

# MAC-MAQ

Meteorology And Climate - Modeling for Air Quality

# Conference

September 13-15, 2023

## Now Accepting Abstracts

Interested in presenting at MAC-MAQ 2023? We invite you to submit your work for consideration as a Podium or Poster Presentation.

Our submission process is streamlined and simple, and each abstract can be considered for up to three different sessions.

And don't worry - if your abstract isn't chosen for a podium presentation, your submission will still be considered for a Poster Presentation/Lightning Talk!

Take a closer look at the session descriptions below to gain a better understanding of the topics and themes that will be covered at this year's conference. These descriptions will help you select the sessions that best align with your work and research interests.

### Modeling of Processes Across Multiple Scales

*Co-Chaired by: Louisa Emmons and Petra Klein*

The linkages between the atmosphere's constituents and meteorology are dependent on the level of knowledge and methodology used to represent chemical and physical processes within the models. These processes are sometimes scale-dependent, with different scales necessitating different approaches. They may also be scale independent, applicable to all resolutions and modeling domains. In this session, we focus on new modeling systems and process representations that span all scales of atmospheric modeling. A particular focus is on fundamental processes - those which have a key influence on the predicted state of the atmosphere, yet may be addressed through novel process representation.

### M3: Merging Measurements & Models

*Co-Chaired by: Brad Pierce and Carl Malings*

Measurements provide real-world data to validate and constrain models, while models offer a framework for situating often sparse or intermittent measurements within a broader context. This session highlights work integrating measurements and models for physical and chemical processes in the atmosphere as they relate to air quality. A range of measurement types are considered, including in-situ and remote sensing measurements from surface, airborne, and satellite platforms. A variety of methods for measurement integration are also considered, including data assimilation, data fusion (including machine learning approaches), and use of measurements for model evaluation and validation.

### Unique/Extreme Events and their Impacts on Meteorology and Air Quality

*Co-Chaired by: Susan O'Neill and Karin Ardon-Dryer*

Unique or extreme events such as wildfires, stratospheric ozone intrusions, dust storms, cold air pools, and pandemics can have notable and sometimes dramatic impacts on meteorology and air quality. Further, while typically episodic and unique in nature, climatological projections have them occurring more frequently and the enormity of their impact, spatially, temporally, and in terms of creating hazardous conditions, affect millions of lives. In this session we invite abstracts that probe the underlying physics and chemistry of extreme events with the goal of understanding their impact on air quality and meteorology. Possible topics include, but are not limited to, recent high-impact wildfires, pandemics, and other notable events such as dust storms, stratospheric ozone intrusions, and cold air pools.

### Breakthrough Innovations in Atmospheric & Air Quality Modeling

*Co-Chaired by: Siyuan Wang and Sebastian Eastham*

As new challenges emerge in air quality modeling and forecasting, innovative techniques offer exciting opportunities to advance our understanding of the complex interactions between air quality, meteorology, and the climate system. Meanwhile we are facing a growing need to provide tools which can rapidly and reliably inform both the public and policy makers of the ways in which air quality might change, responding to questions of environmental justice and compounding environmental stressors. This session focuses on innovative techniques in atmospheric and air quality modeling, such as trustworthy artificial intelligence/machine learning, physics-infused machine learning, new approaches to model-data fusion, GPU-accelerated computing, and cloud computing.

## Composition and Operational Forecasting from Daily to Seasonal Scales

Co-Chaired by: Yang Zhang and Daniel Tong

This session invites submissions on producing atmospheric composition forecasting from daily to sub-seasonal to seasonal scales. This includes development and implementation of both research and operational deterministic air quality forecasting systems, ensemble approaches for probabilistic air quality forecasting, chemical data assimilation, bias correction, machine-learning and other techniques to improve initialization, emission, physical and chemical processes, and post-processing of air quality forecasting systems to improve forecasting skill and decision-making support.

## Meteorology-Chemistry Coupling, Feedbacks, and Interactions

Co-Chaired by: Heather Holmes and Maryam Abdi-Oskouei

In this session, we invite submissions from the latest observational and modeling studies with the focus on advancing our understanding of meteorology and atmospheric chemistry as a coupled system. Relevant topics include but are not limited to: (1) Coupled meteorology and chemistry feedbacks across scales (e.g., land-atmosphere coupling, PBL mixing, cloud microphysics, dynamics, etc.), (2) Studies designed to investigate meteorology and air quality interactions across multiple pollutant species (e.g., aerosols and reactive gases), (3) Biogenic emissions and their impacts on regional and global air quality, (4) Combined effects of meteorology and chemistry and their associated broader societal impact (e.g., health burden, environmental justice, etc.).

**Don't miss out on this exciting opportunity to showcase your research and connect with fellow professionals focused on meteorology for air quality applications.**

[Submit Your Work](#)

## Submission Information



**MAC-MAQ**  
Meteorology And Climate - Modeling for Air Quality  
**Conference**  
September 13-15, 2023

**CALL FOR ABSTRACTS**

Seeking Podium and Poster presentations on:

- Meteorology-Chemistry Coupling, Feedbacks, and Interactions
- Breakthrough Innovations in Atmospheric & Air Quality Modeling
- M3: Merging Measurements & Models
- Composition and Operational Forecasting from Daily to Seasonal Scales
- Modeling of Processes Across Multiple Scales
- Unique/Extreme Events and their Impacts on Meteorology and Air Quality

**SUBMIT YOUR ABSTRACT BY APRIL 26, 2023.**

Submissions will be reviewed by experts on the Conference Technical Program Committee with acceptance notices going out by June 1, 2023.

The Meteorology and Climate - Modeling for Air Quality Conference is a biennial event hosted by the University of California Davis, Air Quality Research Center. This three-day hybrid conference brings together research scientists, experts, and professionals from around the world to discuss a wide range of topics related to meteorology for air quality applications. The primary focus is on understanding and improving meteorological modeling, understanding what is "under the hood" in the models, how experimental data can be used to improve them, and the importance of meteorology in air quality modeling applications.

**More Information: [macmaq.aqrc.ucdavis.edu](http://macmaq.aqrc.ucdavis.edu)**

Please prepare the following details to submit an abstract: a title, a brief abstract, the organization details and biography of the presenting author, and information about any additional authors.

You are welcome to submit more than one abstract.

Submissions will be reviewed by the fantastic individuals on our Technical Program Committee, comprised of global researchers and educators who have been working in the field for many years. Abstracts that are not chosen for a Podium Presentation will have the opportunity to give a Poster Presentation.

Please be advised that speakers will need to reserve all three conference dates until the programming schedule is finalized. Additionally, we kindly request that speakers plan to attend the conference in-person; while the event will be hybrid -with activities occurring both in-person and virtually live-streamed for remote participants - the conference will only be accepting in-person presentations at this time. If you have any questions, please contact the Conference Manager, Olivia Schlanger at [oschlanger@ucdavis.edu](mailto:oschlanger@ucdavis.edu).

## Current Speaker List

We're excited to welcome these knowledgeable presenters who will be joining us in Davis in September.

### KEYNOTE SPEAKERS:

- Tracey Holloway, *University of Wisconsin*
- Pablo Saide, *UCLA*

### INVITED SESSION SPEAKERS:

- Allison Steiner, *University of Michigan*
- Beiming Tang, *University of Iowa*
- Craig Stroud, *Environment and Climate Change Canada (ECCC)*
- Dave Peterson, *Naval Research Laboratory*
- David Fillmore, *National Center for Atmospheric Research (NCAR)*
- Domingo Muñoz-Esparza, *National Center for Atmospheric Research (NCAR)*
- Ivanka Stajner, *NOAA CEP EMC*
- Jenny Hands, *Cooperative Institute for Research in the Atmosphere, Colorado State University*
- Jordi Vilà-Guerau de Arellano, *Wageningen University*
- Kazuyuki Miyazaki, *NASA Jet Propulsion Laboratory (JPL)*
- Makoto Kelp, *Harvard University*
- Meiyun Lin, *National Oceanic and Atmospheric Administration (NOAA)*
- Yang Li, *Baylor University*

Submit your work for the opportunity to join this esteemed lineup of speakers.

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## Share the News

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Don't let your colleagues miss out on this chance to connect with like-minded professionals and gain exposure for their work!

Help us spread the word about the presentation opportunities available and encourage your colleagues to submit their own abstracts!

By sharing this exciting opportunity, you can help promote innovative research and thought-provoking ideas in the field.

[Share the Conference](#)

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## Travel Preparations

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### Hotels in Davis

We've partnered with two local hotels to offer group rates for conference attendees. State and Federal rates are available while supplies last.

[View Hotel Information](#)



## Visa Reminder

Depending on your country of origin and length of stay in the United States, you may or may not require a VISA to enter the country.

Securing VISA arrangements is the responsibility of the attendee / participant. Please do not delay in making VISA arrangements for your entry if needed as the government may take several months to process the requests.

Some countries ask visa applicants to provide supplementary information explaining the purpose of their travel. In this regard, providing a letter of invitation to MAC-MAQ 2023 may be useful. If needed, please download the [invitation letter](#) to apply for a Visa to attend this year's MAC-MAQ Conference.

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## GEOHealth Webinar Series

*Sharing on behalf of Carl Malings, NASA Goddard Space Flight Center / Morgan State University and MAC-MAQ 2023 TPC Member*

The [GEOHealth Community of Practice's Air Quality, Wildfires, and Respiratory Health Work Group](#) brings together scientists and practitioners from around the world to advance modeling satellite and sensor measurement data for monitoring, forecasting, and assessing air quality, wildfire-related pollutants, and aeroallergens to quantify the levels of exposure associated with health risk for various population groups and the public at large.

In our upcoming webinar series, we will be hosting presenters who will summarize the state of science and of practice in the use of Earth observation data to understand air quality and to support respiratory public health decision-making around the world.

Attendees of MAC-MAQ may be interested in attending to learn more about and to help strengthen the connections between modeling of air quality and public health decision making.

Contact the Workgroup leads, [Carl Mailing](#) and [Nathan Pavlovic](#) for additional information.

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**Did someone forward you this email? [Sign up for our mailing list](#) to stay up to date on Conference announcements and developments!**

MAC-MAQ covers a wide array of research areas that utilize meteorological and climatological data. The primary focus will be on the modeling and prediction of regional climate and meteorology as it relates to air quality - with a special emphasis on understanding what is "under the hood" in the models and how to improve them.

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Questions? Contact the Conference Manager, Olivia Schlanger at [oschlanger@ucdavis.edu](mailto:oschlanger@ucdavis.edu).



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