Laboratory for Atmospheric and Space Physics

Activity Report

2013

University of Colorado at Boulder
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**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.
A Message from the Director

The year 2013 was one filled with triumphs, as well as challenges. Amazing successes included the launch of the Total Solar Irradiance Calibration Transfer Experiment (TCTE) instrument on the STPSat-3 to continue the remarkable 35-year record of total solar irradiance. The LASP Lunar Dust Experiment (LDEX) instrument onboard the Lunar Atmosphere and Dust Environment Explorer (LADEE) mission to the moon has returned excellent information about the lunar dust environment. The LASP instrumentation aboard the dual Van Allen Probes mission has hit its full stride and stunning discoveries from the instruments have truly begun to rewrite the textbooks. The Van Allen Probes results have been beautifully complemented by the continuing results from LASP’s amazing little CubeSat mission Colorado Student Space Weather Experiment (CSSWE).

In November, the Mars Atmosphere and Volatile Evolution (MAVEN) mission lifted off flawlessly from the Cape Canaveral Air Station in Florida on its 10-month journey to Mars. The science, engineering, management, and outreach aspects of MAVEN have been touted far and wide as absolutely first-rate. The mission has been held up as the exemplar for all NASA flight programs.

The hardware efforts of LASP have been matched stride-for-stride by data analysis, modeling, and mission operations successes. Continued dedication and hard work have assured that the AIM, QuikScat, SORCE, and Kepler missions continue to return data despite their long-time operation in space. The scientific and technical publications from LASP have set new records in terms of number and recognized quality.

Our organization continues to be held up as a model for how to engage and involve students in the nation’s space program. Students working in mission operations, in engineering, and in the full range of science within LASP are gaining a profoundly successful hand-on experience. This is truly achieving LASP’s expressed goal of preparing new members of the nation’s workforce for 21st Century challenges.

The mention of challenges brings me to my last key point. Level, or reducing, federal budgets are putting stresses on the university space research community unlike anything experienced in recent decades. As I noted last year, academic research remains at the core of a successful national space program. It is very important that this key fact be acknowledged by space policy makers, by business leaders, and by academic institutions themselves. Now, more than five decades after the dawn of the Space Age, there should be a reaffirmed national commitment to space research in the academic setting. LASP stands ready – as it has for this entire Space Age – to do more than its fair share to make this commitment a reality.

I continue to note that LASP succeeds in large measure by having the support of the CU administration. I sincerely thank the people in contracts administration, procurement, facilities management, and other key areas that help us do our very special job. I particularly want to acknowledge the Vice Chancellor for Research, the Dean of the Graduate School, the Provost, and the Chancellor for their tireless support of LASP and its mission. I also thank the staff, faculty, and students of LASP for their remarkable work. Finally, special thanks go to Ann Alfaro for her careful efforts in preparing this report for 2013.

Daniel N. Baker

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

Science Division
- Planetary
- Earth Atmosphere
- Solar Influences
- Space Plasma Physics
- Communication and Outreach

MO and DS (W. Possel)
- Mission Operations
- Data Systems
- Planning and Scheduling
- Software Engineering

Engineering (M. McGrath)
- Program Management
- Systems Engineering
- RA / QA
- Electrical Engineering
- Mechanical Engineering
- Production
- Flight Software
- Calibration and Test

Lab-wide Support (C. Himes)
Accounting, HR, IT, Procurement, Contracts, Office Support, Facilities

B. Jakosky
AD Science

D. Baker
Director

C. Himes
EAD

T. Woods
AD Technical
**LASP Appropriated Funding**

During the period 1/1/2013 to 12/31/2013 LASP appropriated funding totaled $50,753,762 for support of 163 grants and contracts.

**Research Support: 2013 Fiscal Year**

*Federal Sources*

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<th>Organization</th>
<th>Amount</th>
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<td>Jet Propulsion Laboratory</td>
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<td>Los Alamos National Laboratory</td>
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<td>NASA</td>
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<td>NASA Ames</td>
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<td>NASA Goddard</td>
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<td>NASA Headquarters</td>
<td>$386,165</td>
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<td>NSF</td>
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<td><strong>Total Federal Sources</strong></td>
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*Non-Federal Sources*

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<td>Ball Aerospace &amp; Technologies Corp.</td>
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<td>Blue Canyon Technologies LLC</td>
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<tr>
<td>Carnegie Institution of Washington</td>
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<td>Catholic University of America</td>
<td>$48,755</td>
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<tr>
<td>GeoOptics, LLC</td>
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<tr>
<td>George Mason University</td>
<td>$41,276</td>
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<tr>
<td>Hampton University</td>
<td>$784,015</td>
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<tr>
<td>Johns Hopkins University</td>
<td>$92,309</td>
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<tr>
<td>National Ecological Observatory Network</td>
<td>$2,217,854</td>
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<tr>
<td>NorthWest Research Associates</td>
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<tr>
<td>Planetary Science Institute</td>
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<tr>
<td>Rice University</td>
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<td>Southwest Research Institute</td>
<td>$2,351,109</td>
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<tr>
<td>Stellar Solutions, Inc.</td>
<td>$24,374</td>
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<tr>
<td>Teledyne Brown Engineering</td>
<td>$25,489</td>
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<tr>
<td>The Ohio State University</td>
<td>$61,372</td>
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<tr>
<td>University Corporation for Atmospheric Research</td>
<td>$90,668</td>
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<tr>
<td>University of Alaska Fairbanks</td>
<td>$109,421</td>
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<tr>
<td>University of California Berkeley</td>
<td>$663,326</td>
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<tr>
<td>University of California Los Angeles</td>
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<tr>
<td>University of Central Florida</td>
<td>$543,362</td>
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<tr>
<td>University of Minnesota</td>
<td>$300,000</td>
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<td>University of New Hampshire</td>
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<td>University of Southern California</td>
<td>$48,497</td>
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<tr>
<td>Vantage Systems, Inc.</td>
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<td><strong>Total Non-Federal Sources</strong></td>
<td><strong>$10,190,476</strong></td>
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</tbody>
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**TOTAL FUNDING**

**$50,753,762**
Daniel N. Baker, Director  
LASP Scientists

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

Research Associates:  
Nicole Albers  
Laila Anderssen  
Amir Caspi  
Timothy A. Cassidy  
Odele Coddington  
Andrew Collette  
Vincent Dols  
Scot Elkington  
Jason English  
Francis G. Eparvier  
Stefan Eriksson  
Xiaohua Fang  
Jeff France  
John Gosling  
Eberhard Grün  
Jerald W. Harder  
Lynn Harvey  
Greg Holscaw  
Sean Hsu  
Allison Jaynes  
Andrew Jones  
Antal Juhasz  
Lars Kalnajs  
Bruce Kindel  
Michael King  
Greg Kopp  
George M. Lawrence (Ret.)  
Wenlong Liu  
William E. McClintock  
Tom McCollom  
Tess McEnulty  
Kevin McGouldrick  
David Malaspina  
Aimee Merkel  
Anna Mocker  
Mikki M. Osterloo  
William Peterson  
Ganna Portyankina  
Erik C. Richard  
Stuart Robbins  
Emilie Royer  
Gary J. Rottman (Ret.)  
David W. Rusch  
Theodore Sarris  
Sebastian Schmidt  
Jamison Smith  
Martin Snow  
Miodrag Sremcevic  
A. Ian F. Stewart  
Glen R. Stewart  
Gary E. Thomas (Ret.)  
Karlheinz Trattner  
Weichao Tu  
Xu Wang  
David Welch  
Dick White (Ret.)  
Frederick Wilder  
Robert J. Wilson  
Thomas N. Woods

Visiting Scholars  
Joseph Ajello, Jet Propulsion Laboratory, Pasadena, CA  
Eberhard Grün, Max Planck Institute for Nuclear Physics, Heidelberg, Germany  
Riku Jarvinen, Finnish Meteorological Institute, Helsinki, Finland  
Antal Juhasz, KFKI Research Institute for Particle and Nuclear Physics, Budapest, Hungary  
Robert McPherron, UCLA, IGPP, Los Angeles, CA  
Jim McTiernan, UC, Berkeley, CA  
Wayne Pryor, Central Arizona Coolidge, Coolidge, AZ  
Maria Usanova, University of Alberta, Canada  
Harry Warren, NRL
Engineering/Missions Ops/Administration/Science

Engineering
Gregg Allison
Christine Andrews
Michael Anfinson
Rory St. John Barrett
Susan Batiste
Douglas Bausch
Helmut P. Bay (Ret.)
Ryan Behner
Christopher Belting
Jeffrey Blunck
Bryce Bolton
Mary Bolton
Brian D. Boyle
Shelley Bramer
Catherine Brant
David Braun
Nathaniel Brennan
Vanessa Briggs
Jeff Brown
Patrick Brown
Chelsey Bryant
Heather Buck
Linda Buckhannon
Zachary G. Castleman
Elizabeth Cervelli
Jose Chavez
Wesley Cole
David Crotser
Jacob Costner
David Dewoyna
Sharon Dooley
Virginia Drake
Mark Droblek
Gary Eldridge
Jenni Elke
Darren Erickson
Donald Farneth
Jason Farren
Tim Flaherty
Katherine Fenz-Trimble
Nicolas Ferrington
Bryan French
David Gathright
Alan Goodrich
Scott Gurst
David Hall
Douglas Hansen
David Harber
Cindy Hendrickson
Kelly Hepburn
James Herring
Karl Heuerman
Carl Himpel
Patricia Soto Hoffman
Alan Hoskins
Vaughn Hoxie
Marston R. Jacobson
David James
Mark Jones
Magnus Karlsson
Joshua Kern
Mark Kien
Matthew King
Camden Kittredge
Michael Klapetzky
Scott Knappmiller
Edith Knehans
Richard Kohnert
Kraig Koski
Bret Lamprecht
Ryan Lewis
Michael McGrath
Karen Mackison
Jennifer Methlie
David Meyer
Edward Mores
Brooklyn Motz
Brenton Motz
Aref Nammarri
James Neeley
Gregory Newcomb
Glen Otzinger
Heather Passe
Norman C. Perish
Brian Pyke
Thomas Reese
Mary Rider
Timothy Ruske
Joel Rutkowski
Durbin Seidel
William Odus Sharp
Patti Sicken
Alan Sims
Paul Smith
Thomas Sparn
Stephen Steg
David Street
Trenton Taylor
Jon Theide
Edward M. Thiemann
William Thompson
Wayne Tighe
Matt Triplett
Kathy Troxel
Scott A. Tucker
Gregory Ucker
Robert Valentine
William Vermeer
Douglas Vincent
Tracy Vincent
Stacy Wade
Pamela J. Wagner
Neil White
Heather Reed Withnell
Peter Withnell
Ray Wrigley
Ed Wullschleger
Alan Yehle
Kenny J.S. Yoo
Jason Young
Jennifer Young
Stephen Ziegler
Mission Ops/Data Systems
Jason Beech
Stephane Beland
Gabriel Bershenyi
Michelle Bourgeois
Damien E. Burks
Karen Beth Bryant
Michael Bryant
Steve Carson
James Craft
Matt Deneen
Alexandra DeWolfe
Michael Dorey
Thomas Eden
Donald Elsborg
Jack Faber
Sasha Forsyth
Samuel Gagnard
Ken Griest
Jason Gurgel
Edward Hartnett
Amanda Heaton
Christian Jeppeson
Alain J. Jouchoux
David E. Judd
Michelle Kelley
Barry Knapp
Kim Kokkonen
Jay Kominek
Gina Lafferty
Kristopher Larsen
Douglas M. Lindholm
Huikang Ma
Debra McCabe
John Martin
Carolyn Mason
Jerel Moffatt
Steve P. Monk
Steven Mueller
Michael Packard
Chris Pankratz
Russell Panneton
Scarlet Parenteau
Emily Pilinski
Randy Popescu
Bill Possel
Tyler Redick
Jennifer Reiter
Randy Reukauf
Pat Ringrose
Stephen Roughton
Wayne Russell
Sean Ryan
Crystal Salcido
Karen Simmons
Erin Simons-Brown
Jacquelyn Smith
Patrick Smith
John D. Stearns
Robert Stimpfling
Gail Tate
Brian Templeman
Dale Theiling
Alin Tolea
Blake Vanier
Anne Wilson
Robert John Wilson
Donald Woodraska

Administration
Cristina Barcilon
Nikki Bloch
Terri Capinski
Nina Davis
Paul deFalco
Michael Dillon
Barbara DiPasquale
Melissa Dozier
Zachary Eaton
Steve Ericksen
Brian Evans
Jason Feickert
Nicandro Flores
Darcy Gallagher
Christin Gearhart
Alex Green
Don Gritzmaier
Matthew Groeninga
Carol Guy
Barbara Hahn

Science
Ann Alfaro (Ret.)
Laura Bloom
Ransom Christofferson
Kathleen Cirbo
Stephanie Renfrow-Collins
Ian Dahlke
Keith Drake
Vanessa George
Cheryl Haugen
Spencer LeBlanc
Marisa Lubeck
Bingxian Luo

Thomas Mason
Paige Northway
Mark Robbins
Miriam Rosenshein
Evan Thomas

Collaborators

Waleed Abdalati
Joseph Ajello
Judith Antman
Heiner Asmus
Penina Axelrad
Charles Bardeen
Erika Barth
Susanne Benze
Timothy Berman
Felix Bidner
Dennis Borden
Catherine Brant
Thiago Brito
Robert Citron
Greg Colegrove
John Correira
James Crane
Peter Delamere
Elizabeth DeVito
Jennifer Ditsler
James Dohm
Sam Dorsi
Richard Eastes
Jason English
Joseph S. Evans
Tianyi Fan
Charles Fleet
James Flemer
Brent Forsythe
Andrew Gemen
Cesare Grava

Brian Gunderson
Alexandra Hackett
Kaitlin Hegarty
Peng Hong
Lydia Ibarra
Bodil Margareta
Karlsson
Maximillian Kempf
Jim Knepley
Clyde Knight
Alan Kittelman
Paul Koenig
Andrey Krywono
Rob Kursinski
Kevin Langone
Franck Lefevre
Khara Lukancic
Katelynn McCalmont
Janet Machol
Steve Mares
Mariel Meier
Justin Mercier
Christopher Messick
Tyler Mitchell
Michael Mills
Karen Modafferi
Franck Montmessin
Christopher Moore
Daniel Moorer
Gerald Needell
Ryan Neely

David Normen
Danielle Nuding
Laura O’Connor
Keiji Ohtsuki
Flora Quinby
Timothy Quinn
Dale Phelps
Courtney Peck
Joshua Pettit
Cortlandt Pierpont
David Rau
Licia Ray
Timothy Ross
Keith Rust
Cassidy Sainsbury
Robert Satala
Suraj Sharma
Bryan Staley
Lin Su
Casey Swilley
Susan Tazelaar
Karlheinz Trattner
Richard Urata
Maria Usanova
Heather Walsh
David Welch
Zachary Wilson
Matthes Yavorsky
Kathryn Young

2013 Retirees

Nina Davis
Sharon Dooley
Rose Hoag
2013 Ph.D. Graduates

Brakebusch, Matthias, Atmospheric and Oceanic Sciences
May 2013
“Chemistry climate model simulations of polar stratospheric ozone”
Thesis Advisor: Cora Randall

Holt, Laura Angelina, Atmospheric and Oceanic Sciences
August 2013
“Energetic particle precipitation in the atmosphere: Northern hemisphere variability and transport”
Thesis Advisor: Cora Randall

Prasanna Madhusudhanan, Electrical Engineering
August 2013
“Stochastic Geometric Modeling and Analysis of Wireless Communication Systems”
Thesis Advisors: Timothy X Brown and Youjian (Eugene) Liu

Graduate Students

Nicholas Aberle  Rachel Humphrey  Emily B. Pilinski
Asher F. Ali    Peter Jasch    Marcus Ryan Piquette
Timothy J. Beatty  Elise Ellen Kowalski  Andrew Poppe
Shawn Beckman  Margaux Krahe  Drake Ranquist
Andrew Berg    John Kreisher  Anthony P. Rasca
James Binney    Andrew C. Kren    Miranda Rohlfing
Lauren Weber Blum  Dane T. Larsen    Quintin Schiller
Matthias Brakebusch  Spencer LeBlanc  Anthony Shu
Samuel Califf  Samantha Liner  Marek Slipski
Matthew J. Carton  Jesse Lord  Shi Song
Michael Chaffin  Anna Luebke  David Stokowski
Rachel Anne Collins  Katelynn McCalmont  Jamey Robert Szalay
Matteo Crismani  Steven MacCoun  Andrew Tomchek
Mariel Desroche  Prasanna Madhusudhanan  Corinne Vannatta
Tina (Tianyi) Fan
Jason Farmer  Holly Marcus  Russell Wayne
Tyler R. Fox    Emma Marcucci  Zachary J. Wehner
Mark Gerber    Lance Markovchick  Brett Michael Weisman
Alexandra Hackett  John Martin  Brandon Werdel
Max Hampson  James Paul Mason  Donovan Wheeler
Caitlin Heath  Colin A. Miller  Adam Wolf
Keri Hoadley    Joshua J. Murphy  Eric Wolf
Bryan Holler    Vu Nguyen  Pengfei Yu
Justin Holmes  Ethan D. Peck  Yunqian Zhu
Laura Holt
Undergraduate Students

Ramsey Abdulhamid
Joel Albin
Chris Anaya
Eric A. Anderson
Graham Annett
Trevor Aparicio
Kirsten Baker
Robyn Barber
Nicholas R. Beaty
Nikki Bloch
Kaleb Bodish
Donovan Bonney
Michael F. Bonnici
David M. Borncamp
Karalee Brugman
Damien Burks
Joseph Christopher Burns
Spenser James Burrows
Michael Carl
Lane Caudill
Dain Cilke
Adam J. Clarke
Christopher Shearer-Cooper
Daniel J. Copel
Chris Costello
Martin Czerep
Raymond Dao
Elizabeth A. DeVito
Ryan Dewey
Zachary J. Dischner
Christopher Donaldson
David Eason
Theodore Eberts
Justin Edrington
Jeremy Emmett
Paul L. Fagerburg
Colin Fitzgerald
Christopher Flemming
Sierra Flynn
Andrew H. Fruge
Erin George
M. Tess Geiger
Erin Griggs
Gabrielle Guneratne
Amber Hall

Spenser Hang
Andrew S. Haynes
Emily A. Howard
Michael D. Hutchinson
Valentin Vadimovich Ivanitski
John Janiczek
Joshua Tree Karpel
Jesse Keefer
Scott Yong Kim
Roberto Kingsley
Andrew Krodinger
Jean-Francois Lalonde
Christopher J. LaPanse
Huy Le
Samuel LeBlanc
Jeramy D. Lewis
Keita Linden
Steven James MacCoun
Katelynn McCalmont
Eric McNeil
Abhisek
Mahendrakumar
Sudarsh Suresh Mallaya
Carolyn Mason
Lucas Migliorini
Paul E. Morgan
Caelan Morrison
Casey L. Myers
Muralikrishna
Nallamothu
Kareem Nammari
James Neeley
Alexia Newgord
Shawn Noland
Michael Nothem
John O’Neal
Sean Ray Ortiz
Morgan Dene Osborne
Kiran Pachhai
Kaitlyn Parsons
Bryce A. Peters
Samantha Pettus
Kareesha Potter
Zachary Y. Pranger
Austin Harley Puckett

Marcus Reason
Krista S. Reed
Matthew Reichenbach
Danielle Russell
Wayne Russell
Cassidy Sainsbury
Byron Samaripa
Jason Schelz
Emily Schloesser
Rebecca Seigel
Tanvi Shah
Evan Sidrow
Erin Simons-Brown
Aljah Smith
Terry Smith
Vladislav Soukhovei
Landon Spear
Thomas Spooner
Justin Spurgeon
Gregory Steiner
Colin Stewart
Joseph Stewart
Jason Strong
Jacob Stufflebeam
Katherine (Wren) Suess
Jennifer Symalla
Scott F. Taylor
Evan Thomas
Cassidy Damon Thompson
Allison Toltz
Levey Trac Tran
Tyler J. Traver
Wiechao Tu
William Van Orden
Audrey M. Vertovec
Timothy Villabona
Khoa Chao Vu
Isaac R. Wanamaker
Christopher J. Warren
Dylan Whitman
Ethan Williams
Forrest Williams
Tyler Wingfield
Adam Wolf
Hanchao Wu
Frank Li Zhang
**Faculty Scientific Research Interests**

**Laila Andersson**
Kinetic processes in space plasmas such as double layers, electron phase space holes and Alfven 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

**David Brain**
Exchange of energy and material between un-magnetized planets and their surroundings. Consequences of atmospheric source and loss processes for climate evolution. Analysis of spacecraft observations of planetary upper atmospheres and plasma environments.david.brain@lasp.colorado.edu (303) 735-5606

**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 magnetohydro-dynamic/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

Robert Ergun

Robert Ergun specializes in space and astrophysical plasmas with applications to Earth’s and Jupiter’s magnetosphere, Mars’ ionosphere, and the solar wind. He has developed space-flight electric field instruments for several NASA mission. Theoretical programs focus on small-scale plasma phenomena at Earth, Jupiter, Mars, and the solar wind, and include simulation and analytical modeling of magnetic reconnection, electron phase-space holes, parallel electric fields carried by double layers, ad solar wins turbulence.

Bob.ergun@lasp.colorado.edu (303) 492-1560

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.Horányi@lasp.colorado.edu (303) 492-6903

Brian M. Hynek

Geological processes that have affected terrestrial planets. Studies of water on Mars: geochemical history of Mars; planetary geologic mapping; studying impact craters to better address the history of planets.

brian.hynek@lasp.colorado.edu (303) 735-4312

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

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

Peter Pilewskie
Research interests include solar spectral variability and its effects on terrestrial climate; SORCE and JPSS measurements and analysis of solar irradiance; quantifying the Earth-atmosphere radiative energy budget; surface, airborne, and satellite remote sensing of clouds and aerosols; and theoretical atmospheric radiative transfer.
peter.pilewskie@lasp.colorado.edu (303) 735-5589

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 Experiment (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

Mark Rast
Astrophysical fluid dynamics with emphasis on convective dynamics and scale selection, turbulence, the excitation of the solar p-modes, and the origin of solar/stellar irradiance variations. In addition to theoretical and computational work, efforts include operation of the Precision Solar Photometric Telescope (PSPT) at Mauna Loa Solar Observatory (MLSO) that obtains full disk images of the Sun at five wavelengths with 0.1% photometric precision.
mark.rast@lasp.colorado.edu (303) 492-5348

Nicholas M. Schneider
The physics of planetary magnetospheres, particularly the interactions between planetary plasmas and the satellites of the outer planets. Extensive ground-based 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

**Zoltan Sternovsky**

Instrument scientist and physicist; research is focused on detection and characterization of cosmic dust. Development of flight instruments for space missions and sounding rocket campaigns.
Zoltan.sternovsky@lasp.colorado.edu (303) 7356272

**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

**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

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

American Association for the Advancement of Science (AAAS)
Baker, Daniel (Fellow)

American Astronomical Society
Bagenal, Frances (Chair, Heinemann Prize committee)
Schneider, Nicholas (Education and Public Outreach Officer, Division for Planetary Sciences)
Schneider, Nicholas (Congressional visits with members of Congress, Senators and Staffers)
Schneider, Nicholas (Shapley Lecturer)

American Geophysical Union (AGU)
Baker, Daniel (Member)
Baker, Daniel (Fellow)
Baker, Daniel (Convenor of special sessions at annual meeting)
Delamere, Peter (Co-Convenor for 2013 AGU Chapman Conference on Comparative Planetary Magnetotails)
McGouldrick, Kevin (Co-chair and organizer of session “Understanding Venus using numerical models” at AGU Fall Meeting)
Rusch, David (Member of organizing committee for Chapman Conference held April 2013)
Snow, Martin (Co-Organizer of Special Session “Solar Irradiance: Observations, Proxies, and Models” for Fall 2013 meeting)
Sternovsky, Zoltan (Session Convenor, AGU Fall meeting)
Wang, X. (Co-Convenor of session for AGU Fall meeting)
Wang, X. (Judge for Outstanding Student Paper Award at AGU Fall meeting)

American Meteorological Society (AMS)
King, Michael (Member, Atmospheric Research Awards Committee)

American Physical Society Division of Plasma Physics (APS DPP)
Sternovsky, Zoltan (Member, Program Committee)

Boulder Solar Alliance
Baker, Daniel (Member)
Kopp, Greg (Chair)
Snow, Martin (Member)

CLUSTER Science Working Team
Baker, Daniel (Member)

Committee on Space Research (COSPAR)
Baker, Daniel (Member, Commission D)
Esposito, Larry (Main Scientific Organizer, COSPAR 37 (Planetary Atmospheres)

**Coupling, Energetics and Dynamics of Atmospheric Regions (CEDAR)**
Harvey, Lynn (Co-convenor of 2013 session)

**Editor or Editorial Board Member**
Baker, Daniel (Editor of Journal of Atmospheric and Solar Terrestrial Physics and Space Weather Journal)
Brain, David (Associate Editor for the Journal of Geophysical Research – Space Physics)
Horányi, Mihály (Editor, special issue “Dust, Atmosphere, and Plasma: The Moon and Small Bodies”, to be published in 2013)
Hynek, Brian (Co-editor of the Encyclopedia of Planetary Landforms, Spring Press)
King, Michael (Guest Editor, Atmospheric Chemistry and Physics, and Atmospheric Measurement Techniques)
Li, Xinlin (Member, Editorial Committee of J. of Chinese Space Sciences)
McCollom, T.M. (Associate Editor, Geochimica et Cosmochimica Acta)
Peterson, William K. (Editor, Geophys. Res. Lett.)
Schmidt, K. Sebastian (Associate Editor, Atmospheric Measurement Techniques)
Sternovsky, Zoltan (Senior Editor, IEEE Transaction of Plasma Science)

**Education and Public Outreach**
Coddington, O. (Chair-in-training for EPO Committee)
Collette, A. (Assisted with International Observe the Moon Night activities conducted by CCLDAS personnel at the 29th Street mall)
Collette, A. (Assisted 4 high school students to construct the Mini Plasma Discharge Machine (MPDM)
Eriksson, S. (Presentation to Fireside Elementary School kindergartners on the Sun and magnetic fields)
Merkel, Aimee (Volunteer at Niwot Elementary School)

**European Fleet for Airborne Research (EUFAR)**
Pilewskie, Peter (Member)

**Faculty Awards**
Baker, Daniel, Solar and Terrestrial Sciences Distinguished Lectureship, Asia Oceania Geosciences Society (AOGS)
Baker, Daniel (Associate Fellow, American Institute of Aeronautics and Astronautics (AIAA))
Casp, Amir (NASA LWS Workshop Travel Award (RHESSI/SDO Workshop, Petaluma, CA)
Gosling, John T. (Arctowski Medal, National Academy of Sciences)
NASA Group Achievement Award, CLARREO Mission Concept Team
NASA Group Achievement Award, MAVEN Phase B Team
NASA Group Achievement Award, SDO Science Investigation Team
High Energy Particle Precipitation in the Atmosphere (HEPPA)
Randall, Cora (Chair, Science and local organizing committee for 4th annual HEPPA and SPARC/SOLARIS meeting)

International Academy of Astronautics (IAA)
Baker, Daniel (Member)
Baker, Daniel (Vice Chair, Commission 1)

International Association of Geomagnetism and Aeronomy (IAGA)
Baker, Daniel (Member)
Elkington, Scot (Organizer and Chair of session: Wave and particle dynamics in the radiation belts and ring current, IAGA 2013 Scientific Assembly, Merida, Mexico)

International Association of Meteorology and Atmospheric Sciences (IAMAS)
Pilewskie, Peter (Member, International Radiation Commission (IRC))

International Space Science Institute (ISSI)
Baker, Daniel (Member, Institute Working Group)
Kopp, Greg (Lead of team to create improved TSI composite)
Snow, Martin (Editor of ISSI Scientific Report #13: Cross Calibration of past and present for UV spectra of solar system objects and the heliosphere)
Snow, Martin (Member, ISSI Working Group)

International Union of Geodesy and Geophysics (IUGG)
Baker, Daniel (Member)

International Workshop on Solar-Terrestrial Physics
Baker, Daniel (Co-Convenor)

Laboratory for Atmospheric and Space Physics
Baker, Daniel (Director)

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
Cassini CAPS Team

Bagenal, Fran
Sand, Susan
Wilson, Robert

Computer Systems Advisory Committee (CSAC)
Elkington, Scot (Chair)
Kopp, Greg (Chair Emeritus)
Eriksson, Stefan (Space Phys.)
Xiachua Fang (Atmospheric)
Groeninger, Matt (IT)
Jones, Andrew (Solar)
Lewis, Ryan (Engineering)
Osborne, Darren (MO&DS)
Pankratz, Chris (Data Proc.)
Ramas, Joe (Engineering/Cal)
Smith, Dona (IT)
Smith, Smith (IT)
Spivey, Jerry (IT)
Summers, David (Engineering)
Stewart, Glen (Planetary)

Education and Public Outreach Advisory Committee (EPO)
Odele Coddington (Chair)
Laila Andersson
David Brain
Frank Eparvier
Aimee Merkel
Peter Pilewskie
Bill Possel
Stephanie Renfrow
Snow, Martin
Glen Stewart
Caroline Himes, Executive Rep.
Bruce Jakosky, Business Rep.

Executive Associate Director
Himes, Caroline

Executive Committee
Baker, Dan (Chair)
Elkington, Scot
Gosling, John
Himes, Caroline
Jakosky, Bruce
Jones, Andrew
King, Michael
Kopp, Greg
McCIntock, Bill
McGrath, Mike
Pilewskie, Peter
Possel, Bill
Randall, Cora
Toon, Owen B.
Woods, Tom
Haugen, Cheryl (ex-comm support)

Friends of Magnetospheres (FOM) Seminar Series
Erikssen, Stefan (Seminar organizer)

LASP Data Stewardship Definition Committee
Randall, Cora (Member)

LASP LISIRD Steering Committee
Caspi, Amir
Jones, Andrew
Kopp, Greg
Snow, Martin

LASP Seminar Series Committee
Sternovsky, Zoltan (Chair)
Collette, Andrew (co-organizer)
Schmidt, K. Sebastian (co-organizer)

LASP Seminar Series
Schmidt, Konrad (Co-organizer)

LASP Tablet Users Group
Beech, Jason
Brown, Pat
Evans, Brian
Gathright, David
Himes, Caroline
Jones, Andrew
Lewis, Ryan
Mack, James
Wilson, Rob
Yehle, Alan

Planetary Journal Club
Albers, Nicole (Organizer)
Proposal Development Committee (PDC)
Woods, Tom (Chair)
Sparn, Tom (Co-chair)
Avalone, Linnea
Baker, Dan
Caspi, Amir
DeNeen, Matt
Drake, Ginger
Ergun, Robert
George, Vanessa (PDC support0
Himes, Caroline
Jakosky, Bruce
Rick Kohnert
Kopp, Greg
Lankton, Mark
Laumbach, David
McClintock, Bill
McGilvray, Beth
McGrath, Mike
Pankratz, Chris
Possel, Bill
Reed, Heather
Renfrow, Stephanie
Richard, Erik
Ryan, Sean
Sparn, Tom
Sternovsky, Zoltan
Tate, Gail
White, Neil
Wrigley, Ray

Science Meeting Organizing Committee (SORCE)
Pilewskie, Peter (Member)

Social Committee
Bloom, Laura (Chair)
Bryant, Karen
Cirbo, Kathleen
Davis, Nina
DeNeen, Mathew
Fenz-Trimble, Kaiti
Ferrington, Nic
Griest, Ken
Guy, Carol
Hand, Molly
Harvey, Lynn
Osborne, Darren
Possel, Bill
Reddick, Michelle
Theiling, Dale

**Sponsored Visitor Committee**
Harder, Jerry (Chair)
Bagenal, Fran
Coddington, Odelle
Collette, Andrew
Eparvier, Frank
Eriksson, Stefan
Harvey, V. Lynn
King, Michael
Rast, Mark
Renfrow, Stephanie
Schmidt, Sebastian

**Magnetospheres of the Outer Planets**
Bagenal, Frances (Member, Scientific Organizing Committee)

**National Academies**
Baker, Daniel (Chair, Steering Committee: A decadal survey for solar and space physics)
King, Michael (Member, Committee on Earth Science and Application from Space)

**National Academy of Engineering (NAE)**
Baker, Daniel (Member)

**National Academy of Sciences (NAS)**
Baker, Daniel (Associate Member)
Baker, Daniel (Chair, Committee on Solar and Space Physics)

**National Aeronautics and Space Administration (NASA)**
Bagenal, Frances (Chair, Planetary Science Survey)
Bagenal, Frances (Panel Chair, Review of Cassini Data Analysis Program)
Bagenal, Frances (Member, Science Definition Team for Europa Mission)
Baker, Daniel (Member, NASA Planetary Data System Committee)
Baker, Daniel (Member, SAMPEX Science Working Team)
Baker, Daniel (Member, Magnetospheric multiscale mission Science Team)
Baker, Daniel (Member, MESSENGER/Mercury Orbiter Science Working Team)
Eparvier, Franck (Member LWS TR&T Steering Committee)
Horányi, Mihály (Member, NASA Planetary Data System Small Bodies Node Advisory Board)
Jakosky, Bruce (Member, NASA Mars Exploration Program Analysis Group (MEPAG))
Kopp, Greg (Member, Science Definition Team for Decadal Survey Mission)
Pilewskie, Peter (Member, Science Definition Team for NASA Climate Absolute Radiance and Refractivity Observatory (CLARREO) Decadal Survey Mission)
Pilewskie, Peter (Member, Panel Review)
Pilewskie, Peter (Member LWS Steering Committee)
Randall, Cora (Co-Organizer of NASA LWS workshop on Extreme Events)

National Center for Atmospheric Research (NCAR)
Randall, Cora (Member, Steering Committee for NASA Living With a Star Heliophysics Postdoctoral program)

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

National Research Council (NRC)
Pilewskie, Peter (Member, Committee on the Effects of solar variability on Earth’s climate: A workshop)

National Science Foundation (NSF)
Baker, Daniel (Member, Geosciences Advisory Committee)
Baker, Daniel (Chair, Committee on Visitors – Geospace)

Optical Society of America
Kopp, Greg (Director at Large for Rocky Mountain Section)

Planetary Society
Jakosky, Bruce (Member, Advisory Board)

Radiation Belt Storm Probe Science Team
Baker, Daniel (Member)

Reviewer of Proposals, Manuscripts, or Creative Work
Albers, Nicole (Reviewer of manuscripts for Icarus and Astronomical Journal)
Avalone, Linnea (Reviewer of manuscripts for AGU)
Baker, Daniel (Review of proposals for NASA and NSF)
Brain, David (Review panel for NASA’s Planetary Mission Data Analysis Program)
Brain, David (Reviewer of manuscripts for Planetary and Space Science, Geophysical Research Letters, and Journal of Geophysical Research – Space Physics)
Brain, David (Review panel for NASA’s Planetary Atmospheres Program)
Brain, David (Reviewer of proposals for NASA)
Caspi, Amir (Reviewer of manuscripts for Solar Physics)
Cassidy, Tim (Reviewer of manuscripts for J. Geophys. Res., and Icarus)
Cassidy, Tim (Reviewer of proposals for NASA)
Coddington, Odelle (Reviewer of manuscripts for Atmospheric Measurement Techniques and Atmospheric Chemistry and Physics)
Collette, Andrew (Reviewer of manuscript for IEEE Transactions on Plasma Science)
Elkington, Scot (Reviewer of manuscripts for AGU, Nature, GRL, and JGR)
Elkington, Scot (Reviewer of proposals for NASA and NSF)
Eparvier, Frank (Reviewer of manuscripts for Solar Physics)
Esposito, Larry (Reviewer of proposals for NASA and NSF)
Harder, Jerry (Reviewer of manuscripts for Solar Physics and J. Geophys. Res.)
Harder, Jerry (Review of proposals for National Science Foundation)
Harvey, V. Lynn (Reviewer of proposals for NSERC of Canada, NASA LWS program, and NSF)
Holsclaw, Greg (Reviewer of proposal for NASA)
Horányi, Mihály (Reviewer of proposals for NSF, DOE, and NASA)
Hynek, Brian (Reviewer of proposals for NASA)
Kalnajs, Lars (Reviewer of manuscripts for Geophys. Res. Lett.)
Kalnajs, Lars (Reviewer of proposals for NERC)
Kempf, Sasha (Reviewer of proposals for NASA)
Kopp, Greg (Reviewer of manuscripts for Astronomy and Astrophysics, Solar Physics, Atmospheric Chemistry and Physics, and Surveys in Geophysics)
Li, Xinlin (Reviewer of proposals for NASA and NSF)
McCIntock, William (Reviewer of manuscripts for Icarus and Jour. Geophys. Res.)
McCollom, T.M. (Reviewer of proposals for National Science Foundation, NASA and Petroleum Research Fund)
McGouldrick, Kevin (Reviewer of proposals for NASA)
McGouldrick, Kevin (Reviewer of manuscripts for Advances in Space Research)
Merkel, Aimee (Reviewer of Proposals for NASA and NSF)
Pilewskie, Peter (Panel Reviewer, NASA New Investigator Program)
Pilewskie, Peter (Reviewer of manuscripts for J. Atmospheric Chemistry, Physics and Surveys in Geophysics, J. Atmospheric and Oceanic Technology, and Nature)
Randall, Cora (Reviewer of manuscripts for J. Geophys. Res.)
Randall, Cora (Reviewer of proposals for NASA and NSF)
Robbins, Stuart (Reviewer of proposals for NASA)
Rusch, David (Reviewer of proposals for NASA)
Schmidt, K. Sebastian (Reviewer of proposals for NASA)
Schmidt, K. Sebastian (Reviewer of manuscripts for AMT, SCP, JGR, and JAMC)
Schneider, Nicholas (Reviewer of proposals for NASA and NSF)
Snow, Martin (Reviewer of proposals for NSF)
Sternovsky, Zoltan (Reviewer of proposals for NSF/DOE)
Sternovsky, Zoltan (Reviewer of manuscripts for Annales Geophysicae, Planetary and Space Science, Advances in Space Research)
Stewart, Glen (Reviewer of proposals for NASA)
Toon, Owen B. (Reviewer of manuscripts for Science and Nature)
Toon, Owen B. (Reviewer of proposals for NASA and NSF)
Wang, X. (Reviewer of manuscripts for PSS, Icarus and IEEE)
Wilson, Robert J. (Reviewer of manuscripts for Planetary and Space Science)

Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)
Baker, Daniel (Member)
Merkel, Aimee (Member CAWSES II Task-2 Project 3 Member)
Merkel, Aimee (Member, CAWSES II organizing committee)
Randall, Cora (Co-Chair, CAWSES 11 Theme Group 1)

Sigma Xi
Baker, Daniel (Member)

Student Advising
Collette, Andrew
Elkington, Scot
Eparvier, Frank
Harder, Jerry
Harvey, V. Lynn
Kalnajs, Lars
Kindel, Bruce
Kopp, Greg
Li, Xinlin
Malaspina, David  
Merkel, Aimee  
Osterloo, Mikki  
Peterson, W.K.  
Robbins, Stuart  
Schmidt, K. Sebastian  
Snow, Martin  
Wang, X.  

University of Colorado

Aerospace Engineering Department (ASEN)  
Baker, Daniel (Member, External Advisory Board)  
Li, Xinlin (Member, Graduate Committee)  
Li, Xinlin (Member, Tanner Evaluation Committee)  
Li, Xinlin (Member, Undergraduate Teaching Curriculum Committee)  
Sternovsky, Zoltan (Member, Undergraduate Committee)  
Sternovsky, Zoltan (Member, Graduate Committee)  
Sternovsky, Zoltan (Major revision of existing course ASEN3300)  

Arts and Sciences (A&S)  
Horányi, Mihály (Physics advising)  

Arts and Sciences Support for Education Through Technology (ASSETT)  
Avallone, Linnea (Member, ASSETT Advisory Committee)  

Astrophysics and Planetary Sciences (APS)  
Bagenal, Frances (Member, Faculty Search Committee)  
Bagenal, Frances (Co-chair of Colloquium Committee)  
Baker, Daniel (Member, Graduate Admissions Committee)  
Brain, David (Member, Graduate Admissions Committee)  
Brain, David (Organizer of graduate student recruitment sessions for LASP)  
Ergun, Robert (Member, Graduate Admissions Committee)  
Ergun, Robert (Member, Course Fees Committee)  
Rast, Mark (Undergraduate Advisor)  
Rast, Mark (Examinations Committee)  
Rast, Mark (Executive Committee)  
Schneider, Nicholas (Undergraduate Program Director, Lead Mentor, Lead Course Scheduler, and Curriculum Committee Chair)  

Atmospheric and Oceanic Sciences Department (ATOC)  
Avallone, Linnea (Chair, ATOC graduate admissions committee)  
Coddington, Odelle (Poster judge for department annual poster conference)  
Harvey, V.L. (Faculty Advisor of seminar series)  
Harvey, V.L. (Judge for ATOC student poster conference)  
Pilewskie, Peter (Chair, Admissions Committee)
Pilewskie, Peter (Member, Awards Committee)
Pilewskie, Peter (Member, Course Fees Committee)
Pilewskie, Peter (Member, Social Committee)
Randall, Cora (Department Chair, 2012-present)
Randall, Cora (Chair ATOC Executive committee)
Randall, Cora (Student Recruitment participation)
Randall, Cora (Chair ATOC space committee)
Randall, Cora (Chair ATOC new building committee)
Randall, Cora (Member, ATOC awards committee)
Randall, Cora (Member, ATOC admissions committee)
Randall, Cora (Grader: ATOC Comprehensive I examinations)
Randall, Cora (Chair: ATOC graduate student admissions committee)
Randall, Cora (ATOC graduate student advisor)
Randall, Cora (ATOC Faculty peer review/visitation)
Randall, Cora (ATOC curriculum committee)
Randall, Cora (Grader, ATOC comprehensive I exam)
Smith, Jamison (Hosted Seminar Series)
Toon, Owen B. (Department Chair)

Boulder Faculty Assembly
Eparvier, Francis (Member at Large)
Harvey, Lynn (LASP Research Scientist Representative)

Boulder Faculty Survey (HERI CU)
Rast, Mark (Member)

Budget and Planning Committee
Himes, Caroline, (Member)

Chancellor’s Federal Relations Advisory Committee (FRAC)
Baker, Daniel (Member)

College of Arts and Science
Avallone, Linnea (Member, search committee for advisors)

Conference on World Affairs
Schneider, Nicholas (Moderator; “An Apple Fell into a Bar”)

Excellence in Leadership Program
Randall, Cora (Participant)

External Advisory Board (Aerospace Engineering)
Baker, Daniel (Member)

Faculty Assembly Committee on Women
Avallone, Linnea (Member)
Geology Department
Hynek, Brian (Member Executive Committee)
Hynek, Brian (Member, Undergraduate Curriculum Committee)

Graduate School
Baker, Daniel (Member, Institute Directors Group)
Randall, Cora (Member, Graduate School Executive Advisory Council)

Joint Faculty (Aerospace)
Li, Xinlin
Sternovsky, Zoltan

Joint Faculty (Astrophysics and Planetary Sciences Department (APS)
Bagenal, Frances
Baker, Daniel
Ergun, Robert
Esposito, Larry
Rast, Mark
Schneider, Nicholas

Joint Faculty (Atmospheric and Oceanic Sciences Department (ATOC)
Toon, Owen B. (Chair)
Avallone, Linnea
Pilewskie, Peter
Randall, Cora E.

Joint Faculty (Geology Department)
Hynek, Brian (Member, Executive Committee)
Jakosky, Bruce (Member)

Joint Faculty (Physics Department)
Horányi, Mihaly
Kempf, Sasha

Member of a Dissertation/Thesis Committee
Avallone, Linnea
Bagenal, Frances
Baker, Daniel
Brain, David
Coddington, Odelle
Crary, Frank
Elkington, Scot
Ergun, Robert
Fang, Xiaohua
Gosling, John
Member of a Masters or Ph.D. Qualifying Examination Committee
Avallone, Linnea
Brain, David
Caspi, Amir
Fang, Xiaohua
Horányi, Mihaly
Hynek, Brian
Jones, Andrew
Kempf, Sasha
Li, Xinlin
Pilewskie, Peter
Randall, Cora
Rast, Mark
Schneider, Nicholas
Sternovsky, Zoltan
Stewart, Glen
Toon, Owen B.

New Course Development
Avallone, Linnea
Hynek, Brian
Rast, Mark
Schneider, Nicholas
Toon, Owen B.

Principal Dissertation/Thesis Advisor
Andersson, Laila
Avallone, Linnea
Bagenal, Frances
Baker, Daniel
Brain, David
Delamere, Peter
Ergun, Robert
Esposito, Larry
Harvey, V.L.
Horányi, Mihaly
Hynek, Brian
Jakosky, Bruce
King, Michael
Kopp, Greg
Li, Xinlin
Pilewskie, Peter
Randall, Cora
Rast, Mark
Schneider, Nicholas
Sternovsky, Zoltan
Toon, Owen B.

Student Advising
Andersson, Laila
Avallone, Linnea
Bagenal, Frances
Baker, Daniel
Brain, David
Caspi, Amir
Cassidy, Tim
Coddington, Odelle
Delamere, Peter
Harvey, V.L.
Hynek, Brian
Jones, Andrew
Kopp, Greg
McCIntock, William E.
Malaspina, David
Merkel, Aimee
Randall, Cora
Rast, Mark
Schmidt, Konrad
Schneider, Nicholas
Snow, Martin
Sternovsky, Zoltan
Sungrazing Comets Working Group
Snow, Martin (Member)

Supervisor of Postdoctoral Researchers
Avallone, Linnea
Bagenal, Frances
Hynek, Brian
Schneider, Nicholas
Sternovsky, Zoltan

Vice Chancellor’s Research Cabinet
Baker, Daniel (Member)

University of Northern Iowa
Baker, Daniel (Member, External Advisory Board, Department of Earth Sciences)
Hynek, Brian (Member, External Advisory Board, Department of Earth Sciences)

University Space Research Association (USRA)
Baker, Daniel (Council of Institutes Representative)

Whole Heliospheric Interval Science Team
Snow, Martin (Member)

Workshop on Radiation Belts
Baker, Daniel (Organizing Committee)

FACULTY HONORS/AWARDS
Avallone, Linnea (NASA Group Achievement Award for the Mid-latitude Airborne Cirrus Property Experiment (MACPEX))
Baker, Daniel, Associate Fellow in the American Institute of Aeronautics and Astronautics (AIAA)
Baker, Daniel, Asia Oceania Geophysical Society (AOGS) Distinguished Research Award and Lectureship, 2013
Caspi, Amir (Metcalf Lecturer/Fellow (Living With a Star SDO Workshop, Cambridge, MD))
Hynek, Brian (NASA Early Career Fellowship 5/2012-4/2015)
Jones, Andrew (NASA Solar Dynamics Observatory group achievement)
Pilewskie, Peter (Elected Secretary of the International Radiation Commission)
Pilewskie, Peter (Robert H. Goddard Exceptional Achievement Award, 2013)
Randall, Cora (Elected Fellow, American Geophysical Union)
Toon, O. Brian, CU Distinguished Research Lecturer
Courses Taught by LASP Faculty

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Colloquia and Informal Talks 2013

Ali, Ashar, CU/LASP, Estimating magnetic field power spectrum and the magnetic diffusion coefficients using CRRES magnetometer data
Altoembali, Nicolas, European Space Agency, The Zodiacal dust cloud populations at Saturn: An inventory from the Cassini-CDA point of view
Andersson, Laila, CU/LASP, MAVEN Part 2
Baker, Daniel, CU/LASP, Space Physics Exploration: Basic Research with a High Public Purpose
Brain, David, CU/LASP, MAVEN (Part Course 1): Why?
Brito, Thiago, Dartmouth, Energetic radiation belt electron precipitation showing ULF modulation
Bromley, Benjamin, Univ. of Utah, Migration of Saturn’s small moons and implications for theories of planet formation
Bullock, Mark, SwRI, The Ultraviolet Moon
Collette, Andrew, CU/LASP, Experimental study of vapor released in micrometeoroid bombardment
Dallas, Vassilios, Ecole Normale Superieure, Paris, The influence of
initial conditions in decaying MHD turbulence
Dols, Vincent, CU/LASP, The aurora
Durrance, Sam, Florida Institute of Technology, To LASP and Beyond…
Galloy, Michael, Tech-X, Unit testing in IDL
Green, James L., NASA, The revolution in planetary science
Hand, Kevin, JPL, The search for life in oceans beyond Earth
Harvey, James E., Photon Engineering, Specifying optical fabrication tolerances to meet specific Image quality requirements
Hassler, Donald, SwRI, The radiation environment on Mars measured by RAD on MSL
Hendrix, Amanda, Planetary Science Institute, Ultraviolet spectroscopy of solar system moons
Horst, Sarah, CU/CIREs, Understanding the formation and composition of planetary atmospheric hazes
Hynek, Brian, LASP/CU, Understanding early Mars and its astro-biological potential from analog studies of acidic volcanoes
Jarvinen, Riku FMI/LASP, adventures of a hybrid modeler in the inner solar system
Johnson, Catherine, University of British Columbia, Mars magnetic field record and the history of surface water: Are they related?
Johnson, Catherine, University of British Columbia, MESSENGER observations of Mercury’s magnetosphere
Johnson, Catherine, University of British Columbia, Weird dynamos, thin mantles and basins without holes: Geophysical puzzles at mercury from MESSENGER
Kalnajs, Lars, CU/LASP, The Antarctic Ozone Hole; Looking for the first signs of recovery
Kempf, Sascha, CU/LASP, Origin of Saturn’s rings and inner moons
Kempf, Sascha, CU/LASP, Compositional mapping of Jupiter’s Moon Europa
Knight, Matthew, Lowell Observatory, What’s the big deal about Comet ISON?
Knipp, Delores, CU/LASP, Thermospheric density response to sheath-enhanced geospace storms
Konhauser, Kurt, University of Alberta, Banded iron formation and the rise of oxygen
Kopp, Greg, CU/LASP, The Sun, climate, and a new solar mission
Lauretta, Dante, U. of Arizona, The origin and evolution of asteroid (101955) Bennu
Li, Xinlin, CU/LASP, Our first CubeSat Mission: Concept to Reality and Impact
McIntosh, Scott, HAO/NCAR, Deciphering the Solar Cycle
McKinnon, Bill, Washington University, The Provenance of Pluto-Charon: Implications for composition and structure, and the shapes of things to come
Marcucci, Emma, CU/LASP, Gravity Recovery and Interior Laboratory (GRAIL) mission: First Results
Marino, Raffaele, UCAR, Magnetohydrodynamic turbulence in interplanetary space plasma
Maslov, Lev, Aims College, Two levels of self-organization in the Earth’s climate system
Massie, Steven T., NCAR, Aerosols, Clouds, and Remote Sensing
Mitchell, Tyler, CU/LASP, Spectroscopy of an exoplanet atmosphere
Möbius, Eberhard, Astronomy with Neutral Atoms
Möbius, Eberhard, Astronomy with Neutral Atoms
Poppe, Andrew, U. of California/Berkeley, ARTEMIS pick-up ion observations in the terrestrial magnetotail: Implications for the lunar neutral exosphere
Portyankina, Ganna (Anya), Univ. of Bern, Switzerland, Observations and modeling of gas sublimation-driven activity in Mars Polar Regions: CO₂ jets and related erosion process
Randall, Cora, CU/LASP, Clouds on the edge of space: Insight from the NASA aeronomy of Ice in the Mesosphere (AIM)
Rigler, Josh, USGS, Information theory and multivariate analysis in space physics
Robbins, Stuart J., CU/LASP, Craters: Useful tools or nightmarish headache?
Rogers, Karyn, Carnegie Institute of Washington and RPI, Microbial diversity and metabolic strategies in acidic Mars-analog fumaroles
Solomon, Stan, UCAR, Thermosphere – ionosphere climate during the 2008-2009 Solar Cycle Minimum
Solomon, Stan HAO/UCAR, Solar variability and the upper atmosphere
Stewart, Glen, CU/LASP, The formation of regular satellites from a massive ring
Stewart, Ian, CU/LASP, exploring Mars at LASP: From Mariner to MAVEN
Thomsen, Michelle F., Planetary Science Institute, Cassini/CAPS Observations of Dusk-Side tail dynamics at Saturn
Trattner, Karlheinz, Lockheed Martin, Cusp structures and magnetic reconnection at the magnetopause
Uitenbroek, Han, National Solar Observatory, The influence of spatial inhomogeneity and temporal variations on the modeling of spectral irradiance
Webb, Dave, Boston College, Coronal Mass Ejections and Space Weather
Winte, Lisa (AER) Predicting solar energetic proton levels in real-time
Wolf, Eric, CU/LASP, Is the faint young Sun paradox solved?
Woods, Thomas, CU/LASP, Science and Fun with LASP’s Rocket Experiments
Woods, Thomas, CU/LASP, Rockets go “Whoosh”: Science and fun with LASP’s Rocket experiments
Young, Leslie, SwRI, Time variability of Pluto’s atmosphere

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Mann, I.R., et al., Van Allen Probes observation of localized drift-


Tweedy, O.V., et al., Nighttime secondary ozone layer during major stratospheric sudden warmings in specified-

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Altobelli, N., et al., The zodiacal dust cloud populations at Saturn: signs of Centaurs activity?, The point of view of CASSINI-CDA, EGU meeting, 2013.
Baker, D.N., A Natural Particle Accelerator, Far Above the Planet, Invited interview, “Science Friday”, National Public Radio, 1 March 2013.
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presentation at LASP, 29 October, 2013.


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Baker, D.N., Laboratory for Atmospheric and Space Physics (LASP) Overview, UA College of Optical Sciences Visit to CU-Boulder, 19 April 2013.


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Baker, D.N., New Results from the Van Allen Probes Radiation Belt Mission, National Space Science Center, Beijing, China, 25 September 2013.

Baker, D.N., Overview and goals of LASP, Colorado Association of Commerce and Industry, 1 August 2013.


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Baker, D.N., The economic and societal impacts of space weather, Rocky Mountain Institute, Boulder, CO, 1 August 2013.


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Baker, D.N., The utility of National Academy-sponsored decadal surveys: Recent space science experience, ESIP Summer Meeting, Chapel Hill, NC, 7-12 July 2013.


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Fiege, K., et al., Compositional analysis of interstellar dust as seen by the Cassini Cosmic Dust Analyzer III, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.

Funke, B., et al., Observations relevant to SPARC, SOLARIS-HEPPA: what we have and what we need, SPARC data requirements workshop, Frascati, Italy, 20-21 Feb 2013.


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to Enceladus’ plume and cometary jets, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
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Kobayashi, M., et al., Dust observations in Mercurial orbit by Mercury dust monitor of BepiColombo, LPI Conference, Woodlands, TX, 18-22 March 2013.
Kopp, G., Assessment of the solar irradiance record for climate studies, EGU, Vienna, Austria, April 2013.
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General Assembly, Vienna, Austria, April 2013.

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Rast, M., A new suggestion for the origin of the solar supergranulation, Univ. of Hawaii, 4 November 2013.

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Ion Cyclotron Waves and Pickup Ions: A Multi-Instrument Study of Ionosphere Loss from Mars

Crary, F NASA
Ion Cyclotron Waves and Pickup Ions: A Multi-instrument Study of Plasma Production

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Ion Cyclotron Waves and Pickup Ions: Mapping Plasma Production in Saturn's Magnetosphere

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MGM Next: Development of a Next-generation International Space Station Granular Material Research Facility

Dols, V NASA
Constraining Io’s Neutral Atmosphere by Modeling the Kinetic of Its Interactions with the Jovian Magnetosphere

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