

Greenhouse Gas Emissions from Wildland Fires

Toward Improved Monitoring, Modeling, and Management—A Workshop



SEPTEMBER 13-15, 2023

VIRTUAL | KECK CENTER (500 5th St. NW Washington DC, 20001)

Additional information available on the [event page](#)

This workshop will address greenhouse gas emissions (GHG) from wildland fires, with goals of improving measurements and model projections of emissions, informing management practices that could limit emissions, and considering how changes in these emissions could affect the ability to achieve 'net-zero' GHG emissions targets. In particular, the workshop will consider the likelihood of increasing frequency of megafires in remote regions, where management actions are typically limited, and the potential for these regions to be large GHG emissions sources.

WEDNESDAY, SEPTEMBER 13, 2023 | All times ET

Current Understanding of Biomes Vulnerable to Wildland Fires and Implications for GHG Emissions

10:30–10:40 **Welcome and Opening Remarks**

Loretta Mickley, Harvard University, Committee Chair

10:40–10:50 **Opening Remarks**

Ann Bartuska and **Steve Hamburg**, Environmental Defense Fund

10:50–11:45 **Session 1: Framing the Workshop and Charge to Participants**

Moderators: Don Hankins, CSU Chico, & Loretta Mickley, Harvard University, Planning Committee Members

18 minute talks + 15 minutes Q&A

- **Nancy French**, Michigan Technological University, *Planning Committee Member*
- **Scott Stephens**, UC Berkeley

11:45–12:45 **Session 2: Roles of Fire in Presently Vulnerable Biomes and the Associated Net GHG Emissions**

Moderators: Nancy French, Michigan Technological University, & Loretta Mickley, Harvard University, Planning Committee Members

15 minute talks + 15 minutes Q&A

- **Hélène Genet**, University of Alaska Fairbanks
- **Matt Hurteau**, University of New Mexico
- **Susan Page**, University of Leicester and **Tom Smith**, London School of Economics

12:45–13:30 **Lunch**

13:30–14:20 Session 3: Management of Fires and Ecosystems and Implications for GHG Emissions: Recent Past and Current

Moderators: Don Hankins, CSU Chico, & Nancy French, Michigan Technological University, Planning Committee Members

5 minute lightning talks + 20 mins Q&A/discussion

- **Amy Cardinal Christianson**, Canadian Forest Service
- **Dan Thompson**, Canadian Forest Service
- **Hugh Safford**, UC Davis
- **Karin Riley**, US Forest Service
- **Bibiana Bilbao**, Universidad Simón Bolívar
- **Cynthia Fowler**, Wofford College

14:20–14:30 Instructions for Breakout Discussions

14:30–14:45 Break

14:45–15:25 Session 4: Breakout Discussions

Participants join assigned in-person or virtual breakout rooms

Discussion moderators: **Sara Ohrel**, EPA; **Carly Phillips**, Union of Concerned Scientists; **Cynthia Whaley**, Environment and Climate Change Canada; **Ane Alencar**, Amazon Environmental Research Institute; **Joanne Hall**, University of Maryland; **Tatiana Loboda**, University of Maryland; **Adam Moreno**, CARB; **Douglas Morton**, NASA

Discussion questions:

- Which biomes and ecosystems merit the closest attention as climate changes and fire activity increases in some regions of the world? Has the workshop so far overlooked some vulnerable biomes/ecosystems?
- Are there scalable and sustainable methods of land management that have not yet been discussed?
- What uncertainties in fire activity or the carbon budget would be good to pin down? What are the major gaps in our knowledge of GHG emissions from fire that have not yet come to light?
- What synergies and differences are there from biome to biome regarding GHG emissions? What lessons can we transfer from one region to another?

15:25–15:55 Report Back to Plenary

5 minute transition back to plenary

Breakout moderators report back on key takeaways from their discussions

15:55–16:00 Wrap Up and Plans for Day 2

16:00 END OF DAY 1

THURSDAY, SEPTEMBER 14, 2023 | All times ET

Observations and Modeling Needs and Opportunities

10:30–10:40 Welcome and Opening Remarks

Loretta Mickley, Harvard University, Committee Chair

10:40–10:50 Recap from Day 1

Loretta Mickley, Nancy French, Don Hankins, Planning Committee Members

10:50–12:40 Session 1: Observations of Wildland Fires and their GHG Emissions: Opportunities, Gaps, and Challenges

Moderators: Chris (Fern) Ferner, Johns Hopkins University, & Amber Soja, NASA, Planning Committee Members

10 minute talks + 40 minutes Q&A/discussion

- **Andy Hudak**, US Forest Service
- **Jeff Vukovich**, US Environmental Protection Agency
- **Morgan Varner**, Tall Timbers
- **Martin Wooster**, King's College London
- **Bo Zheng**, Tsinghua University
- **Louis Giglio**, University of Maryland

12:40–13:25 Lunch

13:25–14:25 Session 2: Defining the Future: Modeling Challenges and Defining the Largest Data Gaps—Fire Emissions Inventories and Future Projections

Moderators: Amber Soja, NASA, & Jim Randerson, UC Irvine, Planning Committee Members

10 minute talks + 20 minutes Q&A/discussion

- **Stijn Hantson**, Universidad del Rosario, Bogotá
- **Park Williams**, UCLA
- **Matthew Jones**, University of East Anglia
- **Jed Kaplan**, University of Calgary

14:25–14:35 Instructions for Breakout Discussions

14:35–14:50 Break

14:50–15:30 Session 3: Breakout Discussions

Participants join assigned in-person or virtual breakout rooms

Discussion moderators:

Rebecca Scholten, Vrije Universiteit Amsterdam; **Carly Phillips**, Union of Concerned Scientists; **Cynthia Whaley**, Environment and Climate Change Canada; **Ane Alencar**, Amazon

Environmental Research Institute; **Joanne Hall**, University of Maryland; **Thomas Buchholz**, Spatial Informatics Group; **Tina Liu**, UC Irvine; **Douglas Morton**, NASA

Discussion questions:

- Identify the largest gaps in data, observations, and/or models that can inform what is needed to reduce uncertainties in carbon emissions to increase the potential for successful mitigation outcomes?
- What are the data gaps and model enhancements that need to be improved to predict the consequences of various proposed mitigation actions on estimates of future fire GHG emissions (e.g., prescribed fire vs wildfire over time)?
- What carbon stocks are most vulnerable to contemporary and future fire? Please consider the mass of potential loss and climate and socio-ecological impacts.

15:30–15:55 Report Back to Plenary

5 minute transition back to plenary

Breakout moderators report back on key takeaways from their discussions

15:55–16:00 Wrap Up and Plans for Day 3

16:00 END OF DAY 2

FRIDAY, SEPTEMBER 15, 2023 | All times ET

Future Management to Support Net Zero Targets

09:00–09:10 Welcome and Opening Remarks

Loretta Mickley, Harvard University, Committee Chair

09:10–09:20 Recap from Day 2

Chris (Fern) Ferner, Jim Randerson, Amber Soja, Planning Committee Members

09:20–10:10 Session 1, Part 1: Wildfire Emissions Impacts on National Reporting and Implications for Net Zero Targets

Moderators: Sally Archibald, University of Witwatersrand, & Brendan Rogers, Woodwell Climate Research Center, Planning Committee Members

10 minute talks + 20 mins discussion

- **Werner Kurz**, Canadian Forest Service
- **Grant Domke**, US Forest Service
- **David Bowman**, University of Tasmania

10:10–10:25 Break

10:25–11:40 Session 1, Part 2: Opportunities for Solutions to Reduce Future Wildfire Emissions in Different Biomes

10 minute talks + 25 mins discussion

- **Paul Hessburg**, US Forest Service
- **Peter Frumhoff**, Harvard University/Woodwell Climate Research Center
- **Susan Page**, University of Leicester
- **Marcia Macedo**, Woodwell Climate Research Center
- **Geoff Cary**, Australian National University

11:40–11:50 Instructions for Breakout Discussions

11:50–12:35 Lunch

12:35–13:20 Session 2: Breakout Discussions

Participants self-select in-person or virtual breakout rooms

Discussion moderators: **Rebecca Scholten**, Vrije Universiteit Amsterdam; **Sara Ohrel**, EPA; **Gyami Shrestha**, Lynker Corporation; **Merritt Turetsky**, University of Colorado Boulder; **Tatiana Loboda**, University of Maryland; **Elizabeth Wiggins**, NASA; **Marisol Maddox**, Wilson Center

Discussion questions:

- What are climate effective, socially-inclusive, and ecologically-appropriate mitigation efforts to reduce future wildfire emissions?
- What are the barriers to implementation (trade-offs and co-benefits)?

13:20–13:35 Break

13:35–14:00 Report Back to Plenary

Breakout moderators report back on key takeaways from their discussions

14:00–15:15 Session 3: The Solution Space and Next Steps: Forest Management of Tomorrow and Livable Emissions

Moderators: Werner Kurz, Canadian Forest Service, & Brendan Rogers, Woodwell Climate Research Center, Planning Committee Members

Brief intros and moderated discussion

- **Paul Hessburg**, US Forest Service
- **Jimmy Fox**, US Fish and Wildlife Service
- **Dan Thompson**, Canadian Forest Service
- **Natasha Ribeiro**, University of Eduardo Mondlane College of Agriculture and Forestry, Maputo, Mozambique
- **Barry Hunter**, Aboriginal Carbon Foundation
- **Jayaprakash Murulitharan**, Cambridge University

15:15–15:25 Day 3 Synthesis

Sally Archibald, Werner Kurz, Brendan Rogers, Planning Committee Members

15:25–15:30 Closing Remarks

Loretta Mickley, Harvard University, Committee Chair

15:30 ADJOURN WORKSHOP