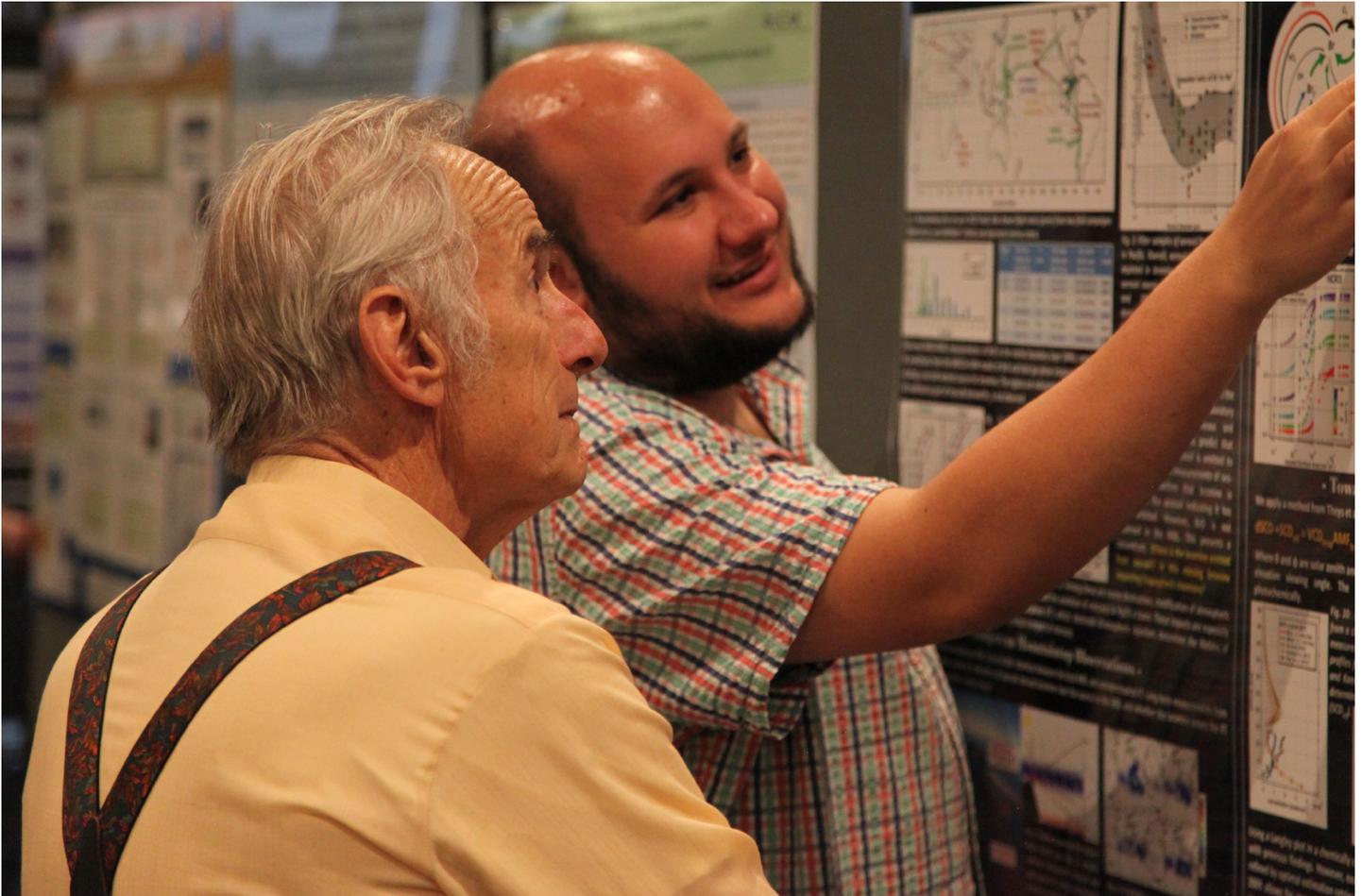




CIRES Rendezvous 2019

Annual Science Symposium • May 17 • Glenn Miller Ballroom, UMC



Celebrate outstanding science with your CIRES colleagues!



Hosted by



cires-cmc@lists.
colorado.edu

2018



CIRES Rendezvous2019

Friday, May 17 • University Memorial Center, Glenn Miller Ballroom, Terrace, and Aspen Rooms

The CIRES Members' Council is pleased to announce the 14th annual CIRES Rendezvous. This institute-wide symposium spotlights the depth, breadth, and quality of the pacesetting science being done at CIRES. We hope to encourage collaborations that might result in new interdisciplinary research, and to facilitate connections among our many innovative scientists, science support staff, and administrative staff. The event includes an entire afternoon devoted to science and poster presentations by CIRES members.

Agenda

POSTER SET-UP: 10:00 am – 11:30 am (UMC Terrace tent and Aspen Rooms)

CHECK-IN: 11:00 am – 11:25 am (UMC Glenn Miller Ballroom Foyer)

LUNCHEON, ADDRESS & AWARDS: 11:30 am – 1:30 pm (UMC Glenn Miller Ballroom)

POSTER SESSION: 1:30 pm – 4:30 pm (UMC Terrace tent and Aspen Rooms) Includes appetizers and a credit-card-only bar starting at 1:30 pm

Looking for a certain poster?

USE A COLOR: Poster displays are color-coded by category. See key at right.

USE YOUR DEVICE: Locations and abstracts are available at ciresevents.colorado.edu/rendezvous/poster-abstracts

USE A MAP: See pages 10-11 or view the poster maps on display in the UMC Terrace Tent or Aspen Rooms.

ADMINISTRATION

ENVIRONMENTAL CHEMISTRY

CENTER FOR SCIENCE AND
TECH POLICY RESEARCH

ENVIRONMENT OBSERVATIONS,
MODELING, FORECASTING

CRYOSPHERIC AND POLAR
PROCESSES DIVISION

SOLID EARTH SCIENCES

ECOSYSTEM SCIENCE

WEATHER AND CLIMATE
DYNAMICS

EDUCATION & OUTREACH

WESTERN WATER ASSESSMENT

From the Director



Dear Colleagues,

Welcome to the annual CIRES Rendezvous! As has been the case for the last few years, we had an outstanding year in terms of both funding and productivity, and you're going to see that during Rendezvous, reflected in more than 125 terrific scientific posters.

Last year, CU Boulder research funding topped \$500 million for the first time, and CIRES was responsible for 17 percent of that. We're on the same track this year so far because of your success in proposal writing: CIRES has brought in about the same proportion of CU Boulder's external funding. In addition, *U.S. News and World Report* ranked CU Boulder the #1 university in the world for geosciences—CIRES has been critical to that top ranking, with our outstanding publication record (in excess of 800 papers last year) and five of CU Boulder's 11 highly cited researchers.

Far more important than the numbers, however, are our excellence in research and quality of education. Our efforts lead to fundamental understanding of how environmental processes work, which is critical to our society's ability to address the environmental challenges of today and tomorrow, as well as thrive in the face of change. In short, we develop foundational knowledge; we provide actionable information at all scales to inform decision-making; and we enhance environmental literacy.

While we are a research institute full of world-class scientists and many leaders in our fields, I am very proud of the fact that we have nearly 200 students in CIRES and dozens of postdocs and early career scientists. These students and early career researchers will no doubt ensure our legacy continues and that CIRES will remain a world leader in environmental research.

Our achievements and stature in the scientific community would not be possible without the outstanding contributions of the administrative and other support staff that make CIRES a well-run and highly respected organization on campus. I would like to express my most sincere gratitude to all of you who play these critical roles. Whether you have been here 30 years or 30 days: I am glad you are here and part of our team.

These are challenging times in many ways, but I am confident that the quality of our research, its importance to society, and the commitment and talent of our people will continue to be recognized and supported. So thank you all for your efforts. Thank you for contributing to our success as an institute. Thank you for all we have collectively achieved in the past year, and most importantly—thank you for all for your commitments to the successful execution of our mission.

The world is a better place because of CIRES and because of you!

A handwritten signature in blue ink, appearing to read 'Waleed Abdalati', written over a white rectangular background.

Waleed Abdalati

PROMOTIONS

Associate Scientist II

Seth Arens
Frank Erdesz
Christopher Esterlein
Dominic Fuller-Rowell
Michael Laxer
Kenneth Schuldt
Lawrence Spencer

Research Scientist II

Sunil Baidar
Samuel Califf
Matthew Coggon
Michael Erickson
Audrey Gaudel
Kara Lamb
Xin Lan
Kathryn McKain
Twila Moon
Michael Mueller
Allen Pope
Michael Toy
Caroline Womack
Ryuji Yoshida

Associate Scientist III

Susan Cobb
Jonathan Joyce
Ruifang Li
Elliot Lim
Luis Lopez
Matthew Price
Daniel Rosen
Amy Steiker
Margaret Tilton
Giuliana Turi

Research Scientist III

Amy Butler
Tzu-Wi Fang
Joseph Olson
Ursula Rick
Michael Scheuerer
Daniel Seaton

Senior Associate Scientist

Anne Gold
Christopher Golden
Eric James
Richard McLaughlin
Elizabeth Sheffield
Stephen Tanner

Senior Research Scientist

Wayne Angevine
Ligia Bernardet
Arnaud Chulliat
Kathleen Lantz
Amy Solomon
Carsten Warneke

SERVICE As of December 31, 2018

5 Years of Service

John Albers
Chuck Anderson
Carrie Bell
Nir Boneh
Amy Butler
Jessica Calme
Aditya Choukulkar
Chris Cox
Juliana Dias
Maria Gehne
Mark Handschy
Mike Hardesty
Molly Hardman
Katy Human
Jeff Johnson
Daniel Law
Paul Lotoaniu
Richard McLaughlin
Ralph Milliff
Hilary Peddicord
Allen Pope
Michael Rabellino
Imtiaz Rangwala
Dan Rosen
Paul Schultz
Lesley Smith
Steve Tanner
Jennifer Taylor
Hagen Telg
Mike Trudeau
Daniel Warren
Man Zhang
Paul Ziemann

10 Years

Waleed Abdalati
Terry Bullett
Tilo Ghosh
Evelyn Grell
Emrys Hall
Jan Kazil
Elliot Lim
Ben Miller
David Neufeld
Yehor Novikov
J Reeves

15 Years

Laura Bianco
Walt Meier
Donald Neff
Frank Schaffer
Troy Thornberry
Anthony Veale

20 Years

Gary T. Bates
Antonietta Maria Capotondi
Gilbert P. Compo
Xiangbao Jing
Sara A. Michelson
Debra Mondeel
Xiao-Wei Quan
Eric Ray
Donna Scott
Kenneth Smith
Doug Young

25 Years

Mary Jo Brodzik
Julia Collins
Edward Gille
Joan Hart
Leslie Hartten
R. Michael Jones
Barry McInnes
Ted A. Scambos
Anne Sheehan
Donna Sueper

30 Years

Shelley Copley

35 Years

Richard Armstrong
Siri Jodha Singh Khalsa

CIRES Outstanding Performance Awards: Science and Engineering

CRITERIA 1: Development of new scientific, engineering, and/or software tools or models directly resulting in novel research valuable to CIRES and the wider scientific community.

CRITERIA 2: Uncommon initiative, resourcefulness, and/or scientific creativity conducting research with potential to expand or change the direction of a particular field or discipline.

CRITERIA 3: Participation in collaborative and/or multidisciplinary research that engages a broader cross-section than the nominee's typical scientific or engineering community.

The OPA committee has selected three winners in the Science and Engineering category:

CAROLINE WOMACK

NOAA'S CHEMICAL SCIENCES DIVISION

During her short time at NOAA, Caroline Womack has tackled a series of diverse, complex experimental and scientific challenges. The resulting advances are foundational and will ultimately provide the NOAA/CIRES community with new experimental methods and new ways of thinking about future research. These advances include: 1) A methodology for the measurement of broadband aerosol extinction, a challenging project with potential for the next generation of instruments in this field; 2) An innovative modeling framework for understanding wintertime aerosol pollution that may lead to reconsideration of particulate matter mitigation strategies in polluted regions worldwide; and 3) a careful investigation of current instrumentation for measurements of speciated reactive nitrogen. Her many contributions in a very short period are new and innovative and have potential to alter the direction of their fields.

GEOFF DUTTON, LEI HU, BEN MILLER, DEBRA MONDEEL, FRED MOORE, DAVID NANCE, ERIC RAY, CAROLINA SISO, AND PENGFEI YU

NOAA'S GLOBAL MONITORING AND CHEMICAL SCIENCES DIVISIONS

CIRES scientists Geoff Dutton, Lei Hu, Ben Miller, Debra Mondeel, Fred Moore, David Nance, Eric Ray, Carolina Siso, and Pengfei Yu provided the analytical and interpretive foundations of a paper that has identified substantial unreported emissions of trichlorofluoromethane (CFC-11), a major ozone-depleting substance. Production of CFC-11 has been phased out under the provisions of the Montreal Protocol on Substances that Deplete the Ozone Layer for almost a

decade. The finding of unreported emissions represents an unprecedented challenge to the Protocol process, which is supported by all nations. This paper has alarmed the world and inspired scientific research and policy discussions to address the causes and implications of the emissions. The CIRES team ensured that the CFC-11 measurements used in the paper were of the highest analytical quality and that the model-based interpretation that led to the conclusion of unreported emissions considered all processes involving CFC-11 in the atmosphere. Since the release, the United Nations Environment Programme has endorsed the paper's conclusions in its quadrennial assessment of ozone depletion.

CHRISTINA WILLIAMSON

NOAA'S CHEMICAL SCIENCES DIVISION

Christina Williamson has exhibited sustained scientific and engineering excellence while passionately pursuing a scientific vision involving improving, modifying, and calibrating a set of unique instruments to measure the size and number of newly formed atmospheric nano-particles. She is operating these instruments during a set of challenging, global-scale airborne measurements to produce a unique dataset that maps out regions of new particle formation in the remote atmosphere, and using these observations to challenge and improve the global models that simulate important but uncertain climate processes. She has seen this multi-year effort through instrument development and testing, four around-the-world measurement campaigns, and the analysis and publication of results. Additionally, she has served as a vocal advocate to the public and a range of scientific communities, maintaining and contributing to blogs, a twitter feed, and presenting at numerous conferences.

CIRES Outstanding Performance Awards: Service

CRITERIA 1: Implementation of a creative or innovative idea, device, process, or system that aids in research, teaching, or outreach at CIRES.

CRITERIA 2: Development or improvement of a service that increases the efficiency, quality, or visibility of scientific research or outreach.

CRITERIA 3: Providing a service that promotes or inspires excellence and dedication to research performed at CIRES or in the wider community.

The OPA committee has selected three winners in the Service category:

ARNAUD CHULLIAT, PATRICK ALKEN, NIR BONEH, BRIAN MEYER, MANOJ NAIR, JESSE VARNER, AND ADAM WOODS

NOAA'S NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION

Arnaud Chulliat and the rest of the geomagnetism team (Patrick Alken, Nir Boneh, Brian Meyer, Manoj Nair, Jesse Varner, and Adam Woods) provided exemplary service to an enormous community of users worldwide by updating the World Magnetic Model (WMM) in an unexpected, out-of-cycle release more than a year before the next scheduled update was planned. This was a critical update for many users including the U.S. military, NATO, commercial aviation, search and rescue professionals, and in other sectors that rely on precision navigation, especially in the far North.

CHARLES ANDERSON

NOAA'S NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION

As the NCEI fisheries acoustic data manager, Charles Anderson is responsible for working with NOAA and other data providers to archive “fisheries acoustic data”—water-column sonar and passive acoustic— and associated metadata. Anderson demonstrated above-and-beyond initiative to adapt, enhance, and expand a software tool set (which he custom-built for just fisheries acoustic data) to support general marine geophysical data. The work greatly benefitted the broader scientific community within and beyond NOAA. Anderson’s “CruisePack” software is enabling critical marine geophysical data to be well documented and preserved for generations to come. The innovative approaches that Anderson has taken in the design and implementation of CruisePack addressed multiple challenges inherent

to complex and variable datasets, a national and international community of non-experts in metadata, and a variety of research objectives.

AMANDA MORTON

CIRES EDUCATION & OUTREACH

Amanda Morton has provided outstanding service by inspiring the next generation of ocean scientists through coordinating and organizing the National Ocean Sciences Bowl (NOSB), a high-school-level ocean-science-focused competition. Amanda has done a marvelous job in coordinating and organizing the regional NOSB competition, named the Trout Bowl, every year since 2011. However, in 2018, her engagement went above and beyond normal project work and job duties. She organized the regional Trout Bowl in February 2018, for 13 regional teams and, in addition, opened the competition to four Texas teams that were displaced through the impacts of Hurricane Harvey. With this invitation, Amanda was able to provide a competition opportunity for these teams. In addition to this larger-than-usual regional event, Amanda hosted the NOSB Final Competition in April 2018 at CIRES. It was the first time the NOSB National Competition took place in a land-locked state.

CIRES Distinguished Career Award

TED DE MARIA

CIRES ADMINISTRATION

Ted De Maria supports the scientists, engineers, other PIs, all administrative staff, and everyone who works at CIRES. He has been a tremendous resource for the campus central offices, especially the export control and office of contracts and grants. He is selfless and incredibly thorough. Ted consistently goes above and beyond what is expected to provide exceptional service to all members of CIRES and to achieve excellence on

everything that he touches. And the number of hours he works weekly is mind-boggling. Ted is creative and has extensive knowledge of all university policies and procedures including the complex export control regulations and contracting Federal Acquisition Regulations. He is behind every unusual project of CIRES, such as deploying lidars and other instruments to Antarctica and the Arctic, and coordinating international partners across the Himalaya region. Ted is a major contributor to the high proposal success rate CIRES has had in the past years.

George C. and Joan A. Reid Award

Made possible by the Reids' generous contribution to an endowed scholarship fund, the Reid Award celebrates intellectual contributions to CIRES and leadership within the broader University of Colorado Boulder community. It is awarded every two years.

George Colvin Reid (1929–2011) was an eminent atmospheric scientist who pioneered research into critical environmental issues such as stratospheric ozone depletion and global climate change. Always a progressive thinker, he was one of the initial four fellows who founded the Cooperative Institute for Research in Environmental Sciences. Joan A. Reid (1932–2015) was one of the first women to enroll in the University of Colorado School of Law. She spent most of her career with the nonprofit Rocky Mountain Mineral Law Foundation, and was a frequent community volunteer, an avid outdoorsperson, and with her husband George, an inveterate world traveler.

MAGALI BARBA

Magali Barba, a Ph.D. student in Geological Sciences who works with CIRES Fellow Kristy Tiampo, is this year's recipient of the George C. and Joan A. Reid Award. Barba was nominated by her advisor, Tiampo, and another CIRES Fellow and colleague, Mike Willis, who describe her as extremely intelligent and innovative, "focused on her own research but with a broader vision that leads to new and interesting projects and collaborations."

At CIRES and CU Boulder, Barba's research includes the use of DInSAR techniques to evaluate hazards such earthquakes, induced seismicity, avalanches and mudslides. She excels at satellite data processing and analysis, has recently first-authored a paper in *Remote Sensing* and has another draft paper nearly ready for submission to AGU's *Earth and Space Science*. Barba also

independently formulated a proposal under consideration at NASA's Future Investigators in NASA Earth and Space Science and Technology (FINESST) program: "Rapid earthquake characterization using iterative FEM slip inversions of GPS, DInSAR, and optical data." Her nominators called it "a fine example of both her excellent command of the field and her impressive technical ability."

Barba's record of service is as admirable as her scientific expertise. Not only has she mentored several graduate students at CU Boulder and worked with an undergraduate STEM outreach program at UNAVCO, she also founded the first national Latinx geoscience organization, SOLESS. The Society of Latinx/Hispanic Earth and Space Sciences' mission is to increase and reinforce the representation of Latinx/Hispanics in those fields.

CIRES Bronze Medal

CIRES scientists are often integral to NOAA award-winning science and engineering teams but cannot be given certain federal awards, such as the prestigious Department of Commerce Gold and Bronze Medals. The CIRES Director recognizes the extraordinary achievements of CIRES scientists working in partnership with federal colleagues.

MARTIN AUBREY, ELIZABETH DELK, CHRISTOPHER ESTERLEIN, RICHARD FOZZARD, SEMERE GHEBRECHRISTOS, ARIANNA JAKOSITZ, EVAN MCQUINN, DAVID NEUFELD, AND ELLIOTT RICHERSON

NOAA'S NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION

This NOAA team won a Department of Commerce Bronze Medal in 2019, “for implementing the NOAA OneStop data discovery system, dramatically improving NOAA’s ability to deliver environmental data to the public.” The Bronze is the highest honor award granted by the Under Secretary of Commerce for Oceans and Atmosphere, recognizing federal employees for superior performance. CIRES recognizes employees who were a critical part of this team with the CIRES Bronze Medal.



**Help us make the CIRES
Rendezvous even
BETTER next year
by answering a few quick
questions:**

<http://bit.ly/CIRES2019>

Thank you very much, from the
CIRES Members’ Council.

The CIRES Members' Council (CMC) was created in 1997 to act as an information and policy conduit between CIRES' leadership and the institute's members (associate scientists, research scientists, and administrative associates).



within and between all CIRES units;

- Providing a means of Member participation in CIRES governance and a voice on committees and working groups which form the core of that governance;

The Council represents the interests of all CIRES members with respect to CIRES governance, scientific direction, and the day-to-day workplace environment. As a representative group made up of CIRES members, it is tasked with:

- Representing the concerns of the CIRES Membership by bringing issues to the attention of the CIRES administration;
- Working to improve the lines of communication

which determines CIRES' research direction and areas of research;

- Fostering a positive workplace environment and Members' connection with CIRES by facilitating Members' understanding of their roles within CIRES.

The CIRES Members Council provides the opportunity for service as well as career enhancement, benefiting representatives and constituents alike.

CMC Officers



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More: <https://cires.colorado.edu/about/institutional-programs/cires-members-council>

Poster session floorplan: UMC Terrace Tent

Use your device to find a poster: Locations and abstracts are available at ciresevents.colorado.edu/rendezvous/poster-abstracts

CRYOSPHERIC AND POLAR PROCESSES DIVISION

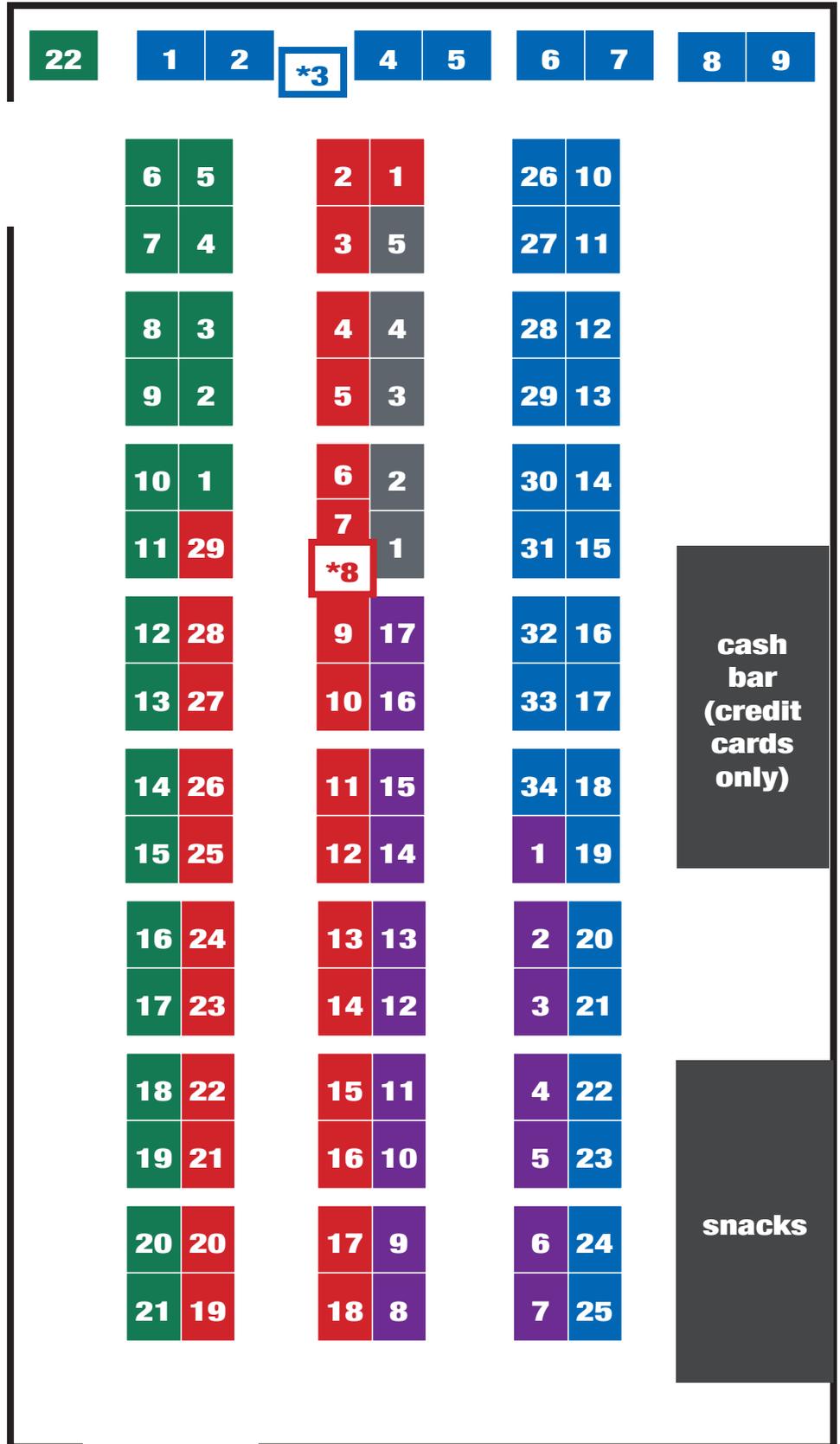
ENVIRONMENT OBSERVATIONS, MODELING, FORECASTING

ENVIRONMENTAL CHEMISTRY

WEATHER AND CLIMATE DYNAMICS

WESTERN WATER ASSESSMENT

* EOMF8 and WCD3 are in the UMC Aspen Rooms



Poster session floorplan: Aspen Room



Use your device to find a poster: Locations and abstracts are available at ciresevents.colorado.edu/rendezvous/poster-abstracts

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- EDUCATION & OUTREACH**
- ENVIRONMENT OBSERVATIONS, MODELING, FORECASTING**
- SOLID EARTH SCIENCES**
- WEATHER AND CLIMATE DYNAMICS**