

Laboratory for Atmospheric and Space Physics



Activity Report
2016
University of Colorado at Boulder

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LASP: A Brief History

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

A Message from the Director

The history of the Laboratory for Atmospheric and Space Physics has been recounted in many ways. The story includes early rocket-based research within the Physics Department of the University of Colorado. The founding of the Upper Air Laboratory in the late 1940s and the transition to what is now known as LASP in the 1950s have been key historical moments. The progression from those early days to the present level and scope of LASP research and infrastructure has been quite fascinating.

This annual report tells some of the LASP story, focused especially upon the last year. Research in atmospheric science, planetary exploration, and solar and space physics has achieved major milestones. Engineering, data systems, and mission operations divisions of the Laboratory have had tremendous successes as well. The education and training mission of LASP that is preparing new generations of students for the worldwide space workforce has continued and diversified.

This report touches on the stories told by LASP publications, seminars and lectures, and unique investigations. While much focus appropriately – is on space flight programs, this report emphasizes strongly how important the theory, modeling, and data analysis efforts are. This core scientific work is the foundation on which all else is predicated.

In previous reports, there has been emphasis on the unique role LASP plays in world space research. It is clear that academic research is at the core of the thriving world space program. This fact is appreciated by policy makers, by business leaders, and by academic institutions themselves. With a new U.S. administration, there should be a reaffirmation of a commitment to space research in the academic setting. LASP will do all it can to make this commitment a continuing reality.

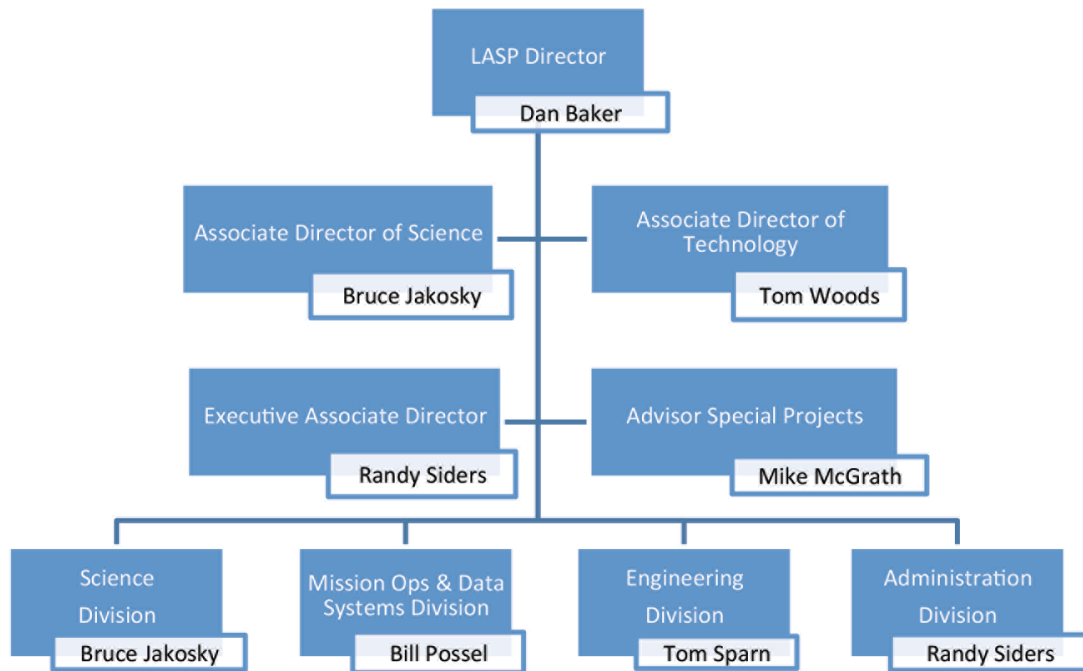
LASP succeeds by having the support of CU and its people. Special thanks go to the CU-Boulder Administration for their unflinching support of LASP and its mission. Thanks also to the key people in contracts administration, procurement, facilities management, and other areas that help LASP do its unique job. The staff, faculty, and students of LASP are warmly acknowledged for their tireless work. Finally, special thanks go to Ann Alfaro for her careful efforts in preparing this report for 2016.

Daniel N. Baker

Please visit LASP's Website for the latest developments: [**http://lasp.colorado.edu**](http://lasp.colorado.edu)

LASP Activity Reports can be found at:
[**http://lasp.colorado.edu/home/about/publications/activity-reports**](http://lasp.colorado.edu/home/about/publications/activity-reports)

LASP ORGANIZATION



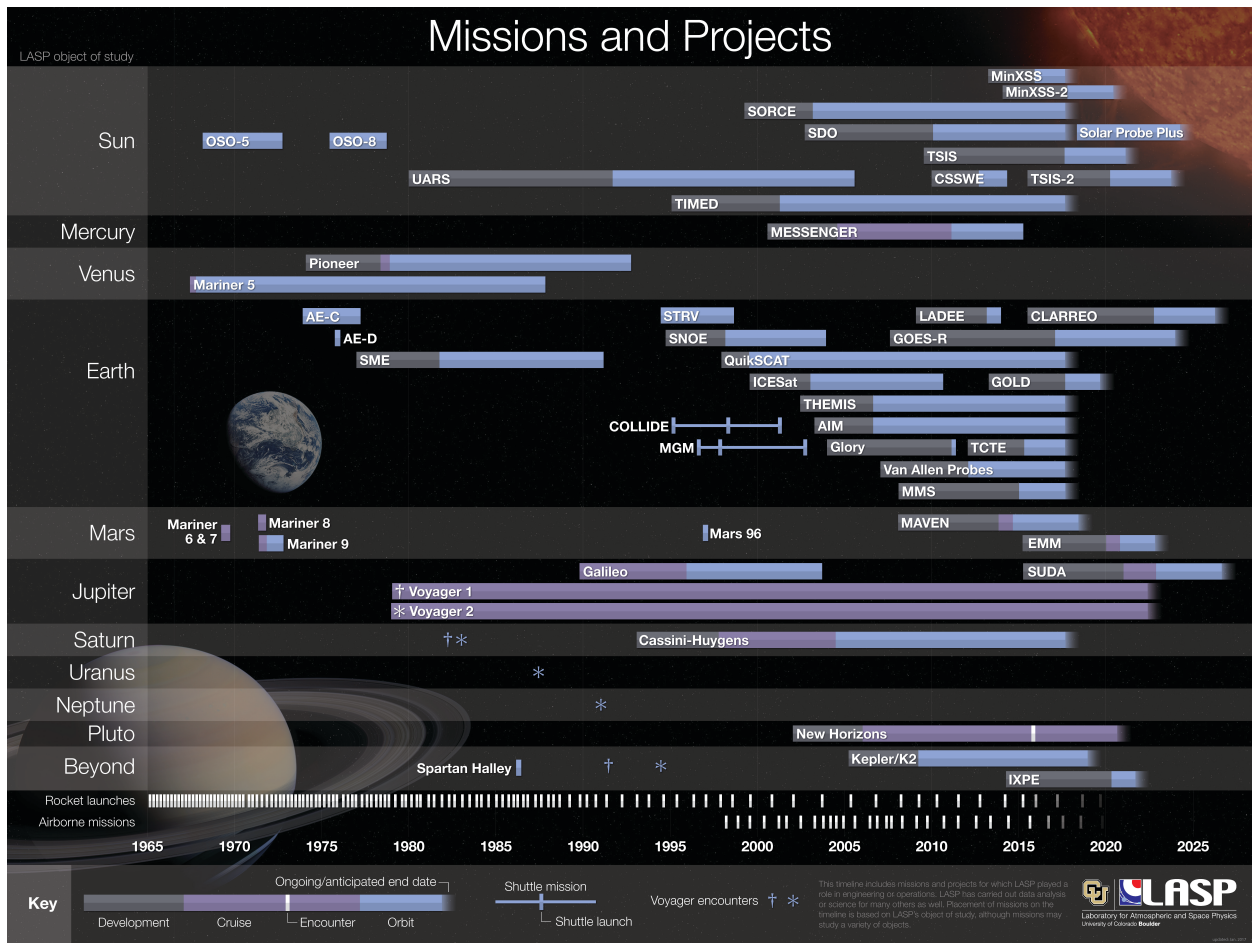
IN REMEMBRANCE OF JOSE-MARIA RAMOS

Joe Ramas was killed in a traffic accident in May 2016. Jose-Maria (Joe) Ramas came to LASP in 2008, with a degree in Physics and a minor in Philosophy from the University of Colorado. Joe's journey to LASP followed a long and fruitful road from coffee shop barista to musician to sushi chef to record label co-owner to plasma deposition engineer. His passion for physics and ability to solve problems in a non-traditional manner was apparent to all he worked with. Joe worked as a calibration and test engineer on many programs, including the GOES weather satellite program through NOAA. Joe designed, built and tested several key components for a suite of space weather instruments that will be deployed in space over the next decade. This work included interactions with some of the country's top space weather scientists, instrumentation engineers, and world-renowned test facilities. One of Joe's contributions to GOES was the design of a magnetic deflector shield solving a problem that stumped all the other scientists, engineers, and outside consultants. That design, the "Ramatron", was named after Joe and was specifically praised in a NASA Achievement Award for the entire project. Joe's work will directly impact and support the ongoing space weather and solar observation campaign for decades to come. *This remembrance was contributed by Joe's friend and co-worker, Dave Crotser.*

LASP Appropriated Funding

During the period 1/1/2016 to 12/31/2016 LASP appropriated funding totaled \$99,601,991 for support of 182 grants and contracts.

CY 2016 Funding by Sponsor and Sponsor Type							
% Break-down	4%	45%	7%	1%	15%	29%	100%
Sponsor	Fed Labs(L)	Federal(F)	Industry(I)	Orgs/Assoc(O)	University(U)	Foreign(R)	Grand Total
Ames Research Center		\$1,345,487					\$1,345,487
Ball Aerospace and Technologies Corp.			\$1,666,636				\$1,666,636
Carnegie Institute of Washington				\$739,355			\$739,355
Emirates Institution for Advanced Science and Technology						\$28,478,462	\$28,478,462
Global Science and Technology			\$45,834				\$45,834
Goddard Space Flight Center		\$35,337,050					\$35,337,050
Hampton University					\$1,402,714		\$1,402,714
Jet Propulsion Laboratory	\$3,688,259						\$3,688,259
Johns Hopkins University					\$320,072		\$320,072
National Aeronautics and Space Administration		\$1,134,092					\$1,134,092
National Science Foundation		\$1,781,580					\$1,781,580
Naval Research Laboratory		\$40,000					\$40,000
Planetary Science Institute			\$35,000				\$35,000
Rice University					\$41,352		\$41,352
Science Systems and Applications, Inc.			\$700,000				\$700,000
Southwest Research Institute			\$4,069,719				\$4,069,719
Space Telescope Science Institute	\$376,691						\$376,691
University Corporation for Atmospheric Research				\$16,173			\$16,173
University of California Berkley/CA					\$470,100		\$470,100
University of Central Florida					\$11,600,000		\$11,600,000
University of Iowa/IA					\$10,000		\$10,000
University of Michigan					\$30,000		\$30,000
University of Minnesota/MN					\$385,995		\$385,995
University of New Hampshire/NH					\$1,053,409		\$1,053,409
Virginia Tech University/VIRG					\$67,805		\$67,805
Washington DC Headquarters/NASA		\$4,766,206					\$4,766,206
Grand Total	\$4,064,950	\$44,404,415	\$6,517,189	\$755,528	\$15,381,447	\$28,478,462	\$99,601,991
	Federal	\$48,469,365	48.7%				
	Non-Federal	\$51,132,626	51.3%				
	Total	\$99,601,991	100.0%				



LASP Missions and Projects through 2025.

Daniel N. Baker, Director LASP Scientists

Tenure Track:

Frances Bagenal
David Brain
Robert Ergun
Larry W. Esposito
Mihály Horányi
Brian Hynek
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:

Joseph Ajello
Nicole Albers
Laila Andersson
Axel Brandenburg
Timothy A. Cassidy
Michael Chaffin
Odele Coddington

Steven Cranmer
Jan Deca
Vincent Dols
Scot Elkington
Francis G. Eparvier
Stefan Eriksson
Xiaohua Fang
Kevin France
John Gosling
Jerald W. Harder
Lynn Harvey
Greg Holsclaw
Sean Hsu
Sonal Jain
Allison Jaynes
Andrew Jones
Lars Kalnajs
Bruce Kindel
Michael King
Greg Kopp
George M. Lawrence
(Ret.)
Trevor Leonard
Wenlong Liu
Brian McClellan

William E. McClintock
Tom McCollom
Kevin McGouldrick
David Malaspina
Aimee Merkel
Mikki M. Osterloo
William Peterson
Erik C. Richard
Thomas Rimmele
Gary J. Rottman (Ret.)
David W. Rusch (Ret.)
Sebastian Schmidt
Martin Snow
A. Ian F. Stewart (Ret.)
Glen R. Stewart
Gary E. Thomas (Ret.)
Maria Usanova
Frederick Wilder
Robert J. Wilson
Thomas N. Woods
Hong Zhao
Yunqian Zhu

Visiting Scholars

Richard Eastes, University of Central Florida, Orlando, FL
Joseph Michalski, Planetary Science Institute, Tucson, AZ
Craig Rodger, University of Otago, Dunedin, New Zealand
Theodore Sarris, University of Athens, Athens Greece

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

Frances Bagenal

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

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(303) 492-2598

Daniel N. Baker

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

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(303) 492-4509

David Brain

Exchange of energy and material between un-magnetized planets and their surroundings. Consequences of atmospheric source and loss processes for climate evolution. Analysis of spacecraft observations of planetary upper atmospheres and plasma environments.

david.brain@lasp.colorado.edu

(303) 735-5606

Scot Elkington

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

elkingto@lasp.colorado.edu

(303) 735-0810

Francis G. Eparvier

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

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

Robert Ergun

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
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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.

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Jerald Harder

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

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(303) 492-1891

Mihály Horányi

Dusty space and laboratory plasmas. Electrodynamical 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
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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.

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(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
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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

Cora Randall is a professor in the departments of Atmospheric and Oceanic Sciences (ATOC) and the Laboratory for Atmospheric and Space Physics (LASP). Her main area of expertise is remote sensing of the earth's middle atmosphere with particular emphasis on the polar regions. She investigates processes related to stratospheric ozone depletion, polar mesospheric clouds, and atmospheric coupling through solar and magnetospheric energetic particle precipitation. Dr. Randall is a current or prior member of numerous international satellite science teams, and is principal investigator on the Cloud Imaging and Particle Size (CIPS) experiment on the NASA Aeronomy of

Ice in the Mesosphere (AIM) satellite mission. She teaches courses in chemistry, climate and remote sensing for ATOC.
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

Origin and evolution of planetary atmospheres, planetary spectroscopy, planetary magnetospheres, extra-solar planets, scientific visualization, and instrument development. Physics of planetary magnetospheres, interactions between planetary plasmas and satellites of the outer planets.
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Martin Snow

Primary research interests include ultraviolet spectroscopy of stars and the sun and the interaction of comets with the solar wind. The SOLSTICE instruments on UARS and SORCE provide a wealth of information about solar activity in the 115-300 nm range on a variety of timescales, ranging from minutes (solar flares) to

decades (solar cycle). Understanding the variation in the solar output will lead to understanding its influence on the Earth. The interaction of comets with the solar wind is best-studied using wide-field photography. Both amateur and professional astronomers contribute to this effort, and one research activity has been to help coordinate the interaction of the two groups.

marty.snow@lasp.colorado.edu
(303) 735-2143

Zoltan Sternovsky

Instrument scientist and physicist; research is focused on detection and characterization of cosmic dust. Development of flight instruments for space missions and sounding rocket campaigns.

Zoltan.sternovsky@lasp.colorado.edu
(303) 7356272

A. Ian F. Stewart

The investigation by ultraviolet emissions of the aeronomy of planetary and satellite atmospheres, cometary comae, and Io's plasma torus.

stewart@viral.f.colorado.edu
(303) 492-4630

Glen R. Stewart

Origin and evolution of the solar system, with an emphasis on modeling the solid-body accretion of the terrestrial planets and the solid cores of the giant planets. Accretion of the Moon after a giant impact on the Earth. Modeling of satellite wakes and spiral density waves in

planetary rings. Nonlinear dynamics of the three-body problem as applied to problems in solar system dynamics.

glen.stewart@lasp.colorado.edu
(303) 492-3737

Owen B. Toon

Theoretical studies of stratospheric aerosols; investigations of volcanic aerosols and studies of polar stratospheric clouds; theoretical studies of tropospheric clouds, aerosols and radiative transfer; experimental investigations of stratospheric and tropospheric phenomena; theoretical investigations of planetary atmospheres.

btoon@lasp.colorado.edu
(303) 492-1534

Thomas N. Woods

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

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(303) 492-4224

Engineering/Mission Ops/Administration/Science

Engineering

Gregg Allison	Alan Goodrich	Marc Miller
Mike Anfinson	Nicolette Goulart	James Morton
Rory Barrett	Reid Gurnee	Aref Nammari
Anthony Barsic	Scott Gurst	Gregory Newcomb
Wayne Baumann	Laura Hale	Glen Otzinger
Paul Bay	David Hall	Heather Passe
Christopher Belting	Ward Handley	Norman C. Perish
Neal Bland	Jeffrey Hanel	Scott Piggott
Ryan Bolin	David Harber	Brian Pramann
Mary Bolton	Sally Haselschwardt	Amal Chandran
Sarah Bowen	Kelly Hepburn	Thomas Reese
Brian D. Boyle	James Herring	Mary Rider
Shelley Bramer	Karl Heuerman	Timothy Ruske
Diane Brening	Carl Himpfel	Joel Rutkowski
Nathaniel Brennan	Thomas Hollowell	Madeline Schrader
Patrick Brown	Alan Hoskins	Durbin Seidel
Linda Buckhannon	Vaughn Hoxie	Elizabeth Sholes
Zachary G. Castleman	Karl Hubble	Patti Sicken
Elizabeth Cervelli	Marston R. Jacobson	Erin Simons-Brown
Matthew Cirbo	David James	Alan Sims
David Crotser	John Janiczek	Kokila Siva
Robert Darveaux	Lisa Jilek	Paul Smith
Wayne Davis	Magnus Karlsson	Thomas Sparn
Elizabeth Devito	Mark Kien	Jerry Spivey
Sharon Dooley	Matthew King	Jacob Sprunk
Virginia Drake	Brian M. Kirby	Selby Stout
Donrich Ebuen	Michael Klapetzky	David Summers
Gary Eldridge	Scott Knappmiller	Kathleen Summers
Darren Erickson	Edith Knehans	Dwayne Swieter
Joey Espejo	Richard Kohnert	Gail Tate
Nathaniel Farber	Kraig Koski	Trenton Taylor
Brian Fenton	Chelsey Krug	Darby Tejada
Nicolas Ferrington	Daniel Kubitschek	Jon Theide
Charles Fisher	Bret Lamprecht	Wayne Tighe
Melanie Fisher	Ryan Lewis	Christopher Tomso
Kier Fortier	John Lowe	Matt Triplett
Wendy Frank	Michael McGrath	Kathy Troxel
David Gathright	Karen Mackison	Scott A. Tucker
	Rachel Mamich	Kush Tyagi
	Mat Merkow	Gregory Ucker
	Colin Miller	Ryan Van Halle

Douglas Vincent
Tracy Vincent
Stacy Wade
Isaac Wanamaker
Susan Batiste Westfall
Neil White
Heather Reed Withnell
Peter Withnell
Robert Wootten
Greg Wright
Ray Wrigley
Ed Wullschleger
Alan Yehle
Kenny J.S. Yoo
Jason Young

Mission Ops/Data Systems

Madeline Alanko
Sung Bae
Thomas Baltzer
William Barrett
Stephane Beland
Gabe Bershenyi
Russell Bjella
Karen Beth Bryant
Michael Bryant
Benjamin Busby
Steve Carson
James Craft
Mathew DeNeen
Alexandra DeWolfe
Brian Douglass
Thomas Eden
Jack Faber
Sierra Flynn
Sasha Forsyth
Samuel Gagnard
Ken Griest
Jason Gurgel
Ward Handley
Bryan Harter
Maxine Hartnett

Ryan Held
Patricia Horn
Michael Hutchison
Christian Jeppesen
Alain J. Jouchoux
David E. Judd
Michelle Kelley
Barry Knapp
Laura Kohnert
Kim Kokkonen
Gina Lafferty
Kristopher Larsen
Christopher Lindholm
Douglas M. Lindholm
Tarek Mackler
Richard Marsh
John Martin
Debra McCabe
Brian McClellan
Randy Meisner
Raymond Mendoza
Lucas Migliorini
Jerel Moffatt
Steve P. Monk
Steven Mueller
Darren Osborne
Michael Packard
Chris Pankratz
Russell Panneton
Thomas Patton
Bill Possel
Brian Putnam
Michelle Redick
Tyler Redick
Lee Reedy
Jennifer Reiter
Pat Ringrose
Alisia Roe
Stephen Roughton
Sean Ryan
Cory Schafer
Nathan Sheiko
Patrick Smith
Robert Stimpfling
Ryan Sullivan
Brian Templeman

Dale Theiling
Jonathan Thomas
Blake Vanier
Zachary Wehner
Seth Wieman
David Welch
David Wescott
Margaret Williams
Anne Wilson
Donald Woodraska
Jonnie L. Yaptengco

Administration

Cristina Barcion
Donovan Bonney
Rachel Booth
Jeff Brown
Kyle Burklow
Terri Capinski
Paul deFalco
Dean Dennis
Michael Dillon
Zachary Eaton
Brian Evans
Jason Feickert
Nicandro Flores
Virginia Garrison
Alex Green
Matthew Groeninger
Vincent Guarino
Barbara Hahn
Molly Hand
Bonnie W. Hotard
(Ret.)
Jeanie Hunter
John Janiczek
Edgar Johansson
Seth Kaplan
Toler Kastengren
Brad Keiser
Jason LaClair
Cara Little
Richard Loche
Brett Madden
Andrew May

Jennifer Methlie
Debra Nastaj
Freya Olson
John M. Padgett
Katherine Pilewskie
Radu Popescu
Samuel Powell
Randy Reukauf
Susan Rogers
Fernando Sanchez
Susan Sand
Randy Siders
Dona Smith
Doug Smith
Debra Sparn
Jerry Spivey
Karen Springfield
Anne Tavarczyk-
Barchas
William VanOrden
Carole Wimert
Peter Wise
James Zungolo

Science

Alicia Aarnio
Ann Alfaro (Ret.)
Nicole Arulanantham
Michael Aye
Courtney Ballard
Devin Bazata
Megan Bela
Laura Bloom
Kaleb Bodisch

Affiliates

Plyush Agrawal
Susanne Benze
Kaleb Bodish
Michael Bonnici
Susan Bortfeldt
Wesley D. Cole
Terry Deshler

Ben Brown
Michele Callagy
Michael Chaffin
Ransom Christofferson
Kathleen Cirbo
Frank Crary
Justin Deighan
Michael Deluca
Christopher Donaldson
Brian Fleming
Kier Fortier
Christopher Fowler
Jeff France
Vanessa George
Katherine Goodrich
Victoria Hartwick
Caitlin Heath
Richard Hodges
Nancy Holden
Justin Holmes
Joao Moreira Hooks
John Janiczek
Rebecca Jolitz
Robert Kane
Andrew Kren
Trevor Leonard
Jerry Lumpe
Thomas Mason
Steven Massie
Zach Milby
Jacob Miller
Joshua Murphy
Camella-Rosa Nasr
Edward Nerney
Leela O'Brien

Ethan Peck
Courtney Peck
Joshua Pettit
Juliet Pilewskie
Marcus Piquette
Ganna Portyankina
Christopher
Rabenhorst
Drake Ranquist
Willow Reed
Morgan Rehnberg
Emily Royer
Joseph Samaniego-
Evans
Evan Sidrow
Karen Simmons
Mark Slipski
Benjamin Southworth
Julia Stawarz
Frederick Thayer
Ed Thiemann
Rebecca Thomas
Karlheinz Trattner
Zachary Ulibarri
Samuel Van Kooten
Xu Wang
James Wiley
Adam Woodson
Logan Wright
Pengfei Yu
Kun Zhang
Yunqian Zhu

Laura Hale
Todd Harris
Bryan Harter
Ryan Held
Brian M. Kirby
Daniel Kubitschek
Brett Landin

John Lowe
Amal Ramachandran
Nair
Jeffrey Parker
Courtney Peck

Ethan Peck
Scott Piggott
Sebastian Pineda
Thomas Rimmele
Justin Rouse

Benjamin Southworth
David Welch
Carol Wimert

EMM (Emirates Mars Mission) Collaborators

Mahmood Alawadhi
Mohsen Alawadhi
Omran Alhammadi
Hessar Ali
Muthanna Almahnoon
Nour Al Teneiji
Mustafa Alblooshi
Rashid Aldallal
Suhail Aldhafri
Saeed Algergawi
Hamad Alijaziri
Majid Alloghani
Saeed Almansoori
Abdulla Almarar
Muhammad Almazrouei

Essa Almehairi
Ibrahim Almidfa
Nasir Alnimr
Ibrahim Alqasimi
Adnan Alrais
Mohammad Alsahool
Amer Alsayegh
Maryam Alshamsi
Meera Alshamsi
Zakareyya Alshamsi
Omar Alshehhi
Yousuf Alshehhi
Amel Amin
Sarah Amiri
Khalid Annohi

Ahmed Banirasheed
Sasha Courtade
Abdalla Harmoul
Omar Hussain
Saud Karmustaji
Mohammed Khoory
Eman Mohamed
Mohammed Naji
Ahmed Salem
Omar Sharaf
Omran Sharaf
Ayesha Sharafi
Mohammed Wali

2016 Ph.D. Graduates

Mason, James, Aerospace Engineering Sciences
May 7, 2016

“Solar Eruptive Events: Coronal Dimming and a New CubeSat Mission”

Thesis Advisor: Thomas N. Woods

Stawarz, Julia, Astrophysical and Planetary Science
May 7, 2016

“Collisionless Plasma Turbulence: Insights from Magneto-hydrodynamic and Hall Magneto-hydrodynamic Simulations and Observations of the Earth’s Magnetosphere”

Thesis Advisors: Robert Ergun and Anna Pouquet

Thiemann, Ed, Electrical, Computer and Energy Engineering
August 18, 2016

“Multi-spectral Sensor Driven Solar EUV Irradiance Models with Improved Spectro-temporal Resolution for Space Weather Applications at Earth and Mars”

Thesis Advisor: Francis G. Eparvier

Graduate Students

Piyush Agrawal
Evan Anders
Edwin Bernardoni
Baylee Bordwell
Sabrina Cochrane
Keri Hoadley
Nicholas Kruczek

Alexander Lanzano
Robert Loyd
Sreenivas
Madhusudhanan
Colin A. Miller
Nicholas Nell
Emily B. Pilinski

Tyler Traver
Eric Wolf
Li Hsia Yeo
Allison Youngblood

Undergraduate Students

Iris Altman
Casey Backes
Robert Beadles
Joshua Bell
Elizabeth Bernhardt
Gabriel Bershenyi
Chip Bollendonk
Charlie Bowers
Natalie Bremer
Daniel Brill
Christian Carter
Gabriel Chapel
John Cutler
Robert Darveaux
Ryan Dewey
Zachary J. Dischner
Jacob Hermann
Parker Hinton
Karros Huang

Michael D. Hutchinson
Jennifer Kampmeier
Zuni Levin
Jacob Levine
Jeremy D. Lewis
Rachel Lewis
Haeyoung Lim
Grace Marshall
Scott Mende
Lucas Migliorini
Dalton Morrow
James Mothersbaugh
Matthew Muszynski
William Nelson
Dylan Nguyen
Nicholas Peper
Jessica Petty
Shawn Polson
Taylor Quist

Nicholas Renninger
Chad Ribisi
Cora Schneck
Joseph Schwan
Skylar Shaver
Max Schwarz
Erin Shimoda
Erin Simons-Brown
Matthew Smith
Colin Stewart
Daniel Thompson
Anthony Tracy
Samuel Van Dresser
William Van Orden
Zachary J. Wehner
Brett Michael Weisman
Margaret Williams
Michael Zucker

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 (AAS)

Bagenal, Frances (Chair, Heinemann Prize committee)

Bagenal, Frances (Chair of Local Organizing Committee, Division of Planetary Sciences (DPS))

Kopp, G., Organizing Committee member for annual meetings)

Schneider, N.M. (Shapley Lecturer)

American Geophysical Union (AGU)

Baker, Daniel (Member)

Baker, Daniel (Fellow)

Brain, David (Member)

Coddington, Odele (Member)

Coddington, Odele (Conference Organization Committee)

Elkington, Scot (Member)

Ergun, Robert (Fellow)

Ericksson, Stefan (Member)

Esposito, Larry (Member)

Horányi, Mihály (Member)

Jaynes, Allison (Member)

Jaynes, Allison (Session Leader)

Malaspina, David (Member)

McGouldrick, Kevin (Member)

Rusch, David (Member)

Sternovsky, Zoltan (Member)

Usanova, Maria (Member)

Usanova, Maria (Fall AGU Session Convenor and Chair, 2016)

Wang, X. (Member)

American Institute of Aeronautics and Astronautics (AIAA)

Baker, Daniel (Elected Fellow, 2016)

American Meteorological Society (AMS)

King, Michael

Asia Oceania Geosciences Society (AOGS)

Baker, Daniel (Member)

Jaynes, Allison (Member)

American Physical Society Division of Plasma Physics (APS DPP)

Sternovsky, Zoltan (Member)

Boulder Solar Alliance

Baker, Daniel (Member)

Kopp, Greg (Chair)

Snow, Martin (Member)

Boulder Solar Day

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

CLUSTER Science Working Team

Baker, Daniel (Member)

CoLABS

Possell, Bill (Board of Directors)

Committee on Space Research (COSPAR)

Baker, Daniel (Representative, Commission D)

Baker, Daniel (Member)

Eparvier, Frank (Deputy Organizer for 11th TIGER Symposium at 2016 COSPAR meeting)

Esposito, Larry (Deputy Scientific Organizer, COSPAR 38 (Planetary Atmospheres))

Usanova, Maria (Deputy Organizer for a session at 2018 COSPAR assembly)

Division of Planetary Sciences (DPS)

McGouldrick, Kevin (Member)

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

Horányi, Mihály (Meeting Organizer)

Editor or Editorial Board Member

Baker, Daniel (Editor, Space Weather)

Baker, Daniel (Editor) Journal of Atmospheric and Solar Terrestrial Physics

Brain, David (Associate Editor for the Journal of Geophysical Research – Space Physics)

Li, Xinlin (Member, Editorial Committee of J. of Chinese Space Sciences)

McCullom, 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)

Usanova, M.E., Guest editor for a JGR special issue: “Inner Magnetosphere Coupling: Recent Advances, 2016.

Usanova, M.E., Editor for an Elsevier book “The Dynamic Loss of Earth’s Radiation Belts: From Loss in the Magnetosphere to Particle Precipitation in the Atmosphere”.

Education and Public Outreach

Eparvier, Frank (Chair)

Brain, David
Lars Kalnajs
Bill Possel
Marty Snow
Heather Reed Withnell

EMM Science Apprentice Program

Deighan, Justin (Mentor)
Snow, Marty (Mentor)

Europa Clipper Mission

Kempf, Sascha (Principal Investigator, Europa Clipper Mission)

European Fleet for Airborne Research (EUFAR)

Pilewskie, Peter (Member)

Faculty Awards

Baker, Daniel, Solar and Terrestrial Sciences Distinguished Lectureship, Asia Oceania Geosciences Society (AOGS)
Baker, Daniel (Associate Fellow, American Institute of Aeronautics and Astronautics (AIAA))
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

International Academy of Astronautics (IAA)

Baker, Daniel (Member)

International Association of Geomagnetism and Aeronomy (IAGA)

Baker, Daniel (Member)

International Association of Meteorology and Atmospheric Sciences (IAMAS)

Pilewskie, Peter (Vice President, International Radiation Commission (IRC))

International Astronomical Union (IAU)

Kopp, Greg (Member and serving on several commissions)

International Service

Coddington, Odele (Service activities associated with Coupled Model Intercomparison Project (CMIP), Joint Committee on Earth Observation Satellites (CEOS), Coordination Group for Meteorological Satellite (CGMS), and the International Global Space-based Inter-Calibration System (GSICS))

International Symposium on Recent Observations and Simulations of the Sun-Earth System III (ISROSES)

Usanova, Maria (Session Chair, September 2016)

International Union of Geodesy and Geophysics (IUGG)

Baker, Daniel (Member)

International Workshop on Solar-Terrestrial Physics

Baker, Daniel (Co-Convenor)

Japan Geoscience Union (JpGU)

McGouldrick, Kevin (Member)

Laboratory for Atmospheric and Space Physics

Baker, Daniel (Director)

Administration Division

Randy Siders

Advisor Special Projects

Mike McGrath

Associate Director for Science

Jakosky, Bruce

Associate Director for Technology

Woods, Thomas

Business Committee

Baker, Dan (Chair)

Jakosky, Bruce

McGrath, Mike

Possel, Bill

Woods, Tom

Cassini CAPS Team

Bagenal, Fran

Sand, Susan

Wilson, Robert

Center for Astrobiology

Hynek, Brian (Director, CU Center)

Computer Systems Advisory Committee (CSAC)

Elkington, Scot (Chair)

DeNeen, Mat (Operations Software)

Dennis, Dean (Admin)

Eriksson, Stefan (Space Phys.)

Fang, Xiaohua (Atmospheric)

Jones, Andrew (Solar)

Lewis, Ryan (Engineering)
Methlie, Jennifer (IS)
Osborne, Darren (MO&DS)
Pankratz, Chris (Data Syst.)
Siders, Randy (Admin)
Spivey, Jerry (IT)
Stewart, Glen (Planetary)
Summers, David (Engineering)

Education and Public Outreach Advisory Committee (EPO)

Jakosky, Bruce (Business Rep.)
Andersson, Laila
Brain, David
Eparvier, Frank
Jones, Andrew
Merkel, Aimee
Pilewskie, Peter
Possel, Bill
Snow, Martin
Stewart, Glen

Engineering Division

Tom Sparn

Executive Associate Director

Siders, Randy

Executive Committee

Baker, Dan (Chair)
Elkington, Scot
Gosling, John
Jakosky, Bruce
Jones, Andrew
Kopp, Greg
McClintock, Bill
McGrath, Mike
Pilewskie, Peter
Possel, Bill
Randall, Cora
Toon, Owen B.
Woods, Tom
Callagy, Michele (ex-comm support)

Friends of Magnetospheres (FOM) Seminar Series

Jaynes, Allison (Seminar organizer)
Wilder, Frederick (Co-Organizer)

HEPPA (High Energy Particle Precipitation in the Atmosphere)

Randall, Cora E. (Member, Science Organizing Committee)

LASP Data Stewardship Definition Committee

Randall, Cora (Member)

LASP LISIRD Steering Committee

Jones, Andrew

Kopp, Greg

Snow, Martin

LASP Reappointment and Promotion Committee

Schneider, Nicholas (chair)

LASP Seminar Series Committee

Sternovsky, Zoltan (Chair)

Schmidt, K. Sebastian (co-organizer)

LASP Seminar Series

Schmidt, Konrad (Co-organizer)

Usanova, Maria (Organizer)

Mission Ops and Data Systems Division

Bill Possel

Office of Communication and Outreach

Brain, David (Member, Advisory Committee)

Brain, David (Member, Director Hiring Committee)

Planetary Journal Club

Albers, Nicole (Organizer)

Proposal Development Committee (PDC)

Woods, Tom (Chair)

Kopp, Greg (Member)

Sparr, Tom (Co-chair)

Baker, Dan

DeNeen, Matt

Drake, Ginger

Ergun, Robert

George, Vanessa (PDC support0)

Jakosky, Bruce

Kohnert, Rick

Kopp, Greg

Lankton, Mark

McClintock, Bill

McGrath, Mike
Pankratz, Chris
Possel, Bill
Richard, Erik
Ryan, Sean
Sparn, Tom
Sternovsky, Zoltan
Tate, Gail
White, Neil
Withnell, Heather Reed
Wrigley, Ray

Science Division

Jakosky, Bruce

Social Committee

Bloom, Laura (Chair)
Bryant, Karen
Cirbo, Kathleen
DeNeen, Mathew
Ferrington, Nic
Griest, Ken
Hand, Molly
Harvey, Lynn
Osborne, Darren
Possel, Bill
Reddick, Michelle
Theiling, Dale

Sponsored Visitor Committee

Harder, Jerry (Chair)
Bagenal, Fran
Eriksson, Stefan
King, Michael
Rast, Mark

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 (Co-Chair, 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)
King, Michael (Co-Chair, Committee on Earth Science and Application from Space)
Randall, Cora (Member, 2016-2018)

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)
Brain, David (Member NASA review panel for MAVEN Participating Scientist Program)
Eparvier, Franck (Team Leader for Heliophysics Focus Science Team)
Horányi, Mihály (Member, NASA Planetary Data System Small Bodies Node Advisory Board)
Horányi, Mihály (Member, NASA Planetary Sciences Subcommittee)
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)
Schneider, Nicholas (Mars Data Workshop, Bangalore, India, 22-26 February 2016)

National Center for Atmospheric Research (NCAR)

Randall, Cora (Member, Career Panel)
Randall, Cora (Member, Promotion Review Panel)

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)
Fang, F. (SHINE Review panel, 2016)

Optical Society of America

Kopp, Greg (Director at Large for Rocky Mountain Section)

Planetary Society

Jakosky, Bruce (Member, Advisory Board)

Radiation Belt Storm Probe Science Team

Baker, Daniel (Member)

Reviewer of Proposals, Manuscripts, or Creative Work

Albers, Nicole (Reviewer of manuscripts for Icarus and Astronomical Journal)

(Reviewer of manuscripts for AGU)

Bagenal, Frances (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)

Cassidy, Tim (Reviewer of manuscripts for Geophys. Res. L., J. Geophys. Res., and Icarus)

Cassidy, Tim (Reviewer of proposals for NASA)

Coddington, Odelle (Reviewer of manuscripts for Atmospheric Sciences, IEEE Transactions on Geoscience and Remote Sensing, Atmospheric and Oceanic Technology, Space Weather and Space Climate, NASA Remote Sensing Theory program, NASA Established Program to Stimulate Competitive Research, NSF Historically Black Colleges and Universities Undergraduate Program)

Dols, Vincent (Reviewer of manuscripts for JGR Planets)

Elkington, Scot (Reviewer of manuscripts for AGU, Nature, GRL, and JGR)

Elkington, Scot (Reviewer of proposals for NASA and NSF)

Eparvier, Frank (Reviewer of manuscripts for Solar Physics)

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

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

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

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

Fang, F. (Reviewer of proposals for NSF, manuscripts for Solar Physics, ApJ, and Astronomical Society of Japan)

France, Jeff. (Reviewer of manuscripts for Astronomical Chemistry and Physics and J. of Geophysical Research)

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 JASTP, A&A, Remote Sensing, Nature Scientific Data, NASA Earth Science, GRL, JGR, and ApJ.)

Harder, Jerry (Review of proposals for National Science Foundation)

Harvey, V. Lynn (Reviewer of proposals for NSERC of Canada, NASA LWS program, and NSF)

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

Holsclaw, Greg (Reviewer of proposal for NASA)

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

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

Jaynes, Allison (Reviewer of manuscripts for GRL and JRG)

Jaynes, Allison (Reviewer of proposals for NASA)

Jones, Andrew (Reviewer of manuscripts for Atmospheric Chemistry and Physics)

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

Kalnajs, Lars (Reviewer of proposals for NERC)

King, Michael (Reviewer of manuscripts for Journal of Quantitative Spectroscopy and Radiative Transfer, Atmospheric Measurement Techniques)

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 Physical Review Letters and Journal of Geophysical Research)

McCollom, 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.)

McCollom, T.M. (Reviewer of proposals for National Science Foundation, NASA and Petroleum Research Fund)

McCollom, T.M. (Reviewer of manuscripts for J. Geophys. Res., Meteoritics and Planetary Science, NASA, Geochimica et Cosmochimica Acta, Center for Dark Energy Biosphere Investigations, Agence National de la Recherche (France))

McGouldrick, Kevin (Reviewer of manuscripts for Icarus and J. Geophys. 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.)

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)

Richard, Erik (Reviewer of manuscripts for J. Remote Sensing)

Royer, Emilie (Reviewer of proposals for NASA, NESSF, and NPP)

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 NASA and NSF)
Usanova, Maria (Reviewer of papers for Geophys. Res. Lett., J. Geophys. Res., and J. Atmos. Sol-Terr. Phys.)
Wang, X. (Reviewer of manuscripts for PSS, Icarus and IEEE)
Wilson, Robert J. (Reviewer of manuscripts for Planetary and Space Science)
Zhao, H., (Reviewer of manuscripts for Geophys. Res. Letters and J. Geophys. Res.)

Science Team Member

Coddington, Odele (PACE: Plankton, Clouds and Ocean Ecosystem), (SIST: Solar Irradiance Science Team), (TSIS: Total and Spectral Solar Irradiance Sensor), (ISSI: International Space Science Institute)

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)

Solar Dynamics Observatory

Eparvier, Frank (Science Organizing Committee for 2016 Workshop)

Southwest Research Institute (SwRI)

Baker, Daniel (Elected Advisory Trustee (2016))

Student Advising

Andersson, Laila
Elkington, Scot
Eparvier, Frank
Harder, Jerry
Harvey, V. Lynn
Jaynes, Allison
Kalnajs, Lars
Kindel, Bruce
Kopp, Greg
Li, Xinlin
Malaspina, David
Merkel, Aimee
Osterloo, Mikki
Peterson, W.K.
Richard, Erik

Schmidt, K. Sebastian
Snow, Martin
Stewart, Glen
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)
Randall, Cora (Member, CU Aerospace Ventures Executive Committee, 2013-2016)
Sternovsky, Zoltan (Member, Undergraduate Committee)
Sternovsky, Zoltan (Member, Graduate Committee)
Sternovsky, Zoltan (Major revision of existing course ASEN3300)

Arts and Sciences (A&S)

Horányi, Mihály (Physics advising)
Randall, Cora (Chair, General Education Implementation Committee, 2016)
Randall, Cora (Member, Statistics Visioning Committee)

Astrophysics and Planetary Sciences (APS)

Bagenal, Frances (Member, Faculty Search Committee)
Baker, Daniel (Member, Graduate Admissions Committee)
Brain, David (Member, Faculty Search Committee)
Ergun, Robert (Joint Faculty)
Ergun, Robert (Member, Graduate Admissions Committee)
Ergun, Robert (Member, Course Fees Committee)
Ergun, Robert (Chair, Search committee for Department Chair)
Ergun, Robert (Member, Executive Committee)
Esposito, Larry (Joint Faculty)
Rast, Mark (Undergraduate Advisor)
Rast, Mark (Examinations Committee)
Rast, Mark (Executive Committee)
Schneider, Nicholas (APS Joint Faculty)
Schneider, (Undergraduate Research Supervisor)
Schneider, Nicholas (Chair, reappointment committee)
Schneider, Nicholas (Graduate recruiting events)

Atmospheric and Oceanic Sciences Department (ATOC)

France, Jeff (Judge for ATOC student poster conference)
Harvey, V.L. (Member, Admissions Committee)
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, 2010-2017)
Randall, Cora (ATOC Fest presentation, 2016)
Randall, Cora (Chair: ATOC Poster conference committee, 2016)
Randall, Cora (Member ATOC Curriculum Committee)
Randall, Cora (Faculty Mentor)
Randall, Cora (ATOC Faculty peer review/visitation)

Boulder Faculty Assembly

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

Boulder Faculty Survey (HERI CU)

Rast, Mark (Member)

Center for Astrophysics and Space Astronomy (CASA)

Woods, Thomas

Chancellor's Federal Relations Advisory Committee (FRAC)

Baker, Daniel (Member)

Committee on Restricted, Proprietary, and Classified Research (SCRPCR)

Randall, Cora (Member 2009-present)

External Advisory Board (Aerospace Engineering)

Baker, Daniel (Member)

Geology Department

Hynek, Brian (Chair, Graduate Admissions Committee)
Hynek, Brian (Member, Faculty Search Committee in Sedimentology)

Graduate School

Baker, Daniel (Member, Institute Directors Group)
Bagenal, Frances (Member, Executive Advisory Council)
Randall, Cora (Member, Graduate School Executive Advisory Council (2013-present))

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)

Toon, Owen B. (Department Chair)

Toon, Owen B. (Chair)

Pilewskie, Peter

Randall, Cora E.

Joint Faculty (Geology Department)

Jakosky, Bruce (Member)

Joint Faculty (Physics Department)

Horányi, Mihaly

(PAC) Postdoc Association of Colorado

Emilie Royer, President

Research and Innovation Advisory Board

Daniel Baker, Member

Member of a Dissertation/Thesis Committee

Andersson, Laila

Bagenal, Frances

Baker, Daniel

Brain, David

Crary, Frank

Elkington, Scot

Eparvier, Francis G.

Ergun, Robert

Fang, Xiaohua

Gosling, John

Harvey, V. Lynn

Horányi, Mihaly

Hynek, Brian

Jakosky, Bruce

Kalnajs, Lars

Kempf, Sasha

King, Michael

Li, Xinlin

McCollom, Thomas M.

Peterson, W.K.

Pilewskie, Peter

Randall, Cora

Rast, Mark

Schmidt, Konrad

Schneider, Nicholas

Sternovsky, Zoltan

Stewart, Glen
Toon, Owen B.

Member of a Masters or Ph.D. Qualifying Examination Committee

Bagenal, Frances
Brain, David
Fang, Xiaohua
Horányi, Mihaly
Hynek, Brian
Jones, Andrew
Kempf, Sasha
Li, Xinlin
Pilewskie, Peter
Randall, Cora
Rast, Mark
Schneider, Nicholas
Sternovsky, Zoltan

New Course Development

Hynek, Brian
Rast, Mark

Principal Dissertation/Thesis Advisor

Andersson, Laila
Bagenal, Frances
Baker, Daniel
Brain, David
Ergun, Robert
Esposito, Larry
Harvey, V.L.
Horányi, Mihaly
Hynek, Brian
Jakosky, Bruce
Kopp, Greg
Li, Xinlin
Pilewskie, Peter
Randall, Cora
Rast, Mark
Schneider, Nicholas
Sternovsky, Zoltan
Toon, Owen B.
Woods, Tom

Student Advising

Andersson, Laila
Bagenal, Frances

Baker, Daniel
Brain, David
Cassidy, Tim
Harvey, V.L.
Hynek, Brian
Jones, Andrew
Kopp, Greg
McClintock, William E.
Malaspina, David
Merkel, Aimee
Osterloo, Mikki
Randall, Cora
Rast, Mark
Schmidt, Konrad
Schneider, Nicholas
Snow, Martin
Sternovsky, Zoltan
Toon, O.B.
Woods, Tom

Sungrazing Comets Working Group

Snow, Martin (Member)

Supervisor of Postdoctoral Researchers

Bagenal, Frances
Schneider, Nicholas
Sternovsky, Zoltan

Vice Chancellor's Research Cabinet

Baker, Daniel (Member)

University of Northern Iowa

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

Universities Space Research Association (USRA)

Baker, Daniel (Vice Chair, Council of Institutes)
Baker, Daniel (Member, Board of Trustees)

Whole Heliospheric Interval Science Team

Snow, Martin (Member)

Faculty Honors/Awards

Aye, Klaus-Michael, NASA Group Achievement Award to Diviner Lunar radiometer Science Mission Team

Baker, Daniel, Governor’s Award for High-Impact Research in the category of Earth Systems and Space Sciences

Baker, Daniel, Advisory Trustee, Southwest Research Institute

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

Baker, Daniel, Vice Chair, USRA Council of Institutions

Baker, Daniel, Governors Award for High-Impact Research in the category of Earth Systems and Space Sciences

King, Michael D., Selected as Faculty Fellow, Texas A&M University Institute for Advanced Study

MAVEN Science Team, NASA Robert H. Goddard Exceptional Achievement Award

NASA group achievement award to the MAVEN mission team, Solar Dynamics Observatory Team, Robert H. Goddard Exceptional Achievement for Science Award

Courses Taught by LASP Faculty

Deca, Jan	PHYS 5150 Introductory Plasma Physics
McCullom, Tom	Graduate Level Astrobiology
Osterloo, Mikki	ASTR/ATOC/GEOL 5835 Planetary Seminar
Schneider, Nick	ASTR 3710 Solar system formation and dynamics
Schneider, Nick	ASTR 3720 Planets and their atmospheres

Colloquia and Informal Talks

Bagenal, Fran, CU/LASP, Pluto – The Pugnacious Planet	Bottke, Bill, (SwRI), The calm before the storm: Exploring the post-accretionary doldrums prior to the late heavy bombardment
Baker, D.N., Effects of severe space weather on modern technological systems	Dong, Yaxue, CU/LASP, MAVEN observations of Martian ion escape and the seasonal variabilities
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- Baker, D.N., Space weather economic impacts, Capital Hill Panel Briefing, Rayburn Building, U.S. Congress, Washington, DC, 31, March 2016.
- Baker, D.N., Potential impacts of space weather, USRA/George Washington University, Washington, DC, 31 March 2016.
- Baker, D.N., Heliophysics Science Overview, NASA @My Library Kickoff Meeting, Boulder, CO, 4 May, 2016.
- Baker, D.N., The Laboratory for Atmospheric and Space Physics (LASP): Understanding particles and fields throughout the Solar System, Longmont Astronomical Society, Longmont, CO, 19 May, 2016.
- Baker, D.N., Overview of Laboratory for Atmospheric and Space Physics (LASP), College of Engineering, University of Colorado, Boulder, 25 August 2016.
- Baker, D.N., Space Weather; preparing for CME's, address to the Libertarian Party of Boulder, 1 September, 2016.
- Baker, D.N., How severe space weather affects our daily technology and economy, CU Boulder Career Connections, Johns Hopkins, APL, Laurel, MD, 29 September, 2016.
- Baker, D.N., Overview of Space Weather, Johns Hopkins, APL, Laurel, MD, 29 September, 2016.

Talks Presented to Scientific Groups

- Andersson, L., Spacecraft charging at Mars, European Space Agency, Netherlands, 2016.
- Aye, K.-M, and L.W. Esposito, Searching for structure in the rings of Saturn, LPS Conference, 47, 2016.
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- Bagenal, F., NASA's Juno mission to Jupiter, LPI, Houston, TX, April, 2016.
- Bagenal, F., NASA's New Horizons mission to Pluto, American Meteorological Society, New Orleans, Jan, 2016.
- Bagenal, F., NASA's New Horizons Mission to Pluto, IGPP Seminar, Los Angeles, CA, Feb. 2016.
- Bagenal, F., NASA's New Horizons mission to Pluto, Physics Dept., U. of South Dakota, April, 2016.
- Bagenal, F., Pluto the Pugnacious Planet, LPL, Tucson, April, 2016.
- Baker, D.N., Basics of space weather and its economic impacts, AAAS, Washington, DC, 15 February 2016.
- Baker, D.N., Effects of severe space weather on modern technological systems, Chancellor Event, Denver, CO, 29 March, 2016.
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- Baker, D.N., Overview of Space Weather, Johns Hopkins, APL, Laurel MD, 30 September 2016.

- Baker, D.N., Effects of severe space weather on technological systems, National Security Space Weather Impacts Meeting, APL, Laurel, MD, 16-18 February, 2016.
- Baker, D.N., Energetic-Electron flux enhancements in Mercury's magnetosphere: An integrated view with high-resolution observations from MESSENGER, EGU, Vienna, Austria, 18-22 April, 2016.
- Baker, D.N., Enhancements and losses of radiation belt particles: Van Allen Probes Observations, AAAS, Washington, DC, 15 February 2016.
- Baker, D.N., et al., Magnetospheric Multiscale (MMS) and Van Allen Probes Study of Substorm Injections, Fall AGU meeting, San Francisco, CA, 23-26 December 2016.
- Baker, D.N., Extreme space weather: "Cradle to grave aspects", International Space Science Institute (ISSI), Bern, Switzerland, 30 June, 2016.
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- Baker, D.N., New results concerning particle energization in Earth's Van Allen Radiation Belts, ILWS-COSPAR Space Weather Roadmap Workshop, Goa, India, January 2016.
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- Baker, D.N., The Laboratory of Atmospheric and Space Physics (LASP): Understanding particles and fields throughout the Solar System, NoCoAstro, Ft. Collins, CO, 3 March 2016.
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- Baker, D.N. Space Weather: R20-O2R, Community perspectives on the R20 and o2R Process, NOAA, 2016.
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- Baker, D.N., The major solar eruptive event in July 2012: Defining extreme space weather scenarios, Space Climate 6, Levi, Finland, 5 April, 2016.
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- Coddington, O., et al., Cloud retrieval information content studies, PACE Annual Science Team Meeting, 2016.
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- Fisk, L., D.N. Baker, and N. Fox, The space weather forecasting imperative, Commentary in Space News, December, 2016.
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- Hackett, A.M., et al., On the identification of elevated stratopause events, Young Scientist Symposium, Colorado State University, 4 November 2016.
- Hansen, C.J., et al., PlanetFour Terrains: A citizen science project to study the South Polar region of Mars, LPS Conference 47, 2016.
- Harvey, V., et al., Transport at the top of the polar vortices in WACCM, AGU, San Francisco, CA, 2016.
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- Jaynes, A.N., et al., The crucial role of substorms and whistler-mode chorus waves in the rebuilding of Earth's radiation belts, SHIELDS Meeting, LANL, Santa Fe, NM, 2016.
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- Malaspina, D.M., et al., Distributions of VLF wave power in the inner magnetosphere as organized by plasmopause location, URSI/NRSM meeting, Boulder, CO, 2016.
- Malaspina, D.M., Plasma boundaries: A bridge between macro-scale and micro-scale physics, UCLA Space Physics Seminar, UCLA, 2016.
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- Probes Science Working Group Meeting, APL, Laurel, MD, 2016.
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- Pettit, J., et al., Effects of the September 2005 solar flares and solar proton events on the middle atmosphere, Young Scientist Symposium, Colorado State University, 4 November 2016
- Pettit, J., et al., Atmospheric effects from the September 2005 solar flares and solar proton events, AGU, San Francisco, CA, 2016.
- Pilewskie, P., et al., Solar spectral irradiance and climate: Current understanding and future observations from the total and spectral solar irradiance sensor, 2016 International Radiation Symposium, New Zealand, 2016.
- Pilewski, P., et al., ECHO: Earth Climate Hyperspectral Observatory: Advances in cloud and aerosol remote sensing, Amer. Meteorological Society, 2016.
- Randall, C.E., Atmospheric effects of energetic electron precipitation, AGU, San Francisco, CA, 2016.
- Rong, P., et al., Whole season GW tracking analysis applied to CIPS PMC imagery – Team Report on SPARC poster presentation, Aeronomy of Ice in the Mesosphere science meeting, Blacksburg, VA, June 2016.
- Royer, Emilie, Titan enhanced airglow, UVIS team meeting Pasadena, CA, 6-8 January, 2016.
- Royer, Emilie, Variation of the Titan airglow with the solar zenith angle, LPSC in the Woodlands, TX, March, 2016.
- Royer, Emilie, Variation of Titan's airglow with the solar zenith angle, UVIS meeting Pasadena, CA, 6-8 January, 2016.
- Schmidt, K.S., Spectral radiative effects of aerosols in absence and presence of clouds from the SSFR/4STAR perspective, Phil Russell Symposium, NASA Ames, March, 2016.
- Schmidt, K.S., and O. Coddington, The radiative effect of thin boundary layer clouds in the Arctic, EGU General Assembly, Austria, 2016.
- Siskind, D.E., et al., Persistence of upper stratospheric winter time tracer variability into the Arctic spring and summer, Aeronomy of Ice in the Mesosphere Science meeting, Blacksburg, VA, June 2016.
- Snow, M., et al., LASP and the SOLAR Mission, SOLAR Facility Science Team Meeting, Netherlands, 2016.
- Taylor, M.J., et al., Coordinated ground-based and AIM satellite measurements of mesospheric and stratospheric waves over South America, AGU, San Francisco, CA, 2016.
- Thiemann, E., and R.G. Eparvier, A lumped element thermal model for solar flare light curves in the EUV, NOAA Space Weather Workshop, April 2016.
- Thiemann, E., et al., Density retrievals of the Mars hydrogen exosphere from MAVEN solar Lyman-Alpha occultations, LPSC, Houston, March, 2016.
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- Usanova, M.E., and I.R. Mann, EMIC waves in the Earth's inner magnetosphere, URSI Asia-Pacific Radio Science Conference, Korea, August, 2016.

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Sponsored Programs

Bagenal, F	SwRI	SwRI Student Task Order #4 Flight Integration of the ASTERIA Infrasond Balloon-Borne Payload
Bagenal, F	SwRI	JUICE-UVS: An Ultraviolet Spectrograph for the JUICE Mission
Bagenal, F	SwRI	SwRI Student Task Order #1 Haze Particles in Titan's Atmosphere
Bagenal, F	SwRI/NASA	Surface Evolution of Pluto and Charon
Bagenal, F	SwRI	SwRI Student Task Order #2 Integration, Testing and Flight of a Balloon-Borne Infrasond Monitoring Payload Ballard
Bagenal, F	SwRI	Spectrometry of Pluto's Variable Atmosphere and Surface
Bagenal, F.	SwRI	Spectrometry of Pluto's Variable Atmosphere and Surface
Bagenal, F	SwRI	SwRI Student Task Order #3 Characterizing the Icy Galilean Satellite Surfaces
Bagenal, F	SwRI	JUNO Science Support - Phase E Activities
Bagenal, F	SwRI	New Horizon Pluto-Kuiper Belt Mission Phase B
Baker, D	UCAR	REU Summer at LASP: An Interdisciplinary Undergraduate Research Program in Solar & Space Physics with NCAR
Baker, D	Carnegie Inst.	Science Team Support for the MESSENGER Mission - Phase E
Baker, D	NSF	REU Site: An Interdisciplinary Undergraduate

		Research Experience in Solar and Space Physics
Baker, D	JHU	MMS EPD FEEPS- FEEP Data Products - Phases B, C,D, E
Baker, D	UNH	Relativistic Electron-Proton Telescope (REPT) Instrument on the "Radiation Belt Storm Probes (RBSP) - Energetic Particle, Composition, and Thermal Plasma (ECT) Suite" (Phase B)
Brain, D	NASA/GSFC	The First Suprathermal Electron Measurements at Venus: Connections Between the Plasma Environment and Atmosphere
Brain, D	NASA	Influence of Asteroid and Comet Impacts on Atmospheric Abundances at Venus, Earth and Mars
Cassidy, T	Prisma Basic Research	Investigation of Cassini Data for the Sources of H in the Saturn System
Cassidy, T	SwRI/NASA	Mercury's Sodium Exosphere from Ground and Space: Comparing Measurements from MESSENGER with Earth Based Observations
Cranmer, S	NSF	SHINE: Accelerating the Turbulent Solar Wind One Flux Tube at a Time
Crary, F	JPL	CubeSAT for Ice Layer Thickness (CSALT): A Europa CubeSat Concept Study
Crary, F	JPL	Cassini Mission Support
Crary, F	SwRINASA	Ion Cyclotron Waves and Pickup Ions: Mapping Plasma Production in Saturn's Magnetosphere
Crary, F	SwRINASA	Ion Cyclotron Waves and Pickup Ions: A Multi-Instrument Study of Ionospheric Loss from Mars
DeNeen, M	JPL	Continuous Integration in a Multi-Mission Environment
Dols, V	NASA	Constraining Io's Mass Loss: Modeling the Magnetosphere-Satellite Interaction
Elkington, S	SwRINASA	Investigating the effects of azimuthal structure on ULF-driven particle transport and energization in the radiation belts (Student: Ashar Ali)
Elkington, S	SwRINASA	Understanding Inner Magnetospheric Chorus Waves Using the Van Allen Probes
Elkington, S	SwRINASA	Investigations of Radiation Belt Precipitation
Ergun, R	UNH	Magnetospheric Multiscale (MMS) Fields Investigation Digital Signal Processor and Axial Double Probes
Ergun, R	UNH	Magnetospheric Multiscale (MMS) Fields

		Investigation Digital Signal Processor and Axial Double Probes
Ergun, R	U Minn	Electric Field and Waves (EFW) Instrument
Ergun, R	UCB	Time History of Events and Their Macroscopic Interactions During Substorms (THEMIS)
Ergun, R	UCB	Digital Field Boards Solar Probe Plus Investigations
Eriksson, K	NSF	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	LANL	Non-linear Coupling between Magnetic Reconnection and the Kelvin-Helmholtz Instability in Magnetospheric Boundary Layers
Esposito, L	JPL	Venus In Situ Explorer (VISE)
Esposito, L	JPL	VASE - Venus Atmosphere and Surface Explorer
Esposito, L	JPL	Cassini Solstice Mission
Fleming, B	STScI	High Efficiency SNAP Survey for Lyman Alpha Emitters at Low Redshift (HST 13761)
Fleming, B	SwRINASA	Prototyping and Flight Qualification of High-Reflectivity Broadband Mirror Coatings for the Next Generation of Space Observatories
France, K	STScI	Unveiling the Circumstellar Environment of the Most Extreme Hot-Jupiter (HST 13859)
France, K	STScI	Stars, Planets, and the Search for Life in the Universe
France, K	STScI	Reconstructing Lyman Alpha Radiation Fields in T Tauri Stars
France, K	JPL	Advanced Coatings Enabling High Performance Instruments for Astrophysics Missions
France, K	NASA GSFC	Development and Flight-testing of Next Generation Technology for Ultraviolet Astronomy
France, K	STScI	The MUSCLES Treasury Survey: Measurements of the Ultraviolet Spectral Characteristics of Low-mass Exoplanetary Systems (HST 13650)
France, K	SwRINASA	Development of HEROICs: High-sensitivity, High-dynamic Range Detector Systems for Ultraviolet Astronomy
France, K	NASA GSFC	Development and Flight-testing of Next Generation Technology for Ultraviolet Astronomy

Harder, J	SwRINASA	Construction of a SORCE-based Solar Spectral Irradiance (SSI) Record For Input Into Chemistry Climate Studies of Solar Cycle 23 – 24
Harvey, L	NSF	Collaborative Research: CEDAR -- Understanding the High-to-Mid Latitude Ionospheric Response to Stratospheric Warmings
Horanyi, M	JPL	Cassini CDA Solstice (XXM)
Horanyi, M	SwRI	New Horizons Mission Student Dust Counter (SDC) New Horizons Mission Phases C/D
Horanyi, M	JPL	Dusty Plasma Observations by Rosetta
Horanyi, M	NASA Ames	Solar System Exploration Research Virtual Institute (SSERVI)
Hynek, B	SwRI	Material Properties of Dune Fields in the Southern Highlands of Mars from Thermophysical Observations and Modeling
Hynek, B	SwRI	Material Properties of Dune Fields in the Southern Highlands of Mars from Thermophysical Observations and Modeling
Hynek, B	NASA	Geologic Map of the Coprates Chasma (MTM-15057), Valles Marineris, Mars
Jakosky, B	NASA GSFC	MAVEN - PI & PI Support, Phase E Science, EPO
Kalnajs, L	NSF	Collaborative Research: High Resolution Study of Atmosphere, Ice, and Aerosol Interactions in Coastal Antarctica
Kempf, S	JPL	Cassini CDA Solstice (XXM)
Kempf, S	JPL	Europa Clipper Mission Concept Data Products: Modeling Plume Composition and Physical Parameters
Kempf, S	NASA	Investigating Dust Exospheres by LADEE
Kopp, G	NASA	A TSI Community Consensus Composite Based on an Assessment of the Accuracies and Uncertainties of Space-borne TSI Measurements
Li, X	NSF	CubeSat: Colorado Student Space Weather Experiment
Massie, S	NASA	Aerosol Effects on Cloud Heights and Precipitation
Massie, S	NASA	Absorptive Aerosols and Clouds: Application of the PNNL-MMF Model and Analysis
Massie, S	NASA	The Influences of Clouds and Aerosols on OCO-2 Spectra
Massie, S	NASA	Decadal Changes in Cloud Geographical Distributions
McClintock, W	VPI	Rocket Observations of Nitric Oxide in the Polar Night by Stellar Occultation
McClintock, W	Carnegie Inst.	Science Team Support for the MESSENGER

		Mission - Phase E
McClintock, W	UCF	Global Scale Observation of the Limb and Disk (GOLD) SALMON Project
McCollom, T	USC	Center for Dark Energy Biosphere Investigations (C-DEBI) – Investigation Theme Team Leadership
McCollom, T	Ohio State	Reduced Carbon in Earth: Origin and Distribution of Abiotic Hydrocarbons
McCollom, T	NASA Ames	Rock Powered Life: Revealing Mechanisms of Energy Flow from the Lithosphere to the Biosphere
McCollom, T	SwRINASA	Methods for Remote Detection of Mineral Composition for the Alunite-Jarosite Group
McGrath, M	Emirates Inst.	Concept and Technology Development Study Proposal Mars Exploration for Emirates Institution for Advanced Science and Technology (EMX)
Merkel, A	DOD NRL	Understanding the Polar Lower Atmospheric Hydrogen Hole: Causes and Consequences
Morooka, M	U. of Iowa	Cassini Langmuir Probe Data Archiving for the Kronian Magnetosphere
O'Connor, D	NASA GSFC	High Rate Cubesat X-band/S-band Communication System
Osterloo, M	NASA	Assessing Compositional Variability of Martian Deltas
Pilewskie, P	NASA Ames	Solar Spectral Flux Radiometer Measurements for ATTREX
Pilewskie, P	NASA GSFC	Total and Spectral Irradiance Sensor (TSIS)
Portyankina, A	SwRINASA	Interaction of Dusty Polar Cryo Jets with the Lower Atmosphere on Mars
Possel, W	U Arizona	OSIRIS-REx Science Payload Operations Center Review Board
Possel, W	Stellar Solutions	QuakeFinder Software Development
Possel, W	Lockheed Martin	Space Based Infrared Systems (SBIRS) - Engineering Support
Possel, W	Ball Aerospace	Kepler Mission Operations: Phase E Extended Mission
Possel, W	Ball Aerospace	Mission Operations of the NASA QuikSCAT Satellite
Possel, W	SwRI	Magnetosphere Multiscale (MMS) Mission for Magnetospheric Acceleration, Reconnection and Turbulence (SMART)
Randall, C	UNH	Sun to Ice - Impacts on Earth of Extreme Solar Events
Reed, H	SwRI	CYGNSS Stop Lite Analysis
Richard, E	NASA	The Analysis of Improved Laboratory Measurements in the Recalibration and Revaluation of the SORCE SIM Data Record

Schmidt, S	NASA Ames	ORACLES: ObserVations of Aerosols above Clouds and their intEractionS
Schmidt, S	SwRINASA	Linking the Radiative Energy Budget and Remote Sensing of Cloud and Aerosol Fields
Schneider, N	PSI	The Ins and Outs of the Io Plasma Torus: A Comparison of Two Decades of Io Plasma Torus and IoVolcanic Data
Schneider, N	NASA GSFC	Testing New Models of Water Escape through Analysis of Mars Express Data
Snow, M	SwRINASA	Solar Spectral Irradiance: Lyman Alpha, Magnesium II and Sigma K proxiEs (SSIAMESe)
Snow, M	SwRINASA	Multi-Satellite Ultraviolet Solar Spectral Irradiance Composite (MUSSIC)
Sternovsky, Z	SwRINASA	Nano-Dust Dynamics and Distribution in the Inner Heliosphere
Sternovsky, Z	SwRINASA	Laboratory Investigation of Dust Impacts on Antennas in Space
Sternovsky, Z	NASA GSFC	Experimental Investigation of Micrometeoroid Ablation
Sternovsky, Z	NASA GSFC	High-performance In-situ Dust Analyzer
Toon, O	JPL	Polar Processing Studies of the Arctic and Antarctic: New Constraints from A-Train Observations and the WACCM-SD/ CARMA Model
Toon, O	NASA	Constraining Exoplanet Climates and Habitability Using Three-dimensional Climate Methods
Toon, O	NASA	Using Aircraft, Satellite and Ground Based Data to Improve Models Of Clouds and Aerosols and to Apply Them to Problems of Interest to Atmospheric Chemistry and Climate
Toon, O	NASA Ames	Airborne Tropical Tropopause Experiment (ATTREX) Platform Scientist, 3-D Microphysical Modeling
Trattner, K	SwRI	HPCA Bridge
Trattner, K	SwRI	Magnetic Topology at the Earth's Magnetopause: Low Latitude Reconnection for Northward IMF
Trattner, K	SwRI	Phase D and E Science Support for MMS HPCA
Trattner, K	SwRI	ROSETTA/ROSINA ((The ROsetta Spectrometer for Ion and Neutral Analysis) (ROSINA) in the ROSETTA Mission)
Trattner, K	Lockheed Martin	Key Parameter for the Mass and Energy Transfer at the Magnetopause Determined

		from Cusp Structures
Wilder, F	NSF	GEM: The Role of Magnetosheath Pressure Balance in Magnetosphere-Ionosphere Coupling and Alfvén Wing Formation
Woods, T	NWRA	Implementation of Real-Time High-Resolution EUV Solar Spectral Irradiance Forecast
Woods, T	NASA GSFC	Timed See Extended Mission
Woods, T	NASA	Miniature X-ray Solar Spectrometer (MinXSS) CubeSat Mission
Woods, T	NASA GSFC	Extreme Ultraviolet Variability Experiment (EVE)
Woods, T	NASA GSFC	SORCE/ EOS Solstice