

Laboratory for Atmospheric and Space Physics



Activity Report
2017
University of Colorado at Boulder

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VOYAGER CELEBRATES 40 YEARS

Celebration of the 40th anniversary of the launches of the Voyager spacecraft (August 20th for Voyager 2, September 5th for Voyager 1) provided an opportunity to reflect on the great accomplishments of these missions. The once-every-186-year alignment of the planets allowed Voyager 2 to get a gravity boost as it passed Jupiter, Saturn and Uranus to arrive at Neptune just 12 years after launch (reduced from a ‘regular’ 30-year journey). Voyager 1 passed Jupiter and Saturn, making a close flyby of the moon Titan before leaving the ecliptic plane. The Voyagers’ spectacular pictures of these giant planets and their moons transformed our knowledge of the outer solar system, revealing unimagined

variety of worlds from the volcanoes on Io to the chopped-up surface of Miranda.

LASP's primary role in the Voyager mission was the Photopolarimeter (PPS) experiment which provided information about atmospheric properties of the gas planets, surface texture and composition of moons of Jupiter, Saturn, Uranus, and Neptune, along with information of size distribution and composition of Saturn's and Uranus' ring systems. Moreover, many of LASP's scientists cut their teeth on Voyager data from various instruments at different institutions, bringing their experience to LASP.

The Voyager 1 and 2 are now at 140 and 115 AU from Earth, respectively, where the one-way communication time is over 16 hours. Both spacecraft have left the Heliosphere, the region dominated by the Sun's magnetic field and solar wind. Voyager 1 is in Interstellar space and Voyager 2 is currently in the Heliosheath, the boundary layer where the solar wind is slowed by the pressure of interstellar gas. Because the electric power provided by the radioisotope thermoelectric generator on each spacecraft decreases by 4 watts each year, engineers expect to keep the current suite of science instruments on Voyager 1/2 operating through 2021/2020, but recognize that it is unlikely to continue communicating with the Deep Space Network beyond about 2036.

Montage of planets and some moons the two Voyager spacecraft have visited and studied. The year 2017 marks the 40th Anniversary of the Voyager mission.



Artist's conception of Cassini's final dive into Saturn

Cassini's final discoveries— Saturn as never seen before

The NASA Cassini orbiter ended its 13-year exploration of the Saturn system on September 15, burning up in the planet's atmosphere as planned. The UltraViolet Imaging Spectrograph (UVIS) took data through the last moment of the final 22 orbits, which began in April and brought the spacecraft closer to Saturn than any mission before.

UVIS was designed, built, tested, and operated by LASP with the initial NASA contract beginning in 1990. Even though the mission has ended, team members worldwide will continue to interpret instrument observations and publish results in scientific journals for years to come.

During the six months preceding Cassini's dramatic finale, UVIS collected valuable information that was too risky to obtain earlier in the mission. These discoveries include the closest images ever obtained of Saturn's auroras, and the glowing air of Saturn that enveloped the spacecraft during Cassini's final data transmission, sent a minute before the spacecraft burned up. The final auroral image reveals a never-before-seen bright spot of emission closest to Saturn's north pole. The final UVIS spectrum shows glowing hydrogen from the atmosphere and nitrogen from the spacecraft's thrusters, experienced in situ for the first time.

Although the end of the mission was bittersweet for all involved, Cassini's "Grand Finale" ensured that its entire payload, including UVIS, contributed awe-inspiring and unique science data right up to its final moments. Cassini deepened our understanding of the universe and heightened our connection to the outer solar system. At its conclusion, it will be remembered as one of the most scientifically rich and impactful voyages yet undertaken.

Contributed by Dr. Larry Esposito, Cassini-UVIS principal investigator.

NASA's Cassini spacecraft and ESA's Huygens probe expanded our understanding of the kinds of worlds where life might exist and eight more reasons the mission changed the course of planetary exploration.

The Cassini–Huygens mission, commonly called Cassini, was a collaboration between NASA, the European Space Agency, and the Italian Space Agency to send a probe to study the planet Saturn and its system, including its rings and natural satellites. The Flagship-class robotic spacecraft comprised both NASA's Cassini probe, and ESA's Huygens lander which landed on Saturn's largest moon, Titan. Cassini was the fourth space probe to visit Saturn and the first to enter its orbit. The craft were named after astronomers Giovanni Cassini and Christiaan Huygens.

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 (LASP). The number of persons presently employed by LASP has reached 650. 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 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 milestones. The progression from those early days to the present level and scope of LASP research and infrastructure has been quite remarkable.

This annual report tells some of the LASP story. Research in atmospheric science, planetary exploration, and solar and space physics has achieved new levels. Engineering, data systems, and mission operations parts of the Laboratory have had clear successes as well. The education and training aspects of LASP are preparing new generations of students. This is having worldwide reach as the space workforce has developed and diversified.

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

In previous reports, there has been description of the unique role LASP plays in world space research. It is clear that academic research is at the core of the revitalizing world space program. This fact is appreciated by policy makers, business leaders, and academic institutions themselves. Clearly, there needs to be a reaffirmation of a commitment to space research in the academic setting. LASP will do all it can to make this commitment an even greater reality.

LASP succeeds by having the support of CU and its people. Special thanks go to the CU-Boulder Administration for their unflagging support of LASP and its mission. Thanks also to the key people in contracts administration, procurement, facilities management, and other domains 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 2017.

Daniel N. Baker

Please visit LASP's Website for the latest developments:

<http://lasp.colorado.edu>

LASP Activity Reports can be found at:

<http://lasp.colorado.edu/home/about/publications/activity-reports>

LASP ORGANIZATION



LASP Appropriated Funding

During the period 1/1/2017 to 12/31/2017 LASP appropriated funding totaled \$47,408,887 for support of 166 grants and contracts.

CY 2017 by Sponsor and Sponsor Type

Percent of Total:	39%	4%	0%	37%	2%	5%	4%	9%	100%
SPONSOR	F--FEDERAL	P--PRIVATE	A--ASSO & FND	I--INT'L	U--PRIV UNIV	O--OTHER GOVT-PRIV - NON PROF	D--PUB UNIV	Grand Total	
AIR FORCE RESEARCH LAB	\$29,757							\$29,757	
AMES RESEARCH CENTER	\$463,137							\$463,137	
BALL AEROSPACE		\$1,003,948						\$1,003,948	
BLUE CANYON TECHNOLOGIES LLC		\$1,890						\$1,890	
CARNEGIE INSTITUTE OF WASHINGTON			\$116,652					\$116,652	
EMIRATES INSTITUTION FOR ADVANCED SC				\$17,565,174				\$17,565,174	
GLOBAL SCIENCE AND TECHNOLOGY		\$15,445						\$15,445	
GODDARD SPACE FLIGHT CENTER	\$14,885,165							\$14,885,165	
HAMPTON UNIVERSITY					\$798,047			\$798,047	
JET PROPULSION LABORATORY						\$2,166,629		\$2,166,629	
JOHNS HOPKINS UNIVERSITY					\$269,026			\$269,026	
LANGLEY RESEARCH CENTER	\$50,300							\$50,300	
LOCKHEED MARTIN		\$36,225						\$36,225	
LOS ALAMOS NATIONAL LABORATORIES		\$0						\$0	
NASA HEADQUARTERS	\$2,204,365							\$2,204,365	
NATIONAL SCIENCE FOUNDATION	\$386,225							\$386,225	
NAVAL RESEARCH LABORATORY	\$9,553							\$9,553	
NET-CENTRIC DESIGN PROFESSIONALS		\$19,318						\$19,318	
NORTHWEST RESEARCH ASSOCIATES INC		\$31,386						\$31,386	
PLANETARY SCIENCE INSTITUTE						\$26,153		\$26,153	
PRISMA BASIC RESEARCH		\$21,811						\$21,811	
RICE UNIVERSITY					\$0			\$0	
SCIENCE SYSTEMS & APPLICATIONS INC		\$591,899						\$591,899	
SOUTHWEST RESEARCH INSTITUTE						\$1,915,829		\$1,915,829	
SPACE SCIENCE INSTITUTE		\$3,108						\$3,108	
SPACE TELESCOPE SCIENCE INSTITUTE						\$140,947		\$140,947	
THE RESEARCH FOUNDATION FOR SUNY ON			\$9,444					\$9,444	
UNIVERSITY CORP FOR ATMOSPHERIC RESEARCH			\$7,747					\$7,747	
UNIVERSITY OF ARIZONA							\$0	\$0	
UNIVERSITY OF CALIFORNIA BERKELEY							\$359,570	\$359,570	
UNIVERSITY OF CALIFORNIA LOS ANGELES							\$36,152	\$36,152	
UNIVERSITY OF CENTRAL FLORIDA							\$3,051,159	\$3,051,159	
UNIVERSITY OF IOWA							\$629	\$629	
UNIVERSITY OF MARYLAND COLLEGE PARK							\$16,088	\$16,088	
UNIVERSITY OF MICHIGAN							\$0	\$0	
UNIVERSITY OF MINNESOTA							\$107,244	\$107,244	
UNIVERSITY OF NEW HAMPSHIRE							\$500,237	\$500,237	
UNIVERSITY OF WISCONSIN SYSTEM							\$11,216	\$11,216	
VIRGINIA TECH UNIVERSITY							\$78,224	\$78,224	
WASHINGTON DC HEADQUARTERS (NASA)	\$479,186							\$479,186	
Grand Total	\$18,507,688	\$1,725,032	\$133,843	\$17,565,174	\$1,067,073	\$2,307,576	\$1,941,982	\$4,160,520	\$47,408,887

Federal	\$18,507,688	39%
Non-Federal	\$28,901,199	61%
Total	\$47,408,887	100%

Daniel N. Baker, Director
LASP Scientists

Tenure Track:

Frances Bagenal
David Brain
Benjamin Brown
Robert Ergun
Larry W. Esposito
Mihály Horányi
Brian Hynek
Bruce M. Jakosky
Sasha Kempf
Xinlin Li
Peter Pilewskie
Cora E. Randall
Mark P. Rast
Nicholas
Schneider
Zoltan Sternovsky
Owen B. Toon

Research Associates:

Joseph Ajello
Nicole Albers
Laila Anderssen
Axel Brandburg
Timothy A. Cassidy
Michael Chaffin

Odele Coddington
Steven Cranmer
Jan Deca
Vincent Dols
Scot Elkington
Francis G. Eparvier
Stefan Eriksson
Xiaohua Fang
Christopher Fowler
Jerald W. Harder
Lynn Harvey
Greg Holsclaw
Sean Hsu
Andrea Hughes
Sonal Jain
Allison Jaynes
Andrew Jones
Lars Kalnajs
Bruce Kindel
Michael King
Greg Kopp
Trevor Leonard
Wenlong Liu
William E. McClintock
Tom McCollom
Kevin McGouldrick

David Malaspina
Aimee Merkel
Mikki M. Osterloo
William Peterson
Erik C. Richard
Thomas Rimmele
Sebastian Schmidt
Martin Snow
Glen R. Stewart
Maria Usanova
Frederick Wilder
Robert J. Wilson
Thomas N. Woods
Hong Zhao
Yunqian Zhu

Research Scientists

Y. Dong
Emily Royer
Justin Deighan
Klaus-Michael Aye
Jeff France
Fang Fang
Jean-Francois Cossette

Visiting Scholars

Jim McTiernan, UC, Berkeley, CA; Craig Rodger, University of Otago, Dunedin, New Zealand; Joseph Michalski, Planetary Science Institute, Tucson, AZ; Stein Sture, Vice Chancellor for Research, U. of Colorado

2017 Retirees

Christina Barcion; Alan Goodrich; Alain Jouchoux; Karen Mackison; Karen Springfield; Peter Wise

Engineering/Mission Ops/Administration/Science

Engineering/ Programs	Elizabeth Devito	Thomas Hollowell
Heyam Alblooshi	Sharon Dooley	Alan Hoskins
Mohammad Alemadi	Virginia Drake	Vaughn Hoxie
Hamad Alhazami	Donrich Ebuon	Karl Hubble
Gregg Allison	Gary Eldridge	Marston R. Jacobson
Mike Anfinson	Darren Erickson	David James
Rory Barrett	Joey Espejo	John Janiczek
Anthony Barsic	Nathaniel Farber	Lisa Jilek
Susan Batiste	Brian Fenton	Magnus Karlsson
Wayne Baumann	Nicolas Ferrington	Tom Keaton
Helmut P. Bay (Ret.)	Charles Fisher	Nicholas Kenny
Christopher Belting	Richard Fisher	Mark Kien
Anne Bennett	Melanie Fisher	Matthew King
Theodore Bertele	Kier Fortier	Michael King
Ryan Bolin	Bryce Fox	Brian M. Kirby
Bryce Bolton	Wendy Frank	Michael Klapetzky
Mary Bolton	Darrin Gates	Scott Knappmiller
Michael Bonnici	David Gathright	Edith Knehans
Sarah Bowen	Andrew Germer	Richard Kohnert
Brian D. Boyle	Joseph Girard	Kraig Koski
Shelley Bramer	Alan Goodrich	Chelsey Krug
Axel Brandenburg	Nicolette Goulart	Daniel Kubitschek
Diane Brening	Tyler Greene	Alex Lampe
Nathanial Brennan	Scott Gurst	Bret Lamprecht
Patrick Brown	David Hall	Ryan Lewis
Linda Buckhannon	Ward Handley	Ken Liu
Zachary G. Castleman	Jeffrey Hanel	John Lowe
Elizabeth Cervelli	David Harber	Michael McGrath
Amal Chandran	Sally Haselschwardt	Daniel Maguire
Matthew Cirbo	Kelly Hepburn	Karen Mackison
David Crotser	James Herring	Rachel Mamich
Robert Darveaux	Karl Heuerman	Mat Merkow
Wayne Davis	Carl Himpself	Colin Miller
Terry Deshler	Tim Holden	Marc Miller

James Morton
Stephen Morton
Aref Nammari
Gregory Newcomb
Khiem (Dan) Nguyen
Robert Nichols
Tammie Ogden
Glen Otzinger
Heather Passe
Thomas Patton
Nicholas Patzer
Norman C. Perish
Brian Pramann
Amal Ramachandran
Mary Rider
Michaela Rogers
Timothy Ruske
Joel Rutkowski
Christopher Sanders
Charles Schira
Madeline Schrader
Durbin Seidel
Nathan Sheiko
Elizabeth Sholes
Patti Sicken
Wayne Sidney
Trevor Sigmund
Erin Simons-Brown
Alan Sims
Kokila Siva
Paul Smith
Thomas Sparn
Jerry Spivey
Jacob Sprunk
Selby Stout
Kathleen Summers
Dwayne Swieter
Gail Tate

Trent Taylor
Jon Theide
Wayne Tighe
Christopher Tomso
Justin Trammell
Matt Triplett
Kathy Troxel
Scott A. Tucker
Kush Tyagi
Tyler Sutherland
Gregory Ucker
Ryan Van Halle
Michelle Villeneuve
Douglas Vincent
Tracy Vincent
Stacy Wade
Isaac Wanamaker
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

Thomas Baltzer
William Barrett
Stephane Beland
Gabe Bershenyi
Russell Bjella
Karen Beth Bryant
Michael Bryant
Benjamin Busby

Steve Carson
James Craft
Brent Craig
Matt DeNeen
Alexandra DeWolfe
Brian Douglass
James Draper
Teddy Eberts
Thomas Eden
Jack Faber
Sierra Flynn
Sasha Forsyth
Samuel Gagnard
Ken Griest
Jason Gurgel
Ward Handley
Maxine Hartnett
Patricia Horn
Michael Hutchison
Christian Jeppesen
Adam Jones
Alain J. Jouchoux
David E. Judd
Michelle Kelley
Barry Knapp
Laura Kohnert
Kim Kokkonen
Gina Lafferty
Kristopher Larsen
Elise Hunter
Christopher Lindholm
Douglas M. Lindholm
Tarek Mackler
Richard Marsh
John Martin
Taylor Maurer
Debra McCabe
Brian McClellan

Randy Meisner
Raymond Mendoza
Lucas Migliorini
Jerel Moffatt
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Dalton Morrow
Steven Mueller
Matthew Muszynski
Georgia Nelson
Hayden Hix
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Chris Pankratz
Russell Panneton
Thomas Patton
Nicholas Peper
Emily Pilinski
Susan Pope
Bill Possel
Christopher Rasnick
Michelle Redick
Tyler Redick
Lee Reedy
Jennifer Reiter
Lillian Reynolds
Pat Ringrose
Esteban Rodriguez
Alisa Roe
Stephen Roughton
Wayne Russell
Sean Ryan
Crystal Salcido
Fernando Sanchez
Cory Schafer
Nathan Sheiko
Erin Simons-Brown
Jacquelyn Smith
Patrick Smith

Robert Stimpfling
John Stone
Jacob Stufflebeam
Ryan Sullivan
Geoffrey Suttcliffe
Brian Templeman
Dale Theiling
Jonathan Thomas
Tyler Traver
Blake Vanier
Martin Wasiewicz
Zachary Wehner
David Welch
David Wescott
Brett Wiesman
Margaret Williams
Forrest Williams
Anne Wilson
Paul Wood
Donald Woodraska
Jonnie L. Yaptengco
Nathan Yeo

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

Darcy Gallagher
Virginia Garrison
Christin Gearhart
Azhavee Grajeda
Alex Green
Matthew Groeninger
Vincent Guarino
Barbara Hahn
Molly Hand
Spenser Hang
Bonnie W. Hotard
(Ret.)
John Janiczek
Edgar Johannson
Seth Kaplan
Toler Kastengren
Brad Keiser
Anca Kokinakos
Louise Krieger
Jason LaClair
Cara Little
Richard Loche
James Lovato
Brett Madden
Lindsay McCandless
Andrew May
Jennifer Methlie
Greg Mecca
Debra Nastaj
John M. Padgett
Katherine Pilewskie
Radu Popescu
Sarah Pritchard
Austin Puckett
Randy Reukauf
Susan Rogers
Susan Sand
Ann Schenk

Randy Siders
Dona Smith
Doug Smith
Debra Sparn
Jerry Spivey
Thomas Spooner
Karen Springfield
Ryan Starkey
Anne Tavarczyk-
Barchas
William VanOrden
Carole Wimert
Peter Wise
James Zungolo

Science

Alicia Aarnio
Ann Alfaro (Ret.)
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Aisha Almannael
Nicole Arulanantham
Michael Aye
Samantha Ballard
Edward Barratt
Laura Bearden
Shawn Beckman
Laura Bloom
Kaleb Bodisch
Nicholas Boschert
Colby Brabec
Ben Brown
Spenser Burrows
Michele Callagy
Samuel Califf
Matthew Carton
Michael Chaffin

Ransom Christofferson
Kathleen Cirbo
Bronwen Cohn-Cort
Bradley Cox
Frank Crary
Andrew Dahir
Ian Dahlke
Justin Deighan
Michael Deluca
Ryan Dewey
Christopher Donaldson
Andrea Egan
Abram Farley
Thomas Ferguson
Brian Fleming
Kier Fortier
Christopher Fowler
John Jeff France
Jennifer Gannon
Max Genecov
Vanessa George
Erin George
Ariana Giorgi
Codie Gladney
Katherine Goodrich
Erik Gustafson
Cheryl Harrison
Victoria Hartwick
Jessica Haskins
Hind Saeed
Richard Hodges
Nancy Holden
Justin Holmes
Casey Honniball
Joao Moreira Hooks
Brian Hynek
John Janiczek
Rebecca Jolitz

Robert Kane
Eileen Kirby
Andrew Kren
Hanna Kristensen
Mariah Law
Spencer LeBlanc
Trevor Leonard
Hannah Letourneau
Xiang-Yu Li
Keita Linden
Kristina Lu
Pattilyn McLaughlin
Lindsay McTague
Charles Malone
Thomas Mason
Steven Massie
Zach Milby
Jacob Miller
Momchil Molnar
Michiko Morooka
Joshua Murphy
Rudolfs Namikis
Camella-Rosa Nasr
James Negus
Edward Nerney
Paige Northway
Leela O'Brien
Gabriel Ortiz-Pena
Ethan Peck
Courtney Peck
Joshua Pettit
Juliet Pilewskie
Marcus Piquette
Ganna Portyankina
Emily Randall
Drake Ranquist
Willow Reed
Morgan Rehnberg

David Rice
Mark Robbins
Emily Royer
Joseph Samaniego-
Evans
Adam Schiff
Bennet Schwab
Anthony Shu
Evan Sidrow
Scott Siler
Karen Simmons
Mark Slipski
Jake Snow
Shi Song
Julia Stawarz

Demi St John
Jordan Stone
Jamey Szalay
Frederick Thayer
Evan Thomas
Rebecca Thomas
Summer Thresher
Chana Tilevitz
Karlheinz Trattner
Zachary Ulibarri
Samuel Van Kooten
Natalie Vezina
Xu Wang
James Wiley
Eleanor Williamson

William Wilson
Bruce Winsett
Adam Woodson
Logan Wright
Kevin Wyld
Lili Xia
Derek Young
Allison Youngblood
Pengei Yu
Kun Zhang
Yunqian Zhu

Affiliates

Waleed Abdalati
Plyush Agrawal
Ashar Ali
Joseph Ajello
John Alcorn
Cody Allard
Evan Anders
David Andrews
Mohira Ashurova
Scott Bailey
Jeff Baltrush
Charles Bardeen
Arnold (Chip) Barnes
Jesse Batson
Gerd Baumgarten
Laura Beckerman
Susanne Benze
Thomas Berger
Dolon Bhattacharyya

Kaleb Bodish
Matthias Brakebusch
Katherine Brant
Michael Brashears
Thiago Brito
Matthew Burger
Kevin Burke
Samuel Califf
Scott Carnahan
Justin Carstens
Amir Caspi
Amy Catalano
Phillip Chamberlin
Jean-Yves Chaufray
John Clarke
John Correira
Jean-Francois
Cossette
Anthea Coster

James Cox
William Crain
Andrew Dahir
Terry Deshler
Elizabeth DeVito
Gaetano DiAchille
Ryan Diaz-Perez
Leonid Didkovsky
Michael Dubson
Francis C. Dumont
Richard Eastes
Dennis Ebbets
Anthony Edwards
Hilary Egan
Jason English
Luke Epp
Joseph Scott Evans
Teresa Ferguson
Thomas Ferguson

Charles Fisher
Charles Fleet
James Flemer
Brent Forsyth
Warren Gallaher
Virginia Garrison
Darrin Gates
David Gerhardt
John Gemperline
James Green
Mary Griffin
Hannes Groller
Alexandra (Adrianna)
 Hackett
David Hamrick
Kaitlin Hegarty
Roger Helizon
Laura Holt
Janet Houser
James Huffman
Andrea Hughes
Gabriel Ingram
Harald Jeszenszky
Adam Jones
Steven Jones
Antal Juhasz
Patrick Kenneally
Michael King
Rosemary Killen
Alan Kittelman
Ekaterina Koroteeva
Andrey Krywonos
Daniel Kubitschek
Kevin Langone
Franck LeFevre
John Lehman
Xiang-Yu Li
Ying-tsen Lin

Steven Linder
Daniel Lo
Jesse Lord
Mija Lovric
Kristina Lu
Katelynn McCalmont
Paul McDivitt
Peter MacMillin
Robert McPherron
Janet Machol
Brett Madden
Chris Maloney
Sayan Mandal
James Mason
Steven Massie
Majd Matta
John Meluso
Christopher D.
Messick
Isabel Mills
Katherine Mills
Ronan Modolo
Molnar Momchil
Franck Montmessin
Christopher Moore
Michiko W. Morooka
Linda Morris
Ian Moss
Josh Murphy
Siddhesh Naik
Amal R. Nair
Peter Nell
Kenzie Nimmo
Tenzin Olsen
Gabriel Ortiz-Pena
David Ottermann
Scott Palo
Courtney Peck

Ethan Peck
Dale Phelps
Valentin Martinez
 Pillet
Sebastian Pineda
Frank H. Postberg
William Purcell
Anthony Rasca
Kevin Reardon
Kate Richardson
Thomas Rimmele
Jessica Roberts
Javier Rocha
Igor Rogachevskii
Graziele Rogowski
Jessica Roberts
Frank Robison
Javier Rocha
Juan Roederer
Timothy Ross
Joseph Rosse
Colden Rouleau
Justin Rouse
Kerry Scarlott
Hanspeter Schaub
Avery Schiff
Charles Schira
Eric Shreve
Trevor Sigmund
Benjamin Southworth
Brian Staley
Frederick Stapf
Michelle Stephens
Kenneth Stevens
Michael Stevens
Arnaud Stiepen
John Stone
Andrew Sturner

Tyler Sutherland
Charles Sweer
Scott Taylor
Jon R. Thiede
Barbara Thompson
Thibaud Teil
Nathan Tomlin
Robin Varennes
Ronald Vervack
Oliver Vierkens

Abel Wakrim
Lu Wang
Jacob Warrington
Martin Wasiewicz
Robert Watt
David Welch
Malcolm White
Seth Wieman
Erik Wilkinson
David Williams

Michael Wolff
Robert Wootten
Stephan Wu
Kevin Wyld
Roger Yelle
Kathryn Young
Patti Young
Yucheng Zhao

EMM (Emirates Mars Mission) Collaborators

Mubarak Al Ahabbi
Mahmood Al Awadhi
Mohsen Al Awadhi
Heyam Al Blooshi
Mustafa Al Blooshi
Sultan Al Dahmani
Rashid Al Dallal
Suhail Al Dhafri
Mohammad Al Emadi
Saeed Al Gergawi
Muna Al Hammadi
Omran Al Hammadi
Hessar Ali
Ahmad Al Janaahi
Majid Al Loghani
Muthanna Al Mahnood
Saeed Al Mansoori
Abdulla Al Marar

Muhannad Al Mazrouei
Essa Al Mehairi
Khalifa Al Mehairi
Suhail Al Mehairi
Ibrahim Al Midfa
Noora Al Rafi
Ahmed Al Shehhi
Omar Al Shehhi
Nour Al Teneiji
Sarah Amiri
Nasir Al Nimr
Ibraham Al Qasimi
Adnan Al Rais
Maryam Al Shamsi
Zakareyya Al Shamsi
Yousuf Al Shehhi
Eman Al Teneiji
Nour Al Teneiji

Amel Amin
Sarah Amiri
Ahmed Banirasheed
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2017 Ph.D. Graduates

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Date: November, 2017

Title of Dissertation: Cometary Gas and Dust Delivered to Mars

Thesis Advisor: Nicholas Schneider

Name: Keri Hoadley, APS

Date: May 2017

Title of Dissertation: *Experimental and observational studies of molecular hydrogen in interstellar and circumstellar environments*

Thesis Advisor: Kevin France

Name: Christopher S. Moore

Date: November, 2017

Title of Dissertation: *Atomic Layer Deposition reflective Coatings for future Astronomical Space Telescopes and the Solar Corona viewed through the MinXSS (Miniature X-Ray Solar Spectrometer) CubeSats.*

Thesis Advisor: Thomas Woods

Name: Robert O. Parke Loyd, APS

Date: May 2017

Title of Dissertation: *The volatility of UV radiation from low-mass stars and the evaporation of Exoplanetary atmospheres*

Thesis Advisor: Kevin France

Rehnberg, Morgan

Date: May 2017

Title of Dissertation: *Small-Scale Structure in Saturn's Rings*

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Title of Dissertation: *Star formation and planets in harsh environments*

Thesis Advisor: Kevin France

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Tyler Wingfield
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Michael Zucher

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.

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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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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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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.

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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 magnetohydro-dynamic/particle simulations.
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Francis G. Eparvier
Dr. Frank Eparvier is a Senior Research Scientist at the University of Colorado's Laboratory for Atmospheric and Space Physics in Boulder. He has a B.S. degree in Physics and Mathematics from the University of Wisconsin (1985) and a Ph.D. in Astrophysical, Planetary, and Atmospheric Sciences from the University of Colorado (1991). He is principal investigator on the EUV (extreme ultraviolet) and X-Ray Irradiance Sensors (EXIS) on the NOAA GOES-R satellite series, instrument and project scientist on the EUV Variability Experiment (EVE) on the NASA Solar Dynamics Observatory (SDO), instrument lead on the EUV monitor on the NASA MAVEN mission to Mars, and instrument scientist on the Solar EUV Experiment (SEE) on the NASA TIMED mission. His research interests are in the areas of solar irradiance variability and its effects on the upper atmospheres of the Earth and other planets.
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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.
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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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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.

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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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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.

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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A. Ian F. Stewart

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

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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.

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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.

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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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Faculty Honors/Awards

Aye, Klaus-Michael, NASA Group Achievement Award to Diviner Lunar Radiometer Science Mission Team
 Baker, D.N., Appointed Full Professor in ASEN
 Baker, D.N., Elected Chair of Section 12: National Academy of Engineering
 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

Horanyi, Mihaly	General Physics II Honors
Horanyi, Mihaly	General Physics I

Colloquia and Informal talks

Allison, Christopher, Sierra Nevada Corporation, Dream Chaser Cargo System Overview and Cargo Opportunities	Chamberlin, Phillip, NASA Goddard, The distinguishing characteristics between CME initiation models, and two future missions to resolve the model differences
Andersson, Laila, LASP, Mars has also a dust plume	Chu, Xiangning, CU/LASP, Study of plasmaspheric dynamics using data-driven empirical models: a neural network approach
Baker, Daniel, CU/LASP, Anthropogenic Space Weather	Coddington, Odele, CU/LASP, LASP Contributions to Monitoring Earth's Energy Balance from Space

Deca, Jan, CU/LASP, Global fully kinetic simulations of space plasma: Yes we can!

DeWolfe, Alex, CU/LASP, Science Data Centers – How we turn bits into science results

Eastes, Richard, University of Central Florida, NASA's Global-scale observations of the Limb and Disk

(GOLD) Mission: Unprecedented imaging of the boundary between Earth and Space

Fang, Xiaohua, CU/LASP, Large-scale ionospheric and magnetospheric effects by Mars crustal magnetic anomalies

Fortenberry, Ryan, Georgia Southern University, The Astrochemist's sand box is still made of Silicon

Fujimoto, Masaki, JAXA, Japan's space science program going international

Girazian, Zach, GSFC, The nightside ionosphere of Mars: New insights from the MAVEN mission
Hudson, Mary, Dartmouth College, Modeling radiation belt electron dynamics during the 17 March 2013 and 2015 storms

Hung, Li-Wei, National Park Service, Protecting the night skies at our national parks

Jaynes, Allison, CU/LASP, NASA's MMS Mission: Revolutionizing Our Understanding of Magnetic Reconnection

Kalnajs, Lars, CU/LASP, Strateole 2: Detailed measurements of the Tropical tropopause layer from constellations of long duration Super Pressure Balloons.

Kellerman, Adam, UCLA, Data assimilation, modeling, and forecasting ring-current to radiation-belt electrons in the near-earth space

Lejosne, Solene, UC Berkeley, What can we learn from Van Allen Probe measurements of the electric drift in the inner magnetosphere?

Lotko, Bill, Dartmouth College and NCAR/HAO, What causes high-latitude thermospheric density anomalies?

Lysak, Bob, U. of Minnesota, Alfvén waves and auroral particle acceleration

McGouldrick, Kevin, LASP, Akatfuki rises from the dead to explore the depths of Hell

O'Brien, Leela CU/LASP, The Nano Dust Analyzer for Detection and Analysis of Nanometer-Size Particles from the Inner Heliosphere

Ölçek, Deniz, University of Montreal,
Long-term solar variability and
intermittency in a 2x2D Babcock-
Leighton model

Parisi, Marzia, and William Folkner,
Jet Propulsion Laboratory, Caltech,
Pasadena, Juno gravity science
experiment: early results
Portyankina, Ganna, CU/LASP,
Enceladus jets: deciphering Cassini's
occultation observations with models

Possel, Bill, Out of this world!
Operating the Kepler Mission with
university students

Raeder, Jimmy (University of New
Hampshire), Flux transfer events and
Kelvin-Helmholtz waves at Earth's
magnetopause

Roededer, Juan, Geophysical
Institute, University of Alaska,
Fairbanks, From cosmic rays to
radiation belts to global warming –
Anecdotes from the early days

Romashets, Eugene, Lonestar
College, Houston, Texas,
Comparative study of a constant-
alpha force-free field and its
approximations in an ideal toroid

Schrijver, Karel, Lockheed/Martin,
Living with the stars: How the human
body is connected to the live cycles of
the Earth, the planets and the stars

Stevens, Mike, Naval Research
Laboratory, Martian mesospheric
clouds observed by MAVEN/IUVS:
Thermal tides coupled to the upper
atmosphere

Taylor, Frank, Sierra Nevada Corp,
Dream Chaser Cargo System
overview and cargo opportunities

Thiemann, Ed, CU/LASP, Probing
atmospheres with EUV irradiance,
from the Solar Corona to the
Thermospheres of Earth and Mars

Tseng, Wendy, National Taiwan
Normal University, The Saturnian
near-ring plasma environment

Upton, Lisa, UCAR, Modeling active
region evolution – at the Sun's
Surface and into the Corona

Usanova, Maria, CU/LASP, Waves,
particles and radiation belt storms

Wang, Xu, CU/LASP, The role of
electrostatic dust transport in shaping
the surfaces of airless bodies

Williame, Yannick, Belgian Institute
for Space Astronomy, Cloud, Dust
and Ozone retrieval using
SPICAM/UV Nadir

Woods, Tom, CU/LASP, Surprising
solar flares: Studying the Sun as a star

PUBLICATIONS

- Alves, L.R., D.N. Baker, et al., The role of solar wind structures in the generation of ULF waves in the Inner Magnetosphere, *Solar Physics*, 292:92, 2017.
- Arney, G.N., et al., Pale Orange Dots: The impact of organic haze on the habitability and detectability of Earthlike exoplanets, *ApJ*, 836, 2017.
- Baker, D.N., A.N. Jaynes, P.J. Erickson, J.F. Fennell, J.C. Foster, and P.T. Verronen, Space weather effects in the Earth's radiation belts, *International Space Science Institute, (ISSI), Space Science Reviews*, 214, 2017.
- Baker, D.N. and M.I. Panasyuk, Discovering Earth's radiation belts, *Physics Today*, 70, #12, 2017.
- Brain, D.A., Climates of terrestrial planets, in *Heliophysics IV*, Chapter 8, 2017.
- Buzulukova, Natalia, editor, *Extreme Events in Geospace*, 1st edition, Origins, Predictability, and Consequences, Elsevier, ISBN: 9780128127001, December 1, 2017.
- Califf, S., X. Li, et al., The role of the convection electric field in filling the slot region between the inner and outer radiation belts, *J. Geophys. Res.*, 122, 2017.
- Cassack, P.A., A.G. Emslie, A.J. Halford, D.N. Baker, H.E. Spence, S.K. Avery, L.A. Fisk, *Space Physics and Policy for Contemporary Society*, *Jour. Geophys. Research, Space Physics*, 122, #4, doi: 10.1002/2017JA024219, 2017.
- Chaffin, M.S., et al., Elevated escape of H from Mars induced by High-Altitude Water, *Nature Geoscience*, 10, 174-178, 2017.
- Chaston, C.C., J.W. Bonnell, J.R. Wygant, G.D. Reeves, D.N. Baker, D.B. Melrose, and I.H. Cairns, Radial transport of radiation belt electrons in kinetic field-line resonances, *Geophys. Res. Lett.*, 44, #16, doi: 10.1002/2017GL074587, 2017.
- Cohen, I.M., B.H. Mauk, B.J. Anderson, J.Y. Westlake, D.G. Sibeck, D.L. Turner, D.N. Baker, H.E. Spence, G.D. Reeves, B.J. Giles, R.J. Strangeway, R.G. Torbert, and J.L. Burch, Statistical analysis of MMS observations of energetic electron escape observed at/beyond the dayside magnetopause, *J. Geophys. Res.*, 122, #9, doi:10.1002/2017JA024401, 2017.
- Foster, J.C., et al., Van Allen Probes observations of prompt MeV radiation belt electron acceleration in non-linear interactions with VLF Chorus, *J. Geophys. Res.*, 122, #1, doi: 10.1002/2016JA023429, 2017.
- Gombosi, T.I., D.N. Baker, et al., *Anthropogenic Space Weather*,

- Space Science Reviews, doi:10.1007/s11214-017-0357-5, 2017.
- Hara, T., et al., MAVEN observations of a giant ionospheric flux rope around Mars in consequence of interactions between the crustal and interplanetary draped magnetic fields, *Geophys. Res. Lett.*, 122, #1, 828-842, 2017.
- Jones, A.D., S.G. Kanekal, D.N. Baker, et al., SAMPEX observations of the South Atlantic anomaly secular drift during solar cycles 22–24, *Space Weather*, 15, #1, 2017.
- Kosinen, H.E., D.N. Baker, A. Balogh, R. Gombosi, A. Veronig, and R. von Steiger, Achievements and challenges in the science of Space Weather, *Space Science Reviews*, 212, Issue 3-4, pp. 1137-1157, 2017.
- Lanzerotti, L., and D.N. Baker, Space weather research: Earth's radiation belts, *Space Weather*, 15, #6, 2017.
- Lentz, C.L., D.N. Baker, AN. Jaynes, R.M. Dewey, C.O., Lee, D.A. Brain, and J.S. Halekas, Statistical similarities between WSA-ENLIL+Cone Model and MAVEN in situ observations from November 2014 to March 2016, *Space Weather*, 16, May, 2017.
- Li, X., D.N. Baker, R. Selesnick, Q. Schiller, K. Zhang, and M.A. Temerin, Measurement of electrons from albedo neutron decay and neutron density in near-Earth space, *Nature*, 552, 382-385, doi:10.1038/nature24642, 2017.
- Li, L.Y., D.N. Baker, et al., Roles of whistler mode waves and magnetosonic waves in changing the outer radiation belt and the slot region, *J. Geophys. Res.*, 122, #5, 2017.
- Li, X., D.N. Baker, H. Zhao, et al., Radiation belt electron dynamics at low L(>4): Van Allen Probes era versus previous two solar cycles, *J. Geophys. Res.*, 122, #5, 2017.
- Liu, N., D.N. Baker, et al., Simultaneous disappearances of plasmaspheric hiss, exohiss, and chorus waves triggered by a sudden decrease in solar wind dynamic pressure, *Geophys. Res. Lett.*, 44, #1, 2017.
- Ma, Q., W. Li, R.M. Thorne, J. Bortnick, G.D. Reeves, H.E. Spence, D.L. Turner, and D.N. Baker, Diffusive transport of several hundred keV electrons in the Earth's slot region, *J. Geophys. Res.*, 122, doi:10.1002/2017JA024452, 2017.
- Matsui, H., RE.B. Torbert, H.E. Spence, M.R. Argall, L. Alm, C.J. Farrugia, W.S. Kurth, D.N. Baker, J.B. Blake, H.O. Funsten, G.D. Reeves, R.E. Ergun, Y.V. Khotyaintsev, and P.-A. Lindqvist, Relativistic electron increase during chorus wave activities on the 6-8 March 2016 Geomagnetic storm, *J. Geophys. Res.*, 122, #11,

- doi:1002/s2017
JA024540, 2017.
- Moya, P.S., V.A. Pinto, D.G. Sibeck, S.K. Kanekal, and D.N. Baker, On the effect of geomagnetic storms on relativistic electrons in the outer radiation belt: Van Allen Probes Observations, *J. Geophys. Res.*, 122, #11, 2017.
- Ozeke, L.G., D.N. Baker, et al., Ultra-relativistic radiation belt extinction and ULF wave radial diffusion: Modeling the September 2014 extended dropout extended dropout event, *Geophys. Res. Lett.*, 44, #6, 2017.
- Sarris, T.E., and X. Li, Geomagnetic activity and local time dependence of the distribution of ultra-low-frequency wave power in azimuthal wavenumbers, *Annales Geophysicae*, 35, 2017.
- Sarris, T.E., X. Li, M. Temerin, R.E. Ergun, et al., On the relationship between electron flux oscillations and ULF Wave-Driven Radial Transport: Flux oscillations and radial transport, *J. Geophys. Res.*, 2017.
- Schiller, Q., W. Tu, A.F. Ali, X. Li, et al., Simultaneous event-specific estimates of transport, loss, and source rates for relativistic outer radiation belt electrons, *J. Geophys. Res.*, 122, #3, 2017.
- Schiller, Q., S.G. Kanekal, A.J. Boyd, L. Blum, A.D. Jones, D.N. Baker, and J.B. Blake, On the cause of two prompt shock-induced relativistic electron depletion events, *J. Atmos. and Solar Terrestrial Physics*, 2017.
- Sefton-Nash, E., J.P. Williams, B.T. Greenhagen, K.-M. Aye, and D.A. Paige, Diviner lunar radiometer gridded brightness temperatures from geodesic binning of modeled fields of view, *Icarus*, 298, 2017.
- Selesnick, R.S., D.N. Baker, and S.G. Kanekal, Proton straggling in the silicon detector, *Nuclear Instruments and Methods in Physics Research, B*, vol. 394, 145-152, 2017.
- Su, J., D.N. Baker, et al., Rapid loss of radiation belt relativistic electrons by EMIC waves, *J. Geophys. Res., Space Physics*, 122, #10, 2017.
- Tang, C.L., D.N. Baker, et al., Radiation belt seed population and its association with the relativistic electron dynamics: A statistical study, *J. Geophys. Res.*, 122, #5, 2017.
- Tang, C.L., Y.X. Wang, B. Ni, A.P. Su, G.D. Reeves, J.C. Zhang, and D.N. Baker, The effects of magnetospheric processes on relativistic electron dynamics in the Earth's outer radiation belt, *J. Geophys. Res.*, 122(10), 9952-9968, 2017.

- Turner, D.L., D.N. Baker, et al., Multipoint observations of energetic particle injections and substorm activity during a conjunction between magnetospheric multiscale (MMS) and Van Allen Probes, *J. Geophys. Res., Space Physics*, 122, #11, 2017.
- Turner, D.L., T.P. O'Brien, D.N. Baker, et al., Investigating the source of near-relativistic and relativistic electrons in Earth's inner radiation belt, *J. Geophys. Res.*, 122, 31, 2017.
- Turner, D.L., J.H. Lee, S.G. Claudepierre, J.F. Fennell, J.B. Blake, A.N. Jaynes, D.N. Baker, et al., Examining coherency scales, substructure, and propagation of Whistler mode chorus elements with magnetospheric multiscale (MMS), *J. Geophys. Res.*, 122, #11, 2017.
- Walter, B., et al., The CLARA/NORSAT-1 solar absolute radiometer: Instrument design, characterization and calibration, *Metrologia*, 54, 2017.
- Wolf, Eric T., et al., Constraints on climate and habitability for Earth-like exoplanets determined from a general circulation model, *ApJ*, 837:107, 2017.
- Xiang, X., W. Tu, X. Li, D.N. Baker, et al., Understanding the mechanisms of radiation belt dropouts observed by Van Allen Probes, *J. Geophys. Res.*, 2017.
- Xiao, F., D.N. Baker, et al., Generation of extremely low frequency chorus in Van Allen radiation belts, *JGR*, 122, #3m 3201-3211, 2017.
- Yang, C., D.N. Baker, et al., A positive correlation between energetic electron butterfly distributions and magnetosonic waves in the radiation belt region, 44, #9, 2017.
- Zhang, K., X. Li, et al., Detailed characteristics of radiation belt electrons revealed by CSSWE/REPTile measurements: Geomagnetic activity response and precipitation observation, *J. Geophys. Space Phys.*, 122, 2017.
- Zhao, H., D.N. Baker, A.N. Jaynes, X. Li, S.R. Elkington, S.G. Kanekal, et al., On the relation between radiation belt electrons and solar wind parameters/geomagnetic indices: Dependence on the first adiabatic invariant and L^* : *J. Geophys. Res.*, 122, #2, 2017.
- Zhou, Q., E.N. Baker, et al., Generation of lower and upper bands of electrostatic electron cyclotron harmonic waves in the Van Allen radiation belts, *Geophys. Res. Lett.*, 44, #11, 5251, 2017.

Works in Progress

- Baker, D.N., A.N. Jaynes, P.J. Erickson, J.F. Fennell, J.C. Foster, and P.T. Verronen, Space Weather Effects in the Earth's Radiation Belts, International Space Science Institute (ISSI), Space Science Reviews, in press, 2017.
- Baker, D.N., Geomagnetic Field Sources – From Earth's core to the Sun, Chapter 4, IAGA, in progress, 2017.
- Cohen, I.J., et al., Statistical analysis of MMS observations of energetic electron escape observed at/beyond the dayside magnetopause, J. Geophys. Res., submitted, 2017.
- Ismail-Zade, A., D.N. Baker, et al., Assess disaster risk science to help reduce losses, Nature, accepted.

Faculty Activities

American Association for the Advancement of Science (AAAS)

Baker, Daniel (Fellow)

American Geophysical Union (AGU)

Baker, Daniel (Member)

Baker, Daniel (Fellow, 1994)

Brain, David (Member)

Delamere, Peter (Member)

Elkington, Scot (Member)

Ergun, Robert (Fellow, 2013)

Ericksson, Stefan (Member)

Esposito, Larry (Member)

Harder, Jerry

Horányi, Mihály (Member)

Jaynes, Allison (Member)

Malaspina, David (Member)

McGouldrick, Kevin (Member)

Rusch, David

Sternovsky, Zoltan (Member)

Usanova, Maria

Usanova, Maria
Wang, X. (Member)

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

American Meteorological Society (AMS)

American Oceania Geosciences Society (AOGS)
Baker, Daniel (Member)
Jaynes, Allison (Member)

American Physical Society Division of Plasma Physics (APD/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)

Committee on Space Research)
Baker, Daniel (Representative, Commission D)
Baker, Daniel (Member)
Eparvier, Frank (Member)
Eparvier, Frank (Deputy Organizer for TIGER Symposium for future COSPAR
meetings)
Esposito, Larry (Member)

Conference Organization Committee
Coddington, Odele (AGU 2017)

Editor or Editorial Board Member
Baker, Daniel

Brain, David
King, Michael
Li, Xinlin
McCollom, T.M.
Peterson, William K.
Schmidt, K. Sebastian
Sternovsky, Zoltan
Usanova, Maria

Education and (EPO)
Eparvier, Frank (Chair)
Jakosky, Bruce (Business Rep.)
Andersson, Laila
Brain, David
Horanyi, Mihaly
Jones, Andrew
Kalnajs, Lars
Mason, Tom
Merkel, Aimee
Pilewskie, Peter
Possel, Bill
Snow, Marty
Stewart, Glen
Withnell, Heather Reed

EMM Science Apprentice Program
Deighan, Justin (Mentor)
Snow, Marty (Mentor)

Faculty Awards

Zhao, Hong – AGU Fred Scarf Award for outstanding Ph.D. thesis in Space Physics

Inner Magnetosphere Coupling III (IMC III)

Baker, Daniel (Member)

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)

International Service

Coddington, Odele (Coupled Model Intercomparison Project (CMIP))

Joint Committee on Earth Observation Satellites (CEOS)

Coordination Group for Meteorological Satellite (CGMS)

International Global Space-based Inter-Calibration System (GSICS)

International Space Science Institute (ISSI)

Eparvier, Frank (Member) Solar Heliospheric Lyman Alpha Profile Effects (SHAPE) team

International Union of Geodesy and Geophysics (IUGG)

Elkington, Scot (Organizer of session) “Wave and particle Dynamics in the Radiation Belts and Ring Current” program, 2017 IUGG/IAGA General Assembly

Elkington, Scot (Organizer) New IUGG Space Weather program, 2017 IUGG/IAGA General Assembly

Living with a Star (LWS)

Eparvier, Frank (Member, Assorted working groups of Community Coordinated Modeling Center (CCMC))

Laboratory for Atmospheric and Space Physics (LASP)

Associate Director for Science

Jakosky, Bruce

Associate Director for Technical Divisions

Woods, Thomas

Business Committee

Baker, Dan (Chair)

Jakosky, Bruce

McGrath, Mike

Possel, Bill

Woods, Thomas

Cassini CAPS Team

Bagenal, Frances

Wilson, Robert

Computer Systems Advisory Committee (CSAC)

Elkington, Scot (Chair)

DeNeen, Mat (Operations Software)

Dennis, Dean (Admin)

Eriksson, Stefan (Space Phys.)

Fang, Xiaohua (Atmospheric)

Matt Groeninger (BizSys Lead)

Jones, Andrew (Solar)

Lewis, Ryan (Engineering)

Methlie, Jennifer (IS Lead)

Osborne, Darren (Mission Ops)

Pankratz, Christopher (Data Syst.)

Siders, Randy (Admin/BizCom)

Smith, Doug (IT)

Spivey, Jerry (IT/Helpdesk)

Stewart, Glen (Planetary)

Summers, David (Engineering)

Trattner, Karlheinz (Space Physics)

Education and Public Outreach Advisory Committee (EPO)

Coddington, Odell (Chair)

Anderson, Laila

Brain, David

Eparvier, Frank

Jones, Andrew

Merkel, Aimee

Pilewski, Peter

Possel, Bill

Renfrow, Stephanie

Snow, Martin

Stewart, Glen

Executive Associate Director

Sider, Randy

Executive Committee

Baker, Daniel (Chair)

Callagy, Michele (ex-comm support)

Elkington, Scot

Jakosky, Bruce

Jones, Andrew

Kopp, Greg

McClintock, Bill

McGrath, Mike

Pilewski, Peter

Possel, Bill

Randall, Cora

Toon, Owen B.

Woods, Tom

LASP Data Stewardship Definition Committee

Randall, Cora (Member)

LASP LISIRD Steering Committee

Jones, Andrew

Kopp, Greg

Snow, Martin

LASP Seminar Series Committee

Sternovsky, Zoltan (Chair)

Schmidt, K. Sebastian (Co-Organizer)

LASP Tablet Users Group

Beech, Jason

Brown, Pat

Evans, Brian

Gathright, David

Jones, Andrew

Lewis, Ryan

Mack, James

Wilson, Rob

Yehle, Alan

Office of Communication and Outreach

Brain, David (Member, Advisory Committee)

Brain, David (Member, Director Hiring Committee)

LASP Advisory Committee

Planetary Journal Club

Albers, Nichole (Organizer)

Proposal Development Committee (PDC)

Woods, Thomas (Chair)

Sparr, Tom (Co-Chair)

Baker, Daniel

DeNeen, Matt

Drake, Ginger

Ergun, Robert

George, Vanessa (PDC Support)

Jakosky, Bruce

Kohnert, Rick

Kopp, Greg

Lankton, Mark

McClintock, Bill

McGrath, Mike

Pankratz, Chris

Possel, Bill

Renfrow, Stephanie

Richard, Erik
Ryan, Sean
Sparn, Tom
Sternovsky, Zoltan
Tate, Gail
White, Neil
Withnell, Heather Reed
Wrigley, Ray

Scholarship Committee

Eparvier, Frank

Social Committee

Bloom, Laura (Chair)
Bryant, Karen
Cirbo, Kathleen
Griest, Ken
Osborne, Darren
Redick, 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)

Mars International Collaboration Science Analysis Group (MIC-SAG)

Eparvier, Frank (Member)

Mauna Loa User Committee

Harder, Jerry (Member, Advisory Group)

National Academies of Sciences, Engineering, and Medicine

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)

Esposito, Larry (Member)

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)

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)

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, Odele (Reviewer of manuscripts for Journal of Atmospheric Sciences, Atmospheric Chemistry and Physics, Atmospheric Measurement Techniques, IEEE Transactions on Geoscience and Remote Sensing, Atmospheric and Oceanic Technology, and Space Weather and Space Climate)

Coddington, Odele (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 Astronomic Chemistry and Physics and J. of Geophysical Research)

Harder, Jerry (Reviewer of manuscripts for JASTP, A&A, Remote Sensing, Nature Scientific Data, NASA Earth Science, 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)

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 (Journal of Quantitative Spectroscopy and Radiative Transfer, Physics and Atmospheric Measurement Techniques)

Kopp, Greg (Reviewer of manuscripts for Astronomy and Astrophysics, Solar Physics, 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)

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)

McCullom, 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 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.,)

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, Marie (Reviewer of papers for Geophys. Res. Lett., J. Geophys. Res., and Oxford University Press)

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 (Plankton, Clouds and ocean ecosystem (PACE))

Coddington, Odele (Solar Irradiance Science Team (SIST))
Coddington, Odele (Total and Spectral Solar Irradiance Sensor (TSIS))
Coddington, Odele (International Space Science Institute (ISSI) team member)

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

Baker, Daniel (Member, Board of Directors)
Baker, Daniel (Advisory Trustee)

Student Advising

Andersson, Laila
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.
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)

Sternovsky, Zoltan (Member, Undergraduate Committee)

Sternovsky, Zoltan (Member, Graduate Committee)

Sternovsky, Zoltan (Major revision of existing course ASEN3300)

Arts and Sciences (A&S)

Horányi, Mihály (Physics advising)

Arts and Sciences Support for Education Through Technology (ASSETT)

(Member, ASSETT Advisory 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 (Member, Graduate Admissions Committee)

Ergun, Robert (Member, Course Fees Committee)

Ergun, Robert (Chair, Search committee for Department Chair)

Ergun, Robert (Member, Executive 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)

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-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)

Center for Astrophysics and Space Astronomy (CASA)

Woods, Thomas

Chancellor's Federal Relations Advisory Committee (FRAC)

Baker, Daniel (Member)

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)

Geology Department

Hynek, Brian (Member Executive Committee)
Hynek, Brian ((Member, Undergraduate Curriculum Committee)

Graduate School

Baker, Daniel (Member, Institute Directors Group)
Bagenal, Frances (Member, Executive Advisory Council)

Joint Faculty (Aerospace)

Li, Xinlin
Sternovsky, Zoltan

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

Bagenal, Frances
Baker, Daniel
Ergun, Robert
Esposito, Larry
Rast, Mark
Schneider, Nicholas

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

Toon, Owen B. (Chair)
Pilewskie, Peter
Randall, Cora E.

Joint Faculty (Geology Department)

Hynek, Brian (Member, Executive Committee)
Jakosky, Bruce (Member)

Joint Faculty (Physics Department)

Horányi, Mihaly

(PAC) Postdoc Association of Colorado

Emilie Royer, President

Member of a Dissertation/Thesis Committee

Andersson, Laila
Bagenal, Frances
Baker, Daniel
Brain, David
Coddington, Odelle
Crary, Frank
Elkington, Scot
Eparvier, Francis G.
Ergun, Robert
Fang, Xiaohua
Harvey, V. Lynn
Horányi, Mihaly

Hynek, Brian
Jakosky, Bruce
Kalnajs, Lars
Kempf, Sasha
King, Michael
Li, Xinlin
McCullom, Thomas M.
Newman, David L.
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
Schneider, Nicholas
Toon, Owen B.

Principal Dissertation/Thesis Advisor

Andersson, Laila
Bagenal, Frances
Baker, Daniel
Brain, David
Delamere, Peter
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
Coddington, Odelle
Delamere, Peter
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

Sungazing 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)

University Space Research Association (USRA)

Baker, Daniel, (Member, Board of Trustees)
Baker, Daniel (Council of Institutes Representative)

Whole Heliospheric Interval Science Team

Snow, Martin (Member)

Workshop on Radiation Belts

Baker, Daniel (Organizing Committee)

Sponsored Programs

Ajello, J	JPL	Emission Processes in Planetary Atmosphere by Proton, Oxygen Ion, and Electron Impact
Ajello, J	NASA	Titan UVIS airglow observations: Spectral analysis and model development
Ajello, J	NASA	Analysis of MAVEN IUVS and Mars express SPICAM Aurora and Airglow observations with flight spare studies
Ajello, J	NASA	Mars laboratory UV aeronomy by electron impact for MAVEN and Mars express
Albers, N	NASA	Large and small-scale structure of Saturn's rings
Aye, K	NASA	UV observations of Martian polar caps
Aye, K	NASA	Modeling observables of cryoventing
Aye, K	NASA	Extensive analysis of seasonal activity in the Mars polar regions
Bagenal, F	NASA	Magnetospheres of outer planets conference 2017
Bagenal, F	SwRI	JUICE-UVS: An Ultraviolet Spectrograph for the JUICE Mission
Bagenal, F	SwRI	JUNO science support – Phase E activities
Bagenal, F	SwRI	SwRI Student Task Order #2 Integration, testing and flight of a balloon borne infrasound monitoring payload
Bagenal, F	NASA	Solar wind interaction with Jupiter's magnetosphere
Bagenal, F	SwRI	SwRI student task order #4 flight integration of the ASTERIA infrasound balloon-borne payload
Bagenal, F	SwRI	Utilizing a micro mirror array for an adaptable multi-object UV spectrograph
Baker, D	NSF	The International Space Science Institute ISSI workshop – the Scientific Foundations of Space Weather
Baker, D	UCAR	2016 Undergraduate Research program in solar and space physics with UCAR

Baker, D	NASA/JHU/APL	Van Allen Probes ECT REPT instruments; PI for ECT REPT instrument
Baker, D	NSF	An interdisciplinary undergraduate research experience in Solar and Space Physics
Baker, D	NSF	The ISSI Workshop – The Scientific foundations of space weather
Baker, D	JHU	Characterizing Mercury’s energetic electron events
Baker, D	SwRI	Magnetospheric multiscale (MMS) Mission for Magnetospheric Acceleration, Reconnection and Turbulence (SMART)
Baker, D	UNH	Proposal for Van Allen Probes ECT instrument efforts under ARDES Prime
Baker, D	JHU	Characterizing Mercury’s energetic electron events: A phenomenological study of a unique magnetospheric process
Baker, D	NASA	Mars Atmosphere and Volatile EVOLUTION MISSION (MAVEN)
Beland, S	NASA	Toward a consistent solar spectral irradiance record from SORCE and SOLSPEC
Brain, D	NASA	Modeling surface and atmospheric radiation at Mars due to solar storms: Influence on modern and ancient habitability
Brain, D	NASA	The maximum atmospheric pressure in recent times on Mars: Constraints from the nitrogen cycle
Brain, D	NASA	Charged particle transport in Martian magnetic cusps
Brain, D	NASA	Influence of Asteroid and Comet Impacts on Atmospheric Abundances at Venus, Earth and Mars
Brain, D	NASA	The role of magnetic shielding in atmospheric escape
Brandenburg, A	NSF	CDS&E: Collaborative research: Machine learning for automated discovery and control in turbulent plasma
Brandenburg, A	NSF	Collaborative Research: A comprehensive theoretical study of cosmic magnetic fields, their origin, evolution, and signature

Brandenburg, A	NSF	Magnetic helicity: from the solar surface into the wild: Preparations for the DKIST era
Brandenburg, A	NSF	Collaborative Research: Mapping the universe through gravitational waves
Brito, T	NASA	Investigation of ion transit from the ionosphere to the plasmashet
Cassidy, T	JPL	Europa Radiation Science Working Group Participation Request
Cassidy, T	NASA	Chemistry in the inner magnetosphere
Cranmer, S	NASA	Accelerating the turbulent solar wind along braided, reconnecting magnetic field lines
Cranmer, S	NSF	Coronal turbulence driven from the photosphere: Preparing for the DKIST era
Cranmer, S	NASA	Stirring coronal spaghetti: Determining the importance of jet-like and filamentary density fluctuations in accelerating the solar wind
Crary, F	NASA	Europa's magnetic field: Separating plasma perturbations from an Ocean-induced dipole
Deca, J	NASA	Systematic correlation analysis between lunar magnetic anomalies and low orbit plasma observations
Deshler, T	NSF	Investigating water vapor, clouds, and aerosol in the tropical tropopause layer with in-situ and profiling measurements from long duration STRATEOLE-2 balloons
Deshler, T	NSF	Next generation In Situ measurements of stratospheric aerosol
Dols, V	NASA	Modeling Europa's coupled atmosphere-Plasma environment
Dong, Y	NASA	Constraints on the production rates and currents of the Enceladus dust plume
Drake, V	SwRI	Avionics design and testing for the SALTO balloon project (Stratospheric Astronomical long-term Observatory)
Drake, V	SwRI	SALTO (Stratospheric Astronomical Long-Term Observatory)

Elkington, S	Florida Institute of Technology	Electromagnetic Ion Cyclotron Waves in Earth's Magnetosphere and their effect on relativistic electron precipitation
Elkington, S	NSF	Collaborative Research: Testing the necessary and sufficient condition for the turbulent energy cascade to exist in the Earth's inner magnetosphere
Elkington, S	Florida Institute of Technology	Investigation of the turbulent energy cascade in the Earth's inner magnetosphere
Ergun, R	UC Berkeley	Time history of events and their macroscopic interactions during substorms (THEMIS)
Eriksson, K	NASA	Multiple reconnection X-lines in the solar wind
Eriksson, K	NSF	Collaborative research SHINE: DSCOVR and WIND
Eriksson, K	NASA	Signatures of multiple reconnection X-lines at the magnetopause
Esposito, L	JPL	Venus In Situ Explorer (VISE)
Fang, X	NASA	Global disturbances on the Near-Mars space environment caused by solar flares
Fang, X	U of Michigan	Increasing US space dominance via better thermospheric models
Fleming, B	NASA	A pan-chromatic catalog of low redshift galaxy outflows and the effect of feedback on galaxy evolution
Fleming, B	NASA	High broadband reflectivity mirror coatings for the next generation of space observatories
Fleming, B	SwRI	Utilizing a micromirror array for an adaptable multi-object UV spectrograph
France, K	STScI	A direct imaging experiment to determine the origin of H ₂ around M dwarf exoplanetary systems
France, K	STScI	The HST-SLMA connection: Measuring the FUV spectrum of a newly discovered transition disk down to the H ₂ and CO photodissociation regime

France, K	NASA	Colorado ultraviolet transit experiment” Mass-loss and magnetic fields of exoplanetary systems
France, K	Ball Aerospace	Development of HEROIC2 – a Scalable high dynamic range photon counting detector
France, K	NASA	Regional planetary wave driven stratosphere-troposphere coupling and the impact on cold air outbreaks
Holsclaw, G	NASA	Flying infrared spectrograph for surface thermal emission FIRSSTE
Horanyi, M	NASA	Constraining Na and K in the lunar exosphere and surface with LADEE data and models
Horanyi, M	SwRI	Science Team and REX operation support New Horizons Phase E
Horanyi, M	NASA	Understanding dust dynamics in Saturn’s E-ring using CDA/RPWS measurements and laboratory experiments
Hsu, H	NASA	In situ ring composition measurements by CDA during the grand finale orbits
Hynek, B	U of Alaska	Determining reaction rates of high temperature acid-sulfate alteration of basalt
Hynek, B	U of Alaska	The effects of different geologic settings on the formation of Martian complex craters
Hynek, B	U of Tennessee	Determining origin and formation timescales of sulfates on Mars using terrestrial analogs from Hawaii and Iceland
Hynek, B	Rensselaer Polytechnic Institute	Microbial endoliths as metabolic analogs and potential biosignatures in Mars fumarole environment
Jaynes, A	NASA	The importance of event-specific spatial and temporal variations in chorus wave activity on radiation belt evolution
Jaynes, A	U of New Hampshire	Microburst auroral pulsation loss experiment (MAPLE)
Jaynes, A	NASA	Proton electron advanced sensor for magnetosphere-ionosphere coupling (PLASMIC)

Jaynes, A	NASA	CORBelt: A 6-U CubeSat in geosynchronous transfer orbit for studies of the outer radiation belt
Jones, A	NASA	Determining Doppler velocities of solar eruptive events using SDO/EVE
Jones, A	NASA	Developing a solar EUV composite irradiance record
Jones, A	NASA	Control and mitigation of contamination of space optics
Kalnajs, L	NSF	Collaborative Research: Investigating thermal structure, dynamics, and dehydration in the tropical tropopause layer with fiber optic temperature profiling from Strateole-2 balloons
Kempf, S	JPL	Surface Dust Analyzer (SUDA) – Extended Phases A and Phase B
Kempf, S	JPL	Enceladus icy jet analyzer (ENIJA) validation for the Enceladus life finder (ELF) new frontiers proposal
Kindel, B	NASA	Exploring upper atmospheric water vapor and carbon dioxide from measurements of near-infrared solar spectral irradiance
Kindel, B	NEON	Implementation of shortwave spectral irradiance measurements on the NEON airborne observation platform (AOP) for atmospheric correction
Kopp, G	Active cavity radiometer irradiance monitor	ACRIM EM instrument calibration in the TRF
Li, X	NASA	On the rapid precipitation events of energetic electrons in the radiation belt
Li, X	NASA	On the effectiveness of inward radial diffusion in the energization of outer belt electrons – based on data from the Van Allen Probes and THEMIS missions
Li, X	NSF	On the dynamics of 10keV electrons on the slot region and inner belt

Malaspina, D	NASA	Investigation of kinetic-scale electric field structures at plasma boundaries in the inner magnetosphere
Malaspina, D	NASA	Kinetic-scale electric field structures, plasma boundaries and free aligned electrons in the inner terrestrial magnetosphere
Malaspina, D	NASA	SADS and the magnetosphere: Informing the study of supra arcade downflows with in-situ observations of retracting loops from the Earth's magnetotail (dipolarization fronts)
Malaspina, D	MIT	Electron hole instabilities in the Plasma wake of moons, asteroids and comets
Massie, S	NASA	A CloudSat/CALIPSO study of cloud invigoration
McClintock, W	UCF	Global Scale Observation of the Limb and Disk (GOLD) SALMON Project
McCollom, T	NASA	Experimental study of the stability of prebiotic amino acids in geologic environments on the early Earth
McCollom, T	NASA	Experimental serpentinization of iron-rich Olivine for application to Mars and icy satellites
McCollom, T	NSF	Experimental investigation of carbon reduction during serpentinization of ultramafic rocks
McCollom, T	California Institute of Technology	The plumbing of Martian lakes; clues from mineralogic and geologic mapping
McCollom, T	NASA	Experimental investigation of five-carbon amino acids as tracers of early organic chemistry in meteorites and the Early Solar System
McCollom, T	NASA	Collaborative Research: The fate of carbon at an ultraslow spreading center
McCollom, T	NASA	Analysis of geochemical trends in Mars rover data and implications for aqueous alteration processes
McGouldrick, K	NASA	Groundwork for a coupled microphysics and dynamical model of the Venus cloud system

McGouldrick, K	NASA	Combined theoretical observational multi-disciplinary analysis of the structure and evolution of the clouds and hazes of Venus
McGrath, M	Emirates Institution for Advanced Science and Technology	Emirates Mars Mission (EMM) Phase C
McGrath, M	Emirates Institution for Advanced Science and Technology	Science Training and Capabilities Development Program – Task Order 1
McGrath, M	Emirates Institution for Advanced Science and Technology	Science Training and Capabilities Development Program – Task Order 2
McGrath, M	Hampton University	Aeronomy of Ice in the Mesosphere (AIM) request for extended mission
Merkel, A	NASA	Coordinated search for episodic space weather events in Mercury’s exosphere using MESSENGER data
Moroka, M	NASA	The survey of the dust-plasma interaction region in Saturn rings and the solar system
Moroka, M	U of Iowa	Cassini Langmuir probe data archiving for the Kronian magnetosphere
Osterloo, M	NASA	The mineral stratigraphy of Noachis Terra: Towards unraveling the timing and conditions of aqueous alteration in the region
Pilewskie, P	NASA	Non-negative matrix factorization for the informed source separation of atmospheric and surface signal contributions in shortwave hyperspectral imagery
Pilewskie, P	NASA	ECHO – Earth Climate Hyperspectral Observatory
Pilewskie, P	Langley Research Center	LASP CLARREO science definition team studies

Pilewskie, P	Science Systems and Applications, Inc.	CLARREO pathfinder – Special study – Pre-Phase A
Pilewskie, P	Global Science and Technology	The Solar Irradiance Climate Data Record
Pilewskie, P	NASA GSFC	Total and Spectral Irradiance Sensor (TSIS)
Pilewskie, P	NASA GSFC	Total Spectral and Solar Irradiance Sensor (TSIS)
Portyankina, G	NASA	Connecting UVIS observational data of Enceladus water vapor plumes to ISS via modeling
Portyankina, G	NASA	Herschel Space Observatory observations of Mars
Portyankina, G	NASA	Shapes of Martian spiders: Diffusion limited aggregation model for polar surface erosion
Portyankina, G	NASA	Laboratory studies of CO ₂ Ice mechanical and thermal properties to support remote sensing investigations of Mars, comets and icy satellites
Portyankina, G	NASA	Connecting observations of Enceladus jets by UVIS and ISS via jet modeling
Possel, W	Ball Aerospace	IXPE Phase A concept study
Possel, W	Ball Aerospace	Kepler Mission Operations: Phase E extended Mission
Possel, W	Ball Aerospace	IXPE Phase B concept study
Possel, W	SwRI	Magnetospheric multiscale payload science operations center (MMS SOC) Phase E
Possel, W	Ball Aerospace	Seventeenth year of Mission Operations and Decommissioning of the QuikSCAT spacecraft
Ramachandran Nair, A	Global Atmos Tech and Science	Doppler Wind and temperature sounding using limb infrared emission

Randall, C	Atmospheric and Space Tech Research Associates	Mass Spectrometer of the Turbopause Region
Randall, C	UCAR	Assimilation of CIPS data to constrain the effects of temperature and winds in the mesosphere
Randall, C	Virginia Tech	Solar occultation constellation for retrieving aerosols and trace element species (SOCRATES)
Rast, M	NSF	Resolving the source of the solar acoustic oscillations: Preparing for the DKIST era
Royer, E	NASA	Surface composition of the icy satellites of Saturn, using the Cassini ultraviolet imaging
Royer, E	NASA	A multi-wavelength investigation of Dione and Helene: Searching for correlations between an inner satellite and its co-orbital Moon
Schmidt, S	JPL	Three-dimensional radiance simulations for trace gas spectroscopy from space
Schmidt, S	Stratton Park Engineering Co., Inc.	A highly miniaturized cloud and aerosol instrument package for small UAVs
Schmidt, S	U of Miami	ObservationS of Fire's impact on the southeast Atlantic Region (ONFIRE): Cloud-smoke-radiation interactions during ONFIRE
Schmidt, S	NASA	Atmospheric radiation science workshop
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	SwRI	Spectroscopic study of Io's neutral clouds and exosphere: Insights on the processes that shape Jupiter's magnetosphere

Snow, M	NASA	Mag squared: Understanding chromospheric magnetic structures through analysis of the IRIS magnesium II spectrum
Sternovsky, Z	NASA	Development of a source of icy dust particles enabling laboratory studies on outer planet research and astrobiology
Sternovsky, Z	NASA	Nano-dust dynamics and distribution in the inner heliosphere
Sternovsky, Z	NASA =	Analysis of RPWS dust impact signals aided by laboratory measurements
Sternovsky, Z	NASA	Detecting complex organic compounds in planetary ices
Stewart, G	NASA	Frictional particles, the jamming transition, and unexplained features in Saturn's rings
Stewart, G	NASA	Extending the streamline model of perturbed, self-gravitating planetary rings
Toon, O	NASA	Habitable climates on early Mars
Toon, O	NASA	Assessing the habitability of Tidally locked planets around M-type stars using a 3D coupled chemistry-climate model
Toon, O	NASA	Comparisons of cloud properties in climate models and satellite observations
Toon, O	NASA	Sectional aerosol model for GEOS-5: Applications to aerosol-cloud interactions and volcanic clouds
Toon, O	NASA	Studies of polar stratospheric clouds and the UTLS aerosols using CALIPSO data and an advanced aerosol model
Toon, O	NASA	Improving CAM5/CARMA through comparisons with ATTRS 3 and CALIPSO data and the introduction of a new CARMA cloud-aerosol model

Toon, O	NSF	Toward a better representation of cloud-Aerosol interactions in the community Earth System Model: with applications to heterogeneous nucleation of Cirrus, and aerosol-cloud interactions in liquid clouds
Trattner, K	NASA	The relationship between multiple reconnection sites and flux transfer events at the magnetopause
Usanova, M	NASA	Electromagnetic ion cyclotron harmonic waves in the inner magnetosphere
Usanova, M	NASA	The role of EMIC waves in relativistic and ultra-relativistic electron loss in the Earth's Radiation Belts
Usanova, M	Dartmouth College	An investigation of the effectiveness of electromagnetic ion cyclotron waves for causing radiation belt electron loss
Wang, X	NASA	Laboratory investigations of electrostatic dust lofting and transport on the surfaces of airless bodies
Wang, X	NASA	The development of a double hemispherical probe for the advancement of Space Plasma Measurements
Wilder, F	NASA	Heliophysics guest investigator: The role of Alfvén layers in sub-auroral polarization streams and plasmaspheric erosion
Wilson, R	NASA	The relative abundance of water group ions in Saturn's Inner Magnetosphere
Wolf, E	NASA	Organic habitable worlds: Simulating habitable zones for organic-rich atmospheres
Wolf, E.	NASA	The effects of aspherical planet shape on Exoplanet
Wolf, E	Blue Marble Space Institute of Science	Constraining the habitable zone for binary systems

Wolf, E	U of Maryland	Determining the inner edge of the habitable zone around M-dwarf stars using 3-D climate models
Wolf, E	NASA	Hydrogen escape and the habitable zones of Aqua and land planets of many sizes
Woods, T	Association of Universities for Research in Astronomy	Compact light-weighted magnetograph for solar magnetic fields
Woods, T	NASA	SDO-EVE Phase E extended mission rocket re-flight
Woods, T	NASA	Extreme Ultraviolet Experiment (EVE) investigation for the solar dynamics observatory (SDO); Extended phase E mission
Woods, T	SwRI	CubIXSS CubeSat Mission: The imaging X-ray Solar Spectrometer
Zhu, Y	NSF	The model study of Antarctic polar stratospheric clouds and ozone depletion under the impact of volcanic eruptions