

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 operation successes. Continued dedication and hard work has 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.

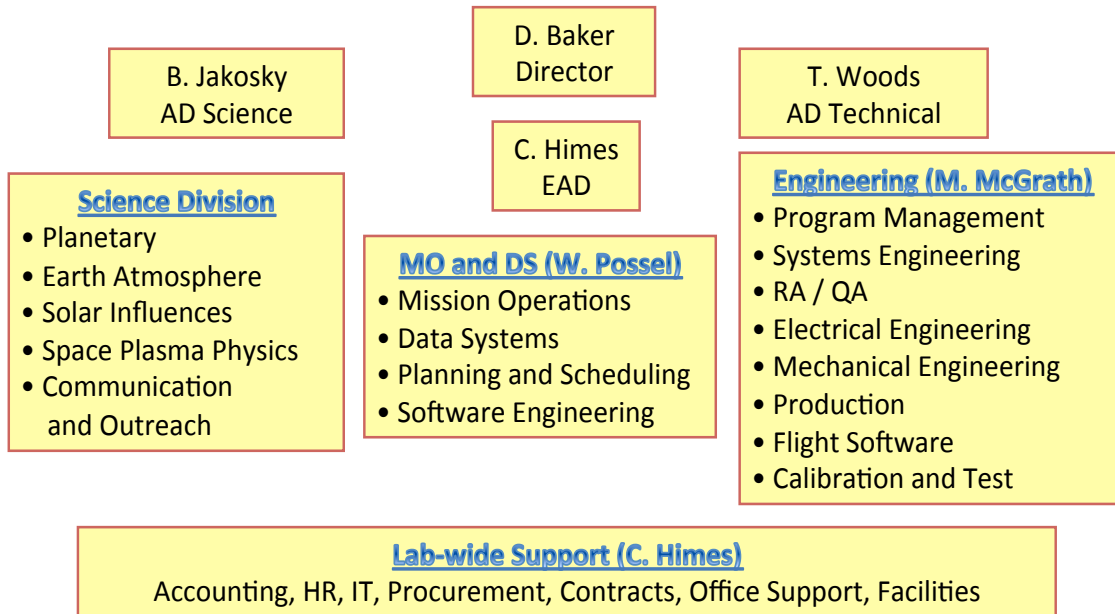
The mention of challenges brings me to my last key point. Level, or reducing, federal budgets are putting stresses on the university space research community unlike anything experienced in recent decades. As I noted last year, academic research remains at the core of a successful national space program. 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



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

Jet Propulsion Laboratory	\$2,544,003
Los Alamos National Laboratory	\$17,819
NASA	\$2,284,196
NASA Ames	\$295,271
NASA Goddard	\$33,980,887
NASA Headquarters	\$386,165
NSF	\$1,054,945
Total Federal Sources	\$40,563,286

Non-Federal Sources

Ball Aerospace & Technologies Corp.	\$2,544,398
Blue Canyon Technologies LLC	\$468,452
Carnegie Institution of Washington	\$450,000
Catholic University of America	\$48,755
GeoOptics, LLC	\$1,121,118
George Mason University	\$41,276
Hampton University	\$784,015
Johns Hopkins University	\$92,309
National Ecological Observatory Network	\$217,854
NorthWest Research Associates	\$10,000
Planetary Science Institute	\$12,690
Rice University	(\$20,000)
Southwest Research Institute	\$2,351,109
Stellar Solutions, Inc.	\$24,374
Teledyne Brown Engineering	\$25,489
The Ohio State University	\$61,372
University Corporation for Atmospheric Research	\$90,668
University of Alaska Fairbanks	\$109,421
University of California Berkeley	\$663,326
University of California Los Angeles	(\$20,000)
University of Central Florida	\$543,362
University of Minnesota	\$300,000
University of New Hampshire	\$150,000
University of Southern California	\$48,497
Vantage Systems, Inc.	\$71,991
Total Non-Federal Sources	\$10,190,476
TOTAL FUNDING	\$50,753,762

Daniel N. Baker, Director
LASP Scientists

Tenure Track:

Linnea M. Avallone
Frances Bagenal
Charles A. Barth (Ret.)
David 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

Scot Elkington
Jason English
Francis G. Eparvier
Stefan Eriksson
Xiaohua Fang
Jeff France
John Gosling
Eberhard Grün
Jerald W. Harder
Lynn Harvey
Greg Holsclaw
Sean Hsu
Allison Jaynes
Andrew Jones
Antal Juhasz
Lars Kalnajs
Bruce Kindel
Michael King
Greg Kopp

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

Research Associates:

Nicole Albers
Laila Anderssen
Amir Caspi
Timothy A. Cassidy
Odele Coddington
Andrew Collette
Vincent Dols

George M. Lawrence
(Ret.)
Wenlong Liu
William E. McClintock
Tom McCollom
Tess McEnulty
Kevin McGouldrick
David Malaspina

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 Dewoina
Sharon Dooley
Virginia Drake
Mark Drobilek
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 Himpfel
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 Nammari
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 Barcion
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 Gritzmacher
Matthew Groeninger
Carol Guy
Barbara Hahn

Caroline Himes
Rose A. Hoag
Bonnie W. Hotard
(Ret.)
Erick Jasiak
Gayle Jones
Seth Kaplan
Brad Keiser
Jason LaClair
Dave Laumbach
Cara Little
Richard Loche
Ethan Loza
Lindsay McCandless
Beth McGilvray
Andrew May
Greg Mecca
Debra Nastaj
Paige Northway
Morgan Osborne
John M. Padgett
Ann Perez de Tejada
Katherine Pilewskie
Lonnie Riesberg
Susan Rogers
Susan Sand
Randy Siders
Dona Smith
Doug Smith
John D. Smith
Lisa Sparhawk
Karen Springfield
Jerry Spivey
Audrey Vertovec
Peter Wise
Aaron Zimmerlin

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

Erin Wood

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 Gemer
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 Krywonos
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

Asher F. Ali

Timothy J. Beatty

Shawn Beckman

Andrew Berg

James Binney

Lauren Weber Blum

Matthias Brakebusch

Samuel Califf

Matthew J. Carton

Michael Chaffin

Rachel Anne Collins

Matteo Crismani

Mariel Desroche

Tina (Tianyi) Fan

Jason Farmer

Tyler R. Fox

Mark Gerber

Alexandra Hackett

Max Hampson

Caitlin Heath

Keri Hoadley

Bryan Holler

Justin Holmes

Laura Holt

Rachel Humphrey

Peter Jasch

Elise Ellen Kowalski

Margaux Krahe

John Kreisher

Andrew C. Kren

Dane T. Larsen

Spencer LeBlanc

Samantha Liner

Jesse Lord

Anna Luebke

Katelynn McCalmont

Steven MacCoun

Prasanna Madhusudhanan

Holly Marcus

Emma Marcucci

Lance Markovchick

John Martin

James Paul Mason

Colin A. Miller

Joshua J. Murphy

Vu Nguyen

Ethan D. Peck

Joshua Petit

Emily B. Pilinski

Marcus Ryan Piquette

Andrew Poppe

Drake Ranquist

Anthony P. Rasca

Miranda Rohlfing

Quintin Schiller

Anthony Shu

Marek Slipiski

Shi Song

David Stokowski

Jamey Robert Szalay

Andrew Tomchek

Corinne Vannatta

Russell Wayne

Zachary J. Wehner

Brett Michael Weisman

Brandon Werdel

Donovan Wheeler

Adam Wolf

Eric Wolf

Pengfei Yu

Yunqian Zhu

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
Cristopher 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
Jeremy 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 Nallamothe
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
Alijah Smith
Terry Smith
Vladislav Soukhovei
Landon Spear
Thomas Spooner
Justin Spurgeon
Gregory Steiner
Colin Stewart
Joseph Stewart
Jason Strong
Jacob Stufflebeam
Katherine (Wren) Sues
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 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

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.

elkinto@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, and solar wind 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.Horanyi@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

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

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

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@viral.f.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 (Co-editor of Encyclopedia of Planetary Landforms, Springer Press)

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, Springer 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))

Caspi, 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
McClintock, 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)
Sparr, Tom (Co-chair)
Avallone, 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
Sparr, 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)

Avallone, Linnea (Reviewer of manuscripts for AGU)

Baker, Daniel (Reviewer of manuscripts for Geophysical Research Letters, Journal of Atmospheric and Terrestrial Physics, Journal of Geophysical Research, Nature, Nature Geoscience, Icarus, and Planetary and Space Science)

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)

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

Ericksson, Stefan (Reviewer of manuscripts for J. Geophys. Res., and Geophys. Res. Lett.)

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

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

Gosling, John (Reviewer of manuscripts for Science, Nature Physics, J. Geophys. Res., Geophys. Res. Lett., ApJ., Annales Geophysicae and Solar Wind 13 Proceedings)

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)

Harvey, V. Lynn (Reviewer of manuscripts for J. Geophys. Res., Atmos. Chemistry and Physics, and Geophys. Res. Lett.)

Holsclaw, Greg (Reviewer of proposal for NASA)

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

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

Hynek, Brian (Reviewer for Nature, Nature Geoscience, Geophys. Res. Lett., Science, J. Geophys. Res., and Planetary and Space Science.)

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)

King, Michael (Reviewer of manuscripts for American Chemistry and Physics, Geophys. Res. Lett., J. Geophys. Res., Journal of Selected topics in Applied Earth Observations and Remote Sensing, Journal of Quantitative Spectroscopy and Radiative Transfer)

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)

Li, Xinlin (Reviewer of manuscripts for J. Geophys. Res., Geophys. Res. Lett., J. Space Weather, J. Atmos. and Solar-Terrestrial Physics, and Annales Geophysicae)

Malaspina, D.N. (Reviewer of manuscripts for Geophys. Res. Lett., Physics of Plasmas, and J. Geophys. Res.)

McCullom, T.M. (Reviewer of manuscripts for Science, Nature, J. Geophys. Res., Earth and Planetary Science Lett., Astrobiology, Phil. Transaction of Royal Society, Lithos, Organic Geochemistry)

McClintock, William (Reviewer of manuscripts for Icarus and Jour. Geophys. Res.)

McCullom, 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)
Merkel, Aimee (reviewer of manuscripts for J. Geophys. Res. and Geophys. Res. Lett.)
Osterloo, Mikki (Reviewer of manuscripts for J. Geophys. Res., Climate, Icarus, Geophys. Res. Lett., and Scientific Reports)
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)
Rast, Mark (reviewer of manuscripts for Ap. J., Science, J. Geophys. Res., JILA internal review, Eclipse on the Coral Sea)
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 1 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

Harvey, V. Lynn
Horányi, Mihaly
Hynek, Brian
Jakosky, Bruce
Kalnajs, Lars
Kempf, Sasha
King, Michael
Li, Xinlin
McCollom, Thomas M.
Newman, David L.
Peterson, W.K.
Pilewskie, Peter
Randall, Cora
Rast, Mark
Schmidt, Konrad
Schneider, Nicholas
Smith, Jamison
Sternovsky, Zoltan
Stewart, Glen
Toon, Owen B.

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

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
McClintock, William E.
Malaspina, David
Merkel, Aimee
Randall, Cora
Rast, Mark
Schmidt, Konrad
Schneider, Nicholas
Snow, Martin
Sternovsky, Zoltan

Sungazing 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

Baker, Daniel, Elected as Fellow (Assoc.) of American Institute of Aeronautics and Astronautics, 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

Bagenal, Frances	Planetary Atmospheres
Bagenal, Frances	Accelerated Intro to Astrophysics
Brain, David	The Solar System
Ergun, Robert	Accelerated Intro to Astronomy
Ergun, Robert	Astrophysical and Space Plasma
Esposito, Larry	Origin of regular and irregular satellites
Esposito, Larry	Planets, Moons and Rings
Esposito, Larry	Moons of the outer Solar System
Horanyi, Mihaly	Physics Honors 1120
Hynek, Brian	Natural catastrophes and geologic hazards
Hynek, Brian	GIS for geologists
Kempf, Sasha	Experimental Physics
Kempf, Sasha	Sound and Music
Pilewskie, Peter	Atmospheric radiation seminar
Pilewskie, Peter	Mathematical Methods
Pilewskie, Peter	Atmospheric Radiation Seminar
Rast, Mark	Introduction to fluid dynamics
Robbins, Stuart	Planetary Seminar on impact craters
Schmidt, Konrad	Intro to scientific data analysis and computing
Schneider, Nick	Management of TA's and LA's
Toon, O. Brian	Clouds and Aerosols

Colloquia and Informal Talks 2013

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|---|---|
| Ali, Ashar, CU/LASP, Estimating magnetic field power spectrum and the magnetic diffusion coefficients using CRRES magnetometer data | Earth's Radiation Belt High-energy Particle Populations |
| Altobelli, Nicolas, European Space Agency, The Zodiacal dust cloud populations at Saturn: An inventory from the Cassini-CDA point of view | Brain, David, CU/LASP, MAVEN (Part Course1): Why? |
| Andersson, Laila, CU/LASP, MAVEN Part 2 | Brito, Thiago, Dartmouth, Energetic radiation belt electron precipitation showing ULF modulation |
| Baker, Daniel, CU/LASP, Space Physics Exploration: Basic Research with a High Public Purpose | Bromley, Benjamin, Univ. of Utah, Migration of Saturn's small moons and implications for theories of planet formation |
| Baker, Daniel, CU/LASP, The Relativistic Electron-Proton Telescope (REPT) instruments onboard the Van Allen Probes Mission: Characterization of | Bullock, Mark, SwRI, The Ultraviolet Moon |
| | Collette, Andrew, CU/LASP, Experimental study of vapor released in micrometeoroid bombardment |
| | Dallas, Vassilios, Ecole Normale Supérieure, 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 (Any), 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

Publications

- Antonanko, I., et al., Effects of incidence angle on crater detection and the Lunar Isochron System: Preliminary results from the CosmoQuest MoonMappers Citizen Science Project. Lunar and Planet. Sci. Conf., 44, #2705, 2013.
- Baker, D.N., Edward Wheeler Hones, Jr. (1922-2012), Eos, 94, #8, 19 February 2013.
- Baker, D.N., and J.B. Blake, SAMPEX: A long-serving radiation belt sentinel, in *Dynamics of the Earth's Radiation Belts and Inner Magnetosphere*, edited by D. Summers, I.R. Mann, D.N. Baker, and M. Schulz, 21-40, AGU Monograph 199, Washington, D.C., doi:10.2912/2012GM001368, 2013.
- Baker, D.N., R.L. McPherron, and J. Birn, Edward Wheeler Hones, Jr., (1922-2012), Eos, Transactions, American Geophysical Union, 2013.
- Baker, D.N., et al., A long-lived relativistic electron storage ring embedded within the Earth's outer Van Allen Radiation Zone, Science, 340, #6129, 186-190, doi:10.1126/science.1233518, 2013. Published online February 28 2013a.
- Baker, D.N., A. Charo, and T. Zurbuchen, Science for a Technological Society: The 2013-2022 Decadal Survey in Solar and Space Physics, Space

- Weather, 11, 50-51,
doi:10.1002/swe.20022, 2013.
- Baker, D.N., G. Poh, D. Odstrcil, C.N. Arge, M. Benna, C.L. Johnson, H. Korth, D.J. Gershman, G.C. Ho, W.E. McClintock, T.A. Cassidy, A. Merkel, J.M. Raines, D. Schriver, J.A. Slavin, S.C. Solomon, P.M. Trávníček, R.M. Winslow, and T.H. Zurbuchen, Solar Wind Forcing at Mercury: WSA-ENLIL Model results, *J. Geophys. Res.*, 118, doi:10.1029/2012JA018064, 2013.
- Brakebusch, M., et al., Evaluation of whole atmosphere community climate model simulations of ozone during Arctic winter 2004-2005, *J. Geophys. Res.*, 118, 2013.
- Brilliantov, N.V., et al., Erratum: Collision dynamics of granular particles with adhesion, *Physical Review E*, Vol. 87, 039904, 2013.
- Capalbo, F.J., G.M. Holsclaw, et al., Solar occultation by Titan measured by Cassini/UVIS, *Ap. J. Letters*, 766:L16, April 2013.
- Carstens, J.N., et al., Understanding uncertainties in the retrieval of polar mesospheric clouds from the cloud imaging and particle size experiment in the presence of a bright Rayleigh background, *J. Atmos. Solar-Terr. Physics*, 104, 2013.
- Chandran, A., et al., A climatology of elevated stratopause events in the Whole Atmosphere Community Climate Model (WACCM), *J. Geophys. Res.*, 2013.
- Caspi, A., et al., EXIS/XRS Flight Model #1 Pre-environment SURF Calibration Report: *LASP AGILE Document #133495* (GOES-R program), 2013.
- Coddington, O., et al., Characterizing a new surface-based shortwave cloud retrieval based on transmitted radiance for soil and vegetated surface types, in *Advances in Studies of Atmospheric Aerosol and Clouds Using Remote Sensing Techniques*, *Atmosphere*, 4(1): 48-71, 2013.
- Curry, S. M., et al., The influence of production mechanisms on pickup ion loss at Mars, *J. Geophys. Res.*, 118, 554-569, doi: 10.1029/2012JA017665, 2013.
- Dalton, J.D., et al., Exogenic controls on sulfuric acid hydrate production at the surface of Europa, *Planetary and Space Science*, 77, 45-63, 2013.
- Delamere, P.A., et al., Magnetic signatures of Kelvin-Helmholtz vortices on Saturn's magnetopause: Global survey, *J. Geophys. Res.*, 118, 1-12, 2013.
- DiBraccio, G.A., J.A. Slavin, S.A. Boardsen, B.J. Anderson, H. Korth, T.H. Zurbuchen, J.M. Raines, D.N. Baker, R.L. McNutt, Jr., and S.C. Solomon, MESSENGER Observations of Magnetopause Structure and Dynamics at Mercury, *J. Geophys. Res.*, 118, #3, doi:10.1002/jrga.50123, 2013.
- Dohm, J.M., et al., Mars Evolution, in *Mars: evolution, Geology and Exploration*, Nova science Publishers, 2013.
- Dix, B., et al., Detection of iodine monoxide in the tropical free troposphere, *PNAS*, doi:10.1073/pnas.1212386110, 2013.
- Eppler, D., et al., Desert Research And technology Studies (DRATS) *Acta Astronautica*, 90(2):224-241, Oct 2013.
- Ermoli, I., et al., Recent variability of the solar spectral irradiance and its impact on climate modeling, *Atmos. Chem. and Physics*, 13(8), 2013.
- France, J., and V.L. Harvey, A climatology of the stratopause in WACCM, *J. Geophys. Res.*, 118, #5, 22411-2254, doi:10.1002/jgrd 50218, 2013.
- Gershman, D.M., J. Slavin, J. Raines, T. Zurbuchen, B. Anderson, H. Korth,

- D.N. Baker, and S.C. Solomon, Magnetic flux pile-up and plasma depletion in Mercury's subsolar magnetosheath, *J. Geophys. Res.*, 2013.
- Gosling, J.t., and T.D. Phan, Magnetic reconnection in the solar wind associated with extremely small field shear angles, *Astrophys. J.*, 63, L39, doi:10.1088/2041-8205/763/L39, 2013.
- Greer, K., J.P. Thayer, and V.L. Harvey, A climatology of polar winter stratopause warmings and associated planetary wave breaking, *J. Geophys. Res.*, 2013.
- Harder, J., et al., The *SORCE* mission celebrates ten years, *The Earth Observer*, v. 25, #1, pp. 3-13, Jan-Feb 2013.
- Hartzell, C.M., et al., Experimental demonstration of the role of cohesion in electrostatic dust lofting, *Geophys. Res. Lett.*, 40, doi:10.1002/grl.50230, 2013.
- Hoke, M.r.t., et al., Effects of sediment supply and concentrations on the formation timescale of Martian deltas, *Icarus*, 228, 2013.
- Holt, L., et al., The influence of major sudden stratospheric warming and elevated stratopause events on the effects of energetic particle precipitation in WACCM, *J. Geophys. Res.*, 118, 2013.
- Hornung, K., et al., On the application of a linear tie-of-flight mass spectrometer for the investigation of hypervelocity impacts of micron and sub-micron sized dust particles, *Planetary and Space Science*, 89, 47-57, doi:10.1016/j.pss.2013.07.013.
- Hsu, H.-W., et al., Probing IMF using nanodust measurements from inside Saturn's magnetosphere, *Geophys. Res. Lett.*, 40,(12), 2902-2906, 2013.
- Hsu, H.-W., M. Horanyi, and S. Kempf, Dust and spacecraft charging in Saturn's E ring, *Earth, Planets and Space* 65, 149-156, 2013.
- Hynek, Brian, et al., Assessment of environmental controls on acid-sulfate alteration at active volcanoes in Nicaragua: Applications to relic hydrothermal systems on Mars, *J. Geophys. Res.*, 2013.
- Jackman, C.H., et al., Middle atmospheric changes caused by the January and March 2012 solar proton events, *Atmos. Chem. Phys. Discuss.*, 13, 23251-23293, doi:10.5194/acpd-13-23251-2013.
- Johnson, R.E., R.W. Carlson, T.A. Cassidy, and M. Fama, Sputtering of ices, *Astrophysics and Space Science Library*, 356, 551-581, 2013.
- King, M.D., and O. Dubovik, Determination of aerosol optical properties from inverse methods, in *Aerosol Remote Sensing*, Springer-Verlag, pp. 101-136, 2013.
- Kokhanovsky, A., et al., The determination of cloud optical thickness and effective particle size from measurements of transmitted diffuse light, *IEEE Geoscience and Remote Sensing Letters*, 10, 2013.
- Lavvas, P., F. Cray, et al., Aerosol growth in Titan's ionosphere, *Proceedings of the National Academy of Science of the United States of America*, 110, 2729-2734, 19 February 2013.
- Lazzara, M.A., et al., Automatic Weather Station (AWS) program operated by the University of Wisconsin-Madison during the 2011-2012 field season, *Antarctic Record*, 57, #1, 2013.
- Li, Y., et al., Instrument study of the Lunar Dust eXplorer (LDX) for a Lunar Lander Mission, *Adv. In Space Res.*, doi:http://dx.doi.org/10.1016/j.asr.2013.12.006.
- Lillis, R.J., et al., A new, statistically robust timeline for the Martian

- Dynamo, Geological Histories, Lunar and Planet. Sci. Conf., 44, #1435, 2013.
- Lumpe, J.D., et al., retrieval of polar mesospheric cloud properties from CIPS: algorithm description, error analysis and cloud detection sensitivity, *J. Atmos. Solar-Terr. Physics*, 104, 2013.
- McClintock, W.E., et al., Exploring the Mars upper atmosphere with imaging ultraviolet spectroscopy, SPIE Newsroom, 10.1117/2.1201302.004733, Feb. 2013.
- McCullom, T.M., Laboratory simulations of abiotic hydrocarbon formation in Earth's deep subsurface. In *Carbon in Earth (Hazen, Jones and Baross, eds), Reviews in Mineralogy and Geochemistry*, 75, 467-494, 2013.
- McCullom, T.M., et al., Experimental study of acid-sulfate alteration of basalt and implications for sulfate deposits on Mars, *J. Geophys. Res.*, 112, doi:10.1002/jgre.20044, 2013.
- McCullom, T.M., Miller-Urey and beyond: What have we learned about prebiotic organic synthesis reactions in the past 60 years? *Ann. Rev. of Earth and Planetary Sci.*, 41, doi:10.1146/annurev-earth-040610-133457, 2013.
- McCullom, T.M., The influence of minerals on decomposition of the *n*-alkyl-*α*-amino acid norvaline under hydrothermal conditions, *Geochim. Cosmochim. Acta* 104, 330-357, 2013.
- McCullom, T.M., and J.S. Seewald, Serpentinites, hydrogen, and life, *Elements*, 9, 125-130, 2013.
- McCullom, T.M., et al., Chemical and mineralogical trends during acid-sulfate alteration of pyroclastic basalt at Cerro Negro Volcano, and implications for Early Mars, *J. Geophys. Res.*, 2013.
- McPherron, R.L., D.N. Baker, et al., Changes in solar wind-magnetosphere coupling with solar cycle, season, and time relative to stream interfaces, *J. Atmos. and Solar-Terr. Physics*, 99, pp. 1-13, 2013.
- Malaspina, D.M., et al., Electrostatic solitary waves in the solar wind: evidence for instability at solar wind current sheets, *J. Geophys. Res.*, 118, 591-599, 2013.
- Marcucci, E.C., et al., Visible to near-infrared spectroscopy of volcanic acid-sulfate weathering systems in Nicaragua: Analogs for early Mars alterations, *J. Geophys. Res.*, 118, 2013.
- Morley, and D.N. Baker, et al., Phase space density matching of relativistic electron using the Van Allen Probes: REPT results, *Geophys. Res. Lett.*, 40(18):4798-4802, 2013.
- Otto, K., et al., Application and calibration of a simple position detector for a dust accelerator, *Nuclear Instruments and Methods I Physics Research Section A*, 729, 841-848, 2013.
- Phan, R.D., et al., The dependence of magnetic reconnection on Plasma β and magnetic shear: Evidence from magnetopause observations, *Geophys. Res. Lett.*, 40, 11-16, 2013.
- Pilewskie, Peter, Airborne measurements for environmental research – Methods and instruments, *Atmospheric Radiation Measurements*, Wiley publications, 2013.
- Plainaki, C., et al., Erratum to “The role of sputtering and radiolysis in the generation of Europa exosphere, *Icarus*, 222, 419, 2013.
- Pryor, W., et al., Lyman-alpha observations of comet Holmes from SORCE SOLSTICE and SOHO SWAN, in ISSI Scientific report Series, SR-013, pp. 255-268, 2013.

- Pryor, W., et al., Lyman-alpha models for LRO LAMP from messenger MASCS and SOHO SWAN Data, In *ISSI Scientific report Series*, Vol. 13, SR-013, pp. 163-175, 2013.
- Rabier, F., et al., The Concordiasi field experiment over Antarctica: First results from innovative atmospheric measurements, *Bull. Am. Meteor. Soc.*, 94, 17, 2013.
- Rasca, A.P. and M. Horanyi, Solar wind mass-loading due to dust, *AIP Conf. Prod.* 1539, 2013.
- Reeves, G.D., H. Spence, M. Henderson, S. Morley, R.H.W. Friedel, H. Funsten, D.N. Baker, S. Kanekal, J. Blake, J. Fennell, S. Claudepierre, R. Thorne, D. Turner, C. Kletzing, W. Kurth, B. Larsen, and J. Niehof, Electron acceleration in the heart of the Van Allen Radiation Belts, *Science*, <http://www.sciencemag.org/content/early/recent/>, 2013.
- Robbins, S.J., and B.M. Hynek, The secondary crater population of Mars, *Lunar and Planet. Sci. Conf.*, 44, #2644, 2013.
- Robbins, S.J., Revised lunar cratering chronology for planetary geological histories, *Lunar and Planet. Sci. Conf.*, 44, #1619, 2013.
- Robbins, S.J., and B.M. Hynek, Utility of laser altimeter and stereoscopic terrain models to derive complex morphology: Application of Martian craters, *Planetary and Space Science*, 86, 2013.
- Robbins, S.M., et al., The large impact crater history of Mars, *Icarus*, 225, 2013.
- Roberts, Y.L., et al., Quantitative comparison of the variability in observed and simulated shortwave reflectance, *Atmos. Chem. and Phys.*, 13(6), 2013.
- Rottman, G., et al., The *SORCE* Mission celebrates ten years, *The Earth Observer*, 25, #1, 2013.
- Shuhui Wang, K.-F., et al., Midlatitude atmospheric OH response to the most recent 11-year solar cycle, www.pnas.org/cgi/doi/10.1073/pnas.1117790110, 2013.
- Siskind, D., et al., Recent observations of high mass density polar mesospheric clouds: A link to space traffic, *Geophys. Res. Lett.*, 40, 2013.
- Sittler, E.C., et al., Plasma ion composition measurements for Europa, *Planetary and Space Science*, available online March 2013.
- Smith, A.K., et al., Satellite observations of ozone in the upper mesosphere, *J. Geophys. Res.*, 118, 2013.
- Snow, M., et al., A new catalog of ultraviolet stellar spectra for calibration, in *Cross-calibration of Past and Present far UV spectra of solar system objects and the Heliosphere*, *ISSI Scientific report Series*, SR-013, pp. 191-226, 2013.
- Snow, M., et al., Absolute ultraviolet irradiance of the Moon from the *LASP* lunar albedo measurement and analysis from *SOLSTICE* (*LLAMAS*) project, in *Cross-calibration of Past and Present far UV spectra of solar system objects and the Heliosphere*, E. Quemerais, Snow and Bonnet, editors, *ISSI Scientific report Series*, Sr-013, pp. 227-254, 2013.
- Spence, H.E., D.N. Baker, et al., Science goals and overview of the radiation Belt Storm Probes (*RBSP*) energetic particle, composition, and thermal plasma (*EDT*) suite on NASA's Van Allen Probes Mission, *Space Sci. Rev.*, doi:10.1007/s11214-013-0007-5, 2013.
- Sterken, V.J., et al., The filtering of interstellar dust in the solar system,

- Astronomy and Astrophysics, 552, A130-, 2013.
- Tanaka, K.L., et al., Updated resurfacing history of Mars based on the New Global Geologic Map, Geological Histories, Lunar and Planet. Sci. Conf., 44, #1588, 2013.
- Thorne, R.M., W. Li, B. Ni, Q. Ma, J. Bortnik, D.N. Baker, H.E. Spence, G.D. Reeves, M.G. Henderson, C.A. Kletzing, W.S. Kurth, G.B. Hospodarsky, D. Turner, and V. Angelopoulos, Evolution and slow decay of an unusual narrow ring of relativistic electrons near $L \sim 3.2$ following the September 2012 magnetic storm, *Geophys. Res. Lett.*, 40, 1-5, doi:10.1002/grl.50627, 2013.
- Thurairajah, B., et al., Case study of an ice void structure in polar mesospheric clouds, *J. Atmos. Solar-Terr. Physics*, 104, 2013.
- Thurairajah, B., et al., Morphology of polar mesospheric clouds as seen from space, *J. Atmos. Solar-Terr. Physics*, 2013
- Tweedy, O.V., et al., Nighttime secondary ozone layer during major stratospheric sudden warmings in specified-dynamics WACCM, *J. Geophys. Res.*, 118, 2013.
- Von Clarmann, T., et al., The solar proton events in 2012 as observed by MIPAS, *Geophys. Res. Lett.*, 2013.
- Wang, X., et al., Effect of filament supports on emissive probe measurements, *Rev. Sci. Instrum.*, 84, 013506, 2013.
- Wang, X., et al., Electric potentials in magnetic dipole fields normal and oblique to a surface in plasma: Understanding the solar wind interaction with lunar magnetic anomalies, *Geophys. Res. Lett.*, 40, doi:10.1002/grl.50367, 2013.
- Wen, G., et al., Reconciliation of modeled climate responses to spectral solar forcing, *J. Geophys. Res.*, 118(12), 2013.
- Wendisch, M., et al., Atmospheric radiation measurements, in *Airborne Measurements for Environmental Research – Methods and Instruments*, Wendisch and Brenguier, ed., doi:10.1002/9783527653218, 2013.
- Werner, F., et al., New airborne retrieval approach for trade wind cumulus properties under overlying cirrus, *J. Geophys. Res.*, 118(9), 2013.
- Wielicki, Bruce A., et al, Achieving Climate Change Absolute Accuracy in Orbit. *Bull. Amer. Meteor. Soc.*, 94, 1519–1539, doi: <http://dx.doi.org/10.1175/BAMS-D-12-00149.1>, 2013.
- Wilson, R.J., et al., Evidence from radial velocity measurements of a global electric field in Saturn's inner magnetosphere, *J. Geophys. Res. – Space Physics*, doi:10.1002/jgra.50251, 2013.
- Winslow, R.M., et al., Mercury's magnetopause and bow shock from MESSENGER observations, *J. Geophys. Res.*, 118, #5, 2213-2227, doi:10.1002/grl.50217, 2013.
- Woods, T., et al., The SORCE mission celebrates ten years, *The Earth Observer*, v. 25, pp. 3-13, 2013.
- Xie, J., et al., Laboratory testing and data analysis of the Electrostatic Lunar Dust Analyzer (ELDA) instrument, *Planetary and Space Science*, <http://dx.doi.org/10.1016/j.pss.2013.01.004>, 2013.
- Yau, A.W., et al., The role of quiet-time ionospheric plasma in the storm-time inner magnetosphere, in *Dynamics of the Earth's radiation belts and inner magnetosphere*, American

Works in Progress

- Altobelli, N., et al., Exogenous dust delivery into the Saturnian's constrains Saturn's rings age to 4.5 billion years, *Nature*, submitted, 2013.
- Altobelli, N., et al., Exogenous dust streaming into the Saturn's system: Interstellar dust, Kuiper belt dust and cometary dust: The CASSINI CDA inventory, *J. Geophys. Res.*, submitted, 2013.
- Amend, J.P., et al., The energetics of organic synthesis inside and outside the cell, *Philosophical Transactions of the Royal Society B.*, in press, 2013.
- Baker, D.N., et al., A long-lived relativistic electron storage ring embedded within the Earth's outer Van Allen Radiation Zone, *Science*, in press, 2013.
- Baker, D.N., et al., Solar Wind Forcing at Mercury: WSA-ENLIL Model results, *J. Geophys. Res.*, in press, 2013.
- Baker, D.N., et al., Predicting and Mitigating Socioeconomic Impacts of Extreme Space Weather: Benefits of Improved Forecasts, in *Extreme Natural Hazards, Disaster Risks and Societal Implications*, Cambridge Univ. Press, in press, 2013b.
- Baker, D.N., James Van Allen and His Namesake NASA Mission, *EOS*, in press, 2013.
- Baker, D.N., M.K. Hudson, and A. Charo, Professional societies and space weather policy, *Space Weather*, in press, 2013.
- Baker, D.N., X. Li, A. Pulkkinen, C. Ngwira, L. Mays, A. Galvin, and K. Simunac, A major solar eruptive event in July 2012: Defining extreme space weather scenarios, *Space Weather*, in press, 2013.
- BenMoussa, A., et al., On-orbit degradation of solar instruments, *Solar Phys.*, submitted, 2013.
- Caspi, A., S. Krucker, and R.P. Lin, Statistical properties of super-hot flares, *Astrophys. J.*, in revision, 2013.
- Chandran, A., et al., Atmospheric gravity wave effects on polar mesospheric clouds: A comparison of numerical simulations from CAMA2D with AIM observations, *J. Geophys. Res.*, in press, 2013.
- Claudepierre, S., I. Mann, K. Takahashi, J. Fennell, M. Hudson, J. Blake, J. Roeder, J. Clemmons, H. Spence, G. Reeves, D. N. Baker, H. Funsten, R. Friedel, M. Henderson, C. Kletzing, W. Kurth, and J. Wygant, Van Allen Probes observation of localized drift-resonance between poloidal mode ultra-low frequency waves and 60 keV electrons, *Geophys. Res. Lett.*, in press, 2013.
- Colarco, P.R., et al., Impact of radiatively interactive dust aerosols in the NASA GEOS-5 climate model: Sensitivity to dust particle shape and refractive index, *J. Geophys. Res.*, submitted, 2013.
- Collette, A., et al., Time-resolved temperature measurements in hypervelocity dust impact, *Geophys. Res. Lett.*, submitted, 2013.
- Curry, S.M., M. Liemohn, X. Fang, D. Brain, and Y. Ma, Simulated kinetic effects of the corona and solar cycle of high altitude ion transport at Mars, *J. Geophys. Res.*, under review, 2013.
- Dai, Lei, K. Takahashi, J. Wygant, L. Chen, J. Bonnell, C. Cattell, S. Thaller, C. Kletzing, C. Smith, R. MacDowall, D.N. Baker, J. Blake, J. Fennell, S. Claudepierre, H. Funsten, G. Reeves,

- and H. Spence, Excitation of poloidal standing Alfvén waves through drift resonance wave-particle interaction, *Geophys. Res. Lett.*, GLO57190R, submitted, 2013.
- Diao, M., et al., Upper troposphere relative humidity defined by water vapor variability, *Science*, submitted, 2013.
- Dickson, S., et al., Channel electron multiplier operated on a sounding rocket without a cryogenic vacuum pump from 120-75 km altitude, *J. Atmos. Solar-Terr. Phys.*, in press, 2013.
- Dohm, J.M., et al., Geologic and hydrologic histories of the Argyre Basin and surroundings, Mars, *Icarus*, in review, 2013.
- Dorsi, S.W., L.E. Kalnajs and L.M. Avallone, A fiber-coupled close-path tunable diode laser hygrometer for total water measurements in the troposphere, *Atmos. Meas. Tech.*, submitted, 2013.
- Eriksson, S., et al., Observations of bipolar and tripolar hall magnetic fields at solar wind exhausts: Evidence of multiple X-lines, *Phys. Rev. Lett.*, submitted, 2013.
- Fang, X., D. Lummerzheim, and C. Jackman, Proton impact ionization and a fast calculation method, *J. Geophys. Res.*, under review. 2013.
- Fleshman, B.L., P.A. Delamere, F. Bagenal, and T. Cassidy, A 1-D model of physical chemistry in Saturn's inner magnetosphere, *J. Geophys. Res.*, submitted, 2013.
- Gustin, J., et al., Effects of methane on giant planet's UV emissions and implications for the auroral characteristics, *J. Molecular Spectroscopy*, in press, 2013.
- Hartzell, C.M., X. Wang, D.J. Scheeres, and M. Horányi, Experimental demonstration of the dominance of cohesion in electrostatic lofting of small dust grains, *Geophys. Res. Lett.*, in press, 2013.
- Horanyi, M., et al., The Lunar Dust Experiment (LDEX) onboard the Lunar Atmosphere and Dust Environment Explorer (LADEE) Mission, *Space Sci. Rev.*, submitted, 2013.
- Hsu, H.-W., et al., Silica nanoparticles provide evidence for hydrothermal activities at Enceladus, *Nature*, submitted, 2013.
- Hynek, B.M., and G. DiAchille, Geologic map of Meridiani Planum region, Mars, USGS Planetary Mapping Program, in review, 2013.
- Hynek, B.M., et al., Assessing environmental controls on acid-sulfate alteration at active volcanoes in Nicaragua: Applications to relic hydrothermal systems on Mars, *J. Geophys. Res.*, submitted, 2013.
- Irwin, R.P., Tanaka, K.L., and S.J. Robbins, Distribution of early, middle, and late Noachian cratered surfaces in the Martian highlands: Implications for resurfacing events and processes, *J. Geophys. Res.*, in press, 2013.
- Kalnajs, L.E., L.M. Avallone, and D.W. Toohey, Correlated measurements of ozone and particulates in the Ross Island Region, Antarctica, *Atmospheric Chemistry and Physics*, submitted, 2013.
- Kempf, S., et al., Enceladus as an active body, *Space Science Rev.*, submitted, 2013.
- Kempf, S., et al., On the response of PVDF dust detectors to oblique impacts, *Planetary Space Science*, submitted, 2013.
- Kempf, S., et al., Cassini in-situ observations of Saturn's E ring: The electrostatic potential of grains in Saturn's shadow, *Geophys. Res. Lett.*, submitted, 2013.

- Kempf, S., and U. Beckmann, Dynamics and long-term evolution of Saturn's E ring particles, *Planetary and Space Science*, submitted, 2013.
- Kempf, S., et al., SUDA: A dust camera for dust mass spectroscopy of moon surfaces, *Res. Scientific Instr.*, submitted, 2013.
- King, M.E., Research satellites, in *Encyclopedia of Atmospheric Sciences*, 2nd edition, Academic Press, in press, 2013.
- King, M.D., et al., Spatial and temporal distribution of clouds observed by MODIS on-board the Terra and Aqua satellites, *IEEE Trans. Geosci. Remote Sens.*, in press, 2013.
- Klein, F., G. Bach, and T.M. McCollom, Compositional controls on hydrogen generation during serpentinization of ultramafic rocks, *Lithos*, in press, 2013.
- Kokhanovsky, A.A., et al., The determination of cloud optical thickness and effective particle size from measurements of transmitted diffuse light, *IEEE Geoscience and Remote Sensing Letters*, in press, 2013.
- Kopp, G., and J. Lean, The solar climate data record; Scientific assessment of strategies to mitigate an impending gap in total solar irradiance observations between the NASA SORCE and NOAA TSIS missions (Study B), NRC Report, in review, 2013.
- Koskinen, T.T., B.M. Holsclaw, et al., The density and temperature structure near the exobase of Saturn from Cassini UVIS solar occultations, *Icarus*, submitted, 2013.
- Liemohn, M., S. Curry, X. Fang, and Y. Ma, Comparison of high-altitude production and ionospheric outflow contributions to O^+ loss at Mars, *J. Geophys. Res.*, under review, 2013.
- Lillis, R.J., et al., The detectability of impact demagnetization at Mars: Implications for the history of the Dynamo, *J. Geophys. Res.*, in review, 2013.
- Liu, W.-J., et al., Determining heating rates in reconnection formed flare loops of the M8.0 Flare on 2005 May 13, *Astrophys. J.*, in press, 2013.
- Lord, J.W., M.P. Rast, et al., The role of subsurface flows in solar convection: Suggested origins of the solar supergranulation spectrum, *Ap. J.*, under review, 2013.
- Lumpe, J.D., et al., Retrieval of polar mesospheric cloud properties from CIPS: algorithm description, error analysis and cloud detection sensitivity, *J. Atmos. Solar-Terrestrial Physics*, submitted, 2013.
- McCollom, T.M., et al., Chemical and mineralogical trends during acid-sulfate alteration of pyroclastic basalt at Cerro Negro volcano, and implications for early Mars, *J. Geophys. Res.*, submitted, 2013.
- McCollom, T.M.N., et al., Detection of iron substitution in natroalunite-natrojarosite solid solutions and potential implications for Mars, *American Mineralogist*, in press, 2013.
- McComas, D.J., et al., Jovian Auroral Dynamics Experiment (JADE) on Juno, *Space Science Rev.*, submitted, 2013.
- Mackwell, S.J., et al., Solar Irradiance variability and its impacts on the Earth climate system, in *Comparative climatology of Terrestrial Planets*, U. of Arizona Press, in press, 2013.
- Mann, I.R., et al., The Earth's Van Allen Radiation Belts: A Geophysical Synchrotron, *Nature*, in preparation, 2013.
- Mann, I.R., et al., Van Allen Probes observation of localized drift-

- resonance between poloidal mode ultra-low frequency waves and 60 keV electrons, in *Early Results from the Van Allen Probes*, *Geophys. Res. Lett.*, submitted, 2013.
- Marcucci, E.C., and B.M. Hynek, Experimental and theoretical alteration of basalt and basaltic minerals under acid-sulfate conditions at elevated temperatures: Implications for early Mars, *J. Geophys. Res.*, in review, 2013.
- Mayhew, L.E., et al., Hydrogen generation from low temperature water-rock reactions, *Nature Geosciences*, in press, 2013.
- Mendis, D.A., and M. Horányi, Plasma effects in Comets: Expectations for Rosetta, *Rev. of Geophys.*, in press, 2013.
- Milillo, A., et al., Energetic neutral particles detection in the environment of Jupiter's icy moons: Ganymede's and Europa's neutral imaging experiment (GENIE), submitted, 2013.
- Payani, A.P., F. Cray, et al., Effects of plasma torus density variations on the morphology and brightness of the Io footprint, *Geophys. Res. Lett.*, submitted, 2013.
- Peterson, W.K., et al., Can variations of solar EUV irradiance incident on Mars be inferred from photoelectron observations, *J. Geophys. Res.*, submitted, Feb. 2013.
- Raines, J. M., et al., Distribution and compositional variations of plasma ions in Mercury's space environment: The first three Mercury years of MESSENGER observations, *J. Geophys. Res.*, in press, 2013.
- Robbins, S.J., et al., The large crater impact history of Mars: The effect of different model crater age techniques, *Icarus*, in press, 2013.
- Robbins, S.J., A new lunar chronology for age estimates of solar system terrestrial surfaces, *Nature-Geoscience*, in review, 2013.
- Robbins, S.J., and B.M. Hynek, Utility of laser altimeter and stereoscopic terrain models to derive complex morphology: Application to Martian craters, *Planetary and Space Science*, in review, 2013.
- Rong, P.P., et al., PMC brightness zonal variability and its correlation with temperature and water vapor, *J. Geophys. Res.*, submitted, 2013.
- Shapiro, A.V., et al., The role of the solar irradiance variability in the evolution of the middle atmosphere during 2004-2009, *J. Geophys. Res.*, in press, 2013.
- Smith, A.K., et al., Satellite observations of ozone in the upper mesosphere, *J. Geophys. Res.*, submitted, 2013.
- Stackhouse, P., et al., Assessment of global radiative flux datasets, *Bulletin of the American Meteorological Society*, submitted, 2013.
- Tanaka, K.L., The digital global geologic map of Mars: Unit chronostratigraphic ages, topographic characteristics, and updated resurfacing history, *Planetary and Space Science*, in press, 2013.
- Thorne, R.M., W. Li, B. Ni, Q. Ma, J. Bortnik, L. Chen, D.N. Baker, H.E. Spence, G.D. Reeves, M.G. Henderson, C.A. Kletzing, W.S. Kurth, G.B. Hospodasky, J.B. Blake, J.F. Fennell, and S. G. Claudepierre, Van Allen probe evidence of relativistic radiation belt electron acceleration by magnetospheric chorus, *Nature*, submitted, 2013.
- Torres, P.J., P. Madhusudhanan, and L.W. Esposito, Mathematical analysis of a model for moon-triggered clumping in Saturn's rings, *Physical Review D*, submitted, 2013.
- Tweedy, O.V., et al., Nighttime secondary ozone layer during major stratospheric sudden warmings in specified-

- dynamics WACCM, J. Geophys. Res., submitted, 2013.
- Wang X., X. Fang, G. Lu, and A. Burns, Effects of MEPED electrons and ions on global thermosphere and ionosphere during the January 15-23, 2005 storm events, J. Geophys. Res., under review, 2013.
- Wang, Y., J. Luhmann, F. Leblanc, X. Fang, R. Johnson, Y. Ma, W. Ip, and L. Li, Modeling of the 0+ pickup ion sputtering efficiency dependence on solar wind conditions for the Martian atmosphere, J. Geophys. Res., under review, 2013.
- Wen, G., et al., Reconciliation of modeled climate responses to spectral solar forcing, J. Geophys. Res. submitted, 2013.
- Wilson, R.J., et al., Evidence from radial velocity measurements of a global electric field in Saturn's inner magnetosphere, J. Geophys. Res., submitted, 2013.
- Yingst, R.A., et al., Science-driven strategies for semi-autonomous rovers on the Moon: Field test at an ice-bearing regolith analog, Acta Astronautica, in press, 2013.
- Yue, J., et al., Concentric gravity waves in polar mesospheric clouds from the Cloud Imaging and Particle Size (CIPS) experiment, J. Geophys. Res., submitted, 2013.

Papers Presented at Scientific Meetings

- Ali, A., and S.R. Elkington, Estimating magnetic field power spectrum using CRRES magnetometer data, Friends of Magnetosphere seminar, Boulder, CO, April 2013.
- 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.
- Altobelli, N., et al., the exogenous dust populations in the Saturnian's system: A CDA inventory, EPS Congress, 2013.
- Antonanko, I., et al., Effects of incidence angle on crater detection and the lunar isochron system: Preliminary results from the CosmoQuest MoonMappers Citizen Science Project, Geological Histories, Lunar and Planet. Sci. Conf., 44, #2705, 2013.
- Bailey, S.M., et al., Aeronomy of ice in the mesosphere: highlights from six years of observing polar mesospheric clouds, 11th Layered Phenomena in the Mesopause Region, University of Leeds, UK, August 2013.
- Bailey, S.M., et al., Nadir and Limb viewing observation of polar mesospheric clouds from AIM, 11th Layered Phenomena in the mesopause Region, University of Leeds, UK, August 2013.
- Bailey, S.M., et al., Transport of polar winter lower-thermospheric nitric oxide to the stratosphere, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Baker, D.N., A Natural Particle Accelerator, Far Above the Planet, Invited interview, "Science Friday", National Public Radio, 1 March 2013.
- Baker, D.N., Aerospace at the University of Colorado Boulder, Aerospace Front Range Bus Tour, (U.S. Sen. Bennet) Ball Aerospace, Boulder, CO, 30 May 2013.
- Baker, D.N., and D.A. Brain, Overview of Space Science at LASP, Arts and Sciences Leadership Society

- presentation at LASP, 29 October, 2013.
- Baker, D.N., Assessing Solar and Solar-Terrestrial Influences on Earth's Climate Change Picture, Beijing Symposium on Global Change, Beijing, China, 23-25 September 2013.
- Baker, D.N., Climate and Weather: A Colorado Connection, Denver Museum of Nature and Science, Denver, CO, 4 December 2013.
- Baker, D.N., Enabling effective Space Weather and Climatology (SWaC) capabilities: The NRC Decadal Survey in Solar and Space Physics, American Meteorological Society, 93rd Annual Meeting, Austin, TX, 6-10 January 2013.
- Baker, D.N., Enabling effective space weather and climatology (SWaC) capabilities: The NRC Decadal Survey in Solar and Space Physics, Space Weather Workshop, Boulder, CO, 16-19 April 2013.
- Baker, D.N., Enabling effective space weather and climatology (SWaC) capabilities: The NRC Decadal Survey in Solar and Space Physics, Space Weather Workshop, Boulder, CO, 16-19 April 2013.
- Baker, D.N., Energetic particles and their impact around the heliosphere: Satellites and astronauts, to GLEs Volume 2 (Chapters 2, 13, 14), Heliophysics Summer School, Session 1, Boulder, CO, 18 July 2013.
- Baker, D.N., et al., Enabling effective Space Weather and Climatology (SWaC) capabilities; The NRC Decadal Survey in Solar and Space Physics, AOGS, Brisbane, Australia, 24-28 June 2013.
- Baker, D.N., et al., Radiation belt electron enhancements, History and new results from Van Allen Probes, AOGS, Brisbane, Australia, 24-28 June 2013.
- Baker, D.N., et al., Radiation belt electron enhancements: History and new results from RBSP, USNC-URSI National Radio Science Meeting, University of Colorado Boulder, 9-12 January 2013.
- Baker, D.N., Evolution of the Sun and Solar Activity, Lunar and Planetary Institute, Houston, TX, 12 September 2013.
- Baker, D.N., H. Spence, and ECT Team, The ECT Suite: Investigation Status, Invited presentation, Van Allen Probes Science Working Group, University of Iowa, Iowa City, IA, 14 August 2013.
- Baker, D.N., History and present activities of the Laboratory for Atmospheric and Space Physics, Sigma Xi, Boulder, CO, 24 July 2013.
- Baker, D.N., Laboratory for Atmospheric and Space Physics (LASP) Overview, UA College of Optical Sciences Visit to CU-Boulder, 19 April 2013.
- Baker, D.N., LASP Overview, Boulder Rotary Club, Boulder, CO, 7 June 2013.
- Baker, D.N., LASP Overview: Swiss Space Systems, Office of Industry Collaboration, Boulder, CO, 3 December 2013.
- Baker, D.N., NASA's Van Allen Probes reveal a previously undetected radiation belt around Earth, Invited presentation, NASA Editorial Board, NASA Headquarters (via telecom), Washington, D.C., 12 February 2013.
- Baker, D.N., New Radiation Belt Storm Probe (Van Allen Probes) Science Results, Rice University, Houston, TX, 12 September 2013.
- 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.

- Baker, D.N., Overview of LASP, CU Foundation/CEO R. Lawrence, Boulder, CO, 14 May 2013.
- Baker, D.N., Overview of LASP, The Aerospace Corporation, Boulder, CO, 29 May 2013.
- Baker, D.N., Overview of RBSP/REPT Science Results, Los Alamos National Lab, Los Alamos, NM, 1 May 2013.
- Baker, D.N., Predicting and mitigating impacts of extreme space weather, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Baker, D.N., Radiation Belt Storm Probe results, Boulder Solar Day, Boulder, CO, 19 March 2013.
- Baker, D.N., Societal Consequences of Extreme Space Weather, Electric Infrastructure Security Summit, U.S. Capital Building, Washington, D.C., 20 May 2013.
- Baker, D.N., Solar wind forcing at Mercury: WSA-ENLIL Model results, AOGS, Brisbane, Australia, 24-28 June 2013.
- Baker, D.N., Space physics exploration: Basic research with a high public purpose, Invited public lecture, LASP, Boulder, CO, 6 February 2013.
- Baker, D.N., Space physics exploration: Basic research with a high public purpose, NASA Goddard Space Flight Center, Greenbelt, MD, 15 February 2013.
- Baker, D.N., Space Physics Exploration: Basic Research with a High Public Purpose, AOGS 2013, Brisbane, Australia, 24-28 June 2013.
- Baker, D.N., Space Physics Exploration: Basic Research with a High Public Purpose, MIT Haystack Observatory, Boston, MA, 23 August 2013.
- Baker, D.N., Space Weather and Solar Wind Driving: Preparation for MAVEN", MAVEN Project Science Group Meeting, Cocoa Beach, FL, 15-16 November 2013.
- Baker, D.N., Space Weather Public Awareness and Response: Possible Ways Forward, Space Weather Enterprise Forum (SWEF) Silver Springs, MD, 4 June 2013.
- Baker, D.N., Strategic Planning: GEO relations to NRC Decadal Survey, NSF Headquarters, Arlington, VA, 11 April 2013.
- Baker, D.N., The acceleration, transport, and loss of high-energy electrons during March 2013, Van Allen Probes Science Working Group, University of Iowa, Iowa City, IA, 15 August 2013.
- Baker, D.N., The Earth's Van Allen Radiation Belts: Old Questions and New Results, Global Center of Excellence Symposium, Nagoya University, Japan, 8 March 2013.
- Baker, D.N., The economic and societal impacts of space weather, Perfero CEO (J. Kirchner), Boulder, CO, 25 April 2013.
- Baker, D.N., The economic and societal impacts of space weather, Rocky Mountain Institute, Boulder, CO, 1 August 2013.
- Baker, D.N., The impacts of space weather on society and the economy, SEDS meeting, University of Colorado Engineering Center, Boulder, CO, 25 February 2013.
- Baker, D.N., The Impacts of Space Weather on Society and the Economy, Leadership Development Program for Space Exploration, Nagoya University, Japan, 1 March 2013.
- Baker, D.N., The impacts of space weather on society and the economy, NCAR ASP, 18 December 2013.
- Baker, D.N., The major solar eruptive event in July 2012: Defining extreme space weather scenarios, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.

- Baker, D.N., The major solar eruptive event in July 2012: Defining extreme space weather scenarios, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Baker, D.N., The Relativistic Electron-Proton Telescope (REPT) Instruments On Board the Van Allen Probes Mission: Characterization of Earth's Radiation Belt High-Energy Particle Populations, LASP Seminar Series, Boulder, CO, 7 May 2013.
- Baker, D.N., The Relativistic Electron-Proton Telescope (REPT) Instruments On Board the Van Allen Probes Mission: Characterization of Earth's Radiation Belt High-Energy Particle Populations, LASP Seminar Series, Boulder, CO, 7 May 2013.
- Baker, D.N., The Universe is out to get us and what we can (or can't) do about it, Cosmic Explorations: A Speaker Series, Lunar and Planetary Institute, Houston, TX, 12 September 2013.
- Baker, D.N., The Universe is out to get us and what we can (or can't) do about it, Cosmic Explorations: A Speaker Series, Lunar and Planetary Institute, Houston, TX, 12 September 2013.
- 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.
- 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.
- Baker, D.N., The Van Allen Probes Mission: Using Radiation Belt Data for Space Weather Applications, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Baker, D.N., The Van Allen Probes Mission: Using Radiation Belt Data for Space Weather Applications, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Briois, C., et al., Dust OrbiTrap Sensor (DOTS) for in-situ analysis of airless planetary bodies, LPI Conference, Woodlands, TX, 18-22 March 2013.
- Briois, C., et al., DOTS: A high resolution orbitrap mass spectrometer for in situ analysis of the surface samples of airless planetary bodies, AGU meeting, 2013.
- Carstens, J.N., et al., A gravity wave case study for an observation over Antarctica using the cloud imaging and particle size experiment, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Caspi, A., J.M. McTiernan, and H.P. Warren, Exploring thermal and non-thermal flare emission with EVE and RHESSI: Current Progress, Boulder Solar Day, Boulder, CO, 2013.
- Caspi, A., Super-hot ($T > 30\text{MK}$) thermal plasma in solar flares, West Virginia University Physics Department Colloquium, 2013.
- Caspi, A., T.N. Woods, and J. Stone, A new observation of the quiet Sun soft x-ray (0.5-5 keV) spectrum, Boulder Solar Day, Boulder, CO, 2013.
- Caspi, A., T.N. Woods, and J. Stone, A new observation of the quiet Sun soft X-ray (0.5-5 keV) spectrum, Living With a Star, SDO-7 Workshop, Cambridge, MD, 2013.
- Claudepierre, S.G., D.N. Baker, et al., Van Allen Probes observations of energetic particle drift-phase structure in the Earth's radiation belts, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Collette, A., et al., Temperature characterization of impact-generated plasma, URSI NRSM meeting, Boulder, CO, 9-12 January, 2013.

- Collins, R.L., V.L. Harvey, and A. Chandran, Waves and the wintertime circulation of the Arctic middle atmosphere, Department of meteorology Seminar, Stockholm, Sweden, 4 April 2013.
- D'Amore, M., et al., Exploiting the Mercury surface reflectance spectroscopy dataset from MESSENGER: Making sense of three million spectra, In *Lunar and Planetary Institute Science Conference Abstracts*, #1900, v. 44, March 2013.
- D'Amore, M., et al., Unsupervised clustering analysis of spectral data for the Rudaki area on Mercury, In *Lunar and Planetary Institute Science Conference Abstracts*, v. 44, March 2013.
- Dai, L., D.N. Baker, et al., Excitation of poloidal standing Alfvén waves through drift resonance wave-particle interaction, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- DiBraccio, G.A., D.N. Baker, et al., MESSENGER observations of magnetopause structure and dynamics at Mercury, GEMS Summer workshop, Snowmass, CO, 18 June 2013.
- DiBraccio, G.A., D.N. Baker, et al., MESSENGER observations of magnetopause reconnection at Mercury, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- DiBraccio, G.A., D.N. Baker, et al., MESSENGER observations of magnetopause structure and dynamics at Mercury, GEMS Summer workshop, Snowmass, CO, 18 June 2013.
- Dikpati, M., Space Climate Initiative, SCOSTEP, Nagoya Japan, 18-22 November 2013.
- Doschek, G.A., et al., Flare footpoint regions observed by the Extreme-ultraviolet Imaging Spectrometer (EIS) on Hinode, Living With a Star, SDO-7 Workshop, Cambridge, MD, 2013.
- Drake, K., et al., Ejecta from hypervelocity dust impacts based on light flash measurements, DPS Meeting 45, 2013.
- Elkington, S.R. and A.A. Chan, Pc5 ULF wave mode structure, azimuthal distribution, and energetic particle dynamics in the outer zone radiation belts, THEMIS/ARTEMIS Science Working Group Meeting, Fairbanks, AK, March 2013.
- Elkington, S.R., and M. Wiltberger, Transport and trapping of energetic plasmasheet electrons in the inner magnetosphere, NASA TR&T Focus Team Meeting, HAO/NCAR, Boulder, CO, February 2013.
- Elkington, S.R., et al., Including high-frequency wave effects in a comprehensive MHD/particle simulation of the radiation belts, USNC-URSI National Radio Science Meeting, Boulder, CO, January 2013.
- Elkington, S.R., MHD power spectral density analysis for ISSI 09/20/2007 event, ISSI team meeting, March 2013.
- Elkington, S.R., ULF wave interactions with energetic radiation belt particles, RBSP SWG Tea Meeting, JHU/APL, February 2013.
- Eparvier, F.G., Extreme ultraviolet solar spectral irradiance measurements and model for GOES-R+, 10th Conference on Space Weather, 6-10 January, Austin, TX.
- Esposito, L.W., et al., Predator-Prey model for haloes in Saturn's Rings, LPS Conference, Woodlands, TX, March 2013.
- Esposito, L.W., et al., Predator-Prey model for haloes in Saturn's A Ring, EGU Meeting, Vienna, Austria, 2013.
- Feltz, W., et al., GOES-R cloud and aerosol validation during the NSF DC3 field mission, NOAA Satellite Conference for Direct Readout,

- GOES/POES, and GOES-R/JPSS Users, 2013.
- 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.
- Gershman, D.M., D.N. Baker, et al., Ion composition and kinetics in Mercury's magnetotail, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Gibson, S., Space climate initiative, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Gordley, L.L., et al., PMCs, a window to upper atmosphere dynamics, 11th Layered Phenomena in the Mesopause Region, University of Leeds, UK, August 2013.
- Grava, C., et al., Lunar exosphere argon modeling, LPI Science Conference, Woodlands, TX, March, 2013.
- Grün, E., et al., Comparative analysis of the ESA and NASA interplanetary meteoroid environment models, 6th European Conference on Space Debris, Darmstadt, Germany, 22-25 April 2013.
- Harvey, V.L., and C.E. Randall, HEPPA-II model measurement inter-comparisons, International Space Science Institute Meeting, Bern, Switzerland, 19 March 2013.
- Harvey, V.L., et al., Stratospheric sudden warming effects on the descent of EPP-NOx in WACCM, International Space Science Institute Meeting, Bern, Switzerland, 21 March 2013.
- Harvey, V.L., et al., WACCM studies in the upper stratosphere and lower mesosphere, CESM Whole Atmosphere Working Group Meeting, Boulder, CO, 11 February 2013.
- Harvey, V.L., et al., Synoptic evolution of the Arctic vortex during elevated stratopause events WADDM vs. Observations, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Helbert, J., et al., A comparison of the spectral properties of the Caloris and Rembrandt Impact basins, In *Lunar and Planetary Institute Science Conference Abstracts*, v. 44, Abstract # 1496, March 2013.
- Holsclaw, G.M., et al, Disk-integrated measurements of the Moon in the ultraviolet, CALCON Technical Conference, August 2013.
- Holt, L.A., et al., The impact of sudden stratospheric warming events on energetic particle precipitation effects, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Horanyi, M., Dust: the missing strategic knowledge gap, NASA Small Bodies Assessment Group Meeting, Washington, DC, Jan 2013.
- Horanyi, M., Hypervelocity dust impacts in space and the laboratory, European Physical Society Plasma Physics meeting, Helsinki, Finland, July 2013.
- Horanyi, M., Dusty plasmas I the solar system, Heliospheric Summer School, Boulder, CO, July 2013.
- Horanyi, M., The Student Dust Counter on board the New Horizons Mission to Pluto, Pluto Science Conference, Baltimore, MD July 2013.
- Horanyi, M., The lunar surface: A dusty plasma laboratory, Toronto, Canada, September 2013.
- Horanyi, M., Dust atmosphere and plasma: Moon and small bodies next steps, Planetary and Space Sci., 1 December 2013.
- Hsu, S., et al., Temporal evolution of a gas-plasma-dust system – application

- to Enceladus' plume and cometary jets, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Hsu, H.-W., et al., Silica nanoparticles as an evidence of hydrothermal activities at Enceladus, DPS Fall Meeting, 2013.
- Imber, S.M., D.N. Baker, et al., MESSENGER observations of dayside flux transfer events: Do they drive Mercury's substorm cycle? Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Jaynes, A.N., D.N. Baker, et al., Evolution of relativistic outer belt electrons during extended quiescent period, GEMS Summer workshop, Snowmass, CO, 18 June 2013.
- Jaynes, A.N., D.N. Baker, et al., Evolution of relativistic outer belt electrons during extended quiescent period, GEMS Summer workshop, Snowmass, CO, 18 June 2013.
- Jones, A. EUV irradiance intercomparisons and calibration, LWS Solar Dynamics Observatory Science Workshop: Exploring the network of SDO Science, Cambridge, MD, 2013.
- Jones, A., EVE status, LWS Solar Dynamics Observatory Science Workshop: Exploring the network of SDO Science, Cambridge, MD, 2013.
- Juhasz, A., et al., Water deposition into Titan atmosphere from Saturn's E-Ring, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Kalnajs, L.E., and T.N. Reese, An autonomous chemical measurement network in the Ross Island Region of Antarctica – The 1st year of operation, Polar Technology Conference, Annapolis, MD, 2-4 April 2013.
- Kalnajs, L.E., M.W. Seefeldt and M.A. Lazzara, Observations of Antarctic tropospheric ozone depletion events from an autonomous ozone sensor network, Amer. Meteor. Society meeting, Austin, TX, Jan. 2013.
- Kanekal, S.G., and D.N. Baker, Predicting and mitigating socioeconomic impacts of extreme space weather: Benefits of improved forecasts, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Kanekal, S.G., and D.N. Baker, Predicting and mitigating socioeconomic impacts of extreme space weather: Benefits of improved forecasts, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Kanekal, S.G., V. Hoxie, D.N. Baker, X. Li, S.R. Elkington, and H. Spence, Radiation belt electron enhancements: History and new results from Van Allen Probes, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Kanekal, S.G., V. Hoxie, D.N. Baker, X. Li, S.R. Elkington, and H. Spence, Radiation belt electron enhancements: History and new results from Van Allen Probes, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Kempf, S., et al., The mass flux of micrometeoroids in to the Saturnian system, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Kempf, S., et al., The electro-static potential of E ring grains, EGU meeting, 2013.
- Kempf, S., LDEX – Dust measurements with LADEE at the Moon, Dusty Visions, 2013.
- Kempf, S., Liquid water at Saturn's ice moon Enceladus, Fort Collins Astronomy Club, 2013.
- Kindel, B.C., et al., Inferring water vapor amounts with solar spectral irradiance: Measurements, modeling, and comparisons with in situ water vapor profiles in the upper troposphere lower stratosphere from ATTREX, Fall AGU Meeting, San Francisco, CA, 9-13

- December 2013.
- Kletzing, C., D.N. Baker, et al., Waves in the radiation belts: Overview and initial results from the Van Allen Probes, GEMS Summer workshop, Snowmass, CO, 18 June 2013.
- Kletzing, C., D.N. Baker, et al., Waves in the radiation belts: Overview and initial results from the Van Allen Probes, GEMS Summer workshop, Snowmass, CO, 18 June 2013.
- 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.
- Kopp, G., et al., Mitigating a likely gap in total solar irradiance measurements between the SORCE and TSIS missions, AMS meeting, Austin, TX, 6-10 January 2013.
- Kopp, G., The Total solar irradiance Continuity Transfer Experiment (TCTE), Kirtland AFB, Albuquerque, New Mexico, 13 February 2013.
- Kopp, G., et al., TCTE instrument performance and status, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Li, Y.W., et al., A new design of charged particle trajectory sensor, EPS Congress, 2013.
- Li, Xinlin, et al., Analysis of multi-point measurements of outer radiation belt electrons during the October 2012 magnetic storms, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Li, Xinlin, et al., Analysis of multi-point measurements of outer radiation belt electrons during the October 2012 magnetic storms, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Liemohn, M., et al., Comparing the contributions of ionospheric outflow and high-altitude production to 0+ loss at Mars, EGU General Assembly, Vienna, Austria, 8-12 April, 2013.
- Luhmann, J., et al., Comparative plasma interactions and their effects at Venus, Mars and Titan, International Venus Workshop, Italy, 2013.
- Luhmann, J.G., et al., Solar energetic particles and their near-earth effects in Cycle 24 so far, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Machol, J., et al., GOES-R solar extreme-ultraviolet irradiance spectra: Requirements, observations, and products, Amer. Meteor. Society meeting, Austin, TX, Jan. 2013.
- Malaspina, D.M., and R.E. Ergun, Spacecraft charging on solar probe plus: The electrostatic barrier under variable plasma conditions, Solar Probe Plus Science Workshop, Pasadena, CA, March 2013.
- Malaspina, D.M., et al., High amplitude whistler waves and spacecraft potential fluctuations, Van Allen Probes Science Working Group Meeting, Applied Physics Laboratory, Johns Hopkins University, February 2013.
- Mason, J.P., et al., Understanding solar eruptive events, Living With a Star, SDO-7 Workshop, Cambridge, MD, 2013.
- Massie, S., et al., The influence of clouds upon ACOS CO₂ retrievals, OCO-2 Science Team Meeting, Pasadena, CA, 25-27 March 2013.
- McCullom, T.M., Abiotic hydrocarbon formation in Earth's crust: Assessing the geologic and experimental evidence, Kazan Workshop on Abiotic Hydrocarbons, Kazan, Russia, April, 2013.

- McCullom, T.M., Laboratory simulations of abiotic hydrocarbon formation in Earth's deep subsurface, Deep Carbon Observatory Deep Energy Workshop, Manchester, England, January 2013.
- McCullom, T.M., Serpentinites, Hydrogen and life, Woods Hole Oceanographic Institution, March 2013.
- Mocker, A., et al., LDEX sensitivity studies: material and impact velocity dependence of the total charge yield generated in hypervelocity impacts of micron and sub-micron sized dust particles, 44th LPS Conference, 2013.
- Morely, S., et al., Phase space density matching of RBSP energetic particle data using a range of magnetic field models, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Morely, S., et al., Phase space density matching of RBSP energetic particle data using a range of magnetic field models, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Munsat, T., et al., Recent science results from the CCLDAS Dust Accelerator, LPI Conference, Woodlands, TX, 18-22 March 2013.
- Munsat, T., et al., Overview of recent science results from the CCLDAS dust accelerator, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Murphy, J.J., D.N. Baker, et al., Continuing advancements in ParaView tools for space weather analyses, GEMS Summer workshop, Snowmass, CO, 18 June 2013.
- Murphy, J.J., D.N. Baker, et al., Continuing advancements in ParaView tools for space weather analyses, GEMS Summer workshop, Snowmass, CO, 18 June 2013.
- Pasachoff, J.M., et al., Three 2012 transits of Venus; From Earth, Jupiter, and Saturn, AAS meeting, Long Beach, CA, 9 January 2013.
- Pilewskie, P., and T. Sparn, TSIS: The Total and Spectral Solar Irradiance Sensor, 93rd American Meteorology Annual Meeting, Austin, TX, 6-10 January 2013.
- Pilewskie, P., Monitoring Earth's climate with shortwave Hyperspectral reflectance, Gordon Research Conference on Radiation and Climate, New London, NH, 7-12 July 2013.
- Platnick, S., et al., Sensitivity of cloud retrieval statistics to algorithm choices: Lessons learned from MODIS product development, AGU General Assembly, Vienna, Austria, 2013.
- Postberg, F., et al., Silica nanoparticles as indicator of hydrothermal activities at Enceladus ocean floor, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Postberg, F., et al., Composition of exogenous dust at Saturn from Cassini-CDA mass spectra, DPS Meeting 45, 2013.
- Randall, C.E., Effects of energetic particle precipitation on the atmospheres, Earth-Sun System Exploration symposium, Kona, HI, January 2013.
- Randall, C.E., PMC inter-annual variability and teleconnections, AIM science team meeting, Boulder, CO, 2013.
- Randall, C.E., Energetic particle precipitation effects on PMCs, AIM science team meeting, Boulder, CO, 2013.
- Randall, C.E., The early onset of PMCs in November 2012, AIM science team meeting, Boulder, CO, 2013.
- Randall, C.E., Clouds on the edge of space: Insight from the NASA AIM mission, Ball Aerospace, June 2013.
- Rankin, R., et al., Drift-resonant acceleration of electrons in response to impulse-excited ULF waves, EGU

- General Assembly, Vienna, Austria, April 2013.
- Rast, M., Turbulence: are transport models possible or necessary? Montana State University, 22 March 2013.
- Rast, M., The National Solar Observatory – The coming decade of discovery, Univ. of Colorado, Boulder, 4 December 2013.
- Rast, M., A mixed Eulerian-Lagrangian scalar transport model, NCAR, 22 May 2013.
- Rast, M., A new suggestion for the origin of the solar supergranulation, Univ. of Hawaii, 4 November 2013.
- Rast, M., Implications of high-resolution ATST observations for global dynamo and irradiance models, AAS Meeting, Bozeman, MT, 11 July 2013.
- Richard, E., Long-term measurements of solar spectral irradiance: TSIS SSI capabilities and calibrations, GSFC-LASP Sun Climate Research Center Meeting, March 2013.
- Robbins, S.M., Revised Lunar Cratering Chronology for Planetary Geological Histories, Lunar and Planet. Sci. Conf., 44, #1619, 2013.
- Roberts, Y., et al., Climate model validation using spectrally resolved shortwave radiation measurements, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Rong, P., et al., Mesopause horizontal wind estimates based on AIM CIPS polar mesospheric cloud pattern matching, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Rusch, D.W., et al., AIM satellite observations of a newly discovered population of very large ice particles in polar mesospheric clouds, 11th Layered Phenomena in the mesopause Region, University of Leeds, UK, August, 2013.
- Schiller, Q., D.N. Baker, et al., Enhancements of relativistic electrons in the outer radiation belt during a small-storm event, GEMS Summer workshop, Snowmass, CO, 18 June 2013.
- Schiller, Q., D.N. Baker, et al., Enhancements of relativistic electrons in the outer radiation belt during a small-storm event, GEMS Summer workshop, Snowmass, CO, 18 June 2013.
- Schriver, D., et al., Plasma transport in Mercury's magnetosphere and comparison with Earth, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Schriver, D., et al., Plasma transport in Mercury's magnetosphere and comparison with Earth, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Shu, A.J., et al., Cratering studies in thin polyvinylidene fluoride films, LPI Conference, Woodlands, TX, 18-22 March 2013.
- Snow, M., The magnesium II Index: 35 years and counting, EGU General Assembly, Vienna, Austria, 8-12 April 2013.
- Spence, H., D.N. Baker, et al., IMS tutorials: Recent science results from NASA Van Allen Probes, GEMS Summer workshop, Snowmass, CO, 18 June 2013.
- Spence, H., D.N. Baker, et al., IMS tutorials: Recent science results from NASA Van Allen Probes, GEMS Summer workshop, Snowmass, CO, 18 June 2013.
- Spence, H., G. Reeves, and D.N. Baker, An unprecedented view of the coupled Sun-Earth system during the space weather events of 6-12 October 2012, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Spence, H., G. Reeves, and D.N. Baker,

- An unprecedented view of the coupled Sun-Earth system during the space weather events of 6-12 October 2012, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Thome, K., et al., CLARREO advances in reflected solar spectra calibration accuracy, Global Space-based Inter-Calibration System (GSICS), Williamsburg, VA, 4-8 March 2013.
- Travnicek, P.M., et al., Mercury's plasma belt of quasi-trapped plasma under different interplanetary magnetic field orientation: Comparison of global hybrid simulation results and in-situ observations, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Travnicek, P.M., et al., Mercury's plasma belt of quasi-trapped plasma under different interplanetary magnetic field orientation: Comparison of global hybrid simulation results and in-situ observations, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Zurbuchen, T., et al., On Mercury's plasma environment: MESSENGER results, AOGS Conference, Brisbane, Australia, 24-28 June 2013.
- Wen, G., et al., Climate responses to total and spectral solar forcing on decadal and centennial time scales in the GOSS/GCMAM, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Ye, S., et al., Cassini RPWS measurement of dust particles I Saturn's magnetosphere, Fall AGU Meeting, San Francisco, CA, 9-13 December 2013.
- Zurbuchen, T., et al., On Mercury's plasma environment: MESSENGER results, AOGS Conference, Brisbane, Australia, 24-28 June 2013.

Sponsored Programs

P.I.	Agency	Title
Andersson, L	Composite Technology Development, Inc.	Electric Potential & Field Measurement Instrument for CubeSat (EPIC)
Bagenal, F	UCAR	The Visiting Scientist Program Heliophysics Summer School
Bagenal, F	Southwest Research Institute	JUICE-UVS Science Support Phase A/B Activities
Bagenal, F	Southwest Research Institute	Spectrometry of Pluto's Variable Atmosphere and Surface
Bagenal, F	Jet Propulsion Laboratory	Quantitative Assessment of the Ability of the Europa Clipper to Measure the Induced Magnetic Field at Europa

Bagenal, F	Southwest Research Institute	New Horizons Pluto Kuiper Belt Mission - Phase E
Bagenal, F	University of Alaska	Large Scale Plasma Transport and Heating in Planetary Magnetospheres
Bagenal, F	NASA	Modeling Europa's Coupled Neutral-Plasma Interaction
Baker, D	University of New Hampshire	Relativistic Electron-proton Telescope (REPT) Instrument on the "Radiation Belt Storm Probes (RBSP) - Energetic Particle, Composition and Thermal Plasma (ECT) Suite (Phase E Supplement)
Baker, D	University of New Hampshire	Relativistic Electron-proton Telescope Instrument on the "Radiation Belt Storm Probes - Energetic Particle, Composition, and Thermal Plasma Suite" - Phase E FY14 Cost Proposal
Brain, D	NASA	The Lunar Surface Environment Near Crustal Magnetic Anomalies Using Simulation and Laboratory Experiments to Connect Spacecraft Observations to the Surface
Brain, D	NASA	Atmospheric Escape and Auroral Processes in Martian Crustal Magnetic Field Cusps
Caspi, A	Montana State University	Energetics of Flare Heating From Magnetic Reconnection
Caspi, A	NASA	Exploring the Ion Contribution to Plasma Heating in Solar Flares
Caspi, A	NASA	CubIXSS: The CubeSat Imaging X-ray Solar Spectrometer
Cassidy, T	NASA	Plasma Torus Chemistry with CAPS
Cassidy, T	NASA	Mercury's Sodium Exosphere from Ground and Space: Comparing Measurements from

		MESSENGER with Earth Based Observations
Cassidy, T	NASA	Composition and Chemistry of Saturn's Inner Magnetosphere with Cassini CAPS
Coddington, O	NASA	Characterizing the Retrieval of Arctic Cloud Properties from Optical Remote Sensing: Quantifying the Current Capabilities and Determining Future Expectations
Collette, A	NASA	Experimental Investigation of High-speed Ejecta From Meteoroid Impacts
Crary, F	NASA	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
Crary, F	NASA	Ion Cyclotron Waves and Pickup ions: Mapping Plasma Production in Saturn's Magnetosphere
Dashti, S	NASA	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
Dols, V	NASA	IO's Mass Loss: Modeling the Magnetosphere-satellite Interaction
Drake, V	Assoc. of Universities/Research in Astronomy	Optical Design and Tolerance/Sensitivity of the ATST Adaptive Optics Higher-order Wave front Sensor System

Drake, V	Blue Canyon Technologies LLC	Phase 2 Blue Canyon Technologies Task 4: Thin Slice Star Tracker Production and Test
Drake, V	Blue Canyon Technologies LLC	Blue Canyon Technologies Task 5: Nano Star Tracker Production and Test
Drake, V	Blue Canyon Technologies LLC	Blue Canyon Technologies Task 6: XACT Production and Test
Drake, V	Blue Canyon Technologies LLC	Blue Canyon Technologies Task 7: Reaction Wheel Production and Test
Drake, V	Blue Canyon Technologies LLC	Blue Canyon Technologies Task 8: Production and Test Support
Drake, V	Blue Canyon Technologies LLC	Blue Canyon Technologies Task 9: Senior ME Support
Elkington, S	Dartmouth College	Radiation Belt Response to Solar Interplanetary Drivers
Elkington, S	NASA	Solar Wind Driving of Magnetospheric ULF Power and Consequences for Radiation Belt Dynamics
Elkington, S	NASA Goddard	Understanding the Earth's Radiation Belts Response to Interplanetary Structures: A Quantitative Investigation of the Phenomenological, Physical and Correlative Connections
Elkington, S	Rice University	Understanding Changes in Radiation Belt Phase-space Densities for Different Solar Interplanetary Structures
Elkington, S	NASA	Understanding Inner Magnetospheric Chorus Waves Using the Van Allen Probes
Elkington, S	NASA Headquarters	Investigating the Effects of Azimuthal Structure on ULF-driven Particle Transport and Energization in the Radiation Belts

Eparvier, F	Utah State University	Investigation of Upper Atmospheric and Ionospheric Responses on Solar Flare Time Scales
Eparvier, F	NASA	EXIS SOW: Change to Instrument Command and Control. Additional Scope for Spacecraft Integration and Test and Launch Delay Contract Change on the EUVS XRS Irradiance Sensors (EXIS). Geostationary Operational Environmental Satellites - R & S Series - CCR 02405
Eparvier, F	NASA	EXIS Contract Clause H-12 - Increase Special Engineering Support Requirement Contract Change on the EUVS XRS Irradiance Sensors (EXIS) Geostationary Operational Environmental Satellites - CCR: FCON-00021 Award#NNG07HW00C
Ergun, R	University of New Hampshire	Magnetospheric Multiscale (MMS) Fields Investigation Digital Signal Processor and Axial Double Probes
Ergun, R	University of California Berkeley	Digital Fields Board Solar Probe Plus Investigations - Phases C-F(Supplement)
Fang, X	University of California Los Angeles	Solar Wind Induced Atmospheric Escape Over the Martian History
Harvey, L	University of Alaska	Understanding the Wave-driven Circulation and Variability of the Polar Atmosphere through Coordinated Observation, Analysis, and Modeling
Harvey, L	NSF	Collaborative Research: CEDAR - Understanding the High-to-mid Latitude Ionospheric Response to Stratospheric Warmings
Harvey, L	GATS	Rossby Wave Breaking, Inertial Instability, and Stratospheric

		Transport as Revealed in HIRDLS
Harvey, L	NASA	Vertical Transport Experiment (VERTEX)
Holsclaw, G	NASA	Cassini Remote Sensing Data Enhancement and Visualization Project
Horanyi, M	NASA	SSERVI - IMPACT: Institute for Modeling Plasma, Atmospheres, and Cosmic Dust
Horanyi, M	Southwest Research Institute	New Horizons Mission Student Dust Counter FY 14 Proposal
Horanyi, M	Jet Propulsion Laboratory	Dusty Plasma observations by Rosetta
Hsu, H	NASA	Dusty rings of Uranus and Neptune perspectives on future in-situ measurements
Hynek, B	Southwest Research Institute	Thermal Effects of Physical Heterogeneity on Mars
Hynek, B	NASA	Unlocking Mercury's Geologic History with Rembrandt Basin
Hynek, B	NASA	Geologic Map of the Coprates Chasma (MTM-15057), Valles Marineris, Mars
Hynek, B	Southwest Research Institute	Material Properties of Dune Fields in the Southern Highlands of Mars from Thermophysical Observations and Modeling
Hynek, B	University of Tennessee	Aqueous Sulfate Fluxes During Alteration of Basalt in Hawaii and Iceland - Geochemical Analogues for Quantities and Formation Timescales of Sulfate Minerals on Mars
Hynek, B	University of Wisconsin Milwaukee	Solfataral Alteration of High-iron Galapagos Basalts: A Test for Aqueous vs. Volcanic Processes on Early Mars

Jakosky, B	NASA	Mars Atmosphere and Volatile Evolution (MAVEN) Phase E
Jones, A	Space Environment Technologies	Space Weather Imminent Flare Technology (SWIFT)
Jones, A	NASA Goddard	Doppler Shifted Observations of Solar Eruptions with SDO EVE
Kalnajs, L	NSF	Collaborative Research: High Resolution Study of Atmosphere, Ice, and Aerosol Interactions in Coastal Antarctica
Kalnajs, L	NSF	Fiber-optic Temperature Profiler for Long Duration Ballooning - Proof of Concept
Kempf, S	NASA	Investigating Dust Exospheres by LADEE
Kempf, S	NASA	Dynamics of Saturn's Diffuse Dust Rings
Kempf, S	NASA	Maturing the Surface Dust Analyzer (SUDA) for Europa Exploration
Kempf, S	Jet Propulsion Laboratory	Cassini CDA Solstice (XXM)
Kindel, B	NASA	Upper Atmosphere Water Vapor and Carbon Dioxide Retrievals from Measurements of Near Infra-red Solar Spectral Irradiance
King, M	NASA Goddard	Science Team Leader of the NASA Earth Observing System(EOS) Terra and Aqua MODIS Science Team and Associated Research
Lankton, M	Teledyne Brown Engineering	Strofio Instrument Requirements Review (IRR) Independent Review Board (IRB) Consultant (Supplement to 1546419)
Li, X	NSF	CubeSat: Colorado Student Space Weather Experiment

Li, X	NASA	Modeling the Radiation Belt Electrons as a Function of Solar Wind
Li, X	DOD AF Air Force Research Laboratory	Formation and Decay of the Inner Radiation Belt
Li, X	NSF	CubeSat: Colorado Student Space Weather Experiment
Malaspina, D	NASA Goddard	Quantified Wave Dissipation Rates: Wind Observations
Malaspina, D	NASA Goddard	Quantified Wave Energy Dissipation Rates: THEMIS Observations
Malaspina, D	NASA Goddard	StarMag: A Miniaturized Inertially Oriented Magnetometer Package
McClintock, W	Carnegie Institution of Washington	Science Team Support for the MESSENGER Mission - Phase E Extended Mission #2 (XM2)
McClintock, W	Virginia Polytechnic Institute	Rocket Observations of Nitric Oxide in the Polar Night by Stellar Occultation
McClintock, W	University of Central Florida	Global Scale Observations of the Limb and Disk (GOLD)
McClintock, W	Johns Hopkins University	MESSENGER Mission MASCS Instrument Engineering Support - Phase E
McCullom, T	NSF	Laboratory Investigation of Sulfate Reduction During Serpentinization of Ultramafic Rocks
McCullom, T	NSF	Experimental Investigation of Thermal Decomposition of Biomass as a Source of Organic Compounds in Deep Sea Hydrothermal Fluids and Plumes
McCullom, T	Center/Dark Energy Biosphere Investigations	Experimental Investigation into Abiotic Formation of Microtubules in Sub-seafloor Basalt In Response to the

		Spring2013 C-DEBI Research RFP
McCullom, T	Alfred P. Sloan Foundation	Experimental Synthesis of Abiotic Organic Compounds
McCullom, T	NASA	Laboratory Investigation of Five-carbon Amino Acids as Tracers of Prebiotic Chemistry in Meteorites
McCullom, T	NASA	Methods for Remote Detection of Mineral Composition for the Alunite-jarosite Group
McCullom, T	NASA	Mobility of Minor Elements During Acid Sulfate Alteration of Pyroclastic Basalt at Cerro Negro Volcano, a Mars Analog Site
McCullom, T	The Ohio State University	Reduced Carbon in Earth: Origin and Distribution of Abiotic Hydrocarbons
McGouldrick, K	NASA	The Role of Clouds in the Atmosphere of Venus and Venus-like Planets
McGouldrick, K	Southwest Research Institute	The Role of Lakes in Titan's Methane Cycle
McGouldrick, K	NASA	Meteorology of the Lower and Middle Cloud Decks of Venus Using the VIRTIS/Venus Express
McGouldrick, K	NASA	Elucidating the Distribution and Variation of Venusian Aerosols from 30 years of Spacecraft Data
McGouldrick, K	NASA	Investigating the Variability of Uranus Clouds and Hazes with a Microphysical Model
McGrath, M	Vantage Systems	Wallops Engineering Service Contract: Proposal Support from Vantage Systems, Inc.
McGrath, M	GeoOptics	Pathfinder Mission with GeoOptics, Inc., Task Order #3 - Extension Mission (Mod 2)

McGrath, M	Assoc. of Universities/Research in Astronomy	Advanced Technology Solar Telescope (ATST)
McGrath, M	Hampton University	Aeronomy of Ice in the Mesosphere (AIM) - Request for Return of Contract Value
Merkel, A	DOD Navy Naval Research Laboratory	Understanding the Polar Lower Thermospheric Hydrogen Hole in Support of NRL Submittal to NASA ROSES 2013 SolicitationNNH13ZDA001N-HSR Heliophysics Supporting Research
Osterloo, M	NASA	Assessing compositional variability of Martian deltas
Peterson, W	NASA	Mars Atmosphere and Volatile Evolution Mission (MAVEN)Phase E
Pilewskie, P	NASA Goddard	Total and Spectral Solar Irradiance Sensor (TSIS) Supplement Change Order
Pilewskie, P	NASA	Retrieving Multi-Pixel and Multi-Spectral Aerosol and Cloud Parameters in Broken Cloud Fields
Pilewskie, P	Commerce NOAA	Total Solar Irradiance Fundamental Climate Data Record Development
Pilewskie, P	NASA	A Miniaturized Spectral Shortwave and Broadband Long wave Radiometer System for Monitoring Earth's Radiative Energy Budget
Pilewskie, P	National Ecological Observatory Network	Implementation of Shortwave Spectral Irradiance Measurements on the NEON Airborne Observation Platform(AOP) for Atmospheric Correction
Pilewskie, P	NASA Goddard	Earth Venture Instruments (EVI) Earth Climate Hyperspectral Observatory (ECHO)

Portyankina, G	University of California Los Angeles	Extensive Analysis of Seasonal Activity in the South Polar Region
Possel, W	Raytheon Company	DARPA Phoenix Ground System and Operations
Possel, W	Raytheon Company	Technical Support for OASIS-CC
Possel, W	Ball Aerospace & Technologies Corp.	Software Tools Upgrade in Support of Real-time Operations of the QuikSCAT Spacecraft.
Pouquet, A	UCAR	Multi Scale Dynamics and Transport in the Mesosphere, Thermosphere and Ionosphere
Randall, C	NASA	Response of the Atmosphere to Impulsive Solar Events (RAISE)
Randall, C	NSF	Investigation of Atmospheric Coupling Using Observations of Polar Mesospheric Clouds
Randall, C	NASA	National Aeronautics and Space Administration
Randall, C	Utah State University	Mass Spectrometry of the Turbopause Region (MSTR)
Randall, C	NASA Ames	Polar Occultation Cubesat Observatory (POCO)
Rast, M	NSF	INSPIRE Track 1: Solar Influences on Climate and Space Climate
Rast, M	NASA	Linking Small Scale Complexity to Global Solar Variability
Rast, M	NorthWest Research Associates	Seismic Diagnostics of p-Mode Generation by the Solar Granulation
Rast, M	UCAR	Analysis of Sunspots and Faculae: Implications for Irradiance and Solar Models

Rast, M	NASA	Radiometric Solar Imager: Resolving the Origins of Solar Spectral Irradiance Variations
Reed, H	Broad Reach Engineering	Active Temperature, Ozone, and Moisture Microwave Spectrometer (ATOMSS)
Reed, H	Southwest Research Institute	CYGNSS STOP Lite Analysis
Richard, E	NASA	Development of a Compact Solar Spectral Irradiance Monitor with High Radiometric Accuracy and Stability
Robbins, S	NASA	A Global Lunar Small Crater Database
Robbins, S	Southern Illinois University	Exploring Lunar Sub-Kilometer Crater Saturation and Seismic Shaking Degradation
Robbins, S	NASA	Developing a New Crater Production Function for Moon, Mars, and Mercury for Determination of Planetary Surface Ages
Robbins, S	NASA	Understanding Layered Ejecta ("Lobate") Craters on Mars: Keys to Subsurface Water?
Robbins, S	NASA	Issues in Crater Studies and the Dating of Planetary Surfaces
Sand, S	NASA	Integration of the Solar Spectral Flux Radiometer on NASA Aircraft with a Miniature Active Leveling Platform
Schmidt, S	UCAR	The Influences of Clouds and Aerosols on OCO-2 Spectra
Schmidt, S	NSF	Ground Based Retrievals of Trace Gas, Aerosol and Cloud Properties
Schmidt, S	UCAR	How Cloud Adjacency Effects Influence the Quantification of Aerosol Indirect Effects

Schmidt, S	NASA Langley	Airborne Aerosol and Cloud Survey – Airborne Spectral Irradiance Measurements
Schmidt, S	Universities Space Research Association	Snow MASS Earth Venture Experiment Airborne Spectral Irradiance Measurements
Schmidt, S	NASA Ames	ORACLES: ObseRvations of Aerosols Above Clouds and Their interactions
Schneider, N	Planetary Science Institute	The Ins and Outs of the Io Plasma Torus: a 5-year Synoptic Study of the Relationship Between Volcanic Input and the System IV Period
Schneider, N	NASA	Testing New Models of Water Escape through Analysis of Mars Express Data
Sternovsky, Z	NASA	Experimental Investigation of Micrometeoroid Ablation
Stewart, G	NASA	Modeling Large-scale Structures in Saturn’s Rings
Stewart, G	NASA	Circumplanetary Disks: Processes Relevant to Regular Satellite Formation
Toon, O	NSF	A Sectional Model for Clouds and Aerosols in the NCAR Community Earth System Model
Toon, O	NASA	Constraining Exoplanet Climates and Habitability Using Three-dimensional Climate Methods
Toon, O	NASA	Clouds and Dust on Mars: Cloudy Greenhouse in the Noachian and Present Day Effects
Toon, O	Jet Propulsion Laboratory	Polar Processing Studies of the Arctic and Antarctic: New Constraints from A-train Observations and the WACCM-SD/CARMA Model

Trattner, K	University of Iowa	Twin Rockets to Investigate Cusp Electrodynamics 2 (TRICE-2)
Trattner, K	Lockheed Martin	Magnetic Reconnection: Location and Influence of Plasma Beta
Trattner, K	Lockheed Martin	Key Parameter for the Mass and Energy Transfer at the Magnetopause Determined from Cusp Structures
Trattner, K	Southwest Research Institute	ROSETTA/ROSINA (The Rosetta Spectrometer for Ion and Neutral Analysis) (ROSINA) in the ROSETTA Mission)
Wang, X	NASA	Laboratory Investigations of the Lunar Plasma Wake and Dust Dynamics
Wang, X	Ball Aerospace & Technologies Corp.	Studies of the Interaction of a Simulated Space Environment with Dust Mitigating Surfaces
Wang, X	NASA	Understanding of the Cassini Dust and Plasma Measurements Near Enceladus
Wilder, F	NASA	The Effect of Sub Auroral Polarization Streams and Plasmaspheric Erosion on the Radiation Belts
Wilder, F	NASA	Heliophysics Technology and Instrument Development for Magnetometer and Ionospheric Camera
Wilson, A	NASA Langley	Ontology-driven Interactive Search Environment for Earth Sciences (ODISEES)
Wilson, R	Southwest Research Institute	Cassini CAPS-IMF Data Delivery for PDS
Woods, T	NASA Goddard	TIMED SEE Extended Mission
Woods, T	NASA	LWS 2014 Meeting Support: Space Weather Throughout the Heliosphere

Woods, T	Woods, T	NASA CubeSat Min XSS (Miniature X-ray Solar Spectrometer)
Woods, T	Catholic University of America	Understanding Solar Eruptive Events with the Solar Dynamic Observatory (SDO)