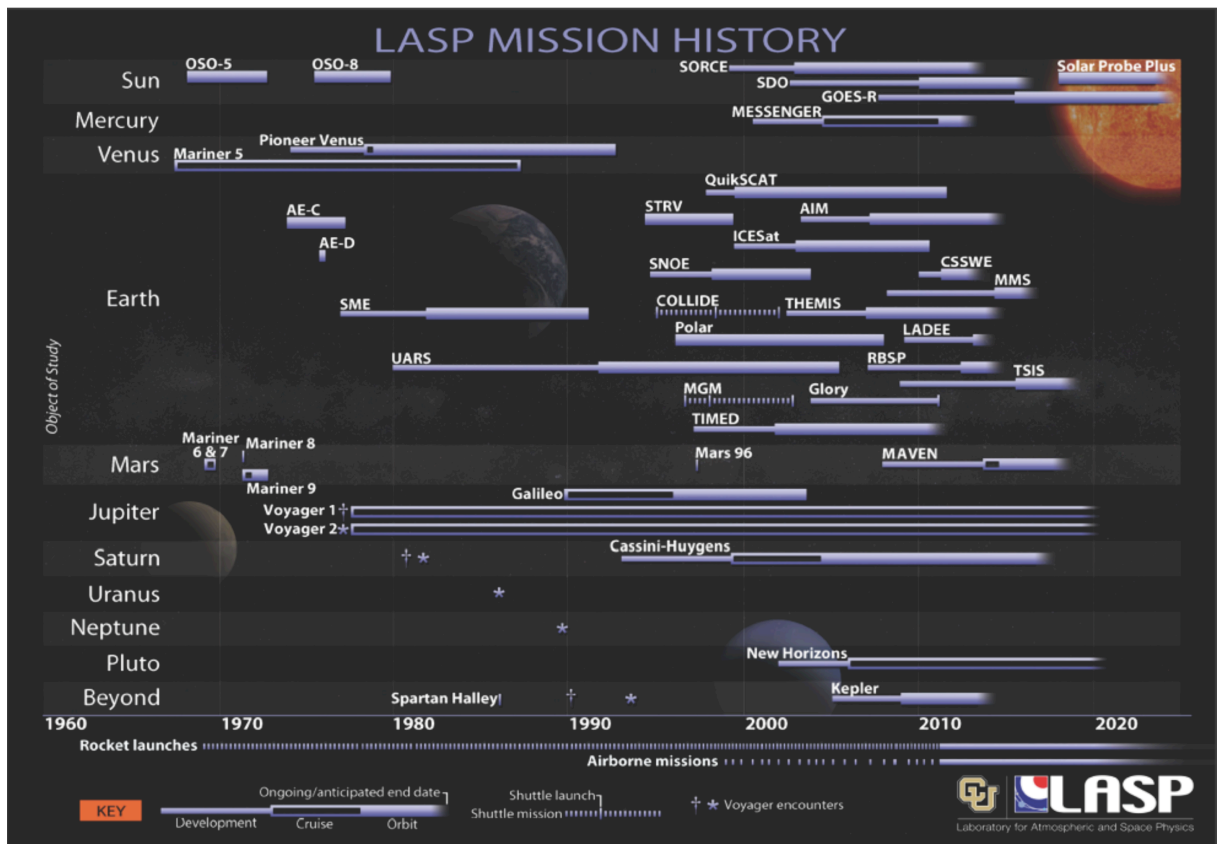


Laboratory for Atmospheric and Space Physics



Activity Report
2012
University of Colorado at Boulder

TABLE OF CONTENTS

LASP: A Brief History -----	3
A Message from the Director-----	3
LASP Organization Chart-----	4
LASP Appropriated Funding-----	5
LASP Scientists -----	6
Visiting Scholars -----	6
Engineering/Missions Ops/Program Support/Science -----	7
Collaborators-----	9
2012 Retirees -----	9
2012 Ph.D. Graduates -----	9
Graduate Students-----	10
Undergraduate Students-----	11
Faculty Scientific Research Interests-----	12
Faculty Activities -----	16
Faculty Honors/Awards -----	32
Courses Taught by LASP Faculty -----	33
Colloquia and Informal Talks -----	34
Publications -----	36
Works in Progress-----	47
Papers Presented at Scientific Meetings -----	50
Sponsored Programs -----	74

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 Laboratory for Atmospheric and Space Physics remains one of the premier research organizations in an academic setting. The science pursued extends from the inner workings of the Sun to the outermost fringes of the solar system. With LASP's continuing operations role in the planet-hunting NASA Kepler mission, the Lab's interests extend very importantly to new worlds far beyond our local cosmic neighborhood. I am delighted to always remind colleagues and policy makers of all sorts that LASP's work covers science and engineering over an amazing range and includes all the support services to provide complete, end-to-end space systems.

For years – decades, really – LASP pursued a fairly traditional and stable approach based on federal agency funding of research grants and space hardware contracts. While we have every hope and expectation to continue this successful approach, we also recognize changes occurring in fundamental ways in the world space arena. These changes almost demand closer direct relationships between academic labs like LASP and industrial partners. These kinds of partnerships hold great potential for invigorating the nation's space research enterprise, but it will take care and innovation in the academic world to attain a successful broadening of approaches.

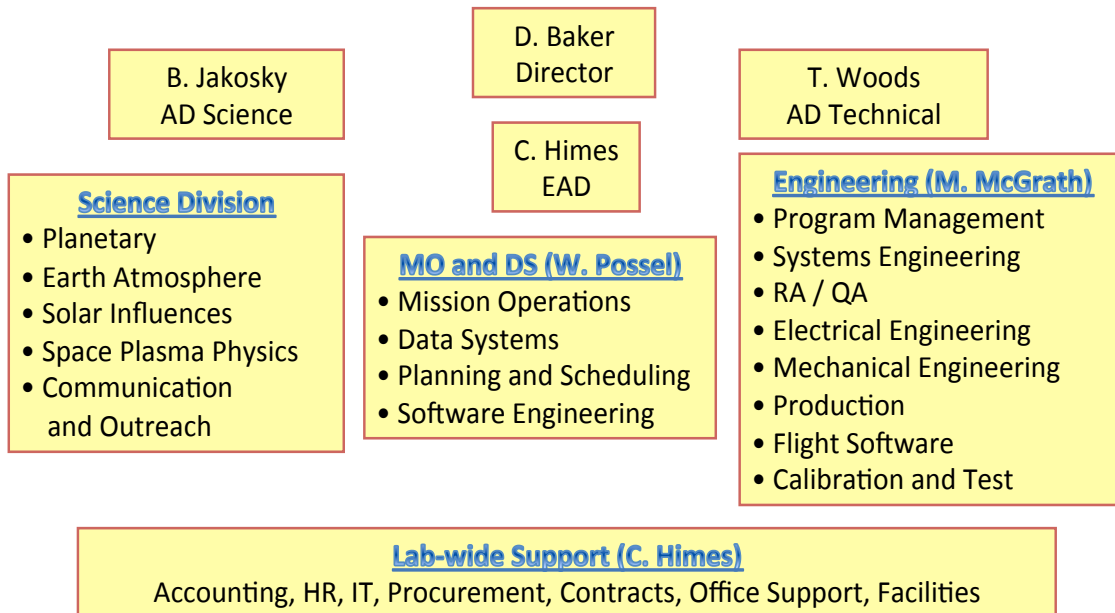
My personal view is that academic research remains at the core of a successful national space program. It is very important, I believe, that this key fact be acknowledged by space policy makers, by business leaders, and by academic institutions themselves. Now, more than five decades on from the dawn of the Space Age, there should be a renewed 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 2012.

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 1/1/2012 to 12/31/2012, LASP appropriated funding totaled \$57,225,982 for support of 130 grants and contracts.

Appropriated Funding: 2012 Calendar Year

Source of Funding	Total Grant Dollars
<i>Federal Agencies:</i>	
Commerce NOAA	-\$27
Jet Propulsion Laboratory	\$1,749,487
NASA Ames	\$668,494
NASA Goddard	\$42,511,531
NSF	\$223,719
Total Federal Sources	\$45,153,204
<i>Non-Federal Sources:</i>	
Ball Aerospace & Technologies Corp.	\$2,386,295
Blue Canyon Technologies LLC	\$178,143
Boston University	\$250,000
Carnegie Institution of Washington	\$870,000
GeoOptics, LLC	\$2,261,847
George Mason University	\$40,449
Hampton University	\$1,150,163
Johns Hopkins University	\$55,614
Prisma Basic Research, Inc.	\$39,046
Southwest Research Institute	\$2,635,142
Stellar Solutions, Inc.	\$20,000
Teledyne Brown Engineering	\$14,797
TeraVision Inc. (TVI)	\$37,196
University Corporation for Atmospheric Research	\$64,855
University of Alaska Fairbanks	\$78,991
University of Arizona	\$11,815
University of California Berkeley	\$840,730
University of California Los Angeles	\$14,700
University of Central Florida	\$162,005
University of Minnesota	\$100,000
University of New Hampshire	\$744,166
University of Washington	-\$623
University of Wisconsin	\$40,000
Vantage Systems, Inc.	\$77,447
Total Non-Federal Sources	\$12,072,778
TOTAL FUNDING	<u>\$57,225,982</u>

Historical Financial Data Points by Fiscal Year (July 1 – June 30):

	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12
Expenses	\$54.8M	\$43.0M	\$43.0M	\$37.9M	\$44.9M	\$67.4M	\$73.3M	\$66.2M
Awards	\$49.5M	\$42.9M	\$48.6M	\$40.2M	\$66.9M	\$100.4M	\$55.3M	\$48.9M

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 Hynes
Bruce M. Jakosky
Sascha Kempf
Xinlin Li
Peter Pilewskie
Cora E. Randall
Mark P. Rast
Nicholas M. Schneider
Zoltan Sternovsky
Owen B. Toon

Research Associates:

Nicole Albers
Laila Anderssen
Amir Caspi

Timothy A. Cassidy
Odele Coddington
Andrew Collette
Peter Delamere
Scot Elkington
Francis G. Eparvier
Stefan Eriksson
Juan (John) Fontenla
John Gosling
Cesare Grava
Eberhard Grün
Jerald W. Harder
Lynn Harvey
Noel Hinners
Greg Holsclaw
Andrew Jones
Lars Kalnajs
Michael King
Greg Kopp
George M. Lawrence (Ret.)
William E. McClintock
Tom McCollom
Kevin McGouldrick

David Malaspina
Aimee Merkel
Anna Mocker
Mikki M. Osterloo
William Peterson
Manny Presicci
Erik C. Richard
Stuart Robbins
Gary J. Rottman (Ret.)
David W. Rusch (Ret.)
Sebastian Schmidt
Jamison Smith
Martin Snow
Miodrag Sremcevic
A. Ian F. Stewart
Glen R. Stewart
Gary E. Thomas (Ret.)
Feng Tian
Weichao Tu
Xu Wang
Robert J. Wilson
Thomas N. Woods

Visiting Scholars

Joseph Ajello, Jet Propulsion Laboratory, Pasadena, CA
Mats Andre, Swedish Institute of Space Physics
Jorn Helbert, German Aerospace Center, Institute of Planetary Research, Berlin, Germany
Antal Juhasz, KFKI Research Institute for Particle and Nuclear Physics, Budapest, Hungary
Robert McPherron, UCLA, IGPP, Los Angeles, CA
Eric Quemeras, L'Atmos/CNRS, France
Wayne Pryor, Central Arizona Coolidge, Coolidge, AZ
Theodore E. Sarris, Demokritos University of Thrace
Chao Shen, National Space Science Center, Chinese Academy of Sciences, Beijing, China
Peter Strub, Max-Planck Institut fur Sonnensystemforschung, Katlenberg-Lindau, Germany

Engineering/Missions Ops/Program Support/Science

Engineering

Gregg Allison
Christine Andrews
Michael D. Anfinson
Judy Antman (Ret.)
Rory St. John Barrett
Susan Batiste
Wayne Baumann
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
Thomas Dixon
Sharon Dooley
Virginia Drake
Mark Drobilek
Charles Dumont
Gary Eldridge
Jenni Elke
Darren Erickson
Donald Farneth
Jason Farren
Tim Flaherty
Nicolas Ferrington
Bryan French
David Gathright

David Gerhardt
Alan Goodrich
Scott Gurst
David Hall
Ward Handley
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
James Johnson (Ret.)
Mark Jones
Magnus Karlsson
Joshua Kern
Mark Kien
Matthew King
Camden Kittredge
Michael Klapetzky
Scott Knappmiller
Edith Knehans
Richard Kohnert
Kraig Koski
Bret Lamprecht
Mark R. Lankton
Ryan Lewis
Michael McGrath
James Mack
Karen Mackison
Jennifer Methlie
David Meyer
Edward Mores
Brooklyn Motz
Brenton Motz
Aref Nammari
Gregory Newcomb
David Normen
Glen Otzinger
Heather Passe
Norman C. Perish
Dan Prichard

Brian Pyke
Thomas Reese
Dwight Reinhardt
Mary Rider
Carol Jean Rigelsky
Timothy Ross
Timothy Ruske
Joel Rutkowski
Durbin Seidel
William Sharp
Patti Sicken
Alan Sims
Paul Smith
Thomas Sparn
Stephen Steg
David Street
Kathleen Summers
Trenton Taylor
Jon Theide
Edward M. Thiemann
William Thompson
Wayne Tighe
Katherine Trimble
Matt Triplett
Kathy Troxel
Valerie Trujillo
Scott A. Tucker
Gregory Ucker
Robert Valentine
William Vermeer
Tracy Vincent
Stacy Wade
Pamela J. Wagner
James Wallace
Dale Ward
James Westfall
Neil White
Derrick Williams
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**

William Barrett
Jason Beech
Stephane Beland
Michelle Bourgeois
Karen Beth Bryant
Michael Bryant
Steve Carson
James Craft
Jason M. Dahl
Justin Deighan
Mat 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
Laura Kohnert
Kim Kokkonen
Jay Kominek
Kristopher Larsen
Douglas M. Lindholm
Debra McCabe
Jerel Moffatt
Steve P. Monk
Steven Mueller
Michael Packard
Chris Pankratz
Russell Panneton
Thomas L. Patton
Bill Possel
Tyler Redick
Lee Reedy
Jennifer Reiter
Randy Reukauf
Pat Ringrose
Stephen Roughton

Sean Ryan
Crystal Salcido
Karen Simmons
Patrick Smith
Robert Stimpfling
Gail Tate
Brian Templeman
Dale Theiling
Blake Vanier
Douglas Vincent
Anne Wilson
Robert John Wilson
Donald Woodraska
Jonnie Lynn Yaptengco

Administration

Cristina Barcion
Robert P. Biro
Nina Davis
Paul deFalco
Michael Dillon
Barbara DiPasquale
Melissa Dozier
Zachary Eaton
Steve Ericksen
Brian Evans
Jason Feickert
Christin Gearhart
Alex Green
Don Gritzmacher
Matthew Groeninger
Carol Guy
Barbara Hahn
Molly Hand
Caroline Himes
Rose A. Hoag
Bonnie W. Hotard (Ret.)
Gayle Jones
Brad Keiser
Mazn Kuldinow
Jason LaClair
David Laumbach
Lindsay McCandless
Beth McGilvray
Andrew May
Debra Nastaj
John M. Padgett
Katherine Pilewskie
Radu Popescu
Gary Rashkov

Lonnie Riesberg
Susan Rogers
Susan Sand
Gary Schut
Dona Smith
Doug Smith
John D. Smith
Lisa Sparhawk
Jerry Spivey
Karen Springfield
Peter Wise
Aaron Zimmerlin

Science

Ann Alfaro (Ret.)
Laura Bloom
Ransom Christofferson
Kathleen Cirbo
Stephanie Renfrow Collins
Frank Crary
Ian Dahlke
Shannon Dickson
Vincent Dols
Keith Drake
Vanessa George
Cheryl Haugen
Peng Hong
Marisa Lubeck
Thomas Mason
Stuart Robbins
Erin Wood

Collaborators

Erika Barth
Timothy Berman
Felix Bidner
Peter Delamere
Elizabeth DeVito
Joseph S. Evans
Christopher Grasso
Monica Hoke
Kevin Langone
Jeremy McCaslin
Lansing Madry
Michael Mellon
David Normen

Courtney Peck
Dale Phelps
Cortlandt Pierpont
Alicia Ray
Yolanda Roberts
Bryan Staley
Kenneth Stevens
Casey Swilley
Susan Tazelaar
Heather Walsh
Paul Weidmann
Zachary Wilson

2012 Retirees

Anfinson, Michael
Gunderson, Roger
Jones, Lou
Lankton, Mark
Westfall, James

2012 Ph.D. Graduates

Benze, Susanne, Atmospheric and Oceanic Sciences
May 11, 2012

“Spectral cloud transmittance used to study cloud properties and aerosol cloud interactions

Thesis Advisor: Cora E. Randall

Dove, Adrienne R., Astrophysical and Planetary Sciences
May 11, 2012

“Experimental investigations of the lunar photoelectron environment and related dust dynamics”

Thesis Advisor: Mihály Horányi

Hock, Rachel, Astrophysics and Planetary Sciences
May 11, 2012

“The role of solar flares in the variability of the extreme ultraviolet solar spectral irradiance”

Thesis Advisor: Francis G. Eparvier

McBride, Patrick J., Atmospheric and Oceanic Sciences
December 21, 2012

“Cloud shortwave spectral transmittance: Applications in remote sensing and aerosol-cloud interactions”

Thesis Advisor: Peter Pilewskie

Meinke, Bonnie, Astrophysical and Planetary Sciences
May 11, 2012

“Observations and models of accretion in Saturn’s F-Ring”

Thesis Advisor: Larry Esposito

Su, Lin, Atmospheric and Oceanic Sciences
May 11, 2012

“Dust aerosols investigated using an integrated microphysical climate radiation model”

Thesis Advisor: Owen B. Toon

Tao, Jianbao, Astrophysical and Planetary Sciences
May 11, 2012

“THEMIS observations of electron phase-space holes, the lunar wake, and turbulence”

Thesis Advisor: Robert Ergun

Graduate Students

Ian Aber	Katherine A. Goodrich	Karan Molaverdikhani
Ashar Ali	Victoria Hartwick	Joshua J. Murphy
William Ames	Porter Haskins	Leela E. O’Brien
Edward M. Barratt	Rachel Hock	Ethan D. Peck
Suzanne Benze	Rachel Humphrey	Gang Kai Poh
Lauren Weber Blum	William Ralph Irelan	Anthony P. Rasca
Matthew Carton	Steven James Kapturowski	Morgan E. Rehnberg
Michael Chaffin	Andrew C. Kren	Yolanda Roberts
Robert Citron	Samantha Liner	Quintin Schiller
Mariel Desroche	Jesse Lord	Donald Schmit
Kevin J. Dinkel	Anna Luebke	Anthony Shu
Adrienne Dove	Patrick McBride	Marek Slipski
Justin Anthony Edrington	Prasanna Madhusudhanan	John Edward Stawarz
Weston Evans Edwards	Christopher Maloney	David Stokowski
Tina (Tianyi) Fan	Emma Marcucci	Andrew P. Sturner
Jason Farmer	John Martin	Lin Su
Andrew Foster	James Paul Mason	Jamey Robert Szalay
Christopher M. Fowler	Bonnie Meinke	Jianbao Tao
Jeffrey France	Colin A. Miller	Richard Urata

Donald A. Warbritton
Brandon Werdel
Donovan Wheeler
Yunqian Zhu

Dylan Whitman
Eric Wolf
Jianfeng Xie

Pengfei Yu

Undergraduate Students

Ramsey M. Abdulhamid
Nicholas Aberle
Joel Albin
Graham Annett
Trevor Aparicio
Kirsten Baker
Tierney Bamrick
Steven M. Baxley
Nicholas R. Beaty
Gabriel Bershenyi
Nikki Dyan Bloch
Marc Bode
Michael F. Bonnici
David Matthew Borncamp
Nicholas J.W. Boschert
Karalee Brugman
Emma C. Bunnell
Damien E. Burks
Joseph Christopher Burns
Spenser James Burrows
Samuel T. Califf
Michael T. Carl
Lane Caudill
Matthew L. Cirbo
Max Clark-Rabinowitz
Mark R. Coffman
Rachel Anne Collins
Dinesh Das Costlow
Michael B. Cox
Akazia D. Cruz
Raymond Dao
Samuel N. Denny
Elizabeth A. DeVito
Nicholas DiOrio
Zachary J. Dischner

Adrienne Dove
Melanie Dubin
David Dyer
Justin Edrington
Logan T. Finch
Katie M. Fitzgerald
Christopher Fleming
Kathleen M. Fletcher
Tyler R. Fox
Andrew H. Fruge
Andrew J. Gemer
Erin George
Jenna E. Goldberg
Erin Griggs
Katie M. Hartman
Andrew S. Haynes
Joshua Hecht
Rebecca L. Henderson
Aaron Henry
Mark Hoag
Joao G. M. Hooks
Balazs A. Horanyi
Emily Howard
Calvin T. Howes
Christopher P. Hughes
Rachel Humphrey
Michael D. Hutchinson
Peter D. Jasch
Michael G. Johnson
Erik Kahn
Alexandra M. Kaufhold
Quinn M. Kostelecky
Elise Ellen Kowalski
Margaux M. Krahe
John A. Kreisher

Jean-Francois Lalonde
Dane T. Larsen
Anissa Lassek
Alexander Lieber
Huy Le
Samuel LeBlanc
Jenae Lestishen
Jeremy D. Lewis
Keita Linden
Austin N. Longo
Michael V. LoNigro
Joshua D. Lothringer
Steven James MacCoun
Katelynn McCalmont
Sean X. McGill
Nancy L. McKendry
William T. McNeill
Walter Mahfuz
Jonathan Steven Mandel
Lance Markovchick
Sean Metzger
Clifford Min
Jocelyn B. Mulkey
Casey L. Myers
Kareem Nammari
James Neeley
Danielle L. Nuding
Sean Ray Ortiz
Morgan Dene Osborne
Adil Oubou
Kiran Pachhai
Joseph T. Papa
Kaitlyn A. Parsons
Badrinarayan Parthasarthy
Bryce A. Peters

Samantha Pettus
Marcus Ryan Piquette
Rachel Plesha
Kareesha Potter
Zachary Y. Pranger
Austin Harley Puckett
Emily M. Randall
Krista S. Reed
Matthes Reichenbach
Mark J. Robinson
Danielle Russell
Wayne Russell
Cassidy L. Sainsbury
Byron Samaripa
Matthew Sassu
Christopher Sawyer
Trent Shane

Adam B. Shinn
Scott L. Siler
Erin Simons-Brown
Alijah D. Smith
Lois Smith
David Solomon
Gregory Steiner
Eric Stevens
Colin Stewart
Joseph D. Stewart
Susan L. Tazelaar
David Ryan Terron
Alexander W. Thom
Cassidy D. Thompson
Shelbe J. Timothy
Joshua Tiras
Allison Toltz

Justin Tomasetti
Tyler J. Traver
Michael Tyrone
Abraham L. VanderBurgh
William W. Van Orden
Audrey M. Vertovec
Timothy J. Villabona
Khoa Chao Vu
Pa Chia Vue
Isaac R. Wanamaker
Heather Walsh
Christopher J. Warren
Brett Michael Weisman
Tyler Wingfield
Adam Wolf
Ashley-Marie Zerr

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 re-

lated 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 magne-

total 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 unmagnetized 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 magnetohydrodynamic/particle simulations. *elkington@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 varia-

bility 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; ex-

perimental 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)

Collette, Andrew (Organizer/Co-Chair of session for AGU Fall meeting)

Delamere, Peter (Co-Convenor for 2013 AGU Chapman Conference on Comparative Planetary Magnetotails)
Elkington, Scot (Organizer of session for AGU Meeting of Americas, Cancun, Mexico)
Elkington, Scot (Judge of three student papers presented at AGU Fall Meeting)
Ericksson, Stefan (Meeting Session Chair, AGU Fall meeting)
Esposito, Larry (Session Organizer, AGU Fall meeting, Planetary Rings)
Horanyi, Mihaly (Session organizer on “Lunar Plasma Science” at AGU Fall meeting)
Malaspina, David (Co-Chaired session, AGU Fall meeting)
McGouldrick, Kevin (Judged Outstanding Student Poster at AGU Fall meeting)
McGouldrick, Kevin (Co-chair and organizer of session “Understanding Venus using numerical models” at AGU Fall 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)

Boulder Solar Day

Kopp, Greg (Chair, Organizing Committee: 2012 Boulder Solar Day)

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)
Randall, Cora (Co-Convenor; Scientific Assembly session, Mysore, India, 2012)

Dust, Atmosphere, and Plasma: The Moon and Small Bodies

Horanyi, Mihaly (Organizer of 2012 meeting)

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)
Horanyi, Mihaly (Editor, special issue “Dust, Atmosphere, and Plasma: The Moon and Small Bodies”, to be published in 2013)
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

Collette, Andrew (Assisted with International Observe the Moon Night activities conducted by CCLDAS personnel at the 29th Street mall)
Collette, Andrew (Assisted 4 high school students to construct the Mini Plasma Discharge Machine (MPDM))
Eriksson, Stefan (Presentation to Fireside Elementary School kindergartners on the Sun and magnetic fields)
Merkel, Aimee (Volunteer at Niwot Elementary School)
Richard, Erik (Presented guest lecture on “Space Science and Space Instruments” Westview STEM School, Longmont, CO, Nov 2012)

European Fleet for Airborne Research (EUFAR)

Pilewskie, Peter (Member)

Faculty Awards

Baker, Daniel (Van Allen Lectureship, American Geophysical Union)
Baker, Daniel (2012 Popular Writing Award and Prize, American Astronomical Society)
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)

Harvey, Lynn (Co-organizer of the 2012 HEPPA meeting, Oct. 2012)
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)

International Association of Meteorology and Atmospheric Sciences (IAMAS)

Pilewskie, Peter (Member, International Radiation Commission (IRC))

International Astronomical Union (IAU)

Gosling, J.T. (Member, Scientific Organizing Committee for 2012 Symposium on 3-D views of the Cycling Sun in stellar context)

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

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.)
Joe Ramas (Engineering/Cal)
Dona Smith (IT)
Doug Smith (IT)
Jerry Spivey (IT)
David Summers (Engineering)
Glen Stewart (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

Dan Baker (Chair)
Scot Elkington
John Gosling
Caroline Himes
Bruce Jakosky
Andrew Jones
Greg Kopp
Bill McClintock
Mike McGrath
Peter Pilewskie
Bill Possel
Cora Randall
Owen B. Toon

Tom Woods
Haugen, Cheryl (ex-comm support)

Extreme Ultraviolet Variability Experiment (EVE)

Eparvier, Frank (Science Organizing Committee for 2012 Yosemite Meeting)

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/GSFC Sun-Climate Research Center Seminar Workshop

Richard, Erik (Co-Organizer of 2012 Workshop)

LASP Seminar Series

Schmidt, Konrad (Co-organizer)

LASP Tablet Users Group

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

Planetary Journal Club

Albers, Nicole (Organizer)

Proposal Development Committee (PDC)

Woods, Tom (Chair)
Sparn, Tom (Co-chair)
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
Sparn, Tom
Sternovsky, Zoltan
Tate, Gail
White, Neil
Wrigley, Ray

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

SORCE Science Meeting Organizing Committee

Pilewskie, Peter (Member)
Richard, Erik (Co-Organizer of 2012 Meeting; Session Chair for 2012 Meeting)

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)
Esposito, Larry (Organizer, workshop on Decadal Surveys, November 2012)

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)
Horanyi, Mihaly (Member, NASA Planetary Data System Small Bodies Node Advisory Board)
Horanyi, Mihaly (Member, NASA Planetary Sciences Subcommittee, 2012)
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)
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)
Merkel, Aimee (Member, Cubesat review panel, 2012)

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

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. Geophysical 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)

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

Horanyi, Mihaly (Reviewer of proposals for NSF, DOE, and NASA)

Kalnajs, Lars (Reviewer of manuscripts for Geophys. Res. Lett.)

Kalnajs, Lars (Reviewer of proposals for NERC)

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 Geophysical Res. Letters, Physics of Plasmas, and Journal of Geophysical Research)

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., Icarus, Geophys. Res. Lett., and Scientific Reports)

Pilewskie, Peter (Panel Reviewer, NASA New Investigator Program)

Pilewskie, Peter (Reviewer of manuscripts for J. Atmospheric Chemistry and Physics and Surveys in Geophysics)

Randall, Cora (Reviewer of manuscripts for J. Geophys. Res.)

Randall, Cora (Reviewer of proposals for NASA and NSF)

Robbins, Stuart (Reviewer of proposals for NASA)

Rusch, David (Reviewer of proposals for NASA)

Schmidt, K. Sebastian (Reviewer of proposals for NASA)

Schmidt, K. Sebastian (Reviewer of manuscripts for AMT, SCP, JGR, and JAMC)

Schneider, Nicholas (Reviewer of proposals for NASA and NSF)

Snow, Martin (Reviewer of proposals for NSF)

Sternovsky, Zoltan (Reviewer of proposals for NSF/DOE)

Sternovsky, Zoltan (Reviewer of manuscripts for Annales Geophysicae, Planetary and Space Science, Advances in Space Research)

Stewart, Glen (Reviewer of proposals for NASA)

Toon, Owen B. (Reviewer of manuscripts for Science and Nature)

Toon, Owen B. (Reviewer of proposals for NASA and NSF)

Wang, X. (Reviewer of manuscripts for PSS, Icarus and IEEE)

Wilson, Robert J. (Reviewer of manuscripts for Planetary and Space Science)

Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)

Baker, Daniel (Member)

Merkel, Aimee (Member CAWSES II Task-2 Project 3 Member)

Merkel, Aimee (Member, CAWSES II organizing committee)

Randall, Cora (Co-Chair, CAWSES 11 Theme Group 1)

Sigma Xi

Baker, Daniel (Member)

Student Advising

Collette, Andrew

Elkington, Scot

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

University of Colorado

Aerospace Engineering Department (ASEN)

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

Arts and Sciences (A&S)

Horanyi, Mihaly (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 (Co-organizer, APS Departmental Colloquium, Fall 2012)
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, Laboratory and facilities Committee)

Pilewskie, Peter (Member, Course Fees Committee)

Randall, Cora (Department Chair, 2010-present)

Randall, Cora (Member ATOC Executive committee)

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)

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)

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)

Horanyi, Mihaly

Member of a Dissertation/Thesis Committee

Avallone, Linnea

Bagenal, Frances

Baker, Daniel

Brain, David
Coddington, Odelle
Elkington, Scot
Ergun, Robert
Fang, Xiaohua
Gosling, John
Harvey, V. Lynn
Horanyi, 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
Horanyi, 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.
Horanyi, 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
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 Midlatitude Airborne Cirrus Property Experiment (MACPEX))
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)
Randall, Cora (Elected Fellow, American Geophysical Union)
Randall, Cora (AGU Editor's Highlight for Baumgarten, G., et al., (2012))

Courses Taught by LASP Faculty

Avallone, Linnea	Air Chemistry and Pollution
Bagenal, Frances	Accelerated Introduction to Astronomy
Bagenal, Frances	Planetary Magnetospheres
Brain, David	Planetary Atmospheres
Ergun, Robert	Solar and Space Physics
Ergun, Robert	Space Physics Seminar
Esposito, Larry	Planets, Moons, and Rings
Horanyi, Mihaly	General Physics
Hynek, Brian	GIS for Geologists
Hynek, Brian	Extraterrestrial Life
Hynek, Brian	Mercury
Hynek, Brian	Planetary Field Geology
Kempf, Sasha	Experimental Physics
Kempf, Sasha	Sound and Music
Li, Xinlin	Space Hardware and Design
Li, Xinlin	Senior Design
Li, Xinlin	Thermodynamics and Heat Transfer
Pilewskie, Peter	Atmospheric Radiation Seminar
Pilewskie, Peter	Radiative Processes in Planetary Atmospheres
Randall, Cora	Introduction to Radiative Transfer and Remote Sensing
Randall, Cora	Seminar in Atmospheric and Oceanic Sciences
Rast, Mark	Radiative and dynamical processes
Rast, Mark	Accelerated Introductory Astronomy
Schmidt, Konrad	Introduction to scientific data analysis and computing
Schneider, Nicholas	The Solar System
Schneider, Nicholas	Seminar in Planetary Science “Results from Kepler”
Toon, Owen B.	Seminar in Clouds and Aerosols
Toon, Owen B.	Planetary Atmospheres

Colloquia and Informal Talks 2012

- Andre, Mats, Swedish Institute of Space Physics, *Low-energy ions: More common than we thought around Earth and Mars*
- Bagenal, Fran, CU/LASP, *The Juno Mission to Jupiter: What's inside the giant planet?*
- Bagenal, Fran, CU/LASP, *Voyager: 35 years of exploring the Solar System*
- Baker, Daniel, CU/LASP, *Third Joint Cluster/THEMIS Workshop*
- Baker, Daniel, CU/LASP, *Solar and Space Physics: A Science for a technological society, The 2013-2022 NRC Decadal Strategy for Solar and Space Physics*
- Borovsky, Joe, SSI, *The effect of sudden wind shear on the Earth's magnetosphere*
- Calle, Carlos, NASA, *Technologies for dusty planetary environments*
- Chien, Steve, JPL, *Timeline-based automation mission planning for spacecraft operations*
- Chin, Karen, CU, *Fossil burrow evidence for early animal activity in terrestrial environments shortly after the Cretaceous-Paleocene extinction event*
- Collette, Andrew, CU/LASP, *Time-resolved temperature measurements in Hypervelocity dust impact*
- Crary, Frank, CU/LASP, *Charging of dust in the Enceladus plume: Limits on free electron depletion*
- Crary, Frank, SwRI, *Measuring Plasmas*
- DeForest, Craig, SwRI, *Imaging in the solar wind*
- Delamere, Peter, Delamere Space Sciences, *The impact of human exploration on space science*
- Eriksson, Stefan, CU/LASP, *Magnetic reconnection: Ionospheric consequences and in-situ observations compared with simulations*
- Gannon, Jenn, USGS, *Using frequency domain techniques in real-time space weather applications*
- Goldstein, David, Univ. of Texas at Austin, *Simulating atmospheric dynamics, aurora, and volcanic plumes on Io*
- Gosling, John, CU/LASP, *The solar wind and heliosphere*
- Gray, Candace, New Mexico State University, *The Bastille Day II Solar storm event and its impact on the Venusian nightglow.*
- Grinspoon, David, Denver Museum of Nature and Science, *Titan*
- Harvey, Lynn, CU/LASP, *From surface cold-air outbreaks to polar mesospheric clouds: Observing and modeling the Earth's atmosphere*
- Hermalyn, Brendan, Brown University, *Ejecta evolution and dynamics from Hypervelocity impacts; Time-resolved experimental studies and applications to planetary cratering*
- Hock, Rachel, CU/LASP, *Modeling the effect of solar fares on the variability of the extreme ultraviolet solar spectral irradiance*
- Horanyi, Mihaly, CU/LASP, *The Student Dust Counter onboard the New Horizons mission to Pluto...and beyond!*
- Jacobson, Seth, CU/LASP, *Forming the Moon: New ideas*
- Kahn, Ralph, NASA/GSFC, *Progress toward a global, EOS-era aerosol air mass type climatology*

- Kopp, Greg, CU/LASP, *Solar probe plus and the solar wind: The first mission to our nearest Star*
- Malaspina, David, CU/LASP, *Electric field measurement in space plasmas: There and back again*
- Malaspina, David, CU/LASP, *Solar Probe and the Solar Wind; The first mission to our nearest star*
- Malaspina, David, CU/LASP, *Solar Probe plus, FIELDS science and measurement challenges*
- Maslov, Lev, Ames Community College, *Long-term variations of tidal force, tide-generated stresses and deformation, and their geodynamic implications*
- McGouldrick, Kevin, CU/LASP, *Re-analysis of up to 15 years of Pioneer Venus UVS data*
- McGouldrick, Kevin, CU/LASP, *Transits and observations of Venus*
- McNutt, Ralph, Johns Hopkins, *What is the PU 238 supply issue and why should you care?*
- McPherron, Robert, UCLA/IGPP, *Unsolved issues of magnetospheric activity*
- Mitchell, Tyler, CU/LASP, *A hot gap around Jupiter's orbit in the solar nebula*
- Mocker, Anna, CU/LASP, *Methods for the investigation of hypervelocity impacts of micrometer and sub-micrometer sized particles*
- Morley, Caroline, UC Santa Cruz, *Neglected clouds in cool brown dwarfs and exoplanets*
- Nakamura, Takuma, LANL, *Kinetic aspects of the vortex-induced reconnection in collisionless plasmas: 2D PIC simulations*
- Nemergut, Diana, CU, *Environmental and historical filters and bacterial community assembly*
- Pesnell, W. Dean, NASA/GSFC), *The Solar Dynamics Observatory: 60 million images of the Sun and 1 Comet*
- Petrov, Oleg F., Joint Inst. For High Temperatures RAS, Moscow, Russia, *Collective phenomena in strongly coupled dissipative systems of charged dust: From ground to microgravity experiments*
- Porco, Carolyn, Space Science Institute, *Enceladus; A small moon with a big tale*
- Rast, Mark, CU/LASP, *All mixed up: Turbulence at the heart of nature*
- Ray, Licia, Imperial College, London, *Field aligned currents in Saturn's middle magnetosphere*
- Reitsema, Harold, B612 Foundation, *The Sentinel Mission: Mapping the locations and trajectories of Earth-crossing asteroids*
- Renfrow, Stephanie, CU/LASP, *What's New? An update on education and outreach at LASP*
- Sarris, Theodore, Demokritos University, Greece, *Investigating the mode structure of ULF waves in space and on the ground*
- Schiller, Quintin, CU/LASP, *Applying a Kalman filter to outer radiation belt electrons*
- Taylor, Larry, U. of Tennessee, *Evolving views of regoliths on airless planetary bodies: The Moon as a paradigm*
- Walsh, Kevin, SwRI, *The Grand Tack: Jupiter's migration to 1.5 AU, and how it shaped the inner solar system*
- Wilder, Rick, CU/LASP, *The non-linear response of the polar cap potential – New questions*

Woods, Thomas, CU/LASP, *SORCE Top Ten Accomplishments*
Zaslavsky, Arnaud, LESIA, *Interplanetary dust measured by stereo/waves: Measurement methods and results on the 2007-2011 period*

Zhao, Hong, CU/LASP, *Inward shift of outer Radiation Belt electrons as a function of Dst Index and the influence of the solar wind on electron injections into the Slot Region*

Publications

- Ajello, J.M., et al., Cassini UVIS observations of Titan nightglow spectra, *J. Geophys. Res.*, 117, A12315, doi:10.1029/2012JA017888, 2012.
- Albers, N., Saturn's F Ring as seen by Cassini UVIS: Kinematics and Statistics, *Icarus*, 217, 367-388, doi:10.1016/j.icarus.2011.11.016, 2012.
- Andersson, L., and R.E. Ergun, Neutral wind effects on ion outflow at Mars, *Earth, Planets and Space*, 64, #2, 105-112, doi:10.5047/eps.2011.06.047, 2012.
- Andersson, L., and R.E. Ergun, The search for double layers in space plasmas, *AGU Monographs, Geophys. Monogr. Ser.*, vol. 197, 241-249, doi:10.1029/2011GM001170, 2012.
- Arridge, C.S., et al., Mapping magnetospheric equatorial regions at Saturn from Cassini Prime Mission Observations, *Space Sci. Rev.*, 164, 1-83, 2012.
- Baker, D.N., and T. Zurbuchen, Making the small end bigger, *Space News*, pages 19 and 21, Oct. 29, 2012.
- 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*, Chapman Conference, *Geophys. Monogr. Ser.*, 199, edited by D. Summers, I.R. Mann, D.N. Baker, and M. Schulz, 21-40, AGU, Washington, DC, doi:10.1029/2012GM001368, 2012.
- Baker, D.N., et al., The Relativistic Electron-Proton Telescope (REPT) Instrument on board the Radiation Belt Storm Probes (RBSP) Spacecraft: Characterization of Earth's radiation belt high-energy particle populations, *Space Sci. Rev.*, doi:10.1007/s11214-012-9950-9, 2012.
- Baker, D.N., Extreme Space Weather: Forecasting Behavior of a Nonlinear Dynamical System, in *Complexity and Extreme Events in Geoscience*, Chapman Conference, AGU Monograph 196, doi:10.1029/2011GM001075, 2012.
- Baker, D.N., J.E. Mazur, and G. Mason, SAMPEX to Reenter Atmosphere: Twenty-year Mission Will End, *Space Weather*, 10, SO5006, doi:10.1029/2012SW000804, 2012.
- Baker, D.N., L.J. Lanzerotti Receives 2011 William Bowie Medal, *Eos*, 93, #1, 3 January 2012.
- Baker, D.N., Let academia lead space science, *Nature*, 488, 27-28, doi:10.1038/488027a, 2 August 2012.
- Baker, D.N., The Third Electric Infrastructure Security (EIS) World Summit Meeting, *Space Weather*, 10,

- S07002, doi:10.1029/2012SW000820, 2012.
- Barstow, J.K., K. McGouldrick, et al., Models of the global cloud structure on Venus derived from Venus Express observations, *Icarus*, 217, #2, 542-580, 2012.
- Baumgarten, G., et al., On the horizontal and temporal structure of noctilucent clouds as observed by satellite and lidar at ALOMAR (69N), *Geophys. Res. Lett.*, 39, doi:10.1029/2011GL049935, 2012.
- Benze, S., et al., On the onset of polar mesospheric cloud seasons as observed by SBUV, *J. Geophys. Res.*, 117, doi:10.1029/2011JD017350, 2012.
- Birn, J., et al., Particle acceleration in the magnetotail and aurora, *Space Sci. Rev.*, 173, #1-4, 49-102, doi:10.1007/s11214-012-9874-4, 2012.
- Blum, L.W., et al., A comparison of magnetic field measurements and a plasma-based proxy to infer EMIC wave distributions at geosynchronous orbit, *J. Geophys. Res.*, 117, A5, doi:10.1029/2011JA017474, 2012.
- Brain, D.A., and J.S. Halekas, Aurora in Martian mini-magnetospheres, in *Auroral Phenomenology and Magnetospheric processes: Earth and other Planets*, AGU Monograph, 2012.
- Burger, M.H., et al., Modeling MESSENGER observations of calcium in Mercury's exosphere: I. Flyby observations, *J. Geophys. Res.*, 117, #E12, doi:10.1029/2012JE004158, 2012.
- Butler, J.J., et al., NASA calibration and validation submission to the 40th Meeting of the Coordination Group for Meteorological Satellites, CGMS, Nov. 2012.
- Cassidy, T.A., et al., Magnetospheric ion sputtering and water ice grain size at Europa, *Planetary and Space Science*, 77, 64-73, 2012.
- Cassidy, T.A., Ion bombardment of Europa, *European Planetary Science Congress*, 820, 2012.
- Cassidy, T.A., et al., Mercury's seasonal sodium exosphere, *European Planetary Science Congress*, EPSC2012-766, 2012.
- Chandran, A., et al., Atmospheric gravity wave effects on polar mesospheric clouds: A comparison of numerical simulations from CARMA 2D with AIM observations, *J. Geophys. Res.*, 117, D20104, doi:10.1029/2012JD017794, 2012.
- Chandran, A., et al., Climatology and characteristics of southern hemisphere stratospheric sudden warmings in WACCM, *J. Geophys. Res.*, 117, D20103, doi:10.1029/2012JD017794, 2012.
- Coddington, O., et al., The Shannon information content of Hyperspectral shortwave cloud albedo measurements: Quantification and practical applications, *J. Geophys. Res.*, 117, D04205, doi:10.1029/2011JD16771, 2012.
- Collette, A., et al., Experimental investigation of light flash from hypervelocity impacts, 43rd Lunar and Planetary Science Conference, Abstract #2793, 2012.
- Delamere, P.A., Auroral signatures of solar wind interaction at Jupiter, *AGU Chapman Monograph*, 197, 411-419, 2012.
- Delory, G.T., D.A. Brain, et al., Energetic particles detected by the Electron Reflectometer instrument on the Mars Global Surveyor, 1999-2006, *Space*

- Weather, 10, S06003,
doi:10.1029/2012SW000781, 2012.
- Desroche, M., et al., Conditions at the expanded Jovian magnetopause and implications for the solar wind interaction, *J. Geophys. Res.*, 117, A07202, doi:10.1029/2012JA017621, 2012.
- 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.*, doi:10.1002/jrge.50123, 2012.
- Diéval, C., D.A. Brain, et al., A case study of proton precipitation at Mars: Mars Express observations and hybrid simulation, *J. Geophys. Res.*, 117, A06222, doi:10.1029/2012JA017537, 2012.
- Dols, V., et al., Asymmetry of Io's outer atmosphere: Constraints from five Galileo flybys, *J. Geophys. Res.*, 117, E10010, doi:10.1029/2012JE004076, 2012.
- Dove, A., et al., Physics of a thick seasonal snowpack with possible implications for snow algae, Arctic, Antarctic, *Alpine Res.*, 44, 35-40, 2012.
- Dove, A., et al., Experimental study of a photoelectron sheath, *Phys. Plasmas*, 19, 043502, doi:10.1063/1.3700160, 2012.
- Dove, A., et al., LunGradCon: The Lunar Graduate Student Conference, 43rd Lunar and Planetary Science Conference, Abstract #2713, 2012.
- Dove, A., et al., Surface Effects on photoelectron sheath characteristics, 43rd Lunar and Planetary Science Conference, Abstract #2421, 2012.
- Eastwood, J.P., D.A. Brain, A chain of magnetic flux ropes in the magnetotail of Mars, *Geophys. Res. Lett.*, 39, L03104, doi:10.1029/2011GL050444, 2012.
- Elkington, S.R., A.A. Chan, and M. Wiltberger, Global structure of ULF waves during the 24-26 September 1998 geomagnetic storm, in *Dynamics of the Earth's Radiation Belts and Inner Magnetosphere*, Geophys. Monographs, 199, 2012.
- English, J.M., O.B. Toon, and M.J. Mills, Microphysical simulations of sulfur burdens from stratospheric sulfur geoengineering, *Atmos. Chem. Phys. Discuss.*, 12, 2517-2558, 2012.
- Ermolli, I., et al., Recent variability of the solar spectral irradiance and its impact on climate modeling, *Atmos. Chem. Phys. Discuss.*, 12, 24557-24642, doi:10.5194/acpd-12-24557-2012, 2012.
- Esposito, L.W., Rising sulphur on Venus, *Nature Geoscience*, 6, 20-21, doi:10.1038/ngeo1675, published online, December 2012.
- Fehlmann, A., F. Kopp, et al., Fourth world radiometric reference to SI radiometric scale comparison and implications to on-orbit measurements of the total solar irradiance, *Metrologia*, S34-S38, 2012.
- Fillingim, M.L., D.A. Brain, et al., On wind-driven electrojets at magnetic cusps in the nightside ionosphere of Mars, *Earth, Planets, and Space*, 64(2), 93-103, doi:10.5047/eps.2011.04.010, 2012.
- Fleshmann, B.L., et al., The roles of charge exchange and dissociation in spreading Saturn's neutral clouds, *J. Geophys. Res.*, 117, E05007, doi:10.1029/2011JE003996, 2012.
- France, J., et al., HIRDLS observations of the gravity wave-driven elevated

- stratopause in 2006, *J. Geophys. Res.*, 117, D20108, doi:10.1029/2012JD017958, 2012.
- France, J., et al., Stratopause height and temperature in the polar vortex and anticyclones, *J. Geophys. Res.*, doi:10.1029/2011JD016893, 2012.
- France, J.A., et al., A climatology of stratopause temperature and height in the polar vortices and anticyclones, *J. Geophys. Res.*, doi:10.1029/2011JD016893, 2012.
- Gannon, J.L., S.R. Elkington, and T.G. Onsager, Uncovering the non-adiabatic response of geosynchronous electrons to geomagnetic disturbance, *J. Geophys. Res.*, doi:10.1029/2012JA017543, 2012.
- Garnier, P., et al., The detection of energetic electrons with the Cassini Langmuir probe at Saturn, *J. Geophys. Res.*, 117, 2012.
- Gatebe, C., et al., Taking the pulse of pyrocumulus clouds, *Atmos. Environ.*, 52, 121-130, 2012.
- Gay, P.L., et al., CosmoQuest MoonMappers: A facility for learning and doing science, *Lunar Science Forum*, 5, 2012.
- Gosling, J., et al., Pulsed Alfvén waves in the solar wind, *Astrophys. J.*, 751, L22, 2012.
- Graham, D.B., et al., Evidence against the oscillating two stream instability and spatial collapse of Langmuir waves in solar type III radio bursts, *Astrophys. J.*, Letters 753, doi:10.1088/2041-8205/753/1/L18. 2012.
- Graham, D.B., et al., Do Langmuir wave packets in the solar wind collapse?, *J. Geophys. Res.*, 117, A09107, doi:10.1029/2012JA18033, 2012.
- Grün, E., et al., Active Cosmic Dust Collector, *Planetary and Space Science*, 60, 261-273, 2012.
- Guillemant, S., et al., Solar wind plasma interaction with solar probe plus spacecraft, *Ann. Geophys.*, 30, 1075-1092, 2012.
- Guimaraes, A.H.G., Aggregates in the strength and gravity regime: Particle sizes in Saturn's rings, *Icarus*, 220, #2, 2012.
- Halekas, J.S., et al., Solar wind electron interaction with the dayside lunar surface and crustal magnetic fields: Evidence for precursor effects, *Earth, Moon, and Planets*, 64, 7382, 2012.
- Halekas, J.S., et al., Lunar precursor effects in the solar wind and terrestrial magnetosphere, *J. Geophys. Res.*, 117, A05101, doi:10.1029/2011JA017289, 2012.
- Harder, J., et al., *SORCE SSI Workshop Summary*, *The Earth Observer*, 24, 17-20, 2012.
- Harder, J., et al., *SORCE Science Team Meeting*, *The Earth Observer*, 24, 43-45, 2012.
- Hendrix, A., et al., Mimas' far-UV albedo: Spatial variations, *Icarus*, 110, 922-931, 2012.
- Herrick, R.R., Surveys of elliptical crater populations on the Saturnian Satellites, Mercury, and Mars, *Icarus*, 220, 297-304, 2012.
- Hill, T.W., et al., Charged nanograins in the Enceladus plume, *J. Geophys. Res.*, 117, A05209, doi:10.1029/2011JA017218, 2012.
- Hillier, J.K., et al., Impact ionization mass spectra of anorthite cosmic dust analogue particles, *J. Geophys. Res.*, 117, E09002, doi:10.1029/2012JE004077, 2012.

- Hillier, J.K., et al., Capture of high-speed interstellar dust analogues in Stardust flight spare aerogel, European Planetary Science Congress, 2012, 665-, 2012.
- Ho, G.C., D.N. Baker, et al., Observations of suprathermal electrons in Mercury's magnetosphere during the three MESSENGER flybys, *Planetary and Space Science*, 59, #15, 2016-2025, doi:10.1016/j.pss.2011.01.011, 2012.
- Ho, G.C., et al., Spatial distribution and spectral characteristics of energetic electrons in Mercury's magnetosphere, *J. Geophys. Res.*, 117, doi: 10.1029/2012JA017983, 2012.
- Holt, L., et al., Atmospheric effects of energetic particle precipitation in the Arctic winter: 1978-1979 Revisited, *J. Geophys. Res.*, doi:10.1029/2011JD016663, 2012.
- Holsclaw, G., UVIS calibration (chapter 3 of Cassini UVIS User's Guide), http://pdsrings.seti.org/cassini/uvis/UVIS_Users_Guide-6.pdf, 2012.
- Horanyi, M., et al., The Dust Environment of the Moon: Expectations for the Lunar Dust Experiment (LDEX), *LPI Science Conference Abstracts*, 43, 2635-, 2012.
- Hsu, H.-W., et al., Spacecraft charging near Enceladus, *Geophys. Res. Lett.*, 39, 06108, 2012.
- Hsu, H.-W. and M. Horanyi, Ballistic motion of dust particles in the Lunar roving Vehicle dust trails, *Amer. J. of Physics*, 80(5), 452, 2012.
- Hudson, M.K., et al., Radiation belt 2D and 3D simulations for CIR-driven storms during Carrington Rotation 2068, *J. Atmos. Solar. Terr. Phys.*, 83, doi:10.1016/j.jastp.2012.03.017.
- Jones, Andrew, Measured degradation in the Solar EUV spectrometers SOHO-CELIAS-SEM and SDO-EVE, Solar-Terrestrial Centre of Excellence Degradation Workshop, Royal Observatory of Belgium, 2012.
- Jones, Andrew, Impact of particles on SEM and EVE data, PROBA-2 Science Workshop, Royal Observatory of Belgium, 2012.
- Keiling, D., E. Donovan, F. Bagenal, and T. Karlsson (Eds.), *Auroral Phenomenology and Magnetospheric Processes: Earth and Other Planets*, AGU Monographs, *Geophys. Monogr. Ser.*, vol. 197, doi:10.1029/2011GM001170, 2012.
- Kempf, S., et al., Linear high resolution dust mass spectrometer for a mission to the Galilean satellites, *Planetary and Space Science* 65, 10-20, 2012.
- Kempf, S., R. Srama, and A. Graps, *The Cosmic Dust Analyzer Data Handbook*, Planetary Data System, 2012.
- Kempf, S., et al., The 3-dimensional structure of Saturn's E ring inferred from Cassini CDA observations, European Planetary Science Congress, Madrid, 2012.
- Kobayashi, M., et al., Mercury Dust Monitor for the BepiColombo MMO, *LPI Contributions*, 1683, 1067-, 2012.
- Kobayashi, M., et al., Current status of development of Mercury Dust Monitor for BepiColombo MMO, European Planetary Science Congress 2012, 588-, 2012.
- Kopp, G., et al., Total solar irradiance data record accuracy and consistency improvements, *Metrologia*, 49, S29-S33, doi:10.1088/0026-1394/49/2/S29m 2012.
- Kopp, G., and A. Ward, *SORCE/TIM views the 2012 transit of Venus*, The

- Earth Observer, 24, #4, 36-37, July-Aug 2012.
- Lazar, C., T.M. McCollom, and C.E. Manning, Abiogenic methanogenesis during experimental komatiite serpentinization: Implications for the evolution of the early Precambrian atmosphere, *Chemical Geology*, 326-327, 102-112, 2012.
- LeBlanc, S., et al., Spectral aerosol direct radiative forcing from airborne radiative measurements during CalNEX and ARCTAS, *J. Geophys. Res.*, 117, D00V20, doi:10.1029/2012JD018106, 2012.
- Li, X., et al., Colorado Student Space Weather Experiment: Differential flux measurements of energetic particles in a highly inclined low Earth orbit, in *Dynamics of the Earth's radiation belts and Inner magnetosphere*, Geophys. Monogr. Series, 199, D. Summer, et al., eds., AGU, Washington, DC, doi:10.1029/2012GM001313, 2012.
- Lillis, R.J., D.A. Brain, et al., Evidence for superthermal secondary electrons produced by SEP ionization in the Martian atmosphere, *J. Geophys. Res.*, 117, E03004, doi:10.1029/2011JE003932, 2012.
- Lohmeyer, W.Q., K. Cahoy, and D.N. Baker, Correlation of GEO communications satellite anomalies and space weather phenomena: Improved satellite performance and risk mitigation, *AIAA Journal*, July 2012.
- Lord, J., et al., Wavelet decomposition of forced turbulence: Applicability of the iterative Donoho-Johnstone threshold, *Phys. Fluids*, 24, 025102, 2012.
- Luo, Bingxian, et al., Comparison of energetic electron flux and phase space density in the magnetosheath and in the magnetosphere, *J. Geophys. Res.*, 117, A5, doi:10.1029/2012JA017620, 2012.
- Ma, Y., et al., The global evolution of a moderately intense substorm observed by THEMIS, *J. Geophys. Res.*, 117, A07219, doi:10.1029/2012JA017768, 2012.
- Ma, Y., et al., Tailward leap of multiple expansions of the plasma sheet during a moderately intense substorm: THEMIS observations, *J. Geophys. Res.*, 117, A07219, doi:10.1029/2012JA017768, 2012.
- Main, D.S., et al., Ion acoustic solutions in Earth's upward current region, *Phys. Plasmas*, 19, 072905, 2012.
- Malaspina, D., and J.T. Gosling, Two spacecraft observations of magnetic discontinuities in the solar wind with STEREO, *J. Geophys. Res.*, 117, A04109, doi:10.1029/2011JA017375, 2012.
- Malaspina, D., et al., Antenna radiation near the local plasma frequency by Langmuir wave Eigenmodes, *Astrophys. J.*, 755, doi:10.1088/0004-637X/755/1/45, 2012.
- Mandt, K.E., et al., Ion densities and composition of Titan's upper atmosphere derived from the Cassini Ion Neutral Mass Spectrometer: Analysis methods and comparison of measured ion densities to photochemical model simulations, *J. Geophys. Res.*, 117, E10006, 2012.
- Markidis, S., et al., Collisionless magnetic reconnection in a plasmoid chain, *Nonlinear Processes in Geophysics*, 19, 145, doi:10.5194/npg-19-145-2012, 2012.
- Markidis, S., et al., Three dimensional density cavities in guide field collisionless magnetic reconnection, *Physics of Plasmas*, 19, #3, 2012.

- Mauk, B., et al., Comparative auroral physics: Earth and other planets, in *Auroral Phenomenology and Magnetospheric Processes: Earth and Other Planets*, AGU Monographs, Geophys. Monogr. Ser., vol. 197, doi:10.1029/2011GM001170, 2012.
- McBride, P.J., et al., CalNex cloud properties retrieved from a ship-based spectrometer and comparisons with satellite and aircraft retrieved cloud properties, *J. Geophys. Res.*, 117, doi:10.1029/2012JD017624, 2012.
- McCullom, T.M., Methane generation during experimental serpentinization of olivine, *Proceedings of the National Academy of Sciences*, doi:10.1073/pnas.1214629109 (online only)
- McCullough, J.P., S. Elkington, and D.N. Baker, The Role of Shabansky Orbits in Compression-related EMIC Wave Growth, *J. Geophys. Res.*, 117, A01208, doi:10.1029/2011JA016948, 2012 .
- McEnulty, T.R., et al., Comparing external conditions that influence ion escape at Venus during Pioneer Venus and Venus Express missions, *Planetary and Space Science*, 2012.
- McEnulty, T.R., et al., Comparisons of Venus Express measurements with an MHD model of O⁺ ion flows: Implications for atmosphere escape measurements, *Planetary and Space Science*, 2012.
- McGouldrick, K., et al., Quantification of middle and lower cloud variability and mesoscale dynamics from Venus Express/CIRTIS observations at 1.74 μm , *Icarus*, 217, #2, pages 615–628, doi:10.1016/j. icarus.2011.07.0092011, 2012.
- Meinke, B.K., et al., Classification of F ring features observed in Cassini UVIS occultations, *Icarus*, 218, #1, 545–554, doi.org/10.1016/j. icarus.2011.12.020, 2012.
- Millan, R.M., and D.N. Baker, Acceleration of particles to high energies in Earth’s radiation belts, *Space Sci. Rev.*, (ISSI) *Space Sci. Rev.*, 173, #1-4, 103-131, doi:10.1007/s11214-012-9941-x, 2012.
- Minnis, P., et al., Simulations of infrared radiances over a deep convective cloud system observed during TC4: Potential for enhancing nocturnal ice cloud retrievals, *Remote Sensing*, 4, 3022-3054, 2012.
- Mocker, A., et al., On the applicability of laser ionization for simulating hypervelocity impacts, *J. Appl. Phys.*, 112, 103301, doi:10.1063/1.4765716, 2012.
- Mocker, A., et al., A linear TOF mass spectrometer as a tool for the investigation of impact ionization plasma, *AIP Conference Proceedings*, 1426, 859-862, 2012.
- Molaverdikhani, K., K. McGouldrick, and L.W. Esposito, The abundance and distribution of the unknown ultraviolet absorber in the Venusian atmosphere, *Icarus*, 217, #2, p. 648-660, 10.1016/j. icarus.2011.08.008, 2012.
- Munsat, T., et al., The Dust Accelerator Facility of the Colorado Center for Lunar Dust and Atmospheric Studies, *LPI Science Conference Abstracts*, 43, 2730-, 2012.
- National Research Council, Decadal Survey, *Solar and Space Physics: A Science for a Technological Society*, National Academies, 2012.
- National Research Council, *The Effects of Solar Variability on Earth’s Climate*; A

- Workshop Report, National Academies, 2012.
- Northway, P., et al., Characteristics of a new dust coordinate sensor, *Meas. Sci. Technol.* 23, 105902, 2012.
- Oberländer, S., et al., The influence of spectral solar irradiance data on stratospheric heating rates during the 11-year solar cycle, *Geophys. Res. Lett.*, 39, L01801, doi:10.1029/2011GL049539, 2012.
- Paranicas, C., et al., Energetic charged particle weathering of Saturn's inner satellites, *Planet. Space Science*, 61, 60-65, 2012.
- Parkinson, C.D., et al., Modeling atmospheric energy deposition by energetic ions, American Geophysical Union, Fall Meeting 2011, abstract #SA13A-1876, 2012.
- Peevey, T.R., et al., Investigation of double tropopause spatial and temporal global variability utilizing high resolution dynamics limb sounder temperature observations, *J. Geophys. Res.*, 117, D01105, doi:10.1029/2011JD016443, 2012.
- Peterson, W.K., and K.J. Trattner, Sources of plasma in the high altitude cusp, *JASTP*, 87-88-, 1-10, doi:10.1016/jastp.2001.07.001, 2012.
- Peterson, W.K., et al., Solar EUV and XUV energy input to thermosphere on solar rotation time scales derived from photoelectron observations, *J. Geophys. Res.*, 117, A5, doi:10.1029/2011JA017382, 2012.
- Peterson, W.K., et al., Dawnward shift of the dayside O outflow distribution: The importance of field line history in O escape from the ionosphere, *J. Geophys. Res.*, 117, A12, 2012.
- Peterson, W.K., et al., A global comparison of O⁺ upward flows at 850 km and outflow rates at 6000 km during non-storm times, *J. Geophys. Res.*, 117, A4, 2012.
- Plainaki, C., et al., The role of sputtering and radiolysis in the generation of Europa's exosphere, *Icarus*, 218, 9956-966, 2012.
- Poppe, A.R., and M. Horanyi, On the Edgeworth-Kuiper belt dust flux to Saturn, *Geophys. Res. Lett.*, 39, L15104, doi:10.1029/2012GL052530, 2012.
- Poppe, A.R., and M. Horanyi, On the Edgeworth-Kuiper belt dust flux to Saturn, 43rd Lunar and Planetary Science Conference, Abstract #1365, 2012.
- Poppe, A.R., et al., The effect of surface topography on the Lunar Photoelectron Sheath and Electrostatic Dust Transport, *Icarus*, 221, 134-146, 2012.
- Poppe, A.R., et al., A comparison of ARTEMIS observations and particle-in-cell modeling of the lunar photoelectron sheath in the terrestrial magnetotail, *Geophys. Res. Lett.*, 39, L01102, doi:10.1029/2011GL050321, 2012.
- Postberg, F., et al., Compositional mapping of the Galilean moons by mass spectrometry of dust ejecta, AAA Division for Planetary Sciences Meeting Abstracts, 44, #101.07-, 2012.
- Pryor, W., et al., Lyman-alpha models for LRO LAMP from MESSENGER MASCS and SOHO SWAN data, in *Cross-calibration of past and present far UV spectra of solar system objects and the heliosphere*, ISSI Scientific Report Series, SR-012, v. 13, ISBN 978-1-4614-6383-2, 2012.
- Randol, B.M., et al., Observations of isotropic interstellar pickup ions at 11 and 17 AU from New Horizon,

- Astrophysical Journal, 755, #1, doi:10.1088/0004-637X/755/1/75, 2012.
- Rast, M.P., and J.W. Harder, Understanding the role of small scale flux in solar spectral irradiance variation, in *The Second ATST-EAST Meeting: Magnetic fields from the photosphere to the corona*, ASP Conference Series, 463, San Francisco, Astronomical Society of the Pacific, 2012.
- Ray, L.C., et al., Magnetosphere-ionosphere coupling at Jupiter: A parameter space study, *J. Geophys. Res.*, 117, A01205, doi:10.1020/2011JA016899, 2012.
- Redmon, R.J., et al., A global comparison of O⁺ upward flows at 850 km and outflow rates at 6000 km during non-storm times, *J. Geophys. Res.* 117, A04213, doi:10.1029/2011JA017390, 2012.
- Robbins, S.J., The cratering chronology of the inner solar system, *Planetary Crater Consortium*, 3, #1205, 2012.
- Robbins, S.J., et al., CosmoQuest MoonMappers: Cataloging the Moon, 5, #602, 2012.
- Robbins, S.J., and B.M. Hynek, On the reliability of MOLA data to resolve crater topography, *Planetary Crater Consortium*, 3, #1203, 2012.
- Robbins, S.J., and B.M. Hynek, A new global database of Mars impact craters ≥ 1 km: Database creation, properties, and parameters, *J. Geophys. Res.*, 117, doi:10.1029/2011JE003966, 2012.
- Roberts, Y., et al., Quantitative comparison of the variability in observed and simulated shortwave reflectance, *Atmos. Chem. Phys. Discuss.*, 12, 28305-28341, doi:10.5194/1cpd-12-28305-2012, 2012.
- Robock, A., and O.B. Toon, Self-assured destruction: The climate impacts of nuclear war, *Bull. Atom. Sci.*, 68, 66-74, 2012.
- Rong, Z., et al., Profile of strong magnetic field By component in magnetotail current sheets, *J. Geophys. Res.*, 117, A06216, doi:10.1029/2011JA017402, 2012.
- Sarantos, M., et al., Mercury's Mg exosphere from MESSENGER data, *European Planetary Science Congress, EPSC2012-707*, 2012.
- Schiller, Q., et al., A parametric study of the source rate for outer radiation belt electrons using a Kalman filter, *J. Geophys. Res.*, 117, A09211, doi:10.1029/2012JS017779, 2012.
- Schmidt, K. Sebastian, and P. Pilewskie, Airborne measurements of spectral shortwave radiation, in *Cloud and aerosol remote sensing and energy budget studies*, *Light Scattering Reviews*, Springer, 6, 239-288, 2012.
- Schrifer, D., D.N. Baker, et al., Quasi-trapped ion and electron populations at Mercury, *Geophys. Res. Lett.*, 39, doi:10.1029/2011, GL049629, 2012.
- Segura, T., C.P. McKay, and O.B. Toon, An impact-induced, stable, runaway climate on Mars, *Icarus*, 220, 144-148, 2012.
- Sharma, A.S., et al., Preface in *Extreme Events and Natural Hazards: Complexity and Extreme Events in Geoscience*, Chapman Conference, AGU Geophysical Monograph, 196, doi:10.1029.2012GM001434, 2012.
- Sharma, A.S., A. Bunde, V.P. Dimri, and D.N. Baker (eds), Preface, in *Extreme Events and Natural Hazards: Complexity and Extreme Events in Geoscience*, Chapman Conference,

- AGU Geophysical Monograph, 196, doi:10.1029.2012GM001233, 2012.
- Shen, C., et al., Spatial gradients from irregular, multi-point spacecraft configurations, *J. Geophys. Res.*, 117, A11207, doi:10.1029/2012JA018075, 2012.
- Shibata, H., et al., Development of MDM (Mercury Dust Monitor) onboard BepiColombo Mission, *LPI Contributions*, 1667, 6480-, 2012.
- Shu, A., et al., 3MV hypervelocity dust accelerator at the Colorado Center for Lunar Dust and Atmospheric Studies, *Rev. Sci. Instrum.* 83, 075108, 2012.
- Slavin, J., D.N. Baker, et al., MESSENGER and Mariner 10 flyby observations of magnetotail structure and dynamics at Mercury, *J. Geophys. Res.*, 117, A01215, doi:10.1029/2011JA016900, 2012.
- Snow, M., Cross-calibrating using SOLSTICE Stars, *SORCE Newsletter*, January 2012.
- 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-012, v. 13, ISBN 978-1-4614-6383-2, 2012.
- Snow, M., SOLSTICE into Version 11, *SORCE Newsletter*, January 2012.
- Snow, M., Workshop summary: Understanding trends in solar spectral irradiance, *The Earth Observer*, 24, 46, 2012.
- Srama, R., et al., SARIM PLUS – Sample return of Comet 67P/CG and of interstellar matter, *Experimental Astronomy*, 33, 723-751, 2012.
- Srama, R., et al., The Earth micro- and submicro-particle environment, 39th COSPAR Scientific Assembly, 39, 1869-, 2012.
- Sterken, V.J., et al., Interstellar dust simulations for the Stardust Mission, *OPI Science Conference Abstracts*, 43, 1878-, 2012.
- Sterken, V.J., et al., The flow of interstellar dust into the solar system, *Astronomy and Astrophysics*, 538, A201, 2012.
- Sterken, V.J., et al., An optimum opportunity for interstellar dust measurements by the JUICE mission, *Planet. Space Sci.*, 71, 142-146, 2012.
- Sterken, V.J., et al., Modeling the local size distribution of interstellar dust in the solar system, *EGU General Assembly Conference Abstracts*, 14, 449-, 2012.
- Stern, S.A., et al., Synthetic lunar atmosphere experiments and base resupply mission concept, 43rd Lunar and Planetary Science Conference, Abstract 31008, 2012.
- Sternovsky, Z., et al., Dust spectroscopy of the Jovian satellites, 43rd Lunar and Planetary Science Conference, Abstract #2929, 2012.
- Stevens, M.H., et al., Bright polar mesospheric clouds formed by main engine exhaust from the Space Shuttle's final launch, *J. Geophys. Res.*, 117, D19206, doi:10.1029/2012JD017638, 2012.
- Stroud, R.M., et al., Constraining the origin of impact craters on A1 foils from the Stardust Interstellar Dust Collectors, *LPI Science Conference Abstracts*, 43, 2001-2012.
- Strub, P., et al., Dynamics of interstellar dust in the solar system: From in-situ measurements to models, *European Planetary Science Congress 2012*, 60-, 2012.

- Summers, D., I.R. Mann, and D.N. Baker, Introduction, AGU Geophys. Monograph Series, doi:10.1029/2012GM001434, 2012.
- Summers, D., I.R. Mann, D.N. Baker, and M. Schulz (Eds.) *Dynamics of the Earth's Radiation Belts and Inner Magnetosphere*, Geophys. Monogr. Ser., 199, 431 pp., AGU, Washington, D.C., doi:10.1029/GM199, 2012.
- Sundberg, Torbjörn, et al., MESSENGER Observations of Dipolarization Events in Mercury's Magnetotail, *J. Geophys. Res.*, 117, A00M03, doi:10.1029/2012JA017756, 2012.
- Sundberg, Torbjörn, et al., MESSENGER Observations of Dipolarization Events in Mercury's 1 Magnetotail, *J. Geophys. Res.*, *J. Geophys. Res.*, 117, A00M03, doi:10.1029/2012JA017756, 2012.
- Szalay, J.R., and M. Horanyi, Modeling dust clouds on the Moon, 43rd Lunar and Planetary Science Conference, Abstract #1796, 2012.
- Tao, J.-B., et al., Kinetic instabilities in the lunar wake: ARTEMIS observations, *J. Geophys. Res.*, 117, A03106, doi:10.1029/2011JA017364, 2012.
- Tao, J.-B., et al., Detailed examination and modeling of wake potential and electrostatic waves observed during the first lunar-wake flyby of ARTEMIS, *J. Geophys. Res.*, 117, 3A3, doi:10.1019/2011JA017364, 2012.
- Thurairajah, B., et al., Morphology of polar mesospheric clouds as seen from space, *J. Atmos. Solar-Terr. Phys.*, doi:10.1016/j.jastp.2012.09.009, 2012.
- Titov, D.V., et al., Morphology of the cloud tops as observed by the Venus Express Monitoring Camera, *Icarus*, 217, 682-701, doi:10.1016/j.icarus, 2011.06.020, 2012.
- Trainer, M., et al., Nitrogen incorporation in CH₄-N₂ photochemical aerosol produced by far ultraviolet irradiation, *Astrobiology*, 12, 315-326, 2012.
- Trieloff, M., et al., Capture of high-speed interstellar dust analogues in stardust flight space aerogel, *Meteoritics and Planetary Sciences Supplement*, 75, 5289, 2012.
- Tu, W., et al., Quantifying radial diffusion coefficients of radiation belt electrons based on global MHD simulation and spacecraft measurements, *J. Geophys. Res.*, 117, A10210, doi:10.1029/2012JA1901, 2012.
- Ulusen, D., D.A. Brain, J.G. Luhmann, and D.L. Mitchell, Investigation of Mars' ionospheric responses to solar energetic particle events, *J. Geophys. Res.*, 117, A12306, doi:10.1029/2012JA017671, 2012.
- Wang, X., M. Horanyi, S. Robertson, Characteristics of a plasma sheath in a magnetic dipole field: Implications to the solar wind interaction with the lunar magnetic anomalies, *J. Geophys. Res.*, 117, A06116, doi:10.1029/2012JA017635, 2012.
- Westphal, A.J., et al., Status of Stardust ISPE and the origin of four interstellar dust candidates, *LPI Science Conference Abstracts*, 43, 2084-, 2012.
- Wielicki, B., et al., Climate Absolute Radiance and Refractivity Observatory (CLARREO); Achieving climate change absolute accuracy in orbit, *Bull. American Meteorological Society*, 2012.
- Wilder, F.D., et al., Ionospheric Joule heating, fast flow channels and magnetic field line topology for IMF by-dominant conditions: Observations and comparisons with predicted reconnection jet speeds, *J. Geophys.*

- Res., 117, A11311, doi:10.1029/2012JA017914, 2012.
- Wilson, R.J., P.A. Delamere, and F. Bagenal, Kelvin-Helmholtz instability at Saturn's magnetopause: Cassini ion data analysis, *J. Geophys. Res.*, 117, A03212, doi:10.1029JA016723, 2012.
- 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*, D. Summers, et al., eds., Geophysical Monograph Series, 199, doi:10.1029/2012GM001325, 2012.
- Yau, A.W., et al., Transport of thermal-energy ionospheric oxygen (O⁺) ions between the ionosphere and the plasma sheet and ring current at quiet times preceding magnetic storms, *J. Geophys. Res.*, 117, A07215, doi:10.1029/2012JA017803, 2012.

Works in Progress

- Avallone, L.M., et al., Supporting the retention and advancement of women in the atmospheric sciences: What women are saying, *Bull. Am. Meteor. Soc.*, **in press**, 2012.
- Bagenal, F., Planetary magnetospheres, in *Planets, Stars and Stellar Systems*, (Eds. L. French and P. Kalas), **in press**, 2012.
- Baillié, K., J.E. Colwell, and L.W. Esposito, Meter-sized moonlet population in Saturn's C ring and Cassini Division, *Astron. J.*, **submitted**, 2012.
- Baker, D.N., et al., The Relativistic Electron-Proton Telescope (REPT) Instrument on board the Radiation Belt Storm Probes (RBSP) Spacecraft: Characterization of Earth's radiation belt high-energy particle populations, *Space Sci. Rev.*, **in press**, 2012.
- Baker, D.N., et al., Solar Wind Forcing at Mercury: WSA-ENLIL Model results, *J. Geophys. Res.*, 118, doi:10.1029/2012JA018064, **in press**, 2012.
- Baker, D.N., et al., A long-lived relativistic electron storage ring embedded within the Earth's outer Van Allen Radiation Zone, *Science*, **submitted**, 2012.
- Brain, D.A., et al., MGS measurements of solar storms and their effects, IAAA Book Chapter on Radiation from the Sun to Mars, **in press**, 2012.
- Bougher, S.W., D.A. Brain, et al., Upper neutral atmosphere and ionosphere, in *The Martian Atmosphere*, Cambridge, University Press, **accepted**, 2012.
- Childs, N.B., et al., Measuring the speed of hypervelocity dust particles, *Amer. J. of Physics*, **submitted**, 2012.
- Deighan, J., Characterization of a thick ozone layer in Mars' past, *Icarus*, **submitted**, 2012.
- Desroche, M., et al., Conditions at the magnetopause of Saturn and implications for the solar wind interaction, *J. Geophys. Res.*, **under review**, 2012.
- DiBaccio, 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 SC. Solomon, MESSENGER Observations of Magnetopause Structure and

- Dynamics at Mercury, *J. Geophys. Res.*, **in press**, 2012.
- Dohm, J.M., et al., Mars evolution, in *Mars: Evolution, geology and exploration*, Ed. by A. Fairen, Nova Science Publishers, Inc., Hauppauge, NY, **in press**, 2012.
- Drake, K., et al., Secondary ejecta from Hypervelocity dust impacts, *Planetary and Space Sci.*, **submitted**, 2012.
- Drake, K., et al., Ejecta from hypervelocity dust impacts based on light flash measurements, *Planet. Space Sci.*, **submitted**, 2012.
- Eppler, D., et al., Desert research and technology studies (D-RATs) 2010 Science Operations: Operational approaches and lessons learned for managing science during human planetary surface missions, *Acta Astronautica*, **in press**, 2012.
- Esposito, L.W., et al., Clouds and aerosols on the terrestrial planets. A chapter in *Comparative Climatology of Terrestrial Planets*, **submitted**, 2012.
- Gosling, J.T. , The Solar Wind, in *Encyclopedia of the Solar System*, 3rd edition, Elsevier, **submitted**, 2012.
- Grün, E., and M. Horanyi, A new look at Apollo 17 LEAM data: Nighttime dust activity in 1976, *Planetary and Space Sci.*, **submitted**, 2012.
- Hock, R., et al., The origin of the EUV late Phase: A case study of the C8.8 Flare on 2010 May 5, *Ap. J.*, **submitted**, 2012.
- Hoke, M.R.T., et al., Effects of sediment supply and concentrations on the formation timescale of Martian deltas, *J. Geophys. Res.*, **in review**, 2012.
- Hynek, B.M., and G. DiAchille, Geologic map of Meridian Planum region, Mars, USGS Planetary Mapping Program, **in review**, 2012.
- Johnson, R.E., et al., Sputtering of Ices, in *Science of Solar System Ices*, **in press**, Springer.
- Kempf, S., A. Cru, M. Horanyi, and R. Srama, On the response of PVDF dust detectors to oblique impacts, *Planetary Space Sci.*, **submitted**, 2012.
- Kempf, S., and U. Beckmann, Dynamics and long-term evolution of Saturn's E ring particles, *Astrophys. J.*, **submitted**, 2012.
- Kopp, G., and E. Raschke, Incoming solar radiation at TOA, GEWEX Radiative Flux Assessment book, **submitted**, Aug. 2012.
- Li, X., et al., Small mission accomplished by students – Big impact on Space Weather Research, *Space Weather Journal*, **in press**, 2012.
- Lillis, R.J., and D.A. Brain, Nightside electron precipitation at Mars: Geographic variability and dependence on solar wind conditions, *J. Geophys. Res.*, **submitted**, 2012.
- Luebke, A.E., M. Kraemer, and L.M. Avallone, Development of a climatology for cirrus cloud ice water content and its application to climate model parameterizations, *Atm. Chem. Phys.*, **submitted**, Dec, 2012.
- 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*, **submitted**, 2012.
- McBride, P., et al., CalNex cloud properties retrieved from a ship-based spectrometer and comparisons with satellite and aircraft retrieved cloud properties, *J. Geophys. Res.*, doi:10.1029/2012JD017624, **in press**, 2012.

- McCollom, T.M., et al., Experimental study of acid-sulfate alteration of basalt and implications for sulfate deposits on Mars, *Geochimica Cosmochimica Acta*, **in press**, 2012.
- McPherron, R.L., et al., Changes in solar wind-magnetosphere coupling with solar cycle, season, and time relative to stream interfaces, *J. Atmos. and Solar-Terr. Physics*, **in press**, Available online 23 September 2012, 2012.
- Mocker, A., et al., On the application of a linear time-of-flight mass spectrometer for the investigation of hypervelocity impacts of micron and sub-micron sized particles, *Planetary and Space Sci.*, **submitted**, 2012.
- Parkinson, C.D., M.W. Liemohn, and X. Fang, Ion precipitation at Mars in the vicinity of strong crustal field regions, *Icarus*, **submitted**, 2012.
- Qian, L., et al., Effect of trends of middle atmosphere gases on the mesosphere and thermosphere, *J. Geophys. Res.*, 2013JA018728, **accepted**, 2012.
- 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.*, doi:10.1029/2012JA018073, **in press**, 2012.
- Robbins, S.J., et al., The large crater impact history of Mars: The effect of different model crater age techniques, *Icarus*, **under review**, 2012.
- Robbins, S.J., and B. M. Hynek, Utility of laser altimeter and stereoscopic terrain models to derive complex morphology: Applications to Martian craters, *Planetary and Space Science*, **under review**, 2012.
- Rong, Z.J., et al., Profile of strong magnetic field By component in magnetotail current sheets, *J. Geophys. Res.*, **under review**, 2012.
- Smith, A.K., et al., Satellite observations of ozone in the upper mesosphere, *J. Geophys. Res.*, **submitted**, 2012.
- Sterken, V., et al., Filtering of ISD in the solar system, *Astron. and Astrophys.*, **submitted**, 2012.
- Stewart, G.R., The turbulent viscosity of Saturn's rings and the protolunar disk, *Ap. J.*, **in revision**, 2012.
- Szalay, J.R., M. Piquette, and M. Horanyi, The Student Dust Counter: Status report at 23 AU, *Earth, Planets and Space*, **in press**, 2012.
- Tian, F., et al., Atmospheric escape and climate evolution of terrestrial planets, *Comparative Climatology of Terrestrial Planets*, **submitted**, 2012.
- Wang, X., et al., Electric potentials in magnetic dipole fields normal and oblique to a surface in plasma: Understanding the solar wind 17 interaction with lunar magnetic anomalies, *Geophys. Res. Lett.*, **submitted**, 2012.
- Wang, S., et al., Atmospheric OH response to the 11-year solar cycle: Could the gap between model and observations be filled by SORCE measurements?, *P. Natl. Acad. Sci., SA*, **in review**, 2012.
- Wannawichian, S., F. Bagenal, et al., Longitudinal modulation of the brightness of Io's auroral footprint emission: Comparison with models, *J. Geophys. Res.*, **under review**, 2012.
- Wilson, J.J., et al., Evidence from radial velocity measurements of a global electric field in Saturn's inner magnetosphere, *J. Geophys. Res.*, **in press**, 2012.
- Winslow, R.M., et al., Mercury's magnetopause and bow shock from

MESSENGER observations, J.
Geophys. Res., **in press**, 2012.

Papers Presented at Scientific Meetings

- Albers, N., Ring Edges and Ringlets, Cassini UVIS Team Meeting, Orlando, FL, 2012.
- Ali, A., et al., Estimating radial diffusion coefficients using CRRES magnetometer data, Los Alamos National Lab, NM, July 2012.
- Ali, A., and S.R. Elkington, Detrending methods and despiking data, Fall AGU Meeting, San Francisco, CA, December 2012.
- Altobelli, N., et al., Cassini-CDA's hunt for exogenous dust particles around Saturn, EGU General Assembly 2012, 22-27 April, 2012, Vienna, Austria.
- Altobelli, N., et al., Insights of the zodiacal cloud dust populations at Saturn from CASSINI-CDA, European Planetary Science Congress, Madrid, 2012.
- Ames, W., D.A. Brain, et al., Statistical studies of the Lunar plasma wake, 3rd Cluster/THEMIS Workshop, 2 October, 2012.
- Ames, W.F., D.A. Brain, et al., Statistical study of the lunar plasma wake outer boundary Fall AGU Meeting, San Francisco, CA, December 2012.
- Andersson, L., et al., Particle motion in association to reconnection in the Earth's tail, COSPAR, 2012.
- Andersson, L., et al., Particle motion in association with Reconnection in the Earth's tail, Fall AGU Meeting, San Francisco, CA, 4 December 2012.
- Avallone, L., et al., Calculations of ozone loss rates within the Antarctic "Ozone Hole" using quasi-Lagrangian measurements of ozone made during the Concordiasi Long-duration balloon campaign, Quadrennial Ozone Symposium, Toronto, Canada, August, 2012.
- Bagenal, F., and R. Wilson, Variability in the flow of mass and energy in the magnetosphere of Saturn, AAS/DPS meeting, Reno, NV, October 2012.
- Bagenal, F., Is the magnetosphere of Jupiter a colossal comet? What will NASA's Juno reveal? AAS, June 2012.
- Bagenal, F., Planetary magnetospheres, Exoclimates Conference, Aspen, CO, Jan 2012.
- Bagenal, F., Mass and energy transport through the magnetospheres of Jupiter and Saturn, Europlanet Conference on Auroras of the outer planets, Santorini, Greece, May 2012.
- Bagenal, F., and R.J. Wilson, Flow of mass and energy in the magnetospheres of Jupiter and Saturn, Fall AGU Meeting, San Francisco, CA, December 2012.
- Bagenal, F., Voyager observations at Jupiter, 35th year of Voyager Plasma Science, MIT, 7 September 2012.
- Bagenal, F., Juno Mission to Jupiter, NASA Conference on Computation and data, HAO/UCAR, Boulder, CO, 25 October 2012.
- Bagenal, F., and P. Delamere, Atmospheric escape from Pluto, New Horizons

- Workshop on Pluto's atmosphere, APL/JHU, 30 November 2012.
- Bagenal, F., Is Juno a colossal comet? Will Juno tell?, Royal Astronomical Society Annual Meeting, Manchester, UK, March 2012.
- Bagenal, F., Juno mission to Jupiter, Longmont Astronomical Society, 15 February 2012.
- Bailey, S., et al., Nadir and limb viewing observations of polar mesospheric clouds from the Aeronomy of Ice in the Mesosphere (AIM) Explorer, Fall AGU Meeting, San Francisco, CA, 4 December 2012.
- Baker, D.N., and T.H. Zurbuchen, The 2013-2022 NRC Decadal Survey in Solar and Space Physics (Heliophysics), Congressional Briefing (telecom), 15 November, 2012.
- Baker, D.N., Briefing at NASA, Washington, DC, 10 August 2012.
- Baker, D.N., Briefing at NOAA Headquarters, Silver Spring, MD, 28 August 2012.
- Baker, D.N., Briefing at Office of Management and Budget (OMB), New Executive Office Building, Washington, DC, 10 August 2012.
- Baker, D.N., Briefing to Congressional House Staff, Capitol Hill, Rayburn Building, Washington, DC, 28 August, 2012.
- Baker, D.N., Cascading effects of geomagnetic storm induced power grid blackouts on DoD and IC Operations, Seasons 2012 Conference: Operating through Solar Max, Johns Hopkins University/Applied Physics Lab, Laurel, MD, 14 November 2012.
- Baker, D.N., Coronal magnetic field observations: Space weather forecasting requirement, Workshop on Coronal Magnetism, NCAR Foothills Lab, May 21, 2012.
- Baker, D.N., Enabling effective space weather and climatology (SWaC) Capabilities: The NRC Decadal Survey in Solar and Space Physics, Fall AGU Meeting, San Francisco, CA 4 December 2012.
- Baker, D.N., Extreme Events: What constitutes them and what are their effects?, Societal consequences of Extreme Events, Extreme Space Weather Events Workshop, HAO Center, Boulder, May 17, 2012.
- Baker, D.N., Heliospherics in the US: The findings of the US National Academy of Sciences Decadal Survey, COSPAR, Mysore, India, 14-22 July 2012.
- Baker, D.N., Impacts of CME energized particles on the near-Earth environment, American Astronomical Society, Anchorage, AK, June 2012.
- Baker, D.N., Influence of the Solar Wind on the Inner Magnetosphere, Inner Magnetosphere Coupling II (IMC II) Conference, Los Angeles, CA, 19-22 March 2012.
- Baker, D.N., LASP Overview, CLARREO SDT Meeting, LASP, Boulder, CO, 16-18 October 2012.
- Baker, D.N., Living in the atmosphere of the Sun, NASA Air and Space Museum, Washington, DC, 19 September 2012.
- Baker, D.N., Magnetospheric drivers of exospheric and magnetospheric processes, 25th MESSENGER Science Team Meeting, Tempe, AZ, 7-9 February, 2012.
- Baker, D.N., Magnetospheric exploration: Basic research with a high public purpose, Van Allen Lecture, Fall AGU Meeting, San Francisco, CA,

- December 2012.
- Baker, D.N., Magnetospheric substorm expansion and recovery phase features in Earth's near- and mid-tail regions, Friends of the Magnetosphere (FOM), Boulder, CO, 10 April 2012.
- Baker, D.N., National Priorities for Solar and Space Physics Research and Applications for Space Weather Prediction, Testimony before Subcommittee on Space and Aeronautics, Washington, DC, 28 November, 2012.
- Baker, D.N., New results from Van Allen Probes Mission, RBSP Press Conference, Fall AGU Meeting, San Francisco, CA, 4 December 2012.
- Baker, D.N., NRC Decadal Survey in Solar and Space Physics, Subcommittee on Space and Aeronautics Committee on Science, Space, and Technology, U.S. House of Representatives, 28 November 2012.
- Baker, D.N., Overview of Heliospheric Exploration, 2012 Heliophysics Summer School, Boulder, CO, 31 May – 7 June 2012.
- Baker, D.N., Panel of Decadal Survey Chairs, Lessons Learned in Decadal Planning in Space Science: A Workshop, National Academies, Irvine, CA, 12 November 2012.
- Baker, D.N., Policy in the Informatics and Space Science Arenas, NEON Facility, Boulder, CO, 10 October 2012.
- Baker, D.N., Predicted solar wind and IMF, MESSENGER Science Team Meeting #26, Vancouver, BC, Canada, May 8-10, 2012.
- Baker, D.N., Predicting solar wind forcing at Mercury; WSA-ENLIL model results, COSPAR, Mysore, India, 14-22 July 2012.
- Baker, D.N., RBSP/REPT performance and early operations results, ECT Series Leads Meeting. San Francisco, CA, 1 December 2012.
- Baker, D.N., REPT science analysis and results, RBSP Science Working Group Meeting, San Francisco, CA, 2 December 2012.
- Baker, D.N., Roll Out of Decadal Survey, National Research Council, Washington, DC, 10 August 2012.
- Baker, D.N., S. Kanekal, and S.R. Elkington, Radiation belt enhancements; History and prospects for RBSP, COSPAR, Mysore, India, 14-22 July 2012.
- Baker, D.N., SAMPEX: A remarkable radiation belt sentinel, Fall AGU Meeting, San Francisco, CA, December 2012.
- Baker, D.N., Space Weather and the next Solar and Space Physics Decadal Survey, Space Weather Workshop, Boulder, CO, 24-27 April 2012.
- Baker, D.N., Space weather forecasting and application to Mars/MAVEN, MAVEN Project Science Group Meeting, Boulder, CO, 19-20 January, 2012.
- Baker, D.N., Storms and Substorms – Present Understandings and Future Research Directions, Cluster/THEMIS Workshop, Boulder, CO, 3 October 2012.
- Baker, D.N., Sun-to-magnetosphere modeling: CISM forecast model development for radiation belt studies, COSPAR, Mysore, India, 14-22 July 2012.
- Baker, D.N., The 2013-2022 Decadal Survey in Solar and Space Physics, Space Department, Applied Physics Laboratory, Johns Hopkins University, Laurel, MD, 13 September

- 2012.
- Baker, D.N., The 2013-2022 Decadal Survey in Solar and Space Physics, presentation via phone/webex, Division of Engineering and Physical Sciences (DEPS), U.S. National Academies/NRC, Washington, DC, 13 September 2012.
- Baker, D.N., The 2013-2022 Decadal Survey in Solar and Space Physics, presentation via webex, Space Studies Board, National Research Council, Washington, DC, 13 September 2012.
- Baker, D.N., The 2013-2022 Decadal Survey in Solar and Space Physics, Solar and Space Physics Town Hall Meeting, Fall AGU Meeting, San Francisco, CA 4 December 2012.
- Baker, D.N., The Decadal Survey in Solar and Space Physics, Goddard Senior Management Group, Director's Conf. Room, NASA/GSFC, Greenbelt, MD, 11 September 2012.
- Baker, D.N., The impacts of space weather on society and the economy, University of Texas, Austin, TX, 29 February, 2012.
- Baker, D.N., The MMS Science Operations Center and Science Data Center, MMS Science Working Group Meeting, NASA/GSFC, Greenbelt, MD, 12 September 2012.
- Baker, D.N., The solar cycle and its implications for MESSENGER (and Mercury's environment), 27th Science Team Meeting, Salem, MA, August 2012.
- Baker, D.N., WSA-ENLIL model results for understanding planetary system drivers, NOAA Seminar, Boulder, CO, 5 April 2012.
- Baker, D.N., WSA-ENLIL model results for understanding planetary system drivers, COSPAR, Mysore, India, 14-22 July 2012.
- Bearden, L., Trends in the short-term SSI variability during the declining phase of SC23: Spectral decomposition over 100 Carrington rotations from the UV through the near IR, SORCE Science Team Meeting, Annapolis, MD, 18-19 September, 2012.
- Benna, M., D.N. Baker, et al., Long-term variability of precipitation of charged particles on Mercury's surface, Fall AGU Meeting, San Francisco, CA, December 2012.
- Benze, S., C.E. Randall, et al., On the onset of polar mesospheric cloud seasons as observed by SBUV, AIM Science Team Meeting, Tucson, AZ, March 2012.
- Benze, S., C.E. Randall, et al., On the onset of polar mesospheric cloud seasons, CAWSES Workshop on Modeling Trends in Polar Mesospheric Clouds (PMC), Boulder, CO, May 2012.
- Brain, D.A., and B.M. Jakosky, Removal and addition of atmospheric volatiles at Mars via impact, DPS meeting, Reno, NV, 16 October 2012.
- Brain, D.A., and B.M. Jakosky, The 2013 MAVEN Mission to Mars, International Symposium on Atmospheres of Terrestrial Planets: Observations and Modeling, Ahmedabad, India, 23 July 2012.
- Brain, D.A., Anticipated MAVEN coverage of ion loss in the Martian tail region, MAVEN Project Science Group Meeting, 19 April, 2012.
- Brain, D.A., Data intercomparison and visualization working group progress report, MAVEN Project Science Group Meeting, 11 October, 2012.
- Brain, D.A., Do magnetospheres matter?, U. of Washington Astrobiology Collo-

- quium, Seattle, 27 November 2012.
- Brain, D.A., et al., Comparison of global models for the escape of Martian atmospheric plasma, Fall AGU Meeting, San Francisco, CA, December 2012.
- Brain, D.A., et al., Discoveries in Planetary sciences: Slidesets highlighting new advances for astronomy educators, DPS meeting, Reno, NV, 18 October 2012.
- Brain, D.A., et al., Lunar crustal magnetic fields in the solar wind, 3rd Cluster THEMIS Workshop, 4 October 2012.
- Brain, D.A., et al., Planetary magnetic fields and climate evolution, Comparative Climatology of Terrestrial Planets, Boulder, CO, 27 June 2012.
- Brain, D.A., et al., The dynamic Martian plasma environment, International Symposium on Atmospheres of Terrestrial Planets: Observations and Modeling, Ahmedabad, India, 23 July 2012.
- Brain, D.A., Interview on “Colorado Matters” radio program on NPR about the MAVEN mission, 4 December 2012.
- Brain, D.A., Interview on Canadian radio program “The Rob Breakenridge Show” about the Mars Science Laboratory, 29 August, 2012.
- Brain, D.A., Ion loss activity progress report, MAVEN Project Science Group Meeting, 10 October 2012.
- Brain, D.A., Ionospheric density during solar storms, MARSIS Team meeting, Boulder, CO, 23 October 2012.
- Brain, D.A., Lunar crustal magnetic fields in the solar wind, ISSI Team Meeting on Kinetic Plasma Interactions at Airless Bodies, Bern, Switzerland, 15 November, 2012.
- Brain, D.A., Mars magnetospheric models, MAVEN Project Science Group meeting, 20 January 2012.
- Brain, D.A., Results from the Data Visualization and Comparison Working Group, MAVEN Project Science Group Meeting, 19 January 2012.
- Brain, D.A., Test particle modeling, ISSI Team Meeting on Kinetic Plasma Interactions at Airless Bodies, Bern, Switzerland, 12 November, 2012.
- Brain, D.A., The 2013 MAVEN Mission to Mars, presented to the Denver space Society, 20 December 2012.
- Brain, D.A., The Colorado Center for Lunar Dust and Atmospheric Studies, ISSI Team Meeting on Kinetic Plasma Interactions at Airless Bodies, Bern, Switzerland, 12 November, 2012.
- Brain, D.A., The disappearing Martian atmosphere, presented to the CU Society for the Exploration and Development of Space, 27 February, 2012.
- Brain, D.A., The Mars Science Laboratory, LASP’s MLS landing event for the public, 5 August, 2012.
- Brain, D.A., The Mars Science Laboratory, presented at Fiske Planetarium, 6 August 2012.
- Brain, D.A., Understanding magnetic anomalies, ARTEMIS Team Meeting, San Francisco, CA, 8 December, 2012.
- Brain, D.A., Volatiles on Vesta, LASP Planetary Journal Club, 26 October 2012.
- Brakebusch, M., C.E. Randall, et al., Modeling polar ozone loss at the University of Colorado, CESM/WACCM meeting, Breckenridge, CO, June 2012.
- Brakebusch, M., C.E. Randall, et al.,

- Evaluation of whole atmosphere community climate model simulations of winter 2004-2005 Arctic ozone, Quadrennial Ozone Symposium, Toronto, Canada, August 2012.
- Bryans, P., et al., the journey of sungrazing comet Lovejoy, AAS/SPD meeting, Anchorage, AK, 2012.
- Bunch, N.L., et al., The latitudinal variation of dayside chorus, Fall AGU Meeting, San Francisco, CA, December 2012.
- Bunnell, E., et al., Anticipating Juno observations of the magnetosphere of Jupiter, Fall AGU Meeting, San Francisco, CA, December 2012.
- Burger, M.H., et al., Seasonal variability in Mercury's calcium exosphere, DPS meeting, Reno, NV, 14-19 October 2012.
- Burger, M.H., et al., Mercury's exosphere as revealed by MESSENGER, COSPAR, Mysore, India, 14-22 July 2012.
- Cahalan, R., et al., Free flyer total and spectral solar irradiance sensor (TSIS) and climate services mission, European Geosciences Union General Assembly 2012, Vienna, Austria, 22-27 April 2012.
- Caspi, A., T.N. Woods, and J. Stone, A new observation of the quiet sun soft X-ray (0.5-5 keV) spectrum, Fall AGU Meeting, San Francisco, CA, December 2012.
- Caspi, A., Exploring thermal and non-thermal flare emission with EVE and RHESSI: Second Steps, RHESSI/SDO Workshop, Petaluma, CA, 2012.
- Caspi, A., Combining EVE and RHESSI observations to better understand flare energetics: Second Steps, EVE Science/Data Analysis Workshop, Yosemite, CA, 2012.
- Caspi, A., et al., A new rocket instrument for soft X-ray spectroscopy, EVE Science/Data Analysis Workshop, Yosemite, CA, 2012.
- Caspi, A., Rocket SAM modifications for soft X-ray spectroscopy: concept and first results, EVE Science/Data Analysis Workshop, Yosemite, CA, 2012.
- Caspi, A., A comprehensive view of the temperature distribution in solar flares from EVE and RHESSI, AAS/SPD meeting, Anchorage, AK, 2012.
- Cassidy, T.A., et al., Overview of Mercury's Exosphere, MESSENGER Science Team Meeting, Plenary Session, Tempe, AZ, 2012.
- Cassidy, T.A., et al., Overview of Mercury's Exosphere, MESSENGER Science Team Meeting, AMDG Breakout, Tempe, AZ, 2012.
- Cassidy, T.A., et al., Chamberlain model fits to dayside Na exosphere, UVS workshop, NASA/GSFC, 2012.
- Cassidy, T.A., et al., Self-limiting sputtering at Europa, Fall AGU Meeting, San Francisco, CA, December 2012.
- Cassidy, T.A., et al., Observations of low-energy Na on the dayside, MESSENGER Science Team Meeting, Vancouver, 2012.
- Chandran, A., et al., Climatology and characteristics of stratospheric sudden warmings and elevated stratopauses in the Whole Atmosphere Community Climate Model, HAO Seminar, Boulder, CO, 2 March 2012.
- Chandran, A., et al., Dynamics of the wintertime mesosphere lower thermosphere region, PRL International Symposium on Planetary Atmospheres, Ahmadabad, India, July

- 2012.
- Chandran, A., et al., Climatology and characteristics of stratospheric sudden warmings and elevated stratopauses in the Whole Atmospheric Community Climate Model, SPARC Workshop on stratospheric sudden warmings, Kyoto, Japan, 23-24 February 2012.
- Chandran, A., et al., Climatology and characteristics of stratospheric sudden warmings and elevated stratopauses in the Whole Atmosphere Community Climate Model, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.
- Chirokova, G., et al., Vertical distribution of liquid water in mixed-phase clouds from in-situ ground and airborne measurements during simultaneous CAMPS and StormVEx field campaigns, AMS 15th Conference on Mountain Meteorology, Steamboat Springs, CO, August 2012.
- Claudepierre, S.G., et al., Initial results from global MHD simulations of magnetospheric ULF pulsations driven by IMF fluctuations, Fall AGU Meeting, San Francisco, CA, December 2012.
- Cocquerez, P., et al., CONCORDIASI, Long duration stratospheric balloons over Antarctica, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.
- Coddington, O., TSIS algorithm theoretical basis document, TSIS Quarterly Science Team Meeting, Greenbelt, MD, 2012.
- Coddington, O., et al., A new look at solar exposure and SORCE degradation, SSI Trends Workshop, SORCE Science Meeting, Annapolis, MD, 17 September, 2012.
- Collette, A., et al., Time-resolved temperature measurements in hypervelocity dust grain impact, Lunar Science Forum 2012, NASA/AMES, 17-19 July, 2012.
- Collette, A., et al., Time-resolved temperature measurements in hypervelocity dust grain impact, Fall AGU Meeting, San Francisco, CA, December 2012.
- Collins, R.L., et al., The wave-driven circulation and variability of the Arctic atmosphere, CEDAR Workshop, Santa Fe, NM, 24-29 June 2012.
- Collins, R.L., et al., Gravity wave activity in the Arctic stratosphere during recent winters, Fall AGU Meeting, San Francisco, CA, December 2012.
- Collins, R., et al., The wave-driven circulation and variability of the wintertime Arctic middle atmosphere, 13th Workshop on Technical and Scientific Aspects of MST Radar (MST13), Kühlungsborn, Germany, 19-23 March 2012.
- Collins, R.L., et al., Wave-driven circulation of the wintertime Arctic middle atmosphere, HEPPA Workshop, Boulder, CO, 9-12 October, 2012.
- Colwell, J.E., et al., Particle sizes and small-scale structure in Saturn's rings from stellar occultation statistics, DPS meeting, Reno, NV, 14-19 October 2012.
- Crary, F., et al., Ions in the Enceladus plume: Cassini CAPS ion measurements at high energy resolution, Fall AGU Meeting, San Francisco, CA, December 2012.
- Crary, F., Rotational periodicities in Saturn's magnetosphere: A theory of coupled thermospheric and magnetodisk oscillations, Cassini

- MAPS workshop, San Antonio, TX, 2012.
- Crary, F., Rotational periodicities in Saturn's magnetosphere: A theory of coupled thermospheric and magnetodisk oscillations, European Geosciences Union Meeting, Vienna, 2012.
- Cravens, T.E., et al., Models of plasma in the Enceladus Plume: Grain effects, European Planetary Science Congress, Madrid, 2012.
- Curry, S., et al., Low energy ion loss at Mars, European Geosciences Union General Assembly, Vienna, Austria, 2012.
- Curry, S., et al., Energy analysis of ion loss at Mars, 9th Annual Michigan Geophysical Union Meeting, Ann Arbor, MI, 2012.
- Curry, S., et al., Multi-species orbital pick-up ion analysis at Mars, AOGS-AGU Joint Assembly. Singapore, 13-17 August 2012.
- Curry, S., Simulated ion outflow trajectories at Mars, AOGS-AGU Joint Assembly. Singapore, 13-17 August 2012.
- Curry, S., et al., Virtual observations for multi-species ion distributions at Mars, U. of Michigan Engineering Graduate Symposium, Ann Arbor, MI, 2 November 2012.
- Curry, S., et al., Multi-species analysis of ion distributions at Mars, Fall AGU Meeting, San Francisco, CA, December 2012.
- Delamere, P.A., et al., Magnetic signatures of Kelvin-Helmholtz vortices on Saturn's magnetopause: Global survey, Fall AGU Meeting, San Francisco, CA, December 2012.
- Deshler, T., et al., The Concordiasi field experiment over Antarctica: First results from innovative atmospheric measurements, SCAR Open Science Conference, Portland, OR, July 2012.
- Desrosche, M.J., F. Bagenal, P.A. Delamere, and N. Erkaev, Magnetopause conditions at Jupiter and Saturn and implications for the solar wind interaction, Fall AGU Meeting, San Francisco, CA, December 2012.
- DiBraccio, G.A., D.N. Baker, et al., MESSENGER observations of magnetopause structure and dynamics at Mercury, Fall AGU Meeting, San Francisco, CA, December 2012.
- Dols, V.J., P.A. Delamere and F. Bagenal, Ion cyclotron waves at Io, Fall AGU Meeting, San Francisco, CA, December 2012.
- Dong, Chuanfei, D.A. Brain, et al., Solar wind interaction with Mars upper atmosphere: Results from the one-way coupling between the multi-fluid MHD model and the M-TGCM model, Fall AGU Meeting, San Francisco, CA, December 2012.
- Drake, K., et al., Ejecta from hypervelocity dust impacts, Fall AGU Meeting, San Francisco, CA, December 2012.
- Drake, A., et al., Temperature evolution and scaling in plasma generated by hypervelocity impact, Dust, atmospheres and Plasma (DAP), Boulder, CO, 6-8 June, 2012.
- Edwards, L.M., et al., ASCENT: Mentorship, Networking and Resources for women in Atmospheric Science, AMS, New Orleans, January 2012.
- Elkington, S.R., A.A. Chan, and J.P. McCollough, Extending the MDH-particle approach to include high-frequency wave effects, COSPAR Scientific Assembly, Mysore, India,

- 14-22 July 2012.
- Elkington, S.R., Empirical models of the geomagnetic ULF wave environment and application to global radiation belt models, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.
- Elkington, S.R., A.A. Chan, and L. Zheng, A bounce-averaged test particle code for studying the evolution of the radiation belts, Fall AGU Meeting, San Francisco, CA, December 2012.
- Elkington, S.R., and A.A. Chan, A global MHD/test particle radiation belt model, including high-frequency wave effects, RBSP Science Working Group Meeting, Cocoa Beach, FL, August 2012.
- Elkington, S.R., et al., RBSP theory and modeling: ULF and Coherent transport, RBSP Science Working Group Meeting, Cocoa Beach, FL, August 2012.
- Elkington, S.R., and J.P. McCollough, Global MDH/particle simulations: wave spatial, temporal, and spectral characteristics, RBSP Science Working Group Meeting, Cocoa Beach, FL, August 2012.
- Elkington, S.R., et al., 2012 GEM Radiation Belts and Waves Focus Group, NSF GEM Summer Workshop, Snowmass, CO, June 2012.
- Elkington, S.R., Current understanding and outstanding questions in radiation belt science: One Guy's opinion, Cluster-THEMIS Workshop, Boulder, CO, October 2012.
- Eparvier, F.G., Solar variability and space weather: The calibration connection, NIST, Gaithersburg, VA, 2012.
- Eparvier, F.G., The solar EUV irradiance: New insights, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.
- Eparvier, F.G., Sources of solar spectral irradiance variations, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.
- Ergun, R.E., The Magnetospheric Multiscale Mission (MMS), Cluster-THEMIS workshop, Boulder, CO, 2012.
- Ericksson, S., and L. Rastarter, Flow channel analysis using CCMC BATSRUS MHD Model: 15 May 2005 Geomagnetic Storm, 6th CCMC Workshop, Key Largo, Florida, 2012.
- Ericksson, S., et al., Multi-spacecraft Cluster observations of Hall magnetic fields as evidence of multiple X-lines in the solar wind, MMS Science Working Team Meeting, San Antonio, TX, 2012.
- Ericksson, S., et al., THEMIS observations and Kelvin-Helmholtz simulations of Vortex-Induced magnetic islands at the Flank magnetopause, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.
- Ericksson, S., et al., Direct evidence of multiple X-lines in the solar wind from overlapping Hall magnetic fields, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.
- Ericksson, S., et al., Evidence of multiple X-lines in the solar wind from overlapping Hall magnetic fields, Fall AGU Meeting, San Francisco, CA, December 2012.
- Esposito, L.W., et al., Haloes seen in UVIS reflectance spectra, DPS meeting, Reno, NV, 2012.
- Fang, X., et al., Global atmospheric effects of pickup oxygen ion bombardment at Mars, COSPAR meeting, Mysore, India, 2012.

- Fang, X., MAVEN science closure task progress report, MAVEN Project Science Group meeting, Berkeley, CA, 10-11 October 2012.
- Fang, X., and S. Bougher, Global pickup oxygen ion precipitation in the Martian thermosphere, MAVEN Project Science Group Meeting, Boulder, CO, 2012.
- Fang, X., et al., Evaluating the importance of pickup Oxygen ion precipitation to the Martian thermosphere, DPS meeting, Reno, NV, 14-19 October 2012.
- Fang, X., et al., On the importance of pickup ion precipitation to the Martian thermosphere under severe solar wind conditions, Fall AGU Meeting, San Francisco, CA, December 2012.
- Fiege, K., et al., Compositional analysis of interstellar dust as seen by the Cassini Cosmic Dust Detector, Fall AGU Meeting, San Francisco, CA, December 2012.
- Fillingim, M.O., D.A. Brain, et al., Wet Mars, dry Mars, Astronomical Soc. of the Pacific, Tucson, AZ, August 2012.
- Fillingim, M.O., D.A. Brain, et al., Wet Mars, dry Mars, Fall AGU Meeting, San Francisco, CA, December 2012.
- Fillingim, M.O., D.A. Brain, et al., Kinetic plasma processes at airless bodies, Fall AGU Meeting, San Francisco, CA, December 2012.
- Fowler, C.M., et al., Ion flux profiles observed at Mars, Fall AGU Meeting, San Francisco, CA, 4 December 2012.
- France, J.A., and V.L. Harvey, A climatology of the polar winter stratopause and elevated stratopause events in WACCM and MLS, ATOC Student Poster Conference, Boulder, CO, 26 November 2012.
- France, J.A., et al., A climatology of the stratopause in the polar vortices and anticyclones: Observations and models, SPARC Data Assimilation Workshop, Socorro, NM, June 2012.
- France, J.A., and V.L. Harvey, A climatology of the polar winter stratopause and elevated stratopause events in MLS and WACCM, EOS Aura Science Team Meeting, Pasadena, CA, 2-4 October 2012.
- Gainsforth, Z., et al., Identification of Crystalline material in two interstellar dust candidates from the Stardust Mission, 43rd Lunar and Planetary Science Conference, The Woodlands, TX, 19-23 March 2012.
- George, E., M. Buie, and F. Bagenal, Photometry of Pluto at low galactic latitudes, APS/DPS meeting, Reno, NV, October 2012.
- Gershman, D.J., D.N. Baker, et al., MESSENGER observations of the plasma depletion layer in Mercury's magnetosphere, Fall AGU Meeting, San Francisco, CA, December 2012.
- Gosling, J.T., et al., Pulsed Alfvén Waves in the Solar Wind, Solar Wind 13, Maui, HI, June 2012.
- Gosling, J.T., and T.D. Phan, Reconnection in the solar wind at extremely small field shear angles, In Situ Solar Wind Workshop, Laurel, MD, September 2012.
- Gosling, J.T., and T.D. Phan, Magnetic reconnection in the solar wind at current sheets associated with extremely small field shears, Fall AGU Meeting, San Francisco, CA, December 2012.
- Greer, K., et al., Wintertime polar upper stratosphere and lower mesosphere disturbances: Front-like weather in the middle atmosphere, CEDAR

- Workshop, Santa Fe, NM, 24-29 June 2012.
- Greer, K., et al., Upper troposphere front-like behavior in the stratosphere, Fall AGU Meeting, San Francisco, CA, December 2012.
- Greer, K., et al., Synoptic-scale disturbances of the wintertime polar upper stratosphere and lower mesosphere: A summary of observed characteristics and potential vorticity analysis, CEDAR Workshop, Santa Fe, NM, 24-29 June 2012.
- Greer, K., et al., Synoptic-scale disturbances of the wintertime polar upper stratosphere and lower mesosphere: A summary of observed characteristics, Stratospheric Processes and their role in Climate, Workshop on Stratospheric Sudden Warming and its Role in Weather and Climate Variations, Kyoto, Japan, February 2012.
- Greer, K., et al., Synoptic scale Baroclinic instabilities and Planetary wave activity in the polar winter middle atmosphere, CEDAR Workshop, Santa Fe, NM, 24-29 June 2012.
- Gronoff, G., D.A. Brain, et al., Comparative planetology study of extreme solar events; Mars, Venus, Titan, Earth, European Space Weather Week, November 2012.
- 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
- Hall, A., R.J. Wilson, and F. Bagenal, Plasma properties in the magnetospheric plasmasheet of Saturn, Fall AGU Meeting, San Francisco, CA, December 2012.
- Hara, T., D.A. Brain, et al., Spatial configuration of a flux rope observed downstream from the Martian crustal magnetic fields, International Symposium on Atmospheres of Terrestrial Planets: Observations and Modeling, Ahmedabad, India, 24 July 2012.
- Hara, T., D.A. Brain, et al., Spatial configuration of a flux rope observed downstream from the Martian crustal magnetic fields, Fall AGU Meeting, San Francisco, CA, December 2012.
- Harder, J., The Solar Radiation and Climate Experiment (SORCE): Measuring the Sun's influence on climate from space, LPI, Houston, TX, 27 April 2012.
- Harder, J., et al., Summary of comparative study on the trends in solar spectral irradiance in the ultraviolet, visible, and infrared regions, International Radiation Symposium, Berlin, Germany, 7 August 2012.
- Harder, J., et al., Measured solar spectral irradiance variability using the SORCE SIM, SSI Variations Workshop, NIST, Gaithersburg, MD, February 28, 2012.
- Harder, J., Measured and modeled trends in solar spectral irradiance variability and their application to Earth atmospheric studies, Climate and Radiation Lab Seminar, GSFC, Greenbelt, MD, 28 November 2012.
- Harder, J., et al., Measured and modeled trends in solar spectral irradiance variability and their application to Earth atmospheric studies, Comparative Climatology of Terrestrial Planets, Boulder, CO, 25 June 2012.
- Harder, J., et al., Observed variability in the ultraviolet, visible, and infrared

- from the SORCE SIM instrument, SORCE Science Meeting, Annapolis, MD, 17 September 2012.
- Harvey, V.L., et al., HEPPA-II model measurement inter-comparisons with MLS and ACE, HEPPA/SOLARIS meeting, Boulder, CO, October 2012.
- Harvey, V.L., and C.E. Randall, Atmospheric effects of energetic particle precipitation, NSERC CREATE Training program in Arctic atmospheric science, Ontario, Canada, 23-27 July 2012.
- Harvey, V.L., Stratospheric vortices: A 4-dimensional perspective, ATOC Seminar, Boulder, CO, 28 September 2012.
- Harvey, V.L., and C.E. Randall, Atmospheric effects of energetic particle precipitation, NSERC CREATE Training Program in Arctic Atmospheric Science, Ontario, Canada, 26 July 2012.
- Harvey, V.L., Using meteorological, satellite and ground-based data to study the Arctic, NSERC CREATE Training Program in Arctic Atmospheric Science, Ontario, Canada, 25 July 2012.
- Harvey, V.L., Middle atmosphere dynamics: The polar vortices, anticyclones and the stratopause, NSERC CREATE Training Program in Arctic Atmospheric Science, Ontario, Canada, 24 July 2012.
- Helbert, J., et al., Surface units on Mercury defined by unsupervised classification analysis of MESSENGER spectral reflectance data from the first year in orbit, Fall AGU Meeting, San Francisco, CA, December 2012.
- Hodges, R. Richard, Lunar atmosphere: Expectations and goals for the LADEE neutral mass spectrometer, Fall AGU Meeting, San Francisco, CA, December 2012.
- Holt, L., and C.E. Randall, Modeling energetic particle precipitation and transport with WACCM, NSF CEDAR, June 2012.
- Holt, L.A., C.E. Randall, and A.K. Smith, Gravity waves in WACCM with respect to transport of NO_x created by energetic particle precipitation, NSF CEDAR meeting, June, 2012.
- Holt, L.A., C.E. Randall, et al., Modeling transport of NO_x created by energetic particle precipitation in WACCM, HEPPA/SOLARIS meeting, Boulder, CO, October 2012.
- Holt, L., Transport of NO_x created by energetic particle precipitation in WACCM, ATOC Student Poster Conference, Boulder, CO, 26 November 2012.
- Holt, L.A., C.E. Randall, et al., Effects of EPP on the atmosphere, NOAA Seminar, November, 2012.
- Horanyi, M., et al., The dust environment of the Moon: Expectations for the Lunar Dust Experiment (LDEX), 43rd Lunar and Planetary Science Conference, The Woodlands, TX, 19-23 March 2012.
- Horanyi, M., The Lunar Surface: A dusty plasma laboratory, ESA/ESTEC, Netherlands, April 2012.
- Horanyi, M., Dusty Plasma Physics of the Lunar Surface, European Lunar Forum, Berlin, Germany, April 2012.
- Horanyi, M., Plasma Physics 101 for geologists, LunGradCom, NASA Ames, July 2012.
- Horanyi, M., Dusty plasma processes on the surfaces of airless planetary bodies, Lunar Science Forum, July 2012.
- Horanyi, M., The Student Dust Counter

- onboard the New Horizons Mission to Pluto, 5th meeting on Cosmic Dust, Kobe, Japan, August 2012.
- Horanyi, M., The Lunar Surface: A Dusty Plasma Laboratory, Moscow Solar System Symposium, October 2012.
- Horanyi, M., Dusty plasma effects at comets: Expectations for Rosetta, ESA/ESTEC, Netherlands, November 2012.
- Horanyi, M., Electron “bite-outs”, Fall AGU Meeting, San Francisco, CA, December 2012.
- Hoxie, V., et al., First results from the Radiation Belt Storm Probes REPT instrument, Fall AGU Meeting, San Francisco, CA, December 2012.
- Hsu, S. M. Horanyi, and S. Kempf, The interpretation of in-situ plasma measurements in space dusty plasmas, Fall AGU Meeting, San Francisco, CA, December 2012.
- Hudson, M.K., et al., 2D and 3D simulations of radiation belt response to the Mar-Apr-2008 Whole Heliosphere Interval Corotating Interactions regions, Fall AGU Meeting, San Francisco, CA, December 2012.
- Izenberg, N.R., et al., Mercury’s surface reflectance at ultraviolet to near-infrared wavelengths: Characteristics and variations, Asia Oceania Geosciences Society (AOGS) – AGU Joint Assembly, May 2012.
- Izenberg, N.R., et al., Surface compositional units on Mercury from spectral reflectance at ultraviolet to near-infrared wavelengths, Fall AGU Meeting, San Francisco, CA, December 2012.
- Jackman, C.H., C.E. Randall, Atmospheric impact of January and March 2012 SPEs, From Sun to Ice workshop, Boulder, CO, May 2012.
- Johnson, C.L., D.N. Baker, et al., Mercury’s time-averaged and induced magnetic fields from MESSENGER observations, Fall AGU Meeting, San Francisco, CA, December 2012.
- Jolitz, R., D.A. Brain, et al., Updated Monte Carlo model of high energy ion precipitation in the Martian atmosphere, Fall AGU Meeting, San Francisco, CA, December 2012.
- Jones, Andrew, Thoughts about new space weather products from EVE, EVE Science Workshop, Yosemite, CA 2012.
- Jones, Andrew, Thoughts about visualization of EVE data, EVE Science Workshop, Yosemite, CA 2012.
- Jones, Andrew, Space weather products from EVE, Goddard Space Flight Center Weather Group, Greenbelt, MD, 2012.
- Jones, Andrew, Visualization of EVE data, Goddard Space Flight Center Weather Group, Greenbelt, MD, 2012.
- Jones, A., EUV inter-comparisons: Irradiance calibration and validation, EVE quarterly review, LASP, January 2012.
- Kalnajs, L., Augmentation of the Ross Island region AWS network with new autonomous sensors for measuring atmospheric composition in Antarctica, AMOMF, Boulder, CO, 9-11 July 2012.
- Kalnajs, L., A new autonomous sensor network for measurements of atmospheric composition in Antarctica, International Polar Year 2012, Montreal, Quebec, Canada.
- Kalnajs, L., et al., Concordiasi: A project dedicated to the atmosphere over Antarctica, International Polar Year

- Conference, Montreal, Canada, April 2012.
- Kanekal, S.G., D.N. Baker, et al., Microburst measurements by SAMPEX HILT: Micro and Macro temporal coupling of electron decay, Fall AGU Meeting, San Francisco, CA, December 2012.
- Kempf, S., et al., SUDA: A dust mass spectrometer for compositional surface mapping for the JUICE mission to the Galilean moons, Fall AGU Meeting, San Francisco, CA, December 2012.
- Kempf, S., et al., SUDA: A dust mass spectrometer for surface mapping for the JUICE mission to the Galilean moons, Intl. Workshop on Instrumentation for Planetary Missions, Greenbelt, MD, 10-12 October, 2012.
- Kempf, S., et al., Saturn's egg-shaped E ring, EGU General Assembly 2012, 22-27 April, 2012, Vienna, Austria.
- Kempf, S., et al., Compositional mapping of the lunar surface with a dust detector, European Lunar Symposium, Berlin, 2012.
- Kempf, S., et al., The lunar dust cloud, Lunar Science Forum, NASA/AMES, Moffett Field, CA, 2012.
- Killen, R.M., et al., Mercury's Na exosphere from MESSENGER data, DPS meeting, Reno, NV, 14-19 October 2012.
- Killen, R.M., et al., Mercury's sodium exosphere: Observations during the MESSENGER orbital phase, Fall AGU Meeting, San Francisco, CA, December 2012.
- Kindel, B., et al., Atmospheric radiation measurements and modeling during ATTREX, Fall AGU Meeting, San Francisco, CA, December 2012.
- Kindel, B., et al., Solar spectral flux radiometer measurements during ATTREX, Fall AGU Meeting, San Francisco, CA, December 2012.
- Kindel, B., et al., Solar spectral flux radiometer measurements during ATTREX, ATTREX Science Team Meeting, Boulder, CO, 10-12 June 2012.
- King, M.D., et al., Ten years of Earth observations from MODIS on Aqua: What has been accomplished?, International Geosciences and Remote Sensing Symposium, Munich, Germany, 2012.
- King, M.D., remote sensing of the Earth's environment from space: Past, present, and future, International Geosciences and Remote Sensing Symposium, Munich, Germany, 2012.
- Kopp, G., Solar irradiance continuity and Ball's STP Sat3, Ball Aerospace, April 2012.
- Kopp, G., Improvements to the solar forcing data record, International Radiation Symposium, Berlin, Aug. 2012.
- Kren, A., et al., Examining the stratospheric response to the solar cycle in coupled WACCM simulations with an internally generated Quasi-Biennial Oscillation, Fall AGU Meeting, San Francisco, CA, December 2012.
- LeBlanc, S.E., et al., Ground-based spectral radiance and irradiance measurements of aerosols and clouds during the DC3 field campaign, Fall AGU Meeting, San Francisco, CA, December 2012.
- Li, X., Influence of solar wind on the inner magnetosphere: solar wind speed and magnetic field on the radiation belt electrons at geosynchronous orbit,

- Inner Magnetosphere Conference, UCLA, 21 March 2012.
- Li, X., Recent enhancements of ULF wave study, THEMIS Science Team meeting, UCLA, 23 March, 2012.
- Li, X., Quantifying radial diffusion coefficient of radiation belt electrons based on global MHD simulation and spacecraft measurements, NASA/Van Allen Probes/EFW meeting, U. of Minnesota, June 2012.
- Li, X., Colorado Student Space weather Experiment (CSSWE): Differential flux measurements of Energetic particles in a highly inclined low Earth orbit, AOGS, Melbourne, Australia, 15 August, 2012.
- Li, X., On the RBSP mission and its role in the study of relativistic electron energization, AOGS, Melbourne, Australia, 17 August, 2012.
- Li, X., First results from Colorado Student Space Weather Experiment (CSSWE): Differential flux measurements of Energetic particles in a highly inclined low Earth orbit, Fall AGU Meeting, San Francisco, CA, December 2012.
- Li, Y.W., et al., Instrument study of the Lunar Dust Experiment (LDX) for the ESA Lunar Lander, European Planetary Science Congress, Madrid, Spain, 2012.
- Li, Z, et al., 2D MHD test-particle simulations in modeling geomagnetic storms, Fall AGU Meeting, San Francisco, CA, December 2012.
- Liu, W.-J, Determining the heating rate in reconnection formed flare loops of the M8.0 flare on 2005 May 13, AAS/SPD meeting, Anchorage, AK, 2012.
- Lillis, R.J., and D.A. Brain, Dynamic nightside electron precipitation at Mars: Geo-graphical and solar wind dependence, Fall AGU Meeting, San Francisco, CA, December 2012.
- Luebke, A.E., et al., Ice water content of cirrus clouds: Extension of a climatology and new statistical analysis, 16th International Conference on Clouds and Precipitation, Leipzig, Germany, July 2012.
- Luebke, A.E., L.M. Avallone and M. Kraemer, On the relationship between vertical velocity and cirrus ice crystal number, size and water content, Fall AGU Meeting, San Francisco, CA, December 2012.
- Mace, J., et al., The storm peak lab cloud property validation experiment: Overview and emerging science, DOE Atmospheric System Research meeting, March 2012.
- Machol, et al., GOES-R solar extreme-ultraviolet irradiance spectra: Requirements, observations and products, AMS, Austin, TX, 2012.
- Malaspina, D., I.H. Cairns and R.E. Ergun, Variation of Langmuir wave polarization with electron beam speed in Type III radio bursts, Solar Wind 13 Conference, June 2012.
- Malaspina, D.M., Paul Kellogg and Langmuir wave microphysics, U. of Minnesota Symposium, November 2012.
- Malaspina, D.M., et al., Electrostatic solitary waves in the solar wind: Evidence for instability at Solar wind Current Sheets, Solar Wind In-situ Symposium, Applied Physics Lab, Johns Hopkins University, Laurel, MD, September 2012.
- Malaspina, D.M., and R.E. Ergun, Plasma wave frequency peak splitting as evidence for small wave number Langmuir/z-mode waves in type III radio bursts, STEREO-WAVES team

- meeting, Fall AGU Meeting, San Francisco, CA, December 2012.
- Malaspina, D.M., et al., Observations of electrostatic solitary waves as evidence of instabilities and magnetic reconnection at solar wind current sheets, Fall AGU Meeting, San Francisco, CA, December 2012.
- Mason, J.P., T.N. Woods, and A. Caspi, Correlations between EUV coronal spectral line dimming and CME kinetics, Fall AGU Meeting, San Francisco, CA, December 2012.
- Mason, J.P., Correlations between EUV coronal spectral line dimming and CME kinetics, RHESSI/SDO Workshop, Petaluma, CA, 2012.
- Mason, J.P., Correlations between EUV coronal spectral line dimming and CME kinetics, EVE Science/Data Analysis Workshop, Petaluma, CA, 2012.
- Massie, S., et al., Cirrus heating and cooling rates, IUGG-IAMAS, Melbourne, Australia, February 2012.
- Matsunaga, K., D.A. Brain, et al., Penetration of solar wind perturbations into the 400-km altitude at Mars observed by MGS, Japanese Domestic Space Physics Meeting, October 2012.
- Matsunaga, K., D.A. Brain, et al., Asymmetric penetration of solar wind perturbations down to 400-km altitudes at Mars observed by Mars Global Surveyor, Fall AGU Meeting, San Francisco, CA, December 2012.
- McClintock, W.E., et al., Viewing Mercury's surface-bound exosphere from orbit: Eighteen months of observations by the Mercury Atmospheric and Surface Composition Spectrometer aboard the MESSENGER spacecraft, Fall AGU Meeting, San Francisco, CA, December 2012.
- McCollom, T.M., Geochemical environments for prebiotic chemistry and early microbial metabolism, Royal Society Kavli Symposium, England, November 2012.
- McCollom, T.M., Laboratory simulations of abiotic hydrocarbon formation in Earth's deep subsurface, Geological Society of America, November 2012.
- McCollom, T.M., Experimental adventures in the Land of the Serpentine, Serpentine Days Conference, Porquerolles, France, Sept., 2012.
- McCollom, T.M., Serpentinization and the flux of reduced volatiles to the seafloor, Goldschmidt Conference, Montreal, Canada, June 2012.
- McCollom, T.M., A geochemical and mineralogical model for formation of layered sulfate deposits at Meridiani Planum by hydrothermal acid-sulfate alteration of pyroclastic basalt, Fall AGU Meeting, San Francisco, CA, December 2012.
- McCollough, J.P., et al., Shabansky mechanism as a source for off-equatorial chorus wave growth, Fall AGU Meeting, San Francisco, CA, December 2012.
- McGouldrick, Kevin, Re-analysis of sulfur dioxide variability in the Venus atmosphere using restored Pioneer Venus Orbiter UVS data, DPS meeting, Reno, NV, 15-19 2012.
- McGouldrick, Kevin, Simulation of the upper clouds and hazes of Venus using a microphysical cloud model, Fall AGU Meeting, San Francisco, CA, December 2012.
- McNutt, R.L., D.N. Baker, et al., Time variability of energetic electrons in Mercury's magnetosphere

- documented with the MESSENGER gamma-ray spectrometer, Fall AGU Meeting, San Francisco, CA, December 2012.
- McTiernan, J.M., H.P. Warren, and A. Caspi, Exploring thermal and non-thermal flare emission with EVE and HRESSI, Fall AGU Meeting, San Francisco, CA, December 2012.
- Merkel, A., et al., The impact of solar spectral variability on middle atmospheric constituents, Boulder Solar Day, Boulder, CO, March 2012.
- Merkel, A., et al., Impact of solar spectral variability on middle atmospheric ozone, HEPPA/SOLARIS meeting, NCAR, 2012.
- Merkel, A., and D. Marsh, WADDM-PMC simulations of long-term trends of PMCs, CAWSES-2 Task-2 PMC Trends Workshop, May 2012.
- Merkel, A., et al., The impact of solar spectral variability on middle atmospheric constituents, WACCM Working group meeting, February 2012.
- Merkel, A., et al., Influence of solar spectral variability on middle atmospheric ozone, SORCE Science Meeting, Annapolis, MD, 2012.
- Merkel, A., et al., Influence of solar spectral variability on middle atmospheric ozone, HEPPA/SOLARIS meeting, Boulder, CO, October 2012.
- Merkel, A., et al., Seasonal variability and local time dependence of Mercury's dayside magnesium exosphere, Fall AGU Meeting, San Francisco, CA, December 2012.
- Mitchell, T.R., and G.R. Stewart, Numerical investigation of circumplanetary disks, DPS meeting, Reno, NV, 14-19, 2012.
- Molaverdikhani, K., D.A. Brain, et al., Venus ionosphere map based on photoelectron measurements by Venus Express' ELS instrument on ASPERA-4, Comparative Climatology of Terrestrial Planets, Boulder, CO, 27 June, 2012.
- Molaverdikhani, K., D.A. Brain, et al., Structure and variability of the Venus ionosphere inferred from photoelectron measurements by Venus Express, Fall AGU Meeting, San Francisco, CA, December 2012.
- Munsat, T., et al., The dust accelerator facility of the Colorado Center for Lunar Dust and Atmospheric Studies, 43rd Lunar and Planetary Science Conference, The Woodlands, TX, 19-23 March 2012.
- Munsat, T., et al., Recent science results from the CCLDAS dust accelerator, Fall AGU Meeting, San Francisco, CA, December 2012.
- Munsat, T., et al., Overview of recent science results from the CCLDAS dust accelerator, Lunar Science Forum, NASA/AMES, Moffett Field, CA, 2012.
- Murphy, J.J., D.N. Baker, et al., Demonstrating advancements in 3D analysis and prediction tools for space weather forecasting utilizing the ENLIL model, Fall AGU Meeting, San Francisco, CA, December 2012.
- Murphy, J.J., et al., Advancements in 3D visualization for the CISM Models, NSF GEM Summer Workshop, Snowmass, CO, June 2012.
- Neilsen, K., et al., Investigating propagation of short-period gravity waves at high altitudes utilizing re-analysis and ray tracing models, Fall AGU Meeting, San Francisco, CA, December 2012.

- Nicolaou, G., D.J. McComas, F. Bagenal, and H.A. Elliott, Fluid properties of plasma ions in the distant Jovian magnetosphere using Solar Wind Around Pluto (SWAP) data on New Horizons, Fall AGU Meeting, San Francisco, CA, December 2012.
- O'Brien, L., et al., Nano-Dust Analyzer for the detection and chemical composition measurement particles originating from near the Sun, Fall AGU Meeting, San Francisco, CA, December 2012.
- Pappalardo, R.T., and Europa SDT Team, Mission concepts for exploring Europa's habitability, LPSC, March 2012.
- Parkinson, C., D.A. Brain, et al., Modeling atmospheric energy deposition (by energetic ions): New results, Fall AGU Meeting, San Francisco, CA, December 2012.
- Pasachoff, J.M., et al., The 2012 transit of Venus for the Cytherean atmosphere and as an exoplanet analog, DPS meeting, Reno, NV, October 2012.
- Peck, E.D., et al., Coupling in the middle atmosphere through EPP using a coupled ocean model in WACCM4, 92nd American Meteorological Society annual Meeting, New Orleans, Louisiana, 22-26 meeting, New Orleans, LA, January 2012.
- Peck, E.D., C.E. Randall, et al., Impacts of solar irradiance and auroral EPP in WACCM, CESM/WACCM meeting, Breckenridge, CO, June 2012.
- Peck, E.D., et al., Solar cycle influences on the Southern hemisphere polar lower stratosphere, ATOC Student Poster Conference, Boulder, CO, 26 November 2012.
- Peck, E.D., et al., Solar cycle influences on southern hemisphere polar lower stratospheric ozone, HEPPA/SOLARIS meeting, Boulder, CO, October 2012.
- Peterson, W.K., Pre-storm ionospheric oxygen ions between the ionosphere and the inner magnetosphere, EGU meeting, Vienna, Austria, April 2012.
- Peterson, W.K., et al., Dayside ionospheric process and their effect on O⁺ escape, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.
- Peterson, W.K., D.A. Brain, et al., Photoelectron determination of the EUV and XUV energy input variability to the Mars ionosphere/thermosphere during the 2005 Mars-Earth-Sun alignment, Fall AGU Meeting, San Francisco, CA, December 2012.
- Pilewskie, P., and O. Coddington, TSIS Status Update, NOAA Climate Data Record Annual Meeting, Asheville, NC, 2012.
- Pilewskie, P., et al., Solar spectral irradiance and climate, European Geosciences Union General Assembly 2012, Vienna, Austria, 22-27 April 2012.
- Pilewskie, P., and T. Woods, Current and future measurements of total and spectral solar irradiance by NASA and NOAA, TOSCA Workshop on SSI variability and climate modeling, Berlin, Germany, 14-16 May, 2012.
- Pilewskie, P., An overview of historical, current, and planned solar irradiance measurements, 4th International HEPPA Workshop, NCAR, Boulder, CO, 9-12 October, 2012.
- Pilewskie, P., Monitoring Earth's climate with shortwave Hyperspectral reflectance, Leibniz Institute for Tropospheric Research, Leipzig, Germany, 23 February 2012.

- Pilewskie, P., et al., Monitoring Earth's climate with shortwave Hyperspectral reflectance, International Radiation Symposium, Berlin, Germany 6-10 August, 2012.
- Pilewskie, P., Solar irradiance and climate, Fakultät für Physik und Geowissenschaften, University of Leipzig, 29 May 2012.
- Pilewskie, P., Monitoring Earth's climate with shortwave Hyperspectral reflectance, Ludwig Maximilian University of Munich, 22 June 2012.
- Pilewskie, P., Monitoring Earth's climate with shortwave Hyperspectral reflectance, Institute of Environmental Physics, University of Bremen, 15 June 2012.
- Pilewskie, P., et al., Monitoring Earth's climate with shortwave Hyperspectral reflectance, International Radiation Symposium 2012, Berlin, 6-10 August, 2012.
- Platnick, S., et al., The operational MODIS cloud optical and microphysical property product: Overview of the collection 6 algorithm and preliminary results, International Radiation Symposium, Berlin, Germany, 2012.
- Platnick, S., et al., Sensitivity of marine warm cloud retrieval statistics to algorithm choices: Examples from the MODIS collection 6 development code, Fall AGU Meeting, San Francisco, CA, December 2012.
- Postberg, F., et al., Compositional mapping of the Galilean moons by mass spectrometry of dust ejecta, Intl. Workshop on Instrumentation for Planetary Missions, Greenbelt, MD, 10-12 October, 2012.
- Postberg, F., et al., Geochemistry of Enceladus and the Galilean moons from in situ analysis of ejecta, European Planetary science Congress, Madrid, Spain, 2012.
- Pothapragada, S., et al., Ions in the plume of Enceladus and the role of grain interactions, Fall AGU Meeting, San Francisco, CA, December 2012.
- Pryor, W.R., et al., Ultraviolet auroral pulsations on Saturn from Cassini IVIS, AAS/DPS meeting, October 2012.
- Qian, L., et al., Effect of trends of middle atmosphere gases on the mesosphere and thermosphere, 7th Workshop on Long-Term Changes and Trends in the Atmosphere, Argentina, 2012.
- Raines, J.M., D.N. Baker, et al., MESSENGER observations of plasma signatures in Mercury's northern magnetospheric cusp, Fall AGU Meeting, San Francisco, CA, December 2012.
- Randall, C.E., Influence of energetic electron precipitation on the atmosphere, solar radiation and climate experiment science meeting, Annapolis, MD, 18 September 2012.
- Randall, C.E., et al., WACCM studies of the polar middle atmosphere, CESM Atmospheric Model and Whole Atmosphere Working Group meeting, NCAR, 1 February 2012.
- Randall, C.E., et al., AIM/CIPS observations of PMC variability, CAWSES II Workshop: Modeling Polar Mesospheric Cloud Trends, Boulder, CO, 3-4 May, 2012.
- Randall, C.E., et al., Atmospheric effects of energetic particle precipitation, Inner Magnetosphere Coupling II, UCLA, 20 March 2012.
- Randall, C.E., AIM extended mission objective 3, AIM Science Team Meeting, Tucson, AZ, March 2012.
- Randall, C.E., CIPS Status and Overview,

- AIM Science Team Meeting, Tucson, AZ, March 2012.
- Randall, C.E., et al., Atmospheric effects of extreme events, From Sun to Ice workshop, Boulder, CO, May 2012.
- Randall, C.E., Interannual variability in PMC season duration and latitudinal extent, AIM science team meeting, Fairfax, VA, September 2012.
- Randall, C.E., CIPS instrument overview, AIM science team meeting, Fairfax, VA, September 2012.
- Randall, C.E., Effects of energetic particle precipitation on the atmosphere, Seminar at Jet Propulsion Laboratory, Pasadena, CA, June 2012.
- Randall, C.E., et al., Auroral energy particle precipitation: An atmospheric coupling agent? HEPPA/SOLARIS meeting, Boulder, CO, October 2012.
- Randall, C.E., Atmospheric coupling by energetic particle precipitation, Fall AGU Meeting, San Francisco, CA, December 2012.
- Rankin, R., A.W. Degeling, and S.R. Elkington, ULF waves and energetic electrons resulting from intense interplanetary shocks, Fall AGU Meeting, San Francisco, CA, December 2012.
- Rast, M.P., Solar granulation from theory and observation, 2nd Intl. Workshop on Small Scale Solar and Stellar Magnetic Fields, Austria, 18 April 2012.
- Rast, M.P., Solar irradiance trends during the rising phase of Cycle 24, Eclipse on the Coral Sea: Cycle 24 Ascending, Palm Cove, Queensland, Australia, 15 November 2012.
- Rast, M.P., Understanding small scale flux contributions to solar spectral irradiance variations, 2nd Intl. Workshop on Small Scale Solar and Stellar Magnetic Fields, Austria, 18 April 2012.
- Rast, M.P., and J. Harder, Understanding the role of small scale flux in solar spectral irradiance variation, Astronomical Society of the Pacific, San Francisco, 2012.
- Richard, E., and D. Harber, Multi-channel strategy for long-term SSI optical degradation tracking, Solar Spectral Irradiance (SSI) Trends Workshop, SORCE Science Meeting, Annapolis, MD, 17-September 2012.
- Richard, E., et al., Future measurements of solar spectral irradiance by the TSIS SIM: Improvements in instrument calibrations and measurement accuracy, SORCE Science Meeting, Annapolis, MD, 17-September 2012.
- Roberts, Y., et al., Temporal variability of observed and simulated Hyperspectral Earth reflectance, Fall AGU Meeting, San Francisco, CA, December 2012.
- Rong, P., et al., PMC brightness zonal variability and its correlation with temperature and water vapor, Fall AGU Meeting, San Francisco, CA, December 2012.
- Russell, J.M., et al., The aeronomy of ice in the mesospheric mission: Science results after ten PMC seasons, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.
- Sarantos, M., et al., Sources and losses of Mg in Mercury's exosphere inferred from MESSENGER observations, Fall AGU Meeting, San Francisco, CA, December 2012.
- Schmidt, K. Sebastian, et al., Aerosol spectral radiative forcing efficiency from airborne measurements during multiple field missions, Fall AGU Meeting, San Francisco, CA, December 2012.

- Schmidt, K. Sebastian, et al., Cloud inhomogeneities, aerosol particles, thermodynamic phase, and crystal shape in Hyperspectral shortwave measurements and model calculations, International Radiation Symposium 2012, Berlin, Germany, 6-10 August 2012.
- Schmidt, K. Sebastian, Aircraft and ground-based measurements of spectral solar radiation, SORCE Science Team Meeting, Annapolis, MD, 19 September, 2012.
- Schmidt, K. Sebastian, et al., Spectral radiative effects and remote sensing of aerosol-immersed cumulus cloud fields, ICCP, Leipzig, Germany, July 2012.
- Schmidt, K. Sebastian, Cloud-aerosol radiative effects: Navigating the spectral dimension. Pan-Global Atmosphere System Studies Conference, Boulder, CO, 12 September 2012.
- Schneider, N.M., MAVEN's imaging UV spectrograph: Studying Atmospheric Structure and Escape at Mars, DPS meeting, Reno, NV, 12 October, 2012.
- Schneider, N.M., Neutral clouds and Torus 101, Boulder, CO, 11 July 2012.
- Schneider, N.M., Shapley Public Lecture on "Exploring Mars", U. of South Alabama, 27 September 2012.
- Schneider, N.M., The search for habitable worlds, U. of South Alabama, 27 September 2012.
- Schneider, N.M., The science of habitable worlds, LASP Teacher Summit, 21 June 2012.
- Schneider, N.M., The exploration of Mars, Group tour "Not the end of the World, 22 December 2012.
- Schneider, N.M., Observations of atmospheric escape, Atmospheric Escape Workshop, Charlottesville, VA, 28 February 2012.
- Schneider, N.M., The next mission to Mars, Lyons Middle School, 18 January 2012.
- Schneider, N.M., IUVS: The Imaging Ultraviolet Spectrograph, MAVEN Community Meeting, Fall AGU Meeting, San Francisco, CA, December 2012.
- Schneider, N.M., A dusty origin of Io's escaping sodium, Fall AGU Meeting, San Francisco, CA, December 2012.
- Schrifer, J.A., D.N. Baker, et al., Consequences of electron precipitation at Mercury: X-ray aurorae and heavy ion production, Fall AGU Meeting, San Francisco, CA, December 2012.
- Scremcevic, M., et al., Discovery of B ring propellers in Cassini UVIS and ISS, DPS meeting, Reno, NV, 14-19 October, 2012.
- Seefeldt, M., et al., Developing a greater understanding of the near-surface wind field of the Ross Island Region, Scientific Committee on Antarctic Research Open Science Conference, Portland, OR, June 2012.
- Siskind, D.E., et al., Can we identify effects from the 11-year solar cycle in AIM PMC data? Fall AGU Meeting, San Francisco, CA, December 2012.
- Slavin, J.A., D.N. Baker, et al., MESSENGER observations at Mercury's magnetosphere under extreme solar wind conditions, Fall AGU Meeting, San Francisco, CA, December 2012.
- Smith, A., et al., Ozone variability in the upper mesosphere from satellite observations, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.

- Smith, J.A., K.D. Froyd, and O.B. Toon, Equilibrium size distributions of neutral and negatively charged clusters of water and sulfuric acid from self-consistent thermodynamic tables, 31st Annual Conference of the American Association for Aerosol Research, 10 October 2012.
- Smith, J.A., K.D. Froyd, and O.B. Toon, Using self-consistent Gibbs free energy surfaces to calculate size distributions of neutral and charged clusters for the sulfuric acid-water binary system, Fall AGU Meeting, San Francisco, CA, December 2012.
- Smith, L., C.E. Randall, and V.L. Harvey, How temperature and water levels affect polar mesospheric cloud formation, Fall AGU Meeting, San Francisco, CA, December 2012.
- Snow, M. The magnesium H Index: 335 years and counting, EGU General Assembly, Vienna, Austria. 22-27 April 2012.
- Snow, M., et al., Solar cycle variation results from the SORCE mission, SDO EVE Science Workshop, Yosemite, CA 2012.
- Snow, M., et al., Ultraviolet solar spectral irradiance variability from SORCE SOLSTICE, SORCE Science Team Meeting, Annapolis, MD, 18-19 September, 2012.
- Snow, M., LLAMAS Ultraviolet Lunar Reflectance, NIST Lunar Calibration Workshop, Boulder, CO, 2012.
- Snow, M., Research experience for undergraduates in solar and space physics, Boulder Solar Day, Boulder, CO, 2012.
- Snow, M., Rotational variability in the ultraviolet, Understanding Trends in Solar Spectral Irradiance Workshop, Annapolis, MD, 2012.
- Snow, M., Solar Spectral Irradiance Workshop Summary, SORCE Science Team Meeting, Annapolis, MD, 18-19 September, 2012.
- Snow, M., SORCE SOLSTICE degradation analysis, Understanding Trends in Solar Spectral Irradiance workshop, Annapolis, MD, 2012.
- Snow, M., The journey of sungrazing comet Lovejoy, American Astronomical Society, Anchorage, AK, June 2012.
- Song, S., et al., Understanding the relationship between the spatial structure and spectral signature of 3D clouds using airborne spectral irradiance measurements and 3D radiative transfer modeling, Fall AGU Meeting, San Francisco, CA, December 2012.
- Srama, R., et al., In-situ dust measurements by a lunar lander, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.
- Srama, R., et al., Dust measurements at Saturn with Cassini: Past, Present and Future, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.
- Srama, R., et al., A dust spectrometer for JUICE, European Planetary Science Congress, Madrid, Spain, 2012.
- Sremcevic, M., G.R. Stewart, N. Albers, and L.W. Esposito, Discovery of G Ring propellers in Cassini UVIS and ISS, DPS meeting, Reno, NV, 2012.
- Sterken, V.J., et al., Modeling the local size distribution of interstellar dust in the solar system, EGU General Assembly 2012, Vienna, Austria, 22-27 April 2012.
- Sternovsky, Z., et al., Lunar Dust Experiment (LDEX) on LADEE, NASA Lunar Science Forum,

- Mountain View, CA, 17-19 July 2012.
- Sternovsky, Z., et al., Improved dust detectors and analyzers for planetary missions, International Workshop on Instrumentation for Planetary Missions (IMP-2012), Greenbelt, MD, 10-12 October, 2012.
- Sternovsky, Z., et al., Dust mass spectrometer for compositional mapping of the Galilean moons, 44th Division of Planetary Sciences of the American Astronomical Society, Reno, NV, 14-19 October, 2012.
- Sternovsky, Z., et al., Photoelectron emission and Lyman Alpha measurements by the CHAMPS rockets, Fall AGU Meeting, San Francisco, CA, December 2012.
- Sternovsky, Z., Lunar Dust, Tutorial Lecture, 3rd International Workshop on Diagnostics and Simulation of Dusty Plasmas, Kiel, Germany, 26-28 August 2012.
- Sternovsky, Z., Modern dust instruments for the exploration of the Moon and small bodies, Dust, Atmosphere and Plasma: Moon and Small Bodies Workshop, Boulder, CO, 6-8 June, 2012.
- Stewart, G.R., Observation and theory of modulational instability and non-linear Mode coupling in Saturn's rings, Dynamics Days Conference in Denver, CO, 3-6 January, 2012.
- Stewart, G.R., Driven eccentric modes in the outer edge of Saturn's B Ring, DPS meeting, Reno, NV, 14-19 October, 2012.
- Sturmer, A.P., et al., Plasma properties in the magnetospheric plasmashet of Jupiter, Fall AGU Meeting, San Francisco, CA, December 2012.
- Taylor, M.J., et al., Investigating asymmetries in mesospheric gravity wave propagation at high latitudes, Fall AGU Meeting, San Francisco, CA, December 2012.
- Taylor, M.J., et al., Investigating summer-winter characteristics of mesospheric gravity waves at high latitudes, COSPAR Scientific Assembly, Mysore, India, 14-22 July 2012.
- Thayer, J., K. Greer, and V.L. Harvey, Front-like behavior in the Arctic winter idle atmosphere, SPARC Workshop on stratospheric sudden warmings, Kyoto, Japan, 23-24 February 2012.
- Thayer, J.P., et al., Polar winter middle atmosphere gravity wave generation and mesosphere coolings, Fall AGU Meeting, San Francisco, CA, December 2012.
- Tweedy, O., et al., The response of polar mesosphere-low thermosphere (MLT) ozone to major stratospheric sudden warming, Fall AGU Meeting, San Francisco, CA, December 2012.
- Ulusen, D., D.A. Brain, et al., Variability and IMF dependence of the dayside plasma events at Mars: Inferences from MHD model-satellite observation comparisons, Fall AGU Meeting, San Francisco, CA, December 2012.
- Viereck, R., et al., Solar EUV irradiance during solar minimum, Chapman Conference, Key Largo, FL, 2012.
- Volwerk, M., et al., Comparative magnetotail flapping: An overview of selected events at Earth, Jupiter and Saturn, EGU, Vienna, Austria, April 2012.
- Wang, X., Study of the electrical environment within lunar craters and dust transport, Lunar Dust, Atmosphere, and Plasma Workshop, Boulder, CO.

- Wang, W., Effects of MEPED electrons and ions on global upper atmosphere and ionosphere during Jan. 15-23, 2005 storm events, 4th International HEPPA Workshop, Boulder, CO, 9-12 October 2012.
- Wang, X., Laboratory investigation of the electrical environment and dust transport within craters on airless bodies, Workshop on the Physics of Dusty Plasmas, Waco, TX.
- Wang, Y., et al., Modeling of the sputtering efficiency for Martian Atmosphere, Fall AGU Meeting, San Francisco, CA, December 2012.
- Waymark, C., et al., Validation of the ACE-FTS dataset, Fall AGU Meeting, San Francisco, CA, December 2012.
- Waymark, C., et al., Validation of the ACE-FTS version 3.0 ozone and related species, Quadrennial Ozone Symposium, Toronto, Canada, August 2012.
- Waymark, C., et al., Validation comparisons for ACE-FTS, ACE science team meeting, May 2012.
- Waymark, C., et al., ACE-FTS version 3.0 Validation update, NASA Aura Science team meeting, Pasadena, CA, October 2012.
- Waymark, C., et al., ACE-FTS validation, ACE science team meeting, October 2012.
- Wen, G., et al., Climate response to spectral solar forcing from GISS GCMAM, Fall AGU Meeting, San Francisco, CA, December 2012.
- Wen, C., et al., Spectral solar UV variability and climate responses, International Radiation Symposium 2012, Berlin, Germany, 6-10 August, 2012.
- Wen, C., et al., Modeling climate responses to spectral solar forcing on centennial and decadal time scales, European Geosciences Union General Assembly, 2012, Vienna, Austria, 22-27 April 2012.
- Wilson, R.M., F. Bagenal, and P.A. Delamere, Local time variations of radial plasma flow in Saturn's inner Magnetosphere, Fall AGU Meeting, San Francisco, CA, December 2012.
- Wilson, R.J., CAPS PDS "How to" Document, CAPS Team meeting #43, MSSL, United Kingdom, May 2012.
- Wilson, R.J., Progress in Plasma Parameter, SNG Analysis, CAPS Team meeting #43, MSSL, United Kingdom, May 2012.
- Winslow, R.M., D.N. Baker, et al., Mercury's magnetopause and bow shock from MESSENGER observations, Fall AGU Meeting, San Francisco, CA, December 2012.
- Woods, T.N., et al., Space weather products from the extreme ultraviolet variability experiment (EVE), Fall AGU Meeting, San Francisco, CA, December 2012.
- Wygant, J.R., D.N. Baker, et al., Electric fields and waves instrument on the RBSP spacecraft: Investigating the dynamic of the inner magnetosphere, Fall AGU Meeting, San Francisco, CA, December 2012.
- Ye, S., et al., Cassini/RPWS Dust measurements during Enceladus flybys, Fall AGU Meeting, San Francisco, CA, December 2012.
- Zanetti, L.J., D.N. Baker, et al., Advanced techniques for space weather predictions, Seasons 2012 Conference: Operating through Solar Max, Johns Hopkins University/Applied Physics Lab, Laurel, MD, 14 November 2012.
- Zheng, L., et al., Development of a 3D

radiation belt model in adiabatic
invariant coordinates using stochastic
differential equations, Fall AGU

Meeting, San Francisco, CA,
December 2012.

SPONSORED PROGRAMS

<i>Principal Investigator</i>	<i>Title</i>
Andersson, L	Value Added Services for VxOs: Creation of a Comprehensive Data Set for the FAST Small Explorer
Avallone, L	Measurement of Ice Water Content During MACPEX and Comparisons to Remotely Sensed Cloud Microphysical Properties
Avallone, L	Measurements of Total Water on the Gulfstream-V for Deep Convective Clouds and Chemistry (DC3)
Bagenal, F	JUNO Science Support - Phase E Activities
Bagenal, F	New Horizon Pluto-Kuiper Belt Mission Phase B
Bagenal, F	Structure and Dynamics of the Jovian Magnetosphere from Five Spacecraft
Bagenal, F	Variations in the UV Emission from the Io Plasma Torus over the Galileo Epoch
Baker, D	2009 REU Summer Program at LASP : An Interdisciplinary Undergraduate Research Program in Solar & Space Physics with NCAR
Baker, D	Relativistic Electron-proton Telescope (REPT) Instrument on the “Radiation Belt Storm Probes (RBSP) - Energetic Particle, Composition, and Thermal Plasma (ECT) Suite” (Phase B)
Baker, D	REU Site: An Interdisciplinary Undergraduate Research Experience in Solar and Space Physics
Baker, D	Science Team Support for the MESSENGER Mission - Phase E
Baker, D	The Center for Integrated Space Weather Modeling (CISM)
Baker, D	Value Added Services for VxOs: An API & Server Software for Merge, Subset, and Filtering of Time Series-Like Data
Brain, D	Magnetic Reconnection and Shear in the Martian Plasma Environment
Brain, D	Modeling Atmospheric Erosion by Impacts at Mars, Earth and Venus
Brain, D	The First Suprathermal Electron Measurements at Venus: Connections Between the Plasma Environment and Atmosphere
Caspi, A	Determining Temperature Distributions in Solar Flares with RHESSI and EVE
Cassidy, T	Ganymede: Moon-magnetosphere Interactions and Effects on UV Signature
Cassidy, T	Investigation of Cassini Data for the Sources of H in the Saturn System

Crary, F	Cassini Mission Support
Delamere, P	Boundary Layer Processes of the Giant Magnetospheres
Delamere, P	Jupiter's System III and System IV Hot Electron Modulation
Delamere, P	Satellite-magnetosphere Interactions: A Comparison of IO, Enceladus, and Europa
Delamere, P	Solar Wind and Pickup Ions From 5 to 34 AU
Delamere, P	The Interaction of the Solar Wind with Saturn's Magnetosphere: Boundary Layer Processes
Drake, V	Deep Space Atomic Clock (DSAC) Photomultiplier Tube Study Phase
Drake, V	Phase 2 Blue Canyon Technologies Task 2: XACT Star Camera Development and Test
Drake, V	Phase 2 Blue Canyon Technologies Task 3: Integrated Power and Attitude Control System (IPACS) Support
Elkington, S	Investigations of the Onset, Spatial and Spectral Characteristics of Magnetospheric EMIC Wave Activity
Elkington, S	Transport of Radiation Belt Electrons via Magnetospheric ULF Waves in a Realistic Geomagnetic Field
Eparvier, F	Extreme Ultraviolet and X-ray Irradiance Sensors (EXIS) Geostationary Operational Environmental Satellites - R Series (GOES-R)
Ergun, R	Digital Field Boards Solar Probe Plus Investigations
Ergun, R	Electric Field and Waves (EFW) Instrument
Ergun, R	Magnetospheric Multiscale (MMS) Fields Investigation Digital Signal Processor and Axial Double Probes
Ergun, R	Observatory for Heteroscale Magnetosphere-Ionosphere Coupling (OHMIC)
Ergun, R	Simulation and Characterization of Double Layers and Electron Holes in the Plasma Sheet
Ergun, R	Solar Terrestrial Relations Observatory (STEREO) Waves Phase E
Ergun, R	Time History of Events and Their Macroscopic Interactions During Substorms (THEMIS)
Eriksson, S	Collaborative Research: Dayside Field-aligned Current (FAC) Source Regions of Extreme Poynting Flux Events and the Response of the Magnetosphere-ionosphere-thermosphere System
Eriksson, S	FTE Generation at the Magnetopause: Themis Observations & MHD Analyses
Eriksson, S	Ion and Electron Velocity Signatures at Solar Wind Reconnection Exhausts
Esposito, L	Cassini Solstice Mission
Esposito, L	Dynamical Evolution of Ring-satellite Systems
Esposito, L	Dynamics of Spinning Ring Particles and Stability of Planetary Rings

Fang, X	Collaborative Research: Global Response of the Martian Thermosphere to Energetic Pickup Ions
Fang, X	Interaction of ICMEs with Mars Atmosphere and Ionosphere and Its Implications for Atmospheric Loss
Fang, X	Parameterization of Energetic Electron and Proton Impact Ionization and its Application to Global Modeling
Fontenla, J	Neutral Atmosphere Density Interdisciplinary Research (NADIR)
Fontenla, J	Physical Modeling of the Radiative Sun-Earth Connection
Gosling, J	A Study of Magnetic Reconnection Exhausts and Small Flux Ropes in the Solar Wind Using a Modern Data Mining Technique
Gosling, J	IMPACT Experiment Work for STEREO
Gosling, J	Magnetic Reconnection in the Solar Wind and Related Topics
Gosling, J	Theory and Simulation of Basic Kinetic Physics of Magnetic Reconnection in Support of MMS
Grün, E	Nano Dust Analyzer
Harvey, L	Understanding the Wave-driven and Variability of the Polar Atmosphere Through Coordinated Observation, Analysis & Modeling
Harvey, V	CEDAR: Investigation of Baroclinic Disturbances in the Polar Wintertime Middle Atmosphere
Hodges, R	Dynamic Responses of the Environment at the Moon (DREAM) - a Node of NASA's Lunar Science Institute
Hodges, R	LADEE Neutral Mass Spectrometer Investigation
Horanyi, M	Cassini CDA Solstice (XXM)
Horanyi, M	Lunar Dust Experiment (LDEX)
Horanyi, M	NASA Lunar Dust Institute: Colorado Center for Lunar Dust & Atmospheric Studies
Horanyi, M	New Horizons Mission Student Dust Counter (SDC) New Horizons Mission Phases C/D
Horanyi, M	The Dusty Plasma Environment of Airless Bodies in the Solar System
Hynek, B	A Global Martian Crater Database Complete to 1.5km-diameter
Hynek, B	Detailed Geological Mapping and Structural Analysis of Proposed Chloride-Bearing Materials
Hynek, B	Geological and Biological Diversity of Basaltic Acid-Sulfate Systems on Earth with Application to the Habitability of Early Mars
Hynek, B	Structured Light Imaging Module: Advanced Capabilities and Field Tests
Hynek, B	Thermal Effects of Physical Heterogeneity on Mars
Hynek, B	Understanding Geochemical Pathways on Early Mars Through Experiments and Modeling

Jakosky, B	MAVEN - PI & PI Support, Phase E Science, EPO
King, M	Refinement of Cloud Optical and Microphysical Properties and Gridded Atmosphere Products from MODIS
King, M	Remote Sensing of Cloud Properties and Support Imagery During SEAC4RS with the Enhanced MODIS Airborne Simulator (eMAS)
King, M	Science Team Leader of the NASA Earth Observing System (EOS) Terra and Aqua MODIS Science Team and Associated Research
Kopp, G	Glory Project - TIM: Six ROM Budget
Li, X	Collaborative Research: NSWP--Machine Learning and Data Assimilation for Real-time Radiation Belt Forecasting
Li, X	CubeSat: Colorado Student Space Weather Experiment
Li, X	Study of Pc4 and Pc5 ULF Pulsations in the Inner Magnetosphere: Themis Observation
Li, X	Sudden Enhanced Precipitation Loss of Radiation Belt Electrons: Microbelt and Precipitation Bands
McClintock, W	Global Scale Observation of the Limb and Disk (GOLD) SALMON Project
McClintock, W	MESSENGER Mission MASCS Instrument Engineering Support - Phase E
McClintock, W	Science Team Support for the MESSENGER Mission - Phase E
McCullom, T	Experimental Study of Acid-sulfate Alteration of Basalt with Application to Early Mars
McGouldrick, K	A Comprehensive Microphysical Model of the Venus Cloud System
McGrath, M	Aeronomy of Ice in the Mesosphere (AIM) Additional Staffing Hours, Materials and Equipment to Complete the CIPS Instrument
McGrath, M	Community Initiative for Cellular Earth Remote Observations (CICERO) Pathfinder Mission
McGrath, M	Pathfinder Mission with GeoOptics, Inc. - Project Feasibility Study
McGrath, M	RTO Task
Pankratz, C	Data Restoration and Archival of LASP Planetary Data Sets from the 1960s and the 1990s
Peterson, W	Investigations of the Mid-latitude Thermospheric Response to Variations in Solar Irradiance and Geomagnetic Activity Using Photoelectron and Other Observations from the Canadian ePOP Mission
Peterson, W	Mars Atmosphere and Volatile Evolution Mission (MAVEN)
Pilewskie, P	LASP CLARREO Science Definition Team Studies: Using Measurements of Scattered Spectral Shortwave Radiation to Define Requirements, and to Develop Methods for Trend Detection and Attribution
Pilewskie, P	Solar Spectral Flux Radiometer Measurements for ATTREX
Pilewskie, P	Total and Spectral Irradiance Sensor (TSIS)

Possel, W	Ground-systems Requirement Review and Science Processing and Operations Center Expert Peer Review
Possel, W	Kepler Mission Operations Center, Phase E Support
Possel, W	Magnetosphere Multiscale (MMS) Mission for Magnetospheric Acceleration, Reconnection and Turbulence (SMART)
Possel, W	Mission Operations of the NASA QuikSCAT Satellite
Possel, W	QuakeFinder Software Development
Randall, C	Atmospheric Coupling Via Energetic Particle Precipitation
Randall, C	Atmospheric Effects of Solar Proton Events and Galactic Cosmic Rays
Randall, C	CEDAR: Investigating Atmospheric Effects of Energetic Particle Precipitation Using Whole Atmosphere Community Climate Model (WACCM)
Randall, C	Investigating Discrepancies Between Observed and Modeled Ozone in the Mesosphere
Randall, C	Sun to Ice - Impacts on Earth of Extreme Solar Events
Rast, M	Dynamic Origins of Cyclic Solar Activity
Reed, H	NSF ATOMMS Readiness Review Preparation
Renfrow, S	New Horizons Phase E - E/PO: Podcast Collaboration Project
Renfrow, S	Strengthening our Audience Connection with Icelights: Questions of the Moment (Phase II)
Schmidt, S	Collaborative Research: TORERO - Tropical Ocean Troposphere Exchange of Reactive Halogen Species and Oxygenated VOC
Schmidt, S	Development and Validation of New Spectral Cloud and Aerosol Retrievals
Schmidt, S	Ground-based Deployment of the Solar Spectral Flux Radiometer in Support of DC3
Schmidt, S	Integration of the Solar Spectral Flux Radiometer on NASA Aircraft with a Miniature Active Leveling Platform
Schmidt, S	Measurement of Solar Spectral Irradiance in Support of the Southeast Asia Composition, Cloud, Climate Coupling Regional Study
Schneider, N	Constraining Water Loss from Mars through Coronal Airglow Observations
Snow, M	LASP Lunar Albedo Measurement and Analysis from Solstice (LLAMAS)
Sremcevic, M	Searching for Saturn's B Ring Objects
Sternovsky, Z	Charge and Mass of Meteoritic Smoke Particles (CHAMPS)
Stewart, G	Baroclinic Instability of Stratified Protoplanetary Disks
Stewart, G	Satellite Formation in Photoevaporating, Gas-starved Disks
Toon, O	A 3D Coupled Climate Simulation Investigating the Faint Young Sun Paradox

Toon, O	Airborne Tropical Tropopause Experiment (ATTREX) Platform Scientist, 3-D Microphysical Modeling
Toon, O	Modeling Cloud and Aerosols in the Upper Troposphere and Lower Stratosphere
Toon, O	Participation in Campaign Leadership for SEAC4RS
Toon, O	The Faint Young Sun Problem in the Early Biotic Atmosphere of the Earth
Westfall, J	Strofi Instrument Requirements Review (IRR) Independent Review Board (IRB) Consultant
Wilson, R	Saturn's Plasma Disk
Woods, T	Extreme Ultraviolet Variability Experiment (EVE)
Woods, T	Physical Modeling of the Radiative Sun-Earth Connection
Woods, T	SORCE/EOS Solstice
Woods, T	Timed SEE Experiment - Phase E Extended Mission