

Laboratory for Atmospheric and Space Physics



Activity Report
2009
University of Colorado at Boulder

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A Message from the Director

We have continued in 2009 to see growth and development of LASP's research portfolio. We have maintained many areas of expertise, we have developed new areas of strength and we have added several new staff members. We are particularly proud of winning several new research programs and missions.

There continues to be recognition by the U.S. government that science (and engineering) can be at the core of an economic revival: This is the kind of contention that many science leaders and policy makers have promulgated for decades. LASP was the recipient this past year of a large (\$42M) block of funding for solar irradiance measurements. This came directly from the ARRA (Federal stimulus) funding program. We fully expect to utilize these funds in an efficient and effective way, along with several smaller program allocations.

LASP continues its long and successful partnership with NASA. Moreover, we have also been greatly extending our relationship with the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration (NOAA), and other agencies. In diversifying our scientific, technical, and programmatic relationships, we are finding exciting ways to apply our expertise to solve problems of crucial national, and international, importance. Our LASP staff is continuously seeking – and meeting – new challenges. I urge you to read about these things in the various sections of this report.

A key to success is to know what should be fine-tuned in an organization without tampering with the fundamentals that have made it the outstanding institute that it is. As noted previously in these reports, LASP derives of its strength from looking forward and seeking

ways to improve products and processes. I greatly admire LASP's adaptability in the face of changing external conditions and changing requirements. Insofar as space programs are concerned, I believe that we have maintained a culture that is nimble, flexible, and robust. Thus, LASP is an ideal institute to respond to current challenges and present national needs.

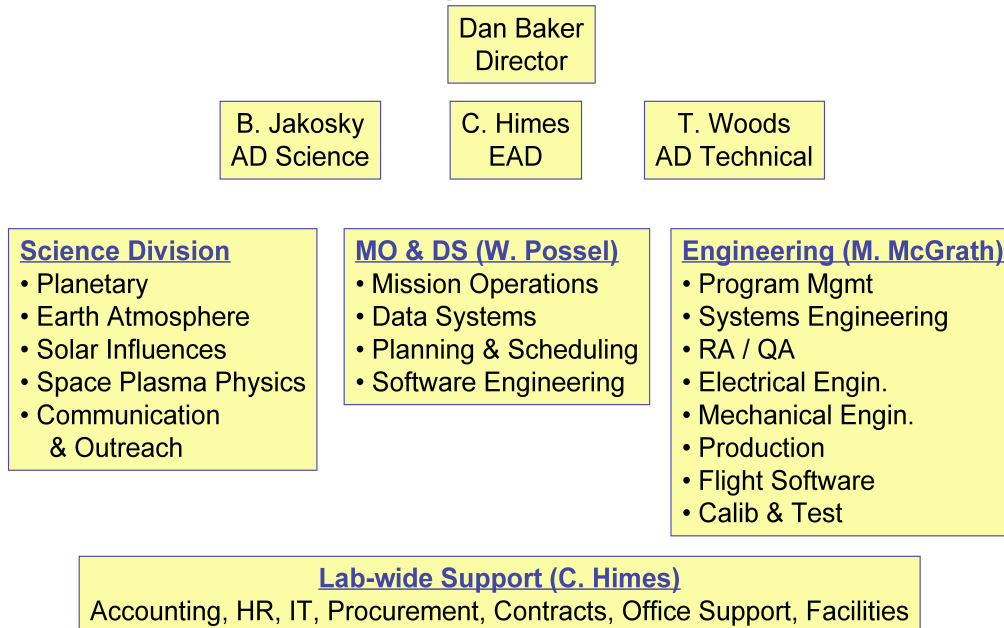
Our Lab also succeeds in large measure by having the trust and support of the CU administration. I want sincerely to thank the people in contracts administration, procurement, facilities management, and other support areas who help us do our very special job. I also want to thank the Vice Chancellor for Research, the Provost, and the Chancellor for their tireless and unflagging support of LASP, its mission, and its ambitious goals.

We recognize that LASP is in a remarkable region and in a nearly unique locale for scientific inquiry. I express my deep appreciation to the other institutes, national laboratories, dedicated centers, and special business partners with which we work on a daily basis. This broad community makes our job enjoyable and, indeed, much easier. We look forward to working with the space research community in many novel endeavors during this next year. 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 for 2009.

Daniel N. Baker

Please visit LASP's Website for the latest developments: <http://lasp.colorado.edu>.

LASP Organization Chart



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 sub-orbital 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.

LASP Appropriated Funding

During the period 1/1/2009 to 12/31/2009 LASP appropriated funding totaled \$99,267,463 for support of 137 grants and contracts.

Research Support: 2009 Fiscal Year

Source of Funding	Total Grant Dollars
<i>Federal Agencies:</i>	
Department of Commerce NOAA	346,640
Department of Defense Air Force	95,584
Department of Defense Navy	40,000
NASA Ames	1,857,646
NASA Goddard	71,098,119
NASA Langley	217,000
National Science Foundation	3,936,582
Total Federal Agencies	77,591,571
<i>Non-Federal Agencies:</i>	
Arizona State U	99,999
Ball Aerospace and Technologies	8,201,847
Boston U	4,383,301
George Mason U	45,209
Hampton U	1,369,497
Jet Propulsion Laboratory	1,889,226
Johns Hopkins U	34,182
Michigan Aerospace Corporation	3,000
New Mexico State U	25,000
Southwest Research Institute	895,812
Space Environment Technologies	72,220
Teledyne Brown Engineering	17,374
U Arizona	207,633
U California Berkeley	267,172
U California Los Angeles	44,999
U Central Florida	198,290
U Michigan	40,000
U Minnesota	1,256,073
U New Hampshire	2,475,644
U Southern California	5,000
UCAR	144,414
Total Non-Federal Agencies	21,675,892
Grand Total	\$99,267,463

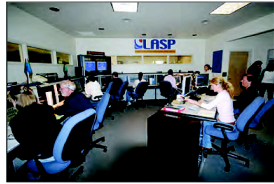
LASP AT A GLANCE

LASP surpasses all other university space research programs in the world.

- Explores Earth's atmosphere, the Sun, and the solar system
- Combines an experimental approach of building spaceflight hardware with mission operations, laboratory and theoretical analysis, and data analysis to reach new scientific results
- Trains tomorrow's space scientists, engineers, and mission controllers
- Teams with government agencies and industry nationwide



The LASP Space Technology Building houses science laboratories, an instrument site, clean rooms, and the Mission Operations Control Center.



CU undergraduates work in LASP Mission Operations.

LASP EDUCATION MISSION

LASP embeds CU students into all aspects of work at the lab, including its mission operations, where students "fly" actual spacecraft.

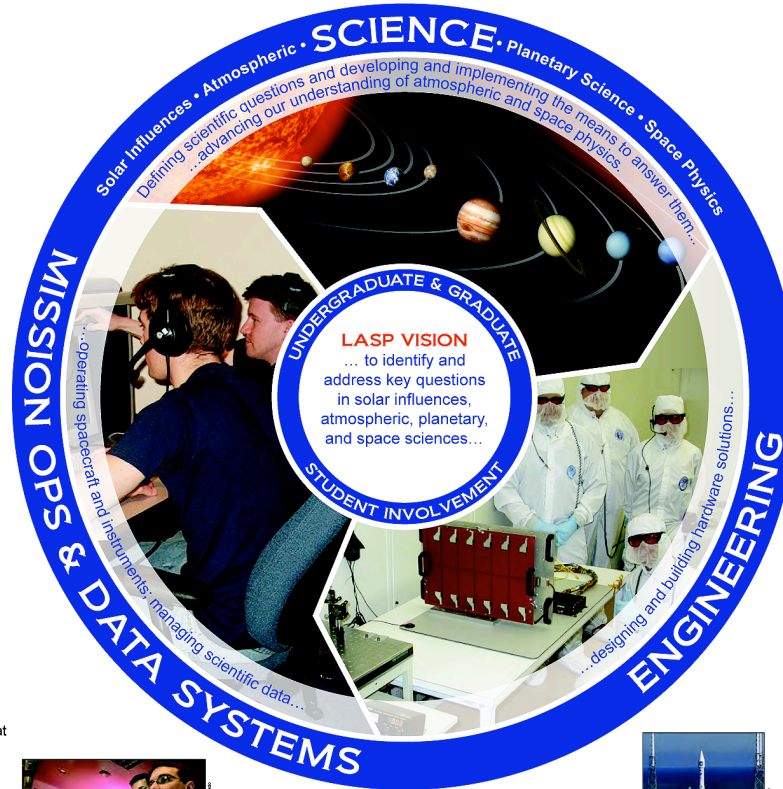
Miranda Rohlfing is an undergraduate aerospace engineering major from Highlands Ranch, Colorado. She is one of 20 undergraduates helping to command and operate Kepler, a mission to find habitable, Earth-like planets.

"It is a dream come true to work this closely with actual NASA satellites," she said.



CU students work closely with LASP experts to control spacecraft.

COMBINING ALL ASPECTS OF SPACE EXPLORATION



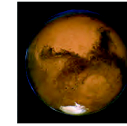
LASP BY THE NUMBERS

Since 1948, LASP has offered nimble interdisciplinary strength to CU.

- Shares faculty with 5 academic departments: Astrophysical and Planetary Sciences; Atmospheric and Ocean Sciences; Geological Sciences; Aerospace Engineering; Physics
- Brings in more research funding than any other CU institute: \$60 million in 2009
- Employs approximately 425 people, including 65 scientific researchers and 130 students
- Is the world's only research institute to have sent instruments to all 8 planets and Pluto



The Duane Physics building, which LASP shares with other CU programs, is centrally located on main campus.



LASP leads the NASA MAVEN mission to Mars.

LASP IN SPACE: CURRENT MISSIONS

LASP is currently developing instruments for 9 flight missions; 10 payloads are currently flying.

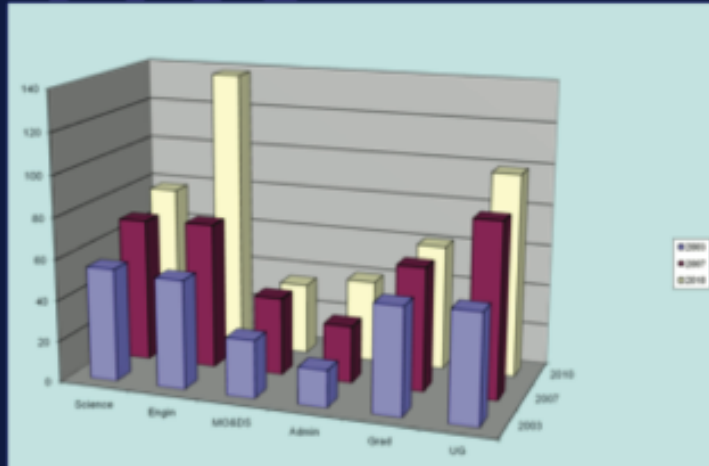
- The NASA Solar Dynamics Observatory launched on February 11, 2010, carrying a LASP-built instrument, EVE, which will measure the Sun's extreme ultraviolet output
- NASA's next Mars orbiter, MAVEN, leaves Earth in 2013; LASP is leading the \$485-million mission
- The CU-student-built Student Dust Counter, launched in 2006, is on target to visit Pluto in 2015 aboard NASA's New Horizons spacecraft
- LASP is developing several instruments that will study space weather aboard the NASA Radiation Belt Storm Probes



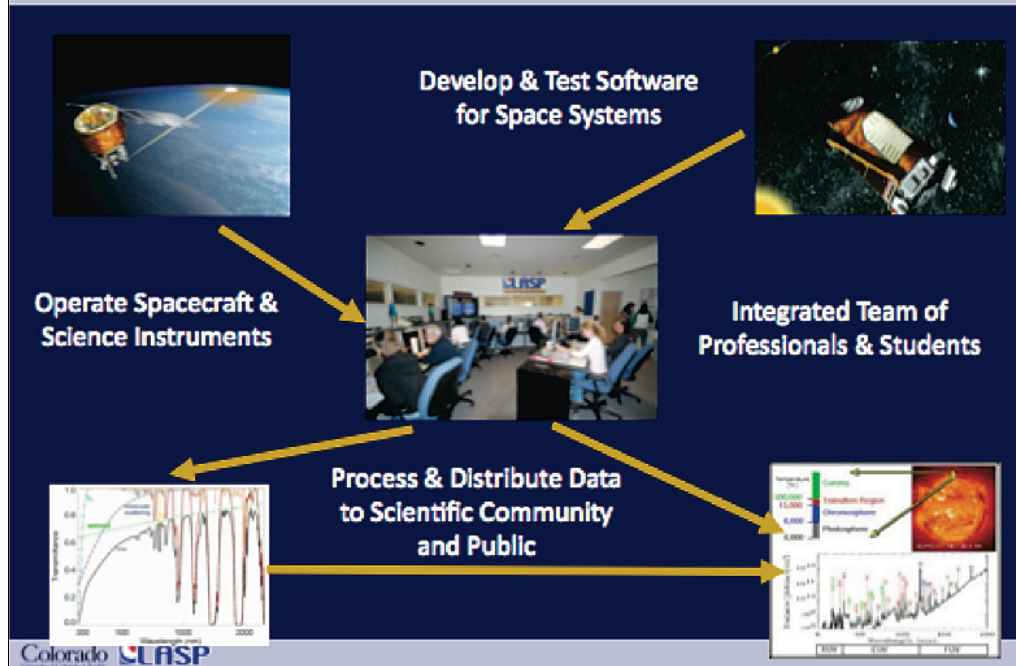
The NASA Solar Dynamics Observatory carries a LASP-built instrument.

Continued Growth of Personnel

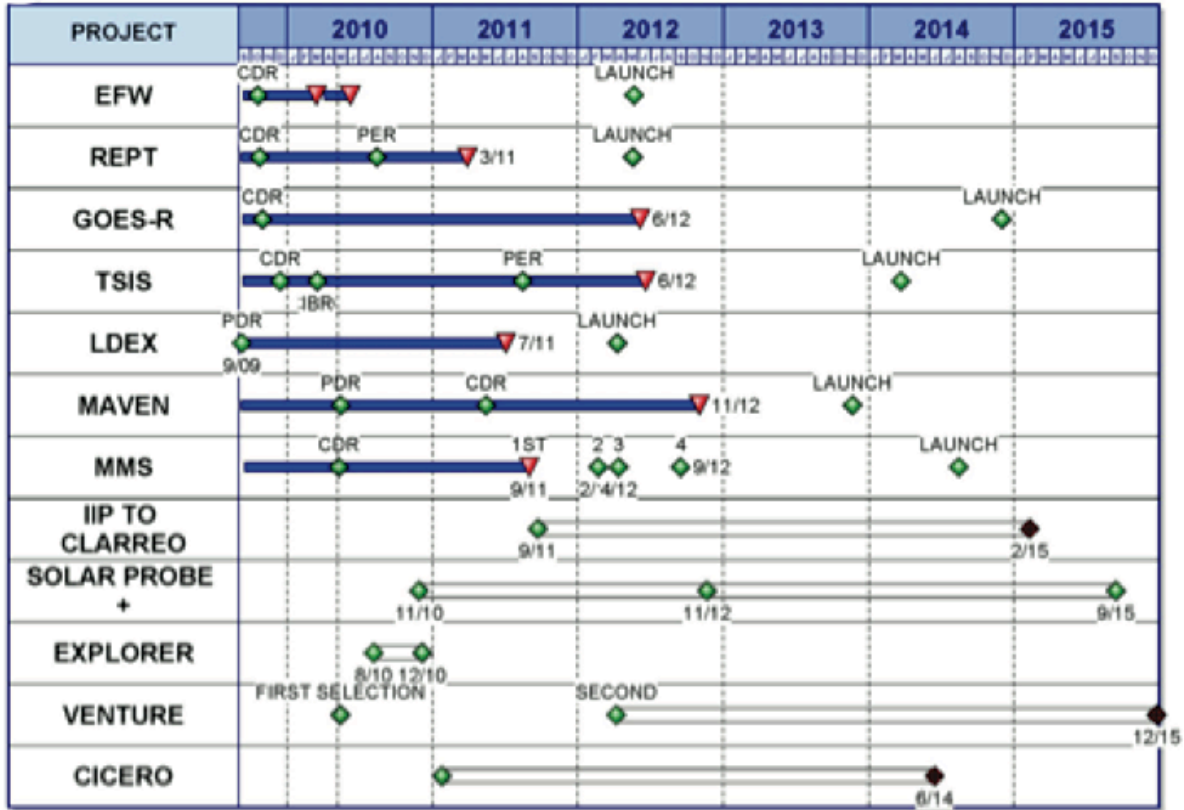
2010 Personnel	Science	Engin	MO&DS	Admin	Total	% chg from 2009
Professionals	77	133	41	40	291	15%
Grad Students	47	5	9	0	61	-5%
UG Students	37	22	31	9	99	57%
Total	161	160	81	49	451	18%



Mission Operations & Data Systems (MO&DS)



LASP Engineering Projects



Daniel N. Baker, Director

LASP Scientists

Tenure Track

Linnea M. Avallone
Frances Bagenal
Charles A. Barth (Ret.)
Robert Ergun
Larry W. Esposito
Mihály Horányi
Brian Hynek
Bruce M. Jakosky
Xinlin Li
Peter Pilewskie
Cora E. Randall
Mark P. Rast
Nicholas M. Schneider
Zoltan Sternovsky
Owen B. Toon

Research Associates

Nicole Albers
Laila Anderssen
Eike Bierwith
Phil Chamberlin
Emily CoBabe-Ammann
Odelle Coddington
Annamaria Cereti
Peter Delamere

Gaetano DeAchille
Scot Elkington
Francis G. Eparvier
Stefan Eriksson
Xiaohua Fang
Juan (John) Fontenla
John Gosling
Eberhard Grün
Margit Haberleiter
Jerald W. Harder
Lynn Harvey
Sebastien Hess
Richard Hodges
Greg Holsclaw
James E. Howard
Andrew Jones
Lars Kalnajs
Shri Kanekal
Bodil Karlsson
Michael King
Greg Kopp
George M. Lawrence (Ret.)
Wenlong Liu
William E. McClintock
Tom McCollom
Michael Mellon

Aimee Merkel
Michael Mills
Keiji Ohtsuki
William Peterson
Erik C. Richard
Gary J. Rottman (Ret.)
David W. Rusch
Theodore Sarris
Sebastian Schmidt
Keah Schuenemann
Mindy Searls
Hannah Sizemore
Martin Snow
Miodrag Sremcevic
A. Ian F. Stewart
Glen R. Stewart
Wai-Leong Teh
Gary E. Thomas (Ret.)
Fang Tian
Xu Wang
Robert Wilson
Thomas N. Woods

Visiting Scholars

Joseph Ajello, Jet Propulsion Laboratory, Pasadena, CA
Cesare Grava, University of Padua, Italy
Jorg Gumbel, Stockholm University, Sweden
Antal Juhasz, KFKI Research Institute for Particle and Nuclear Physics, Budapest, Hungary
Mark Lewis, Trinity University, San Antonio, TX
Robert McPherron, UCLA, IGPP, Los Angeles, CA
Georg Moragas-Klostermeyer, Institute fur Kernphysik, Germany
Wayne Pryor, Central Arizona Coolidge, Coolidge, AZ
Chao Shen, GSSAR, CAS, China
Dick White, Mancos, CO
John D. Williams, Univ. of Montana

Engineering/Mission Ops/Program/Science

Engineering

Gregg Allison
Christine Andrews
Michael D. Anfinson
Judy Antman
Richard Arnold
Rory St. John Barrett
Susan Batiste
Douglas Bausch
Helmut P. Bay (Ret.)
Christopher Belting
Bryce Bolton
Mary Bolton
James S. Bowers
Brian D. Boyle
Shelley Bramer
Catherine Brant
David Braun
Vanessa Briggs
Jeff Brown
Patrick Brown
Chelsey Bryant
Linda Buckhannon
Zachary G. Castleman
Elizabeth Grogan Cervelli
Wesley Cole
David Crotsler
David Dewoina
Thomas Dixon
Sharon Dooley
Virginia Drake
Mark Drobilek
Charles Dumont
Gary Eldridge
Jenni Elke
Robert Joseph Espejo
Donald Farneth
Seth Finkelstein
Tim Flaherty
James Frawley
Kathy Garcia-Troxel
David Gathright
Alan Goodrich
Roger Gunderson
Scott Gurst
Ward Handley
Douglas Hansen
David Harber
Porter Haskins
Karl Heuerman
Carl Himpfel

Patricia Soto Hoffman
Vaughn Hoxie
Jackson Huebell
David James
Edgar Johansson
James Johnson (Ret.)
Magnus Karlsson
Joseph Kern
Mark Kien
Matthew King
Camden Kittredge
Edith Knehans
Richard Kohnert
Kraig Koski
Vladmir Krneta
Bret Lamprecht
Mark R. Lankton
Ryan Lewis
Michael McGrath
James Mack
Karen Mackison
Jack Marshall
Matthew Merkow
Jennifer Methlie
Aref Nammari
Gregory Newcomb
David Norman
Darren O'Connor
Tammie Ogden
Kasandra O'Malia
Heather Passe
Norman C. Perish
Brian Pyke
Jose-Maria Ramas
Thomas Reese
Dwight Reinhardt
Mary Rider
Carol Jean Rigelsky
Timothy Ruske
Joel Rutkowski
Durbin Seidel
William Sharp
Patti Sicken
Alan Sims
Paul Smith
Thomas Sparn
Stephen Steg
David Street
Dwayne Swieter
Trenton Taylor
Edward M. Thiemann

Wayne Tighe
Matt Triplett
Scott A. Tucker
Gregory Ucker
Douglas Vincent
Tracy Vincent
Stacy Wade
Pamela J. Wagner
James Wallace
James Westfall
Neil White
Heather Reed Withnell
Peter Withnell
Shana Worel
Gregory Wright
Ray Wrigley
Ed Wullschleger
Alan Yehle
Jason Young
Jennifer Young
Stephen Ziegler

Mission Ops & Data Systems

Robert P. Biro
Michelle Bourgeois
Karen Beth Bryant
Michael Bryant
Heather Buck
Jason M. Dahl
Michael Dorey
Donald Elsborg
Jack Faber
Sasha Forsyth
Ken Griest
Jason Gurgel
Amanda Heaton
Christian Jeppeson
Alain J. Jouchoux
David E. Judd
Michelle Kelley
Barry Knapp
Jay Kominek
Douglas M. Lindholm
Debra McCabe
Sarah McNamara
Jerel Moffatt
Steve P. Monk
Michael Packard
Chris Pankratz
Kareesha Potter

Bill Possel
Nicole Ramos
Jennifer Reiter
Randy Reukauf
Pat Ringrose
Stephen Roughton
Sean Ryan
Crystal Salcido
Patrick Smith
Gail Tate
Brian Templeman
Anne Wilson
Robert John Wilson
Donald Woodraska

Program Support

Ann Alfaro
Christina Barcion
Barbara Brandish Di-
Pasquale
Kathleen Cirbo
Anita Davis
Michael Dillon
Zachary Eaton
Steve Ericksen

Brian Evans
Phillip L. Evans
Jason Feickert
Darcy Gallagher (Ret.)
Christin Gearhart
Judith (Dede) Gleason
Bonnie Grebe
Matthew Groeninger
Cheryl Haugen
Caroline Himes
Rose A. Hoag
Bonnie W. Hotard (Ret.)
Erick Jasiak
Gayle Jones
Mazn Kuldinow
Jason LaClair
Beth McGilvray
Andrew May
Greg Mecca
Debra Nastaj
John M. Padgett
Ann Perez de Tejada
Katherine Pilewskie
Marissa Rusinek
Susan Sand
Gary Schut

Dona Smith
John D. Smith
Lisa Sparhawk
Karen Springfield
Lori Wetterstrom
Sayuri West
Peter Wise

Science Support

Laura Bloom
Michael T. Callan
Alexandra DeWolfe
Vincent Dols
Keith Drake
Bobby Fleshman
Vanessa George
Mackenzie Lystrup
Neil Marks
George Millward
Doan Nguyen
Emilia Reed
Roy Swanson
Erin Wood

2009 Retirees

Phil Evans
Nancy Brooks

2009 Ph.D. Graduates

Coddington, Odele Malina: Atmospheric and Oceanic Sciences
May 8, 2009

“The Application of Airborne Shortwave Spectral Irradiance Measurements to Atmosphere and Surface Remote Sensing”

Thesis Advisor: Peter Pilewskie

Farr, Nathan Lee: Physics
December 18, 2009

“Analysis of the recovery phase of magnetospheric substorms using a global magnetohydrodynamic model in conjunction with multi-satellite observations”

Thesis Advisor: Daniel N. Baker

Gleeson, Damhnait Fagan: Geology
December 18, 2009

“Microbial life in cold, sulfur-rich environments: Investigations of an Arctic ecosystem and implications for life detection at Europa”

Thesis Advisor: Alexis Templeton

James, David: Physics

May 8, 2009

“Operating Principles and Applications of PVDF Dust Detectors in Space”

Thesis Advisor: Mihály Horányi

McCollough, James Parker: Physics

December 18, 2009

“Origins of electromagnetic ion cyclotron waves in Earth’s magnetosphere”

Thesis Advisor: Daniel N. Baker

Murphy, Nathaniel William: Astrophysical and Planetary Science

December 18, 2009

“Investigating the thermophysical properties of indurated materials on Mars”

Thesis Advisor: Bruce Jakosky

Presicci, Manny: Physics

December 18, 2009

“The friction coefficient in the Fokker-Planck equation leading to the Kappa distribution”

Thesis Advisor: Daniel N. Baker

Selvans, Zane Alexander: Geology

December 18, 2009

“Time, Tides and Tectonics on Icy Satellites”

Thesis Advisor: Karl Mueller

Tierney, Lindsey Link: Geology

December 18, 2009

“Assessing habitability of aqueous environments on Mars using geochemical modeling”

Thesis Advisor: Bruce Jakosky

Graduate Students

Trinity Allen

Swaminathan

Ananthanarayan

Dewey Anderson

Charles Bardeen

Suzanne Benze

Matthias Brakebusch

Laura Brower

Edward Burin des Roziers

Nicole Cates

Michael Chaffin

Robert Citron

Odelle Coddington

Mariel Desroche

Krystyna Dillard-Crawford

Adrienne Dove

Nicole Dudley

Attila Elteto

Jason English

James Everton

Tina (Tianyi) Fan

Nathan Farr

Jeffrey France

Mark Gerber

David Gerhardt

Damhnait Gleeson

Max Hampson

Dong Han

Rachel Hock

Monica Hoke

Laura Holt

David James

Lars Kalnajs

Bruce Kindel

Lars Kalnajs

Michael Klapetsky

Samuel LaBlanc

Eric Larson

Anthony Lindell

Benjamin Link

Jesse Lord

Jessica Lovering

Anna Luebke

Scott Mackey

Lansing Madry

David Malaspina

Emma Marcucci

Lisa Mayhew

Patrick McBride

Joseph McCabe

James McCollough

Kevin McCouldrick

Bonnie Meinke

Nathaniel Murphy

Randall Myers

James Neeley

Laura Bush Potter

Manny Presicci

Amal Ramachandran

Licia Ray

Stuart Robbins
Yolanda Roberts
Donald Schmit
Zane Selvans
Neha Shanbhag
Karie Shipley
Anthony Shu
David Stokowski

Lin Su
Jianbao Tao
Lindsey Link Tierney
Andrew Tomchek
Weichao Tu
Drew Lawson Turner
Richard Urata
Christopher Van Poolen

Heather Walsh
Brandon Werdel
Donovan Wheeler
Eric Wolf
Ryan Woolley
Yunqian Zhu

Undergraduate Students

Ian Aber
John Adam
Kyle Allaire
Eric Anderson
Christine Andrews
Tierney Barnrick
Jeffrey Baxter
Michael Beach
Jacob Beckner
Ryan Behner
Andrew Berg
Gabriel Bershenyi
Shivali Bidaiah
James Binney
Brandon Bobian
Nathaneal Bolt
Aaron Bornstein
Benjamin Brown
Lottie Brown
Rachel Bushinsky
Samuel Califf
Bryan Callahan
Ross Callison
Rhain Carpenter
Michael Chaffin
Garrett Clark
Max Clark-Rabinowitz
Sherry Clune
Ransom Christofferson
Dain Cilke
Richard Cosentino
Thomas Davids
Daniel Dexter
Melanie Dubin
Jason Durrie
David Dyer
David Eason
Negar Ehsan
Joshua Elliot
James Everton
Nathan Farber

Harrison Fast
Katelynn Finn
Will Flanagan
A.J. Garner
Mark Gerber
Nathan Goldbaum
David Goluskin
Michael Habinsky
Brian Hasci
Porter Haskins
Amanda Heaton
Joshua Hecht
Ryan Hickman
Rachel Hoover
Vicki Hsu
Rachel Humphrey
Noah Husek
Brian Jacobsmeyer
Robert Jones
Paul Joos
Kaitlin Kark
Julie Keller
Amin Pahlavaninejad
Matthew Kelly
Karamjeet Khalsa
Brian Kirby
Brock Kowalchuk
Jessica Kruse
Gina Lafferty
Davis Lawry
Jenae Lestishen
Alexander Lieber
Huy Le
Samuel LeBlanc
Spencer LeBlanc
Amber Lehr
Jared Leidich
Matthew Lenda
Jenae Lestishen
Alex Lieber
Hey Joo (Diane) Lim

Anthony Lindell
Christopher Lindholm
Lucy Logan
Michael LoNigro
Jonathan Loptien
William Lounsbury
Jennifer Lowell
Anna Luebke
Dung Luu
Scott Mackey
Walter Mahfuz
Lance Markovchick
Neil Marks
John Martin
Louise Martinez
Stephen Matey
Sarah Mcnamara
Mara Menahan
Fabio Mezzalira
Taylor Mills
Noah Moore
David Morris
Brent Motz
McCall Mullen
Nathaniel Mutkus
Kareem Nammari
Katherine Nauert
James Neeley
Vu Anh Nguyen
Jacob Niece
Shawn Noland
Paige Northway
Dan Olsen
John O'Neal
Gordon Osterman
Kostas Pagratis
Mohammad Pahlavani
Brian Payne
Michael Phan
Ryan Phillips
Cortland Pierpont

Andrew Poppe
Therese Possel
Kareesha Potter
Scott Potter
Adam Prulhiere
Nathan Reukauf
Lindsey Rice
Elliot Richerson
Mark Robbins
Lauren Roemer
Miranda Rohlfing
Anna Rudenko
Danielle Russell
Wayne Russell
Crystal Salcido
Christopher Sawyer
Ryan Schilt
John Shelton
Adam Shinn
Michael Siegers
Sara Simon
Patrick Smith

Terry Smith
Tiana Stastny
Richard Stelter
Sarah Stern
Eric Stevens
Colin Stewart
Robert Stimpfling
Jastsch Sud
Andrew Taggart
Jeffrey Taggart
Linda Te
Corey Teffetalor
Cassandra Thao
Edward Thiemann
Evan Thomas
Tyler Thomas
Shelbe Timothy
Allison Toltz
Andrew Tomchek
Dustin Trail
Melina Tremblay
Andrew Tsoi

Wiechao Tu
Michael Tuthill
Christopher Van Poolen
Blake Vanier
Michael Wagner
Jih-Wang Wang
Weston Welge
Brandon Werdel
Patrick Wessels
Donavan Wheeler
Geneva Wilkesanders
Jennifer Wilson
Tyler Wingfield
Tom Wisniewski
Adam Wolf
Alexander Woods
Shrishti Yadav
Chihoko Yamashita
Matthew Zemel
Peter Zhang
Yunqian Zhu

Scientific 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.

laila.andersson@lasp.colorado.edu (303) 492-1689

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.

avallone@miranda.colorado.edu (303) 492-5913

Frances Bagenal

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

bagenal@colorado.edu (303) 492-2598

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.

daniel.baker@lasp.colorado.edu (303) 492-4509

Charles A. Barth

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

charles.barth@lasp.colorado.edu (303) 492-7502

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.

elkingto@lasp.colorado.edu (303) 735-0810

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).

eparvier@colorado.edu, (303) 492-4546,

<http://stripe.colorado.edu/~eparvier>

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

Jerald Harder

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

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

Mihály Horányi

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

Development and characterization of the SORCE, Glory, and NPOESS Total Irradiance Monitors for solar irradiance measurements. Solar physics. Electro-optical instrumentation and electrical substitution radiometry.

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

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.

lix@kotron.colorado.edu (303) 492-3514

William E. McClintock

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

bill.mcclintock@lasp.colorado.edu (303) 492-8407

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.

mellon@argyre.colorado.edu (303) 492-1711

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.

mills@colorado.edu (303) 492-7767

Keiji Ohtsuki

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

ohtsuki@lasp.colorado.edu (303) 492-0260

Cora E. Randall

Primary interests include atmospheric chemistry and dynamics, mainly of the stratosphere, and secondarily of the mesosphere and troposphere. Work is experimental in nature, relying on data from remote sensing satellites. The emphasis is on ozone, NO₂, and aerosol data from the Polar Ozone and Aerosol Measurement (POAM) instrument as well as from the Stratosphere Aerosol and Gas Ex-

periment (SAGE). Measurements from instruments on the Upper Atmosphere Research Satellite (UARS) and the Solar Mesosphere Explorer (SME) are also used. Other interests include the spectroscopy of comets and laboratory polarization measurements.
cora.randall@lasp.colorado.edu (303) 492-8208

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 ($\lambda < 300$) irradiance, but emphasis has not extended to the visible and near-infrared. Application of ultraviolet spectroscopy 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 obser-

vations. 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 tropo-

sphere. 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

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 ACTIVITIES 2009

Air Force Technical Applications Center (AFTAC)

Baker, Daniel (Chair, Satellite Review Panel)

American Astronomical Association (AAA)

Bagenal, Frances (Editor of STATUS, Newsletter of Committee on Status of Women in Astronomy)

American Association for the Advancement of Science (AAAS)

Baker, Daniel (Member)

American Astronomical Society (AAS)

Schneider, Nicholas (Officer, Education and Public Outreach)

Schneider, Nicholas (Member, Program Committee for annual meeting)

American Geophysical Union (AGU)

Bagenal, Frances (Member)

Bagenal, Frances (Member, Macelwane Medal Committee)

Baker, Daniel (Member)

Baker, Daniel (Convenor, Special Sessions at annual meeting)

Esposito, Larry (Member)

Esposito, Larry (Session Organizer, Planetary Rings Fall AGU meeting)

Gosling, John (Member)

Gosling, John (Member, Fellows Committee, SPA Section)

Horányi, Mihály (Member)

Jakosky, Bruce (Member)

Jakosky, Bruce (President, Planetary Sciences section)

Kopp, Greg (Member)

Hynek, Brian (Member)

Peterson, W.K. (Member)

Toon, Owen B. (Member)

Toon, Owen B. (Member, Fellows Selection Committee)

Woods, Thomas (Member)

American Meteorological Society (AMS)

Avallone, Linnea (Chair, Science and Technology Advisory Committee)
Avallone, Linnea (Co-Chair, AMS 15th Conference on the Middle Atmosphere)

Astronomical Society of the Pacific (ASP)

Schneider, Nicholas (Member, Local Organizing Committee for “Cosmos in the Classroom”)

Boulder Solar Alliance

Baker, Daniel (Member and Co-Founder)
Kopp, Greg (Member and Secretary)

Center for Limb Atmospheric Sounding

Baker, Daniel (Director)

Colorado Space Coalition

Himes, Caroline
Possel, William

Committee on Space Research (COSPAR)

Esposito, Larry (Main Scientific Organizer, Planetary Atmospheres)

Editor or Editorial Board Member

Baker, Daniel (Co-Editor, Space Science Review special issue)
Baker, Daniel (Associate Editor, J. Atmos. Solar-Terr. Phys.)
Baker, Daniel (Associate Editor, Space Weather Journal)
Esposito, Larry (Editor, Icarus)
Esposito, Larry (Editor, “Cassini at Saturn”)
Horányi, Mihály (Guest Editor, IEEE Transactions for Plasma Science Special Issue: Physics of Dusty Plasmas)
Jakosky, Bruce (Editorial Board for Astrobiology, International Journal of Astrobiology, and Planetary Exploration Newsletter)
Li, Xinlin (Associate Editor for J. Geophys. Res.)
Li, Xinlin (Member, Editorial Committee of J. of Chinese Space Sciences)
Sternovsky, Zoltan (Guest Editor, IEEE Transactions for Plasma Science Special Issue: Physics of Dusty Plasmas)

Electronic Geophysical Year (EGY)

Baker, Daniel (Chair, Steering Committee)

European Fleet for Airborne Research (EUFAR)

Pilewskie, Peter (Member)

Geological Society of America (Planetary Geology Division)

Hynek, Brian

International Academy of Astronautics (IAA)

Baker, Daniel (Chair, Commission 1)

International Association of Geomagnetism and Aeronomy (IAGA)

Baker, Daniel (Member, Executive Committee)

International Association of Meteorology and Atmospheric Sciences (IAMAS)

Pilewskie, Peter (Member)

International Saturn Symposium

Esposito, Larry (Co-Convenor, Saturn after Cassini-Huygens)

International Space Science Institute (SSSI)

Baker, Daniel (Member, Working Group)

International Union of Geodesy and Geophysics (IUGG)

Baker, Daniel (Member, IGY+50 Advisory Committee)

Laboratory for Atmospheric and Space Physics (LASP)

Associate Director for Science

Jakosky, Bruce

Associate Director for Technical Divisions

Woods, Thomas

Business Committee

Baker, Dan (Chair)

Himes, Caroline

Jakosky, Bruce

McGrath, Mike

Possel, Bill

Woods, Tom

Computer Support Advisory Committee (CSAC)

Kopp, Greg, Chair (Solar, LSTB, Mac)

Bardeen, Charles (student representative, Duane, PC)

Batiste, Susan (Eng, LSTB, Mac)

Delamere, Peter (Planetary, Duane, Mac)

Elkington, Scot (Space Phys, LSTB, PC)

Eriksson, Stefan (Space Physics Group)

Harvey, Lynn (Atmospheric, Duane)

Himes, Caroline (Admin, PC)

Jones, Andrew

Lewis, Ryan (Eng., LSTB, PC)

Pankratz, Chris (Ops & Data Proc, LSTB, Mac)

Rast, Mark (Solar, LSTB, clusters)

Schut, Gary (IT)

Education and Public Outreach Advisory Committee

Eparvier, Frank (Chair)

Avallone, Linnea

Bagenal, Fran

CoBabe-Ammann, Emily

Himes, Caroline

Li, Xinlin

Randall, Cora

Reed, Heather

Searls, Mindi

Stewart, Glen

Stewart, Ian

Executive Committee

Baker, Daniel

Delamere, Peter

Gosling, Jack

Himes, Caroline

Jakosky, Bruce

Jones, Andrew

Kopp, Greg

McClintock, Bill

McGrath, Mike

Pilewskie, Peter

Possel, Bill

Randall, Cora
Stewart, Ian
Toon, Owen B.
Westfall, Jim
Woods, Tom
Haugen, Cheryl (ex-comm support)

LASP Seminar Series Committee

Chamberlin, Phil (Co-Chair)
Sternovsky, Zoltan (Co-Chair)

Library Committee

Snow, Marty (Chair)
Eparvier, Francis
George, Vanessa
Horányi, Mihály
Knapp, Barry
Simmons, Karen
Wullschleger, Ed

Planetary Program Webmaster

Hynek, Brian

Proposal Development Committee (PDC)

Woods, Tom (Chair)
Sparn, Tom (Co-chair)
Anfinson, Mike
Baker, Daniel
CoBabe-Ammann, Emily
Drake, Ginger
Ergun, Robert
George, Vanessa (PDC support)
Himes, Caroline
Jakosky, Bruce
Kopp, Greg
McClintock, Bill
McGilvray, Beth
McGrath, Mike
Pankratz, Chris
Possel, Bill
Reed, Heather
Richard, Erik
Ryan, Sean
Tate, Gail
Westfall, Jim
Lisa Sparhawk
Sternovsky, Zoltan

Sponsored Visitor Committee

Harder, Jerry (Chair)
CoBabe-Ammann, Emily
Elkington, Scot
McClintock, Bill
Peterson, Bill
Rast, Mark
Rusch, David

Lunar, Dust, Atmosphere, and Plasma (LDAP)

Horányi, Mihály (Organizer, LDAP 2010 The Next Steps)

MERCURY Surface, Space ENVIRONMENT, GEOCHEMISTRY, and RANGING MISSION (MESSENGER)

Baker, Daniel (Member, Science Working Team)

National Academy of Science (NAS)

Baker, Daniel (Member, Space Studies Board)

Baker, Daniel (Chair, Organizing Committee (Space Weather Economic Impacts Workshop))

Baker, Daniel (Chair, NAS/NCR Committee on Solar and Space Physics (CSSP))

Esposito, Larry (Member, Committee on Cost Growth in Space and Earth Sciences)

National Aeronautics and Space Administration (NASA)

Bagenal, Frances (Chair, Outer Planets Assessment Group)

Bagenal, Frances (Chair, Planetary Science Subcommittee of the NASA Advisory Council)

Baker, Daniel (Advisor, Sun-Earth Connections Committee)

Baker, Daniel (Member, NASA Magnetospheric Multiscale Mission Science Team)

Jakosky, Bruce (Member NASA Mars Exploration Program Analysis Group (MEPAG))

Jakosky, Bruce (Member, NASA Mars Architecture Review Team)

Pilewskie, Peter (Member, Science Definition Team for NASA's CLARREO and ACE missions)

Toon, Owen B. (Project Scientist, Tropical Clouds Mission)

National Oceanic and Atmospheric Administration (NOAA)

Baker, Daniel (Member, External Strategic Planning Group)

National Space Weather Program Assessment (NSWPA)

Baker, Daniel (Member, Joint Action Group (JAG))

Physics of Dusty Plasmas International Meeting

Horányi, Mihály (Program Committee Chair)

Planetary Society

Jakosky, Bruce (Member, Advisory Board)

Reviewer of Manuscripts, Proposals, or Creative Work

Avallone, Linnea (Reviewer of proposals submitted to National Science Foundation and National Sciences and Engineering Research Council)

Ergun, Robert (Reviewer of manuscripts for J. Geophys. Res., Geophys. Res. Lett., and Physics of Plasmas)

Eriksson, Stefan (Reviewer of manuscripts for J. Geophys. Res., Annales Geophys., and Astron. and Astrophys.)

Esposito, Larry (Reviewer of manuscripts for Science, Icarus, Geophys. Res. Lett.)

Esposito, Larry (Reviewer of proposals for NASA and NSF)

Fontenla, John (Reviewer of manuscripts for Astrophys. J., Astron. and Astrophys., Solar Physics, Advances in Astronomy)

Fontenla, John (Reviewer of proposals for NASA, NSF, and AFSOR)

Gosling, John (Reviewer of manuscripts for Geophys. Res. Lett., J. Geophysical Research, and Science)

Gosling, John (Reviewer of NASA proposals)

Horányi, Mihály (Reviewer of manuscripts for J. Geophysical Research, Physics of Plasmas, Nature, and Icarus)

Horányi, Mihály (Reviewer of proposals for NSF, DOE and NASA)

Hynek, Brian (Reviewer of manuscripts for Nature, Nature Geoscience, Geophys. Res. Lett., Icarus, and J. Geophys. Res.)

Hynek, Brian (Reviewer of proposals for NASA)

Jakosky, Bruce (Reviewer of manuscripts for Proceedings of National Academy of Sciences)

Jakosky, Bruce (Reviewer of proposals for NASA)

Kalnajs, Lars E. (Reviewer of manuscripts for Atmospheric Chemistry and Physics)

Kanekal, S.G. (Reviewer of manuscripts for J. Geophys. Res., and J. Atmos. Solar-Terrestrial Phys.)
Kopp, G. (Reviewer of proposals for NASA and manuscripts for J. Atmos. Solar-Terrestrial Phys.)
Li, Xinlin (Reviewer of manuscripts for J. Geophys. Res., Geophys. Res. Lett., and J. of Space Weather)
Li, Xinlin (Reviewer of proposals for NASA and NSF)
Pilewskie, Peter (Reviewer of manuscripts for J. Atmospheric Chemistry and Physics, J. Applied Meteorology and Climatology, J. Geophys. Res. – Atmospheres)
Pilewskie, Peter (Reviewer of proposals for NASA)
Rast, Mark (Reviewer of manuscripts for Science, Solar Physics, Astronomy and Astrophysics, Astrophysical Journal, and Astronom-2009 Proceedings)
Searls, Mindi (Reviewer of proposals for J. Geophys. Res. and proposals for NASA)
Sternovsky, Zoltan (Reviewer of proposals for NASA and NSF, reviewer of manuscripts for J. Geophys. Res., and IEEE Trans. Plasma Sci.)
Teh, W.-L. (Reviewed manuscript for Geophys. Res. Lett.)
Wang, Xu (Reviewed manuscripts for Geophys. Res. Lett. – Space Physics and IEEE Transactions on Plasma Science)

Solar Anomalous Magnetospheric Particle Explorer (SAMPEX)

Baker, Daniel (Member, Science Working Team)

Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)

Baker, Daniel (Member)

Sigma Xi

Baker, Daniel (Member)

University of Colorado

Admitted Student Day

Avallone, Linnea (Presentation to parents and students)

Aerospace Engineering Department (ASEN)

Baker, Daniel (Member, External Advisory Board)

Sternovsky, Zoltan (Member, Undergraduate Committee)

ASSETT (Arts and Sciences Support of Education Through Technology)

Avallone, Linnea (Member, Advisory Committee)

Atmospheric and Oceanic Sciences Department (ATOC)

Avallone, Linnea (Member, David Noone tenure committee)

Boulder Faculty Assembly

Eparvier, Francis

Harvey, Lynn

Himes, Caroline (Budget and Planning)

Esposito, Larry (Member, Compensation and Benefits Committee)

Chancellor's Federal Relations Advisory Committee (FRAC)

Baker, Daniel (Member)

Flagship 2030 Steering Committee

Baker, Daniel (Member)

Geology Department

Hynek, Brian (Member, Graduate Admissions Committee)

Hynek, Brian (Member, Executive Committee)

Graduate School

Baker, Daniel (Member, Institute Directors Group)

Joint Faculty (Aerospace Engineering (AERO))

McClintock, Bill

Joint Faculty (Astrophysics and Planetary Sciences Department (APS))

Bagenal, Frances (Chair, Department Course Assignments)
Bagenal, Frances (Associate Chair, APS Department, Fall 2009)
Rast, Mark (Undergraduate Advisor)
Rast, Mark (Member, Examinations Committee)
Rast, Mark (Member, Course Fees Committee)
Rast, Mark (Member, Graduate Admissions Committee)
Schneider, Nicholas (Undergraduate Program Director)
Schneider, Nicholas (Lead Mentor)
Schneider, Nicholas (Member, Executive Committee)
Schneider, Nicholas (Member, Newsletter and Publicity Committee)
Schneider, Nicholas (Course Scheduler)

Joint Faculty (Atmospheric and Oceanic Sciences Department (ATOC))

Avallone, Linnea (Member, David Noone tenure committee)
Pilewskie, Peter (Chair, Laboratory and Facilities Committee)
Pilewskie, Peter (Co-Chair, PRP Committee)
Pilewskie, Peter (Member, ATOC Course Fees Committee)
Toon, Owen B. (Chair)

Joint Faculty Geology Department

Hynek, Brian (Member, Graduate Admissions Committee)
Hynek, Brian (Member, Executive Committee)

Joint Faculty, Physics Department

Horányi, Mihály

Awards Committee

Bagenal, Frances (Member)
Horányi, Mihály (Chair)

Chair Advisory Committee

Horányi, Mihály (Member)

Evaluations Committee

Horányi, Mihály (Member)

Plasma Faculty Search Committee

Horányi, Mihály (Member)

Member of Dissertation/Thesis Committee

Avallone, Linnea
Bagenal, Frances
Ergun, Robert
Gosling, John T.
Horányi, Mihály
Hynek, Brian
Jakosky, Bruce
Li, Xinlin
Pilewskie, Peter
Randall, Cora E.
Schneider, Nicholas
Sternovsky, Zoltan

Member of Masters or Ph.D. Qualifying Examination Committee

Avallone, Linnea
Bagenal, Frances
Hynek, Brian
Li, Xinlin
Pilewskie, Peter
Randall, Cora E.
Schneider, Nicholas
Sternovsky, Zoltan

New Course Development

Avallone, Linnea
Schneider, Nicholas

Principal Dissertation/Thesis Advisor for Graduate Student

Avallone, Linnea
Bagenal, Frances
Baker, Daniel
Ergun, Robert
Esposito, Larry
Horányi, Mihály
Hynek, Brian
Jakosky, Bruce
Li, Xinlin
Pilewskie, Peter
Randall, Cora E.
Schneider, Nicholas
Sternovsky, Zoltan
Toon, Owen B.

Principal Thesis Advisor for Undergraduate Student

Horányi, Mihály
Sternovsky, Zoltan

Student Advising

Avallone, Linnea
Bagenal, Frances
Hynek, Brian
Schneider, Nicholas
Sternovsky, Zoltan

Supervisor of Postdoctoral Researchers

Avallone, Linnea
Bagenal, Frances

Vice Chancellor's Innovative Seed Grant Program

Hynek, Brian (Member, Review panel)

Vice Chancellor's Research Cabinet

Baker, Daniel (Member)

University of Northern Iowa

Hynek, Brian (Member, External Advisory Board, Department of Earth Sciences)

University Space Research Association (USRA)

Baker, Daniel (Representative, Council of Institutes)

FACULTY HONORS/AWARDS

Bagenal, Frances, Boulder Faculty Assembly Award for Excellence in Teaching

Baker, Daniel, Selected for James A. Van Allen Space Environments Medal (American Institute of Aeronautics and Astronautics, AIAA)

Gosling, John, Editor's Citation for Excellence in Refereeing: Geophysical Research Letters (American Geophysical Union)

Jakosky, Bruce, NASA/GSFC Quality and Process Improvement Award, MAVEN Phase A Team

Jakosky, Bruce, Named one of 50 Most Influential People in the Denver area by 5280 Magazine

Schneider, Nicholas, Boulder Faculty Assembly Award for Excellence in Teaching

Toon, Owen B., Recipient of the Robert L. Stearns Award (U. of Colorado)

Courses Taught by LASP Faculty

Name	Course #	Description
Avallone, Linnea	ATOC 6020	Group Journal Club
Avallone, Linnea	ATOC 7500	Advanced Atmospheric Chemistry
Bagenal, Frances	ASTR 3750	Planets, Moons and Rings
Bagenal, Frances	ASTR 3720	Planetary Atmospheres
Ergun, Robert	ASTR 1030	Intro to Astronomy
Esposito, Larry	ASTR/GEOL 3300	Extra-Terrestrial Life
Horányi, Mihály	PHYS/ASTR 5150	Graduate Plasma
Horányi, Mihály	PHYS 1110	Introductory Physics
Hynek, Brian	GEOL 3050	GIS for Geologists
Hynek, Brian	ASTR/GEOL 5835	Planetary Sciences Seminar
Hynek, Brian	ASTR/GEOL/ATOC 5800	Planetary Surfaces and Interior
Hynek, Brian	GEOL 5700	Planetary Field Geology
Li, Xinlin	ASEN 5519	Space Hardware
Li, Xinlin	ASEN 4018	Senior Design
Pilewskie, Peter	ATOC 6020	Atmospheric Radiation Seminar
Pilewskie, Peter	ATOC 4900-950	Independent Study
Pilewskie, Peter	ATOC 7500-003	TPC-Instrument Lab
Pilewskie, Peter	ATOC 2009	COMPS 1, Remote Sensing
Randall, Cora	ATOC 5235	Intro to Radiative Transfer and Remote Sensing
Randall, Cora	ATOC 6020	Whole Atmosphere Community Climate Model Seminar
Schneider, Nicholas	ASTR 1110	General Astronomy
Schneider, Nicholas	ASTR3710	Solar System Formation and Dynamics
Toon, Owen B.	ATOC 6020	Seminar in Clouds and Aerosols

Colloquia and Informal Talks Spring 2009

Albers, Nicole, CU/LASP, Saturn's rings through the eyes of the Cassini Spacecraft
 Allen, Mark, NASA/JPL, Titan

Bailey, Scott, VA Tech, The Aeronomy of Ice in the Mesosphere Mission: Science results after four PMC seasons

- Baker, Daniel, CU/LASP, Taking AIM at the space environment: When bad space weather is good
- Baker, Daniel, CU/LASP, The space environment of Mercury: Modeling of upstream conditions
- Bonfond, Bertrand, Univ. of Liege, HST observations of Jupiter's aurorae – What can we learn from the Io UV footprint?
- Boudouridis, Athanasois, UCLA, Solar wind dynamic pressure: An efficient driver of magnetospheric convection and reconnection
- Brain, David, UC/Berkeley, The Ins and Outs of Martian Mini-Magnetospheres
- Bruhwyler, Lori, NOAA, The evolution of the recent atmospheric methane budget
- Burger, Matt, Univ. of Maryland and NASA/GSFC, Modeling Mercury's exosphere in the MESSENGER era
- Delamere, Peter, CU/LASP, Is Jupiter's magnetosphere fundamentally different than Earth's?
- Delamere, Peter, CU/LASP, Reconciling magnetospheric flows with ionospheric convection at Jupiter: Axford and Hines vs. Dungey
- Dorey, Mike, CU/LASP, Python for IDL Programmers
- Dusenbery, Paul, Space Science Institute, Space Physics and Education: A call to action
- Eriksson, Stefan, CU/LASP, Flux rope emergence from a dayside magnetopause
- Finsterle, Wolfgang, Davos World Radiation Center, Switzerland, The PMO6 radiometers for the PREMOS/PICARD space experiment
- Gosling, John, CU/LASP, Magnetic reconnection in the Solar Wind
- Haberreiter, Margit, CU/LASP, The Changing Solar Energy Output--Does it affect us?
- Hynek, Brian, CU/LASP, Tales from Nicaragua: Exploring the possibility of life on early Mars
- Jakosky, Bruce, CU/LASP/GEOL, The 2013 MAVEN mission to Mars
- Jones, Tom, Univ. of Minnesota, Using cluster media as calorimeters of AGN activity; The role of simulations
- Judd, David, CU/LASP, Concurrency tools in Java
- Kanik, Isik, NASA/JPL, Icy Worlds
- Kewley, Lisa, Univ. of Hawaii, The cosmic star formation and metallicity history of galaxies
- Kopp, Greg, CU/LASP, The shortwave component of the CLARREO mission
- Kraemer, Martina, Forschungszentrum Jülich/Germany, In situ observations in Arctic, Mid-latitude and tropical cirrus clouds
- Kursinski, E.R., U of AZ, Observing the climate and the hydrological cycles of Earth and Mars via radio occultation
- Li, Xinlin, CU/LASP, THEMIS Mission: a miracle!
- Li, Xinlin, CU/LASP, THEMIS, NASA's first five-constellation mission
- Matthews, Grant, ITT Space systems Division, Observing cloud climate feedbacks in the Earth's radiation budget with the help of Blackbodies, the Sun and Moon and Ice particles on the edge of space
- McCullough, James, CU/LASP, Modeling EMIC wave growth during the compression event of 29 June 2007
- McCoy, Robert, NRL, Naval Space and Technology Initiatives
- McIntosh, Scott, HAO/UCAR, Hinode and the Rosetta Stone of the solar corona

- Meadows, Vikki, Univ. of Washington, Team Overview
- Mihály Horányi, CU/LASP, Dust near the Sun
- Miller, Steve, University College, London, The role of H₃⁺ in planetary atmospheres
- Mojzsis, Steve, CU/GEOL, Low heat flow inferred from >4 Gyr Zircons suggests Hadean plate boundary interactions
- Morfill, Gregor, Max-Planck Inst., Self-organizing plasmas – New fundamental physics and applications
- Morishima, Ryuji, JPL, Thermal modeling of Saturn's rings and accretion of terrestrial planets
- Odstrcil, Dusan, NOAA /CIRES, Results from the Heliospheric ENLIL MHD Model
- Possel, Bill, CU/LASP, Inside scoop on Kepler Launch Success
- Possel, Bill, CU/LASP, The Kepler mission: Science and mission operations
- Rapp, Marcus, Univ. of Rostock, Germany, Mesospheric aerosol particles: New results from radar and lidar remote sensing and rocket borne in situ measurements
- Ray, Licia, CU/LASP, Field-aligned potentials at Jupiter and Saturn
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