ASA Section on Statistics and the Environment Newsletter
Summer Edition 2024
Keep up to date on ENVR events and opportunities via the ENVR website

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Message from the ENVR Chair

I am excited to share some exciting news about the great things that members of ASA Section on Statistics and the Environment (ENVR) are doing, and to share information about events that you won't want to miss.

First, congratulations to the newly elected ENVR board members! I am grateful for their willingness to serve this community that we love. As I have begun my time as Chair of ENVR, I have been floored by the level of commitment and dedication that is demonstrated by so many individuals. In addition to the ENVR Executive Committee listed below, our Section's efforts to mentor others, build careers, and develop the next generation of statistical tools for environmental science. Here are just a few examples of generous service that is largely unseen:

- The Student Paper Competition Committee (Candace Berrett [chair], Emily Kang, & Eric Gilleland) spend many hours evaluating the work of our impressive new generation of environmental statisticians, recognizing the top papers among many qualified students.
- The ASA Fellows Committee (Kathi Irvine [chair], Chris Wikle, & Mevin Hooten) and the Committee on Distinguished Achievement Awards (Ana Rappold [chair], Steve Sain, & Alex Schmidt) work hard to ensure that high-impact members of the community are nominated and recognized for their individual contributions.
- The ENVR Workshop Organizing committee (listed in the announcement below) have spent much of the last year organizing the technical program, applying for grant money to fund early career researchers to attend, and coordinating a long list of logistical needs for the 2024 ENVR Workshop in Boulder (Oct 3-5, 2024).
- The full-day short course at the 2024 ENVR Workshop will be presented by Jay Ver Hoef, Dale Zimmerman, and Michael Dumelle, with all registration fees donated to ENVR for the funding of future mentoring activities, workshops, and student travel awards. This selfless gift of short course registration fees for the benefit of ENVR has been a tradition of generosity that goes back to the first ENVR Workshop short course…which was presented by (déjà vu) Jay Ver Hoef!

This list could go on and on, but I'll end it here by saying thank you for all the quiet things *you* do to improve the quality of environmental science, mentor new statisticians, and take gradual steps toward a better world. I love this community and am better for my associations with you.

I look forward to seeing you at JSM in August and the ENVR Workshop in October!

William Christensen, 2024 ENVR Chair

Newly elected ENVR Board Members

Chair-Elect 2025: Peter Craigmile, Hunter College, CUNY
Program Chair-Elect 2025: Lyndsay Shand, Sandia National Laboratories
Treasurer 2025: (Rotates to Secretary in 2026) Pulong Ma, Iowa State University

ENVR Awards and New Fellows

ASA Fellow

Birol Emir, Pfizer
Andrew Finley, Michigan State University
Megan Higgs, Critical Inference
Matthias Katzfuss, University of Wisconsin-Madison
David S. Matteson, Cornell University and NISS
Huiyan Sang, Texas A&M University

IMS Fellow

Catherine A. Calder, University of Texas at Austin
David S. Matteson, Cornell University and NISS

COPSS Emerging Leader Award

Abhirup Datta, Johns Hopkins University
Citation: *For fundamental methodological and theoretical contributions to geospatial statistics and machine learning with applications to the environmental and public health; for leading development and application of Bayesian methods for improving mortality estimates in low-and-middle-income countries; for prolific open-access software development; for being a role model in advising and mentoring of students and junior colleagues and for service to the profession.*

ENVR Distinguished Achievement Award

Amy Braverman, Jet Propulsion Laboratory
Citation: *For statistical advancements in the field of remote sensing from Earth observing satellites, including exceptional contributions to problem formulations, spatial and temporal methods, algorithm development for*

the analysis of massive datasets, and quantification of uncertainty; and for nurturing the next generation of statisticians.

ENVR Early Investigator Award - 2 winners for 2024:

Trevor Hefley, Kansas State University
Citation: *For outstanding innovations and utilization of spatial and temporal statistical methods within the realms of ecology and agriculture; and for technical prowess, mentorship efforts, and successful collaborations across various environmental disciplines.*

Ander Wilson, Colorado State University
Citation: *For notable methodological advancements, particularly in distributed lag models and the modeling of chemical pollutant mixtures; and for outstanding contributions in identifying functional and nonparametric forms of treatment effects and effect modifications in the field of environmental health.*

ENVR Student Paper Competition Winners

Jacob Johnson, "Fusing climate data products using a spatially varying autoencoder," Brigham Young University
Julia Walchessen, "Neural likelihood surfaces for spatial processes with computationally intensive or intractable likelihoods," Carnegie Mellon University

Honorable Mentions:

Lucas Godoy, "From point to polygon: A unified framework for modeling spatial dependence," University of Connecticut
Michael Schwob, "Composite Dyadic Models for Spatio-Temporal Data," The University of Texas at Austin
Troy Wixon, "Attribution of seasonal wildfire risk to changes in climate: A statistical extremes approach." Colorado State University

All awards will be recognized during the JSM ENVR mixer, as detailed in the information provided in the next section.

ENVR Mixer and Business Meeting

Plan ahead to attend the ENVR Mixer at JSM in Portland. Note that this year the mixer will take place on the **Tuesday** of JSM. We will recognize award winners, discuss upcoming events, discuss the state of ENVR, and enjoy catching up with one another.

Date: **Tuesday**, August 6, 2024
Start Time: 5:00 PM
Location: Hyatt Regency Portland (375 NE Holladay Street)
Room Name: H-Deschutes A

JSM 2024 message from Program Chair

Dear all,

JSM 2024 is approaching quickly, and ENVR has an exciting program lined up! A big thank-you to the organizers and participants!

Sunday, August 4
- 2:00 PM – 3:50 PM: Dealing with Large, Complex, Gaussian and Non-Gaussian Spatio-Temporal Datasets, Contributed Papers, CC-C121
- 4:00 PM - 5:50 PM: Learning and Modelling of Complex Spatial Processes, Invited Paper Session, CC-C122

Monday, August 5
- 8:30 AM - 10:20 AM: Recent Advances in Scalable Gaussian-process Methods, Topic-Contributed Paper Session, CC-B112
- 8:30 AM - 10:20 AM: Spatio-Temporal Analysis of Health and Methane Emission Data, Contributed Papers, CC-B111
- 10:30 AM - 12:20 PM: Spatial Statistics: Theory and Methods, Contributed Papers, CC-C122
- 2:00 PM - 3:50 PM: Amortized Learning for Environmental Data using Neural Networks, Invited Paper Session, CC-C122
- 2:00 PM - 3:50 PM: Diverse Applications of Spatio-Temporal Analysis, Contributed Papers, CC-C120

Tuesday, August 6
- 8:30 AM - 10:20 AM: Effects of Climate Change and Application of Causal Inference in Environmental Science, Contributed Papers, CC-B111
- 10:30 AM - 12:20 PM: Recognizing and Overcoming Obstacles to Causal Inference Arising from Spatial Structures, Invited Paper Session, CC-F149
- 10:30 AM - 12:20 PM: Spatio-Temporal Analysis of Environmental Datasets, Contributed Papers, CC-D138
- 2:00 PM - 3:50 PM: Climatology Through the Lens of Dynamic Spatio-temporal Processes, Topic-Contributed Paper Session, CC-G132
- 2:00 PM - 3:50 PM: Contributed Poster Presentations: Section on Statistics and the Environment, Contributed Posters, CC-Hall CD
- 2:00 PM - 3:50 PM: Spatial Statistics: Theory and Applications, Contributed Papers, CC-G129

Wednesday, August 7
- 8:30 AM - 10:20 AM: Exploring Model-Based Statistical Methods for Traditional Spatio-Temporal Data and Spatial Extremes, Contributed Papers, CC-G130
- 8:30 AM - 10:20 AM: New Developments of Space-Time Process Models for Environmental Applications, Topic-Contributed Paper Session, CC-G132
- 10:30 AM - 12:20 PM: Statistics for Environmental Policy and Regulations, Contributed Papers, CC-D140
- 2:00 PM - 3:50 PM: Novel Methods for Spatio-Temporal Data with Environmental Applications, Contributed Papers, CC-F149

Thursday, August 8
- 8:30 AM - 10:20 AM: Statistical Solutions in Pursuit of Sustainable Development, Invited Paper Session, CC-253

- 10:30 AM - 12:20 PM: Recent Advances in Machine Learning Based Methods for Spatio-Temporal Analysis, Contributed Papers, CC-D139

We would like to highlight that the winners from the ENVR Student Paper Competition will present on Sunday, August 4, 2:00-3:50 PM, CC-C123.

Additionally, we would like to highlight two sessions sponsored by the ASA Advisory Committee on Climate Change Policy that are very relevant to ENVR:

Wednesday, August 7
- 8:30 AM - 10:20 AM: Statistical Innovations in Climate Research: Bridging Disciplines for Earth System Understanding, Topic-Contributed Paper Session, CC-F151

Thursday, August 8
- 8:30 AM - 10:20 AM: From Data to Climate Actions, Invited Panel Session, CC-251

We look forward to seeing you at JSM!

Regards,

Soutir Bandyopadhy

Mentoring session at JSM 2024

We are excited to announce the return of the ENVR graduate student mentoring session for JSM, featuring esteemed speakers representing academia, industry, and government. This event will take place on Tuesday, August 6, 2024, from 12:30 to 1:50 PM, both in-person and online. The session will include presentations and panel discussions from Huiyan Sang of Texas A&M University, Raphael Huser of KAUST, Julie Bessac of the National Renewable Energy Laboratory, and Mauricio (Moe) Campos of Verisk Extreme Event Solutions. Sign-up for this event will open in July. Stay tuned for more details on the event and on how to register!

Abhirup Datta, Program Chair-Elect

2024 ENVR workshop

Registration is now open for the ENVR 2024 Workshop: Spatial Data Science for the Environment! Go to https://community.amstat.org/envr/events/workshops/envr2024workshop where you'll find an outline of the program, a link for registration, and info on housing & travel. There are also options to submit an abstract for the poster session and (for students and early-career researchers) to apply for travel support.

The 2024 ENVR Workshop will be held October 3-5, 2024 at the NCAR Mesa Lab in Boulder, CO. One of the reasons this conference will be returning to the National Center for Atmospheric Research is that part of the conference--including a special session and a conference dinner--will be dedicated to honor the amazing career and impact of **Doug Nychka** who is and has been a seminal figure in the climate and environmental statistics communities. Doug spent decades as a leader at NCAR so it's fitting to do our workshop there.

The Workshop program includes:

- a full-day short course on "Spatial Linear Models for Environmental Data" taught by Jay Ver Hoef, Dale Zimmerman, and Michael Dumelle. The course will closely follow the outline of their recently-published book of the same name.
- five scientific plenary sessions including presentations from 17 renowned scholars. The Friday afternoon session will directly discuss the contributions and influence of Doug Nychka, and the final Saturday morning session will feature Doug Nychka and colleagues Andy Finley and Joe Guinness.
- a Friday afternoon poster session.
- a Friday evening dinner celebration.
- an optional hike to round out the conference at 12 noon on Saturday.

Important dates:
- August 15: Travel support applications are due. (Decisions will be made by August 21.)
- August 23: Hotel deadline for reservations with the conference rate.
- August 31: Poster session abstract submissions are due.
- September 15: Workshop registration closes.

Make plans to join us today. We look forward to seeing you!

2024 ENVR Workshop Organizing Committee

William Christensen, Brigham Young University **(Committee Co-Chair)**

Eric Gilleland, NSF NCAR, **(Committee Co-Chair and Local organizer)**

Dorit Hammerling, Colorado School of Mines

Christopher Wikle, University of Missouri

Whitney Huang, Clemson University

Soutir Bandyopadhy, Colorado School of Mines

Bo Li, University of Illinois Urbana-Champaign

Nathaniel Newlands, Agriculture and Agri-Food Canada and Statistics Canada

2024 Officers (ENVR Executive Board)

Chair: William Christensen, Brigham Young University

Past Chair: Bo Li, University of Illinois

Chair-Elect: Mikyoung Jun, University of Houston

Secretary: Lyndsay Shand, Sandia National Laboratories

Treasurer: Toryn Schafer, Texas A&M University

Publications Chair: Whitney Huang, Clemson University

Publications Chair-Elect: Ander Wilson, Colorado State University

Program Chair: Soutir Bandyopadhyay, Colorado School of Mines

Program Chair-Elect: Abhirup Datta, Johns Hopkins University

COS Rep (2024-2026): Ali Arab, The Georgetown University