

Greenhouse Gas Emissions from Wildland Fires: Toward Improved Monitoring, Modeling, and Management--A Workshop

Committee

Loretta J. Mickley

Chair

Loretta J. Mickley (Chair) is a Senior Research Fellow at Harvard University in the School of Engineering and Applied Sciences. Her research focuses on interactions between climate and atmospheric chemistry. She uses observations and models to investigate the response of air quality to changing climate in the present-day and future. She also examines the two-way interactions between atmospheric composition and climate on a wide range of time scales, including the last glacial period, the preindustrial era, and future. Her recent research has focused on the effects of climate change and human activity on fire and smoke exposure in North and South America, Asia, and Australia. Mickley received an M.S. in chemistry and Ph.D. in geophysical sciences from the University of Chicago. She previously served on the National Academies of Sciences, Engineering, and Medicine's Committee to Review the Climate Science Special Report.

Sally Archibald

Member

Sally Archibald is a Professor in the School of Animal Plant and Environmental Sciences at the University of the Witwatersrand, South Africa. She works on understanding the dynamics and biogeography of savanna ecosystems and is the co-Principal Investigator of the "Future Ecosystems for Africa" project. Archibald's research on global fire regimes has provided new tools for managing fire in conservation areas to promote biodiversity, and her work on savanna ecosystem functioning is contributing towards better definitions of degradation in tropical ecosystems. Archibald is an associate editor for Ecology Letters and Trends in Ecology and Evolution and serves on the advisory board of the Leverhulme Centre for Wildfires Environment and Society and the Socio-Ecological Observatory for Studying African Woodlands (SEOSAW) steering committee. Archibald received a Ph.D. in ecology from the University of the Witwatersrand.

Nancy H. French

Member

Nancy French is a Senior Scientist with the Michigan Tech Research Institute and Adjunct Professor of Forest Resources and Environmental Sciences at Michigan Technological University. She previously worked as a research scientist at the Environmental Research Institute of Michigan. Dr. French has expertise in landscape ecology and in using remote sensing and geospatial approaches for the study of wildland fire and fire effects. In her years of research, she has developed approaches to use satellite data to monitor the spatial and temporal patterns of fire, fuels, and smoke. She has experience in working with satellite images from Landsat, MODIS, and SAR imaging systems. Her work includes integrating remote sensing and geospatial products into decision products, including mapping landscape fuels and quantifying wildland fire emissions of carbon and air pollutants. French received a NASA Earth Science Fellowship and has previously served on the North American Carbon Program Science Steering Group, the Commission for Environmental Cooperation Expert Panel on Black Carbon Emissions Estimation Guidelines, and as a contributing author to the 2nd State of the Carbon Cycle Report. French received a B.S. from Bates College and an M.S. and Ph.D. in natural resources from the University of Michigan, Ann Arbor.

Don Lee Hankins

Member

Don Hankins is a Professor of Geography and Planning at California State University, Chico and Field Director for the Big Chico Creek Ecological Reserve. Hankins has been involved in various aspects of land stewardship and conservation for a variety of organizations and agencies including federal and Indigenous entities in North America and Australia. His areas of expertise are pyrogeography, water resources, and conservation. Combining his academic and cultural knowledge as a traditional cultural practitioner, he engages in applied research and projects utilizing Indigenous stewardship practices to aid in conservation and resilience. He is engaged in wildland fire research with an emphasis on landscape scale prescribed and cultural burns; ecocultural restoration; and environmental policy, and has published on these topics. Hankins is an advisor to the Indigenous Peoples Burning Network; founder, co-lead and secretary of the Indigenous Stewardship Network; and an appointed member of the California Wildfire and Forest Resilience Task Force executive committee. Among recent honors, Hankins received recognition with a professional achievement honors as an outstanding teacher-scholar, and as a Grist 50 Fixer. Hankins received a B.S. in wildlife, fish, and conservation biology and a Ph.D. in geography from the University of California, Davis.

He has served on an advisory role in research and policy regarding wildfire emissions and smoke, and has made professional presentations and published articles for public awareness on these topics.

Werner A. Kurz

Member

Werner Kurz is a Senior Research Scientist at the Canadian Forest Service of Natural Resources Canada in Victoria, BC. He serves as adjunct professor at the University of British Columbia and at Simon Fraser University. He leads the development of Canada's National Forest Carbon Monitoring, Accounting and Reporting System and the Wildfire and Carbon Project of the Pacific Institute for Climate Solutions. Kurz's research focuses on carbon dynamics in forests and harvested wood products and the opportunities of the forest sector to contribute to climate change mitigation. He has co-authored eight reports of the Intergovernmental Panel on Climate Change. He is an International Fellow of the Royal Swedish Academy of Agriculture and Forestry. Kurz received a B.Sc. in wood science and technology from the University of Hamburg, Germany, a Ph.D. in forest ecology from the University of British Columbia, and an honorary doctorate from the Swedish Land University.

James T. Randerson

Member

James Randerson (NAS) is the Ralph J. and Carol M. Cicerone Professor of Earth System Science at the University of California, Irvine (UCI). Prior to joining the faculty at UCI, he was an assistant professor at Caltech from 2000-2003. Randerson studies the terrestrial biosphere and the role of fire in the Earth system using high-resolution satellite imagery to identify how fires are changing in response to climate warming and land use intensification. He has conducted field measurements in boreal forests of Siberia and Alaska and temperate forests in California to quantify fire impacts on surface fluxes and atmospheric composition and uses atmospheric models to understand how fires influence atmospheric chemistry, downwind ecosystems, and human health. Randerson received the James B. Macelwane Medal and Global Piers J. Sellers Mid-Career Award from the American Geophysical Union (AGU). He is a Fellow of the AGU and a member of the National Academy of Sciences. Randerson received a B.S. in chemistry and a Ph.D. in biological sciences from Stanford University. Randerson previously served on the National Academies of Sciences, Engineering, and Medicine's Committee on Methods for Estimating Greenhouse Gas Emissions and currently serves on the Committee on the Independent Study on Potential Environmental Effects of Nuclear War.

Randerson leads the science team for the Environmental Defense Fund's FireSat Exploratory Project.

Brendan Morris Rogers

Member

Brendan Rogers is an Associate Scientist at the Woodwell Climate Research Center. He studies the vast expanses of boreal forests and Arctic tundra across Earth's northern high-latitudes, with a particular interest in wildfires and permafrost ecosystems, including feedbacks to the global climate system. He combines field measurements, satellite remote sensing, and modeling to gain insight into rapidly changing carbon and energy cycles, vegetation dynamics, and disturbance regimes. Rogers uses his science to inform natural resource management and policies for improved climate mitigation, adaptation, and ecosystem protection and engages a range of stakeholders and rights-holders, from local community members and fire managers to international policy makers, to explore the societal ramifications of his work. He is deputy lead for Permafrost Pathways, an initiative funded through the Audacious Project that addresses the local to global impacts of permafrost thaw. Rogers received an M.S. in environmental sciences from Oregon State University and a Ph.D. in Earth system science from the University of California, Irvine.

Rogers and Woodwell Climate Research Center have made public statements regarding wildfires, greenhouse gas emissions, and climate change.

Amber Soja

Member

Amber Soja is a Physical Scientist in the Chemistry and Dynamics branch at the National Aeronautics and Space Administration (NASA) Langley Research Center, with a focus on Wildland Fire Science Program Management. She is currently serving as a manager for the NASA Applied Sciences Wildland Fire program. Her research uses Earth observations and models as tools to explore the dynamic interactive relationships between fire regimes, fire weather, air quality, the biosphere, atmosphere, and climate systems. Soja developed fire-weather-specific fuels databases and fire emissions that are currently used in field campaigns and models. Her work includes integrating multiple satellite platforms in the Environmental Protection Agency's (EPA) National Fire Emissions Inventory that supports EPA, state, and regional decisions. She has served on the National Science Foundation Wildfire & the Biosphere Innovation Lab panel, the Aerosol-Cloud Convection and Precipitation team for the selection of the Atmospheric Observing System mission, as a Board member the International Association of Wildland Fire, and as a member on the Subcommittee on Disaster Reduction for the National Science and Technology Council development of "Wildland Fire Science and Technology Task Force Final Report." Soja received a B.A. and Ph.D. in environmental sciences from the University of Virginia.

Rachel Silvern

Staff Officer

Chris Ferner

Member

Chris (Fern) Ferner is a lecturer at Johns Hopkins University and spent the past decade as the wildland fire solutions specialist and disaster response program information manager at Esri. While at Esri, Ferner supported the use of GIS during all aspects of wildland fire including response, recovery, planning, and mitigation. Previously, she served as Esri's wildland fire and public safety technology specialist. Ferner also directly supported agencies and governments around the globe during active incident responses. She has worked professionally in forestry and wildland fire GIS for 20 years. Ferner received a B.S. in biology from St. Andrews Presbyterian College and an M.S. in forestry with an emphasis in GIS and remote sensing from Colorado State University.