International Workshop on Wildfire Modeling & AI
March 17 - 18, 2025

Workshop Goals
Overview of the Agenda

March 17, 2025

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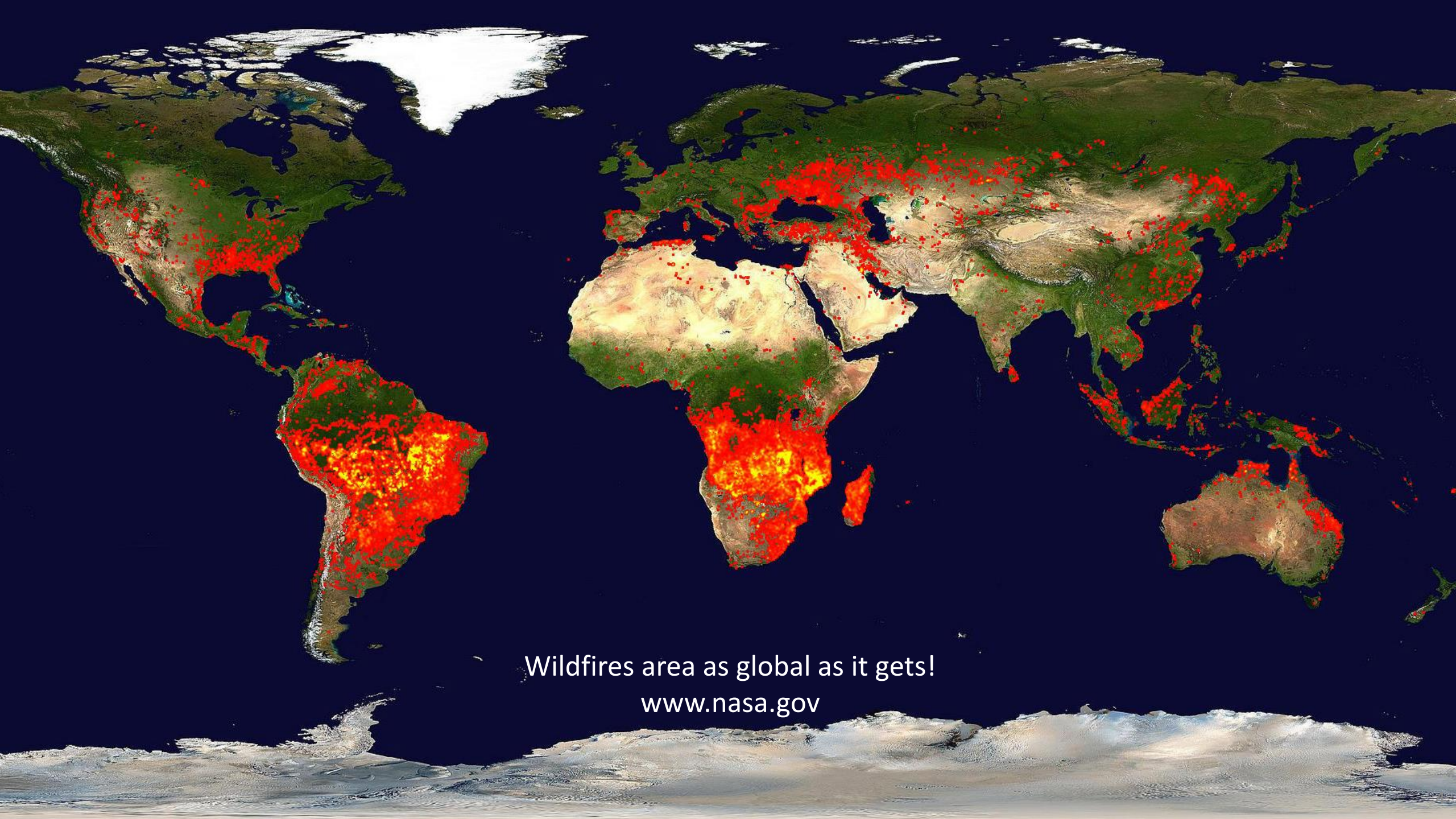
Outline of the Presentation

- Motivation for the Workshop
- Workshop Goals and Outcome
- Outline of the Agenda
- Questions

Motivation for the Workshop

Why Now?


Wildfires area as global as it gets!
www.nasa.gov

Mati, Greece, 2018

Photo Credit: AFP/Hellenic Ministry of Defense/Getty Images

LA, USA, 2025

Photo Credit: Shutterstock

Low orbit Satellite - Getty Image

Detection Camera - www.fireapparatusmagazine.com

Systems for early detection are emerging.

Excellent efforts and we just need to do a lot more.

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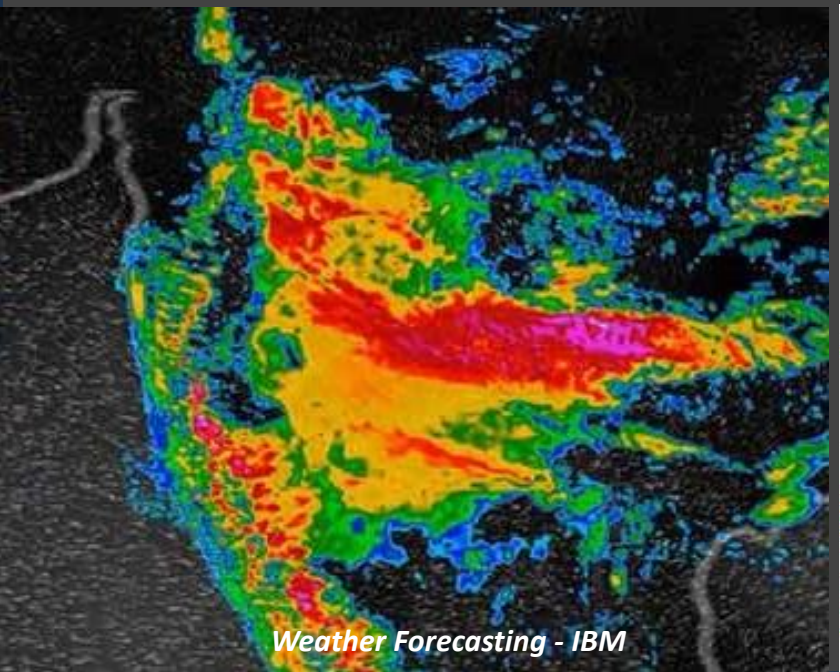
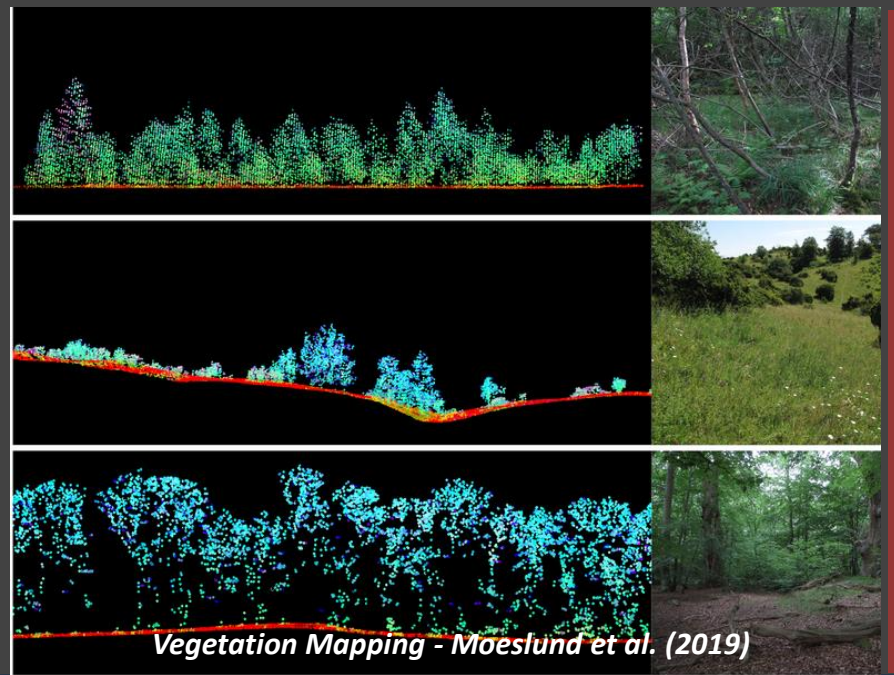


Weather Forecasting - IBM



Vegetation Mapping - Moeslund et al. (2019)

Predictions for weather & fuel are on the rise.

Excellent efforts and we just need to do a lot more.

Modeling Vulnerability and Risk

Assume data on wildland ignition is available.

Assume data on weather and wildland fuel is available.

Assume data on building locations, properties, and defensible space fuel data is available.

Can this data help the understand wildfire behavior and establish Policies?

https://www.tigercat.com/ - Photo Credit USDA

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Mahmoud, ASCE CE Magazine, 2024

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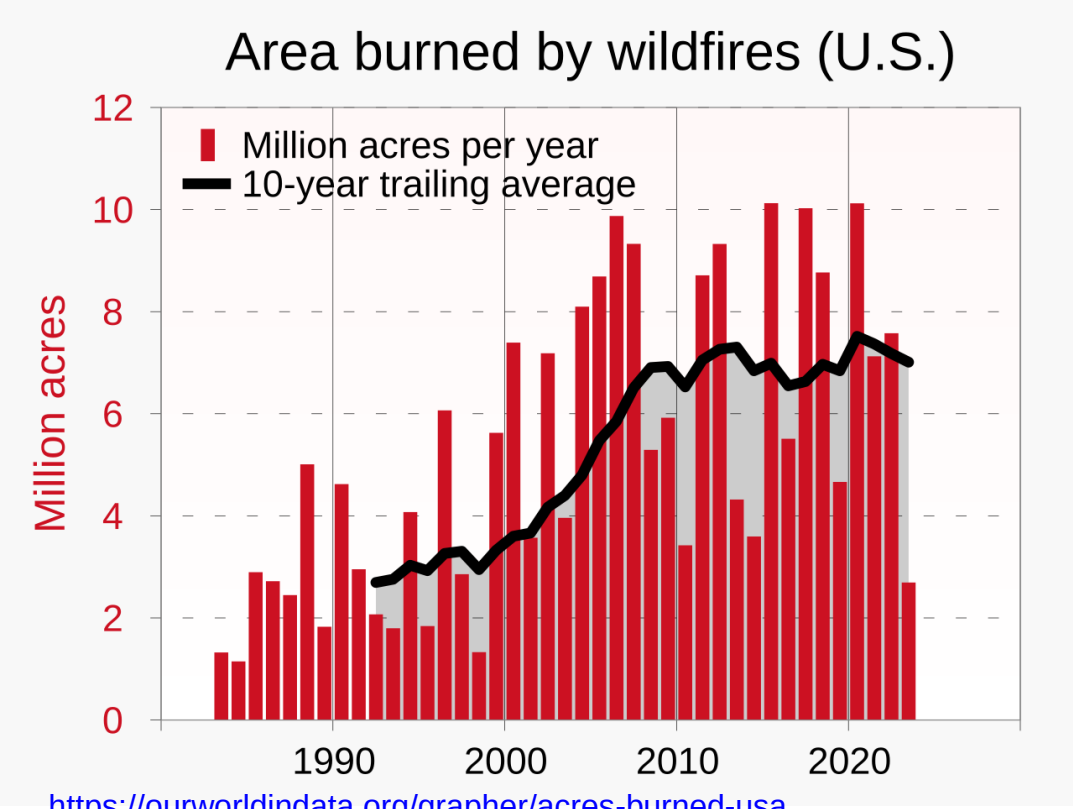
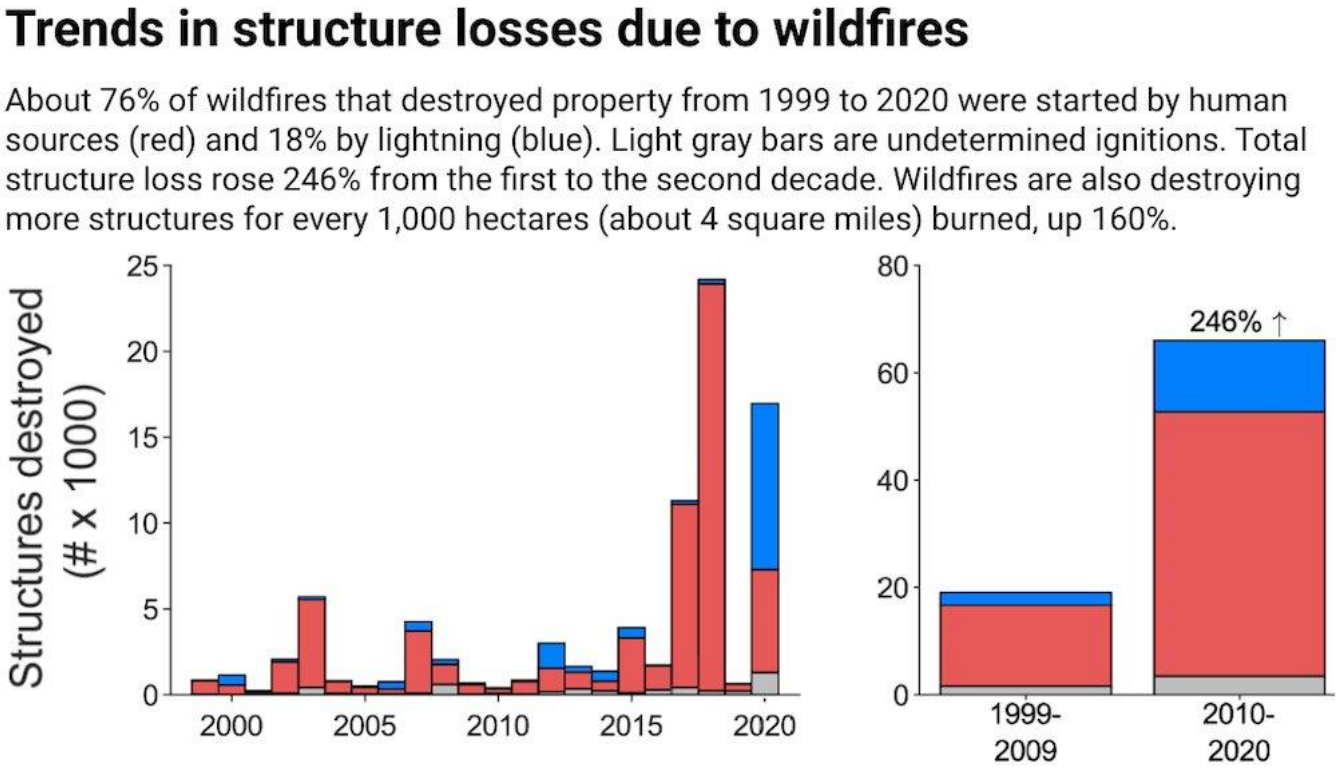
So Why the Urgency Now?

Acres Burned Are Going Up



https://ourworldindata.org/grapher/acres-burned-usa

Structural Losses Are Going Up



Higuera et al. PNAS Nexus, 2023

2 Workshop Goals and Outcomes

International Perspective and Collaboration on WUI Fires

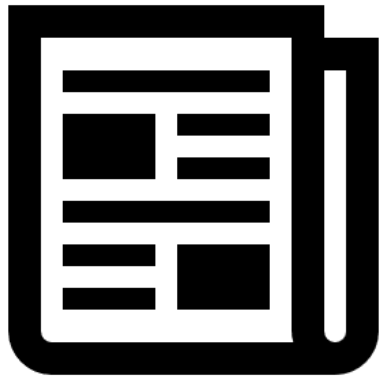
Workshop Goals

- Identify challenges and barriers to modeling wildfire damage in communities and develop a road map to more effective wildfire risk assessment and management across different nations worldwide.

- Cultivate international collaboration by laying out detailed mechanisms for sharing data, modeling approaches, and research outcomes.

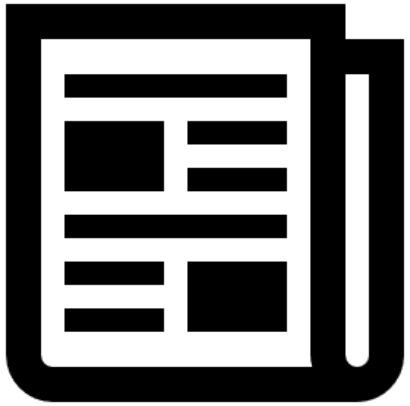
Workshop Outcome

- Submission of Report to IAP (Hussam)



- Submission of a manuscript (All)

Journal



Outline of the Agenda

The Next Two Days!

Workshop Agenda

- **Perspectives on wildfire early warning, monitoring and risk assessment.**
- **Session 1:** Wildland Fire Behavior and Observations.
- **Session 2:** WUI Fires with Physics-Based Approaches.
- **Session 3:** WUI Fires with Semi Physics-Based Models.
- **Session 4:** WUI Fires with Empirical, Logic, Statistical, and Artificial intelligence.
- **Session 5:** Breakout Guided Discussion.

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Session 5: Breakout Guided Discussion

Q1: What do you see as the major advantages and disadvantages of the modeling approach discussed in your session?

Q2: To the extent of your knowledge, how has the modeling approach discussed in your session been used for assessing or reducing wildfire vulnerability and risk reduction?

Q3: Has the implementation of this modeling approach been successful (i.e., are there any success stories) and what are the barriers towards full implementation?

THANK YOU!

QUESTIONS?