<td>Larry Esposito</td>
<td>ASTR 5835</td>
<td>Graduate Seminar</td>
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<tr>
<td>Larry Esposito</td>
<td>ASTR 5830</td>
<td>Extrasolar planets</td>
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<tr>
<td>Mihaly Horanyi</td>
<td>PHYS 2210</td>
<td>Foundations of modern physics</td>
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<tr>
<td>Xinlin Li</td>
<td>ASEN 4010</td>
<td>Intro to Space dynamics</td>
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<tr>
<td>Robert Pappalardo</td>
<td>ASTR/GEOIL 3300</td>
<td>Extraterrestrial Life</td>
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<tr>
<td>Peter Pilewskie</td>
<td>ATOC 6020-005</td>
<td>Remote sensing Seminar</td>
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<tr>
<td>Nick Schneider</td>
<td>ASTR 1010</td>
<td>Intro. Astronomy for Non-Science Majors</td>
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<tr>
<td>Owen Toon</td>
<td>ATOC 6020</td>
<td>Seminar on aerosols</td>
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**Fall 2005**

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<thead>
<tr>
<th>Name</th>
<th>Course #</th>
<th>Description</th>
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<tr>
<td>Fran Bagenal</td>
<td>ASTR 1030</td>
<td>Accelerated Intro to Astronomy</td>
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<tr>
<td>Fran Bagenal / Robert Ergun</td>
<td>ASTR 5835</td>
<td>Planetary Seminar – Aurora</td>
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<tr>
<td>Robert Ergun</td>
<td>ASTR 1120</td>
<td>General Astronomy: Stars/Galaxy</td>
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<tr>
<td>Robert Ergun</td>
<td>ASTR 5835</td>
<td>Planetary Seminar</td>
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<tr>
<td>Larry Esposito</td>
<td>ASTR 3750</td>
<td>Planets, Moons, and Rings</td>
</tr>
<tr>
<td>Mihaly Horanyi</td>
<td>PHYS 2210</td>
<td>Mechanics and its Analytical Methods</td>
</tr>
<tr>
<td>Bruce Jakosky</td>
<td>GEOL 5700</td>
<td>Planetary Field Geology</td>
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<tr>
<td>Xinlin Li</td>
<td>ASEN 3113</td>
<td>Thermo and Heat transfer</td>
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<tr>
<td>Mike McGrath</td>
<td>GEEN 1400</td>
<td>Intro to Engineering Projects</td>
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<tr>
<td>Michael Mills</td>
<td>ATOC 3500</td>
<td>Air Chemistry and Pollution</td>
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<tr>
<td>Bob Pappalardo</td>
<td>ASTR 5800</td>
<td>Planetary Surfaces and Interior</td>
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<tr>
<td>Bob Pappalardo</td>
<td>GEOL 5700</td>
<td>Planetary Science Field Course</td>
</tr>
<tr>
<td>Nick Schneider</td>
<td>ASTR 1110</td>
<td>General Astronomy: Solar System</td>
</tr>
<tr>
<td>Owen Toon</td>
<td>ATOC 5600</td>
<td>Physics and Chemistry of Clouds and Aerosols</td>
</tr>
</tbody>
</table>

**Colloquia and Informal Talks**

**Spring 2005**

Fred C. Adams, U. of Michigan, The origin and fate of the universe  
Stanley Awramik, UC/Santa Barbara, Life in the Balmy Waters of Lake Meentheena (Late Archean Tumbiana Formation, Western Australia)  
Mark A. Bullock, (SwRI) and Jeffrey M. Moore, (NASA/Ames), Atmospheric Conditions on Early Mars and the Lack of Carbonate Deposits  
Christopher F. Chyba, SETI Institute and Stanford University, Astrobiology, life, and civilization  
**Emily CoBabe-Ammann**, CU / LASP, Education and Public Outreach: Moving Fast, Moving Forward, Moving…Where?  
**Joshua Colwell**, CU / LASP, Cassini UVIS Observations of Saturn's Rings  
Shelley D. Copley, CU/MCDB/CIRES, Center for Astrobiology, A Mechanism for the Association of Amino Acids with their Codons and the Origin of the Genetic Code  
William (Ned) Friedman, CU/EPOB, Asteroid impacts, symbiosis, and the prevalence of subterranean plants  
J. T. Gosling, Los Alamos National Laboratory, Magnetic Reconnection in the Solar Wind Near 1 AU  
John F. Haught, Georgetown University, Astrobiology and cosmic purpose
Wesley T. Huntress, Jr., Carnegie Institute of Washington, The future of space exploration

Brian M. Hynek, CU/LASP, Unraveling the geological, hydrological, and geochemical histories of Meridiani, Mars: An abode for life?

Michael D. King, NASA GSFC, Spatial and Temporal Distribution of Tropospheric Clouds Observed by MODIS Onboard the Terra and Aqua Satellites

Kristopher Larsen, CU/LASP, Terrestrial Radar Observations of Mars

Charles Lineweaver, Planetary Science Institute, Australian National University, The Galactic Habitable Zone and the Age Distribution of Complex Life in the Milky Way

Gang Lu, HAO/NCAR, Corotating High-Speed Streams, Magnetic Clouds, and Interplanetary Shocks: A Study of Geoefficiveness

William E. McClintock, CU / LASP, SOLSTICE II: A Progress Report on the SOLar STellar Irradiance Comparison Experiment

Diane M. McKnight, CU/INSTAAR and Dept. of Civil, Environmental, and Architectural Engineering, Glacial Meltwater streams in the McMurdo Dry Valleys: Ecosystems waiting for water

Keiji Ohtsuki, CU/LASP, Rotation of Moonlets and Particles in Planetary Rings

Norman R. Pace, CU/MCDB/Astrobiology, What Do Phylogenetic Trees Tell Us about the Origin and Evolutionary Course of Life?

Alfred M. Powell, Jr., NOAA/NESDIS, Camp Springs, MD, In Search of the Sun-Earth Connection

William Priedhorsky, Los Alamos National Laboratory Remote Detection of Proliferation: an Observational Science

John R. Spear, CU/MCDB/Astrobiology, What can we learn from microbial ecology in some extreme environments?

Ralf Srama, MPIK Heidelberg, Germany, Dust Measurements with Cassini

Feng Tian, CU/LASP, Hydrodynamic escape; hydrogen content in early Earth's atmosphere and Enhanced escape from Pluto

Linnea Avallone, CU/LASP, Ozone chemistry in the high latitude boundary layer

Fran Bagenal, LASP/APS, Juno: How We Will Fly Over the Poles of Jupiter and Why

Nicholas Brummell, JILA/APS, Magnetic Field Transport in the Solar Dynamo(s)

Scot Elkington, CU/LASP, The Sun, the solar wind, and Earth’s trapped radiation environment

Stefan Eriksson, CU/LASP, Ionospheric convection response to high-latitude reconnection: Cluster and SuperDARN observations

Larry Esposito, CU/LASP, Monte Carlo model of sputtering and other ejection processes within a regolith

Damhnait Gleeson, CU/LASP, Signs of life beneath the ice

Brian Hynek, CU/LASP, The Scales of Mars

Bruce Jakosky, LASP/Geology, Mars volatile evolution: Emergence of a new paradigm?

Eric Jensen, NASA Ames, Impact of smoke particles on cumulonimbus cloud dynamics, microphysics, and radiative forcing

Giovanni Lapenta, Los Alamos National Laboratory, Interplay of flows and magnetic fields in solar and space environments
K. D. Leka, NorthWest Research Associates, Inc., Colorado Research Associates Division, Are We There Yet?: The Journey to Understand and Predict Solar Energetic Events
Mark Linton, Naval Res. Lab., Coronal mass ejections: Magnetic reconnection and flare loop formation
Thomas McCollom, CU/LASP, Exploring terrestrial analogs of potential biological habitats on other planets
Ken Mankoff, NASA/GISS, Global Climate Model: An educational version
Robert Pappalardo, CU/LASP, The search for Europa’s ocean
Eric Quemarais, CNRS (France), Studies of the interplanetary Lyman alpha background with the SWAN experiment on SOHO; What we learned on the Hydrogen Ionization rate, the solar flux spatial and temporal variations, and the heliospheric interface
Markus Rapp, Stockholm University, Polar Mesospheric Clouds: Current Understanding of Microphysical Processes and Interpretation of Observations
Mark Rast, HAO/NCAR, Solar variability: The role of photospheric flows
Sebastian Schmidt, CU/LASP, Quantifying the Effects of Cloud Heterogeneities on Spectral Solar Radiation
Elizabeth Turtle, Lunar and Planetary Lab, Exploring the surface of Titan with Cassini-Huygens
V. Uritsky, A. Klimas, St. Petersburg Univ., and D. Vassiliadis, NASA/GSFC, Scale-free dynamics of earth’s magnetosphere: Observational signatures and predictability
Tom Vonder Haar, CIRA Colorado State University, Earth's Radiation Budget: From Early Discoveries to Current Science Results and Questions
Mel Zhang, National Astronomical Observatory, Chinese Academy of Sciences, Conservation and transport of magnetic helicity: The case of solar coronal mass ejections.

Publications


Heldmann, J.L., et al., Annual development cycle of an icing deposit and associated


Works in Progress


Patterson, G. W., J. W. Head, and R. T. Pap-
palardo. Plate motion on Europa and non-
rigid behavior of the icy lithosphere: The
Castalia Macula Region. J. Struct. Geol.,
in review, 2005.

Peterson, W.K., H.L. Collin, O.W. Lennart-
sen and A.W. Yau, Intensity and charac-
teristic energy of upflowing ionospheric
ions as a function of solar illumination
during solar and geomagnetically quiet
times, submitted, J. Geophys. Research,
2005.

Richards, P.G., T. N. Woods and W. K. Pete-
erson, HEUVAC: A new high resolution sol-
ar EUV proxy model, in press, Adv.

Sarris, T., X. Li, and M. Temerin, Simulating
radial diffusion of genergetic (MeV) ele-
ctrons through a model of fluctuating ele-
ctric and magnetic fields, J. Geophys. Res.,

Papers Presented at Scientific Meetings

Andersson, L., Observations of linear and
non-linear Alfven waves, Fall AGU

Andersson, L.; Peterson, W. K.; McBryde, and
K. M., Dynamic coordinates for auroral
ion outflow, FAST Workshop, Berkeley,
CA, 2005.

Andersson, L., W. K. Peterson, and K. M.
McBryde, Estimates of the O+ outflow
characteristic energy and relative location
in the auroral oval, IAGA meeting, Tou-
louse, France, 2005.

Andersson, L., D. L. Newman, R.E. Ergun,
and M. V. Goldman, Transition layers in
the downward current region of the iono-
sphere-magnetosphere system, IPELS met-
ing, Tromso:

Andersson, L., How plasma-sheet type elec-
tron precipitation can influence the auroral
downward current, IAGA meeting, session
GAIIO2, Toulouse, France, 2005

Shen, C., X. Li, M. Dunlop, Q. Q. Shi, Z. X.
Liu, E. Lucek, Magnetic field rotation
analysis and the applications, J. Geophys.

Shprits, Y.Y., R.M. Thorne, R.B. Horn, S.A.
Gkayerht, N. Cartwright, C.T. Russell,
D.N. Baker, and S.G. Kanekal, Acceler-
ation mechanism responsible for the for-
formation of the new radiation belt during the
2003 Halloween solar storm, submitted,

Sparling, L.C., J. C. F. Wei, and L. M. Aval-
lone, Estimating the impact of small scale
variability in satellite measurement valida-
tion, in review with J. Geophys. Res.,
2005.

Wiltberger, M., and D.N. Baker, End-to-end
modeling of the solar terrestrial system,
2005.

Argall, M.R., M.J. Engebretson, J.E. Johnson,
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- Magnetoospheric Multiscale (MMS)
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Elkington, Scot  Global characteristics of the substorm particle injection process

Elkington, Scot  Radiation belt radial diffusion

Emery, William  Ocean wind and land surface student satellite

Ergun, Robert  Influence of double layers and electron holes on observed phenomena in the auroral downward current region

Ergun, Robert  MMS Bridge (with Boom Tip)

Ergun, Robert  Small and medium scale modeling of the auroral downward current region

Ergun, Robert  FAST satellite operations and data analysis

Ergun, Robert  Parallel electric fields in the upward current region of the aurora

Eriksson, Stefan  Flank magnetotail reconnection

Esposito, Larry  UVIS – Cassini; Mission Operations and Data Analysis

Gosling, John T.  Low-energy solar electron bursts

Gosling, John T.  Impact experiment work for stereo

Horanyi, Mihaly  Cassini CDA investigations

Horanyi, Mihaly  New Horizons Mission Student Dust Counter (SDC)

Horanyi, Mihaly  Mesospheric aerosol particle spectrometer

Horanyi, Mihaly  Mesospheric aerosol sampling spectrometer (MASS)

Hynek, Brian  Evolution of enigmatic Arabia Terra, mars, and global consequences

Jakosky, Bruce  Thermal imaging system

Jakosky, Bruce  University of Colorado Center for Astrobiology

Jakosky, Bruce  Workshop on Mars astrobiology science and technology support

Jakosky, Bruce  Astronomical detection of biosignatures from extrasolar terrestrial planets

Kanekal, Shrikanth  Study of proton cutoffs during SEP events

Kanekal, Shrikanth  Relativistic electron dynamics during geomagnetic storms: Energization, loss and global coherence

Kanekal, Shrikanth  Study of proton cutoffs during SEP events from 1992 to 2002

Kopp, Greg  GLORY project – TIM: Six ROM budget

Lee, Steven  MGS MOC global mapping of Martian albedo
<table>
<thead>
<tr>
<th>Name</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li, Xinlin</td>
<td>Source of radiation belt electrons</td>
</tr>
<tr>
<td>Li, Xinlin</td>
<td>Dynamics of radiation belt electrons associated with solar wind variations</td>
</tr>
<tr>
<td>Li, Xinlin</td>
<td>Quantitative forecast and specification of radiation belt electrons</td>
</tr>
<tr>
<td>McClintock, William</td>
<td>Science team support for the MESSENGER Mission</td>
</tr>
<tr>
<td>McClintock, William</td>
<td>MESSENGER Mission MASCS instrument engineering support</td>
</tr>
<tr>
<td>McCollom, Thomas</td>
<td>Experimental investigation of organic synthesis in submarine hydrothermal systems</td>
</tr>
<tr>
<td>McCollom, Thomas</td>
<td>Experimental study of geochemical processing of prebiotic organic compounds on the early earth, Mars and meteorites</td>
</tr>
<tr>
<td>McGrath, Michael</td>
<td>Student Dust Counter (SDC) New Horizons Mission</td>
</tr>
<tr>
<td>Mellon, Michael</td>
<td>Thermal inertia of Mars</td>
</tr>
<tr>
<td>Mellon, Michael</td>
<td>Electrical properties of Martian permafrost</td>
</tr>
<tr>
<td>Mellon, Michael</td>
<td>Geophysics of Martian periglacial processes</td>
</tr>
<tr>
<td>Mellon, Michael</td>
<td>Shallow ground ice on Mars</td>
</tr>
<tr>
<td>Mellon, Michael</td>
<td>Phoenix Mars Scout Mission</td>
</tr>
<tr>
<td>Ohtsuki, Keiji</td>
<td>Dynamical evolution of ring-satellite systems</td>
</tr>
<tr>
<td>Ohtsuki, Keiji</td>
<td>Formation and dynamical evolution of planets</td>
</tr>
<tr>
<td>Ohtsuki, Keiji</td>
<td>Collisional and rotational evolution of small asteroids</td>
</tr>
<tr>
<td>Ohtsuki, Keiji</td>
<td>Capture of small bodies by giant planets</td>
</tr>
<tr>
<td>Ohtsuki, Keiji</td>
<td>Rotation of moonlets and particles in planetary rings around giant planets</td>
</tr>
<tr>
<td>Pappalardo, Robert</td>
<td>Causes and consequences of faulting on Europa and other icy satellites</td>
</tr>
<tr>
<td>Pavlov, Alexander</td>
<td>Hazy Archean atmosphere</td>
</tr>
<tr>
<td>Pavlov, Alexander</td>
<td>The possible mediation of early microbial evolution by cyanide inhibition</td>
</tr>
<tr>
<td>Peterson, William K.</td>
<td>Travel support for Electronic Geophysical Year (eGY) Organizing Committee</td>
</tr>
<tr>
<td>Peterson, William K.</td>
<td>TIMAS operations and data analysis</td>
</tr>
<tr>
<td>Peterson, William K.</td>
<td>Photoelectron spectra from the FAST satellite</td>
</tr>
<tr>
<td>Pilewskie, Peter</td>
<td>Retrieval of cloud water path using visible and near-infrared remote sensing</td>
</tr>
<tr>
<td>Pilewskie, Peter</td>
<td>Analysis of solar spectral irradiance measured during NEAQS-ITCT</td>
</tr>
<tr>
<td>Pilewskie, Peter</td>
<td>Observations and analyses of the spectral radiative effects of aerosols and clouds</td>
</tr>
</tbody>
</table>
Pryor, Wayne  
*Heliospheric H and He from Ulysses, Galileo, and Cassini UV data*

Randall, Cora  
*Assimilation of ozone data sets: Use of POAM III data in the SOLVE-S campaign*

Randall, Cora  
*Derivation of ozone photochemical loss by combining satellite data and a 3-dimensional chemical transport model*

Randall, Cora  
*SAGE III science and validation focused on the upper troposphere and lower stratosphere (UTLS)*

Randall, Cora  
*Occultation data and inter-comparison and evaluation*

Rottman, Gary  
*EOSSolstice*

Rottman, Gary  
*SORCE/EOS Solstice*

Rottman, Gary  
*SORCE science discovery*

Rottman, Gary  
*Total Solar Irradiance Sensor (TSIS)*

Rusch, David  
*Aeronomy of Ice in the Mesosphere (AIM)*

Rusch, David  
*An investigation of the effect of solar variability and particle ionization on the Earth’s middle atmosphere*

Rusch, David  
*The Ice content of Polar Mesospheric Clouds derived from SNOE satellite measurements*

Schneider, Nicholas  
*From Io’s atmosphere to the plasma torus*

Smith, Jamison  
*Simulation of the aging of smoke from African biomass burning plumes and implications for remote sensing of aerosols*

Stewart, Glen  
*Dynamical models of planetary rings*

Thomas, Gary  
*Solar-induced variations in Polar Mesospheric Clouds*

Thomas, Gary  
*Polar Mesospheric cloud properties determined from SBUV and SBUV/2 measurements*

Toon, Owen B.  
*Investigations of clouds on Venus, Mars, and Titan*

Toon, Owen B.  
*Improving the NSA Ames Mars GCM simulation of global dust storms using MGS TES data*

Toon, Owen B.  
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Toon, Owen B.  
*Application of an aerosol model to simulate smoke and marine aerosols*

Toon, Owen B.  
*Escape from planetary atmospheres*

Toon, Owen B.  
*Evolution of the optical properties of biomass smoke plumes in a 3-dimensional transport model and comparisons to in situ and remote sensing observations*

Toon, Owen B.  
*Detection characterization and modeling of polar stratospheric clouds using satellite data from POAM III, HIRDLES and TES*
<table>
<thead>
<tr>
<th>Woods, Thomas N.</th>
<th>TIMED Phase E – SEE Experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woods, Thomas N.</td>
<td>Extreme ultraviolet variability experiment (EVE)</td>
</tr>
<tr>
<td>Woods, Thomas N.</td>
<td>Geostationary operation environmental satellite (GOES-R)</td>
</tr>
</tbody>
</table>