

## Fire Prediction Across Scales

Monday, October 23<sup>rd</sup> – Union Theological Seminary

8:00 AM Sign-in  
8:30 AM Welcome and introduction

### Fire Prediction and Operational Needs

9:00 AM **Matt Butler** – A fire manager's perspective on fire season potential based on climate, weather, and fire behavior predictions.  
9:20 AM **Ed Delgado** – Challenges facing wildland fire forecasters  
9:40 AM **Haiganoush Preisler** – Statistical predictions of fire occurrence and spread  
10:00 AM **George Milne** – High performance wildfire prediction technology use in western Australia  
10:20 AM **Karin Riley** – Fire prediction and uncertainty across temporal and spatial scales  
10:40 AM Break

### Process-Based Fire Prediction

11:00 AM **Mark Finney** – Physical process in wildland fire spread at fine scales  
11:20 AM **Rod Linn** – Using coupled wildfire/atmosphere models to further to expand our understanding of wildfire behavior  
11:40 AM **Ali Tohidi** – Firebrand formation and transport, a critical mechanism of wildfire propagation  
12:00 PM **Nicholas Nauslar** – Improving lightning and dry lightning guidance with calibrated probabilities from regional and convection allowing ensemble model output  
12:20 PM **Michael Gollner** – Data-driven fire modeling  
12:40PM Lunch

### Seasonal Fire Prediction

2:00 PM **Jim Randerson** – Advances in global fire prediction on daily to decadal timescales  
2:20 PM **Yang Chen** – Improving experimental fire season severity forecasts in the Amazon  
2:40 PM **Francesca Di Giuseppe** – From weather to fire: from fire to weather  
3:00 PM **Andrew Robertson** – Current developments in sub-seasonal to seasonal forecasting  
3:20 PM Break

### Fire prediction for Risk Assessment

3:40 PM **David Caballero** – Fire risk assessment across spatial scales in the WUI. Some examples of practical application in Europe  
4:00 PM **Ross Bradstock** – A probabilistic model to predict property loss from fires at fine temporal and spatial scales  
4:20 PM **Adam Kochanski** – An analysis of socio-economic impact of fire modeling and fire detection data  
4:40 PM Break  
4:50 PM Panel Discussion  
5:20 PM Evening Poster reception  
7:30 PM End of Day 1



## Tuesday, October 24<sup>th</sup> – Davis Auditorium

### Pyrogeography 1

- 9:00 AM** **David Bowman** – The role of pyrogeographic synthesis in the attribution of climate change to ‘unprecedented’ fire regimes: the case of the 2016 Tasmanian wilderness fires
- 9:20 AM** **Katherine Glover** – Vegetation and fire in the San Bernardino Mountains, southern California since 120,000 years BP: Insights and challenges for 21st century predictions
- 9:40 AM** **Jed Kaplan** – Fire and land cover change during the Maori colonization of New Zealand: Hypothesis testing with model simulations and charcoal data
- 10:00 AM** **Rachel Loehman** – Modeling ecological resilience and human-environment interactions in engineered landscapes of the prehistoric American Southwest
- 10:20 AM** **Jennifer Marlon** – Understanding fire activity outside the range of modern environmental conditions
- 10:40 AM** Break

### Pyrogeography 2

- 11:00 AM** **Leroy Westerling** – TBD: climate change and fire in the western US
- 11:20 AM** **Trent Penman** – Non-linear changes to future fire in forests and grasslands
- 11:40 AM** **Karen Short** – Modeling synchronous large-fire activity across the conterminous U.S.
- 12:00 PM** **Nathan Mietkiewicz** – Drivers of historic and future wildfire occurrence across the United States: the relative contribution of human ignitions vs climate to fire size and probability
- 12:20 PM** Lunch

### Human and Ecological Aspects of Fire Prediction 1

- 1:50 PM** **Winslow Hansen** – A perfect storm: multiple stressors interact to drive postfire regeneration failure of lodgepole pine and Douglas-fir forests in Yellowstone
- 2:10 PM** **Jacquelyn Shuman** – FATES-SPITFIRE: Fire within a size-structured vegetation model
- 2:30 PM** **Cristina Montiel-Molina** – Fire scenarios in the Central Mountains Range (Spain): a multi-scale concept for integrated fire management in the context of global change
- 2:50 PM** **Ryan Bart** – Development of a coupled model for investigating the effects of forest management and climate on wildfire regimes in the western U.S.
- 3:10 PM** Break

### Human and Ecological Aspects of Fire Prediction 2

- 3:30 PM** **Erin Hanan** – Effects of fire suppression and climate change on wildfire activity in the Pacific Northwest
- 3:50 PM** **Ellie Graeden** – Utilizing automated fire growth models to support private industry
- 4:10 PM** **Maria Uriarte** – Rural development and fires in the Peruvian Amazon
- 4:30 PM** Break
- 4:40 PM** Panel Discussion
- 5:10 PM** End of Day 2



## Wednesday, October 25<sup>th</sup> – Davis Auditorium

### Smoke

- 9:00 AM** Ruth DeFries – Human causes and consequences of fire
- 9:20 AM** Derek Mallia – Innovative approaches for modeling smoke impacts from prescribed burns and wildfires
- 9:40 AM** Charles Ichoku – Understanding present-day North American fires from satellite observations to enhance predictability
- 10:00 AM** Rebecca Buchholz - Predicting atmospheric carbon monoxide over fire regions using climate indices
- 10:20 AM** Rizaldi Boer – Fire risk information system for managing land and forest fire in Indonesia
- 10:40 AM** Break

### Global fire modeling and Intercomparison 1

- 11:00 AM** Stijn Hantson – The status of global fire modeling: Results from the Fire Model Intercomparison Project (FireMIP).
- 11:20 AM** Gitta Lasslop – The impact of fire on vegetation: model intercomparison of impacts in eight global process-based models and a statistical model
- 11:40 AM** Keren Mezuman – PyrE, an interactive fire module within the NASA-GISS Earth System Model
- 12:00 PM** Yongqiang Liu – Improving climate prediction by parameterizing fire-induced land-surface changes in Earth System models
- 12:20 PM** Lunch

### Global fire modeling and Intercomparison 2

- 1:20 PM** Matt Jolly – Linking ecophysiology and vegetation dynamics to improve the wildland fire models
- 1:40 PM** Matthias Boer – A hydroclimatic model of global fire patterns
- 2:00 PM** Dominique Bachelet – The challenges of modeling fire: climate and CO<sub>2</sub> effects can be simulated but human behavior and decisions are unpredictable. FireMIP will help give directions toward progress
- 2:20 PM** Break
- 2:30 PM** Panel Discussion
- 3:00 PM** Closing Remarks
- 3:20 PM** Conference End



## Poster Presentations

### Monday, October 23<sup>rd</sup>, Union Theological Seminary

1. **John Abatzoglou** - Global patterns of interannual fire-climate relationships
2. **Israr Albar** - Fire Prediction and Management in Sumatra, Indonesia during the 2015 El-Nino
3. **Muhammed Ali Imron** - PeatFire: An Agent-based model for peat fire prediction in a protected area of South Sumatra Indonesia under weather uncertainties
4. **Niels Andela** - Predicting human-driven changes in global fire activity
5. **Paulo Artaxo** - Increasing deforestation in Amazonia and its effects on the forest carbon dynamics
6. **Marcus V. Athaydes Liesenfeld** - Underground stem: A postfire resprouting advantage for palms in Amazon forest
7. **Akli Benali** - How can satellite data improve our knowledge on large wildfires?
8. **Akli Benali** - Evaluation of the Global Fire WEather Database (GFWED)
9. **Matthias Boer** - Early warning system for unseasonal forest flammability
10. **Jiajue Chai** - Tracking nitrogen oxides, nitrous acid, and nitric acid from biomass burning
11. **Alireza Farahmand** - Using NASA Satellite Observations to Map Wildfire Risk in the United States for Allocation of Fire Management Resources
12. **Melanie Follette-Cook** - Predictive Fire Emissions in the NASA GEOS-5 Earth System Model
13. **Emily Fusco** - Modeling Detection Biases in Remotely Sensed and Agency Reported Fires in the U.S. 2003-2013
14. **Ellie Graeden** - Planning for Growth in High Wildfire Risk Zones: A Risk Accumulation Model for the Homeowners Insurance Market
15. **Erin Hanan** - Using remote sensing to account for disturbance history in process-based, carbon cycling models
16. **Hety Herawati** - Tools for Assessing the Impacts of Climate Variability and Change on Wildfire Regimes in Forests
17. **Joshua Heyer** - Exploring relationships between fire, climate, land-use, and vegetation in the southwestern Amazon near Noel Kempff Mercado National Park, Bolivia
18. **Maggie Hurwitz** - Goddard Applied Sciences: Bringing NASA Goddard's Earth Science Data Products and Resources to End Users
19. **Piyush Jain** - The relationship between the polar jet stream and fire spread days in Alberta, Canada
20. **Kyu-Myong Kim** - Seasonal-to-interannual variation in biomass burning over the contiguous United States
21. **Zhihua Liu** - Global biophysical effects of forest fire differ by region
22. **Jan Mandel** - Coupled fire-atmosphere-fuel moisture online modeling system WRF-SFIRE
23. **Stéphane Mangeon** - Addressing the Fuel Consumption biases in Global Fire Models
24. **Nicholas McCarthy** - Predicting pyroconvection: a challenge for fire management as well as fire research
25. **Taylor McCorkle** - Communicating Fire Weather Risks at Short Lead Times using the High-Resolution Rapid Refresh Forecast Modeling System



26. **Douglas Morton** - Seasonal to sub-seasonal predictions of understory fire risk in Amazon forests
27. **Nicholas Nauslar** - An Impact-Based Decision Support Paradigm for National Weather Service Wildfire Forecast and Warning Services
28. **Jonathan Nichols** - Climate, Fire, and Vegetation Control on Peat Carbon Accumulation in Borneo
29. **Sandra Oliveira** - The social context of fire-affected areas. A first assessment regarding the extreme fire events in central Portugal (June 2017)
30. **Lesley Ott** - Chemical weather forecasting of smoke events: lessons on predictability from NASA's GEOS modeling system
31. **Xiaohua Pan** - Investigation of Indonesian fires during 1979-2016: connection with the type of El Niño and phase of Indian Ocean Dipole
32. **Mark Parrington** - Estimating and predicting fire emissions for operational forecasts of global atmospheric composition in the Copernicus Atmosphere Monitoring Service
33. **Scott Rabenhorst** - Modeling Pyrocumulonimbus Blowups and Cloud-Aerosol Interactions
34. **Simin Rahmani** - Predicting the pollution level from smoke plumes
35. **Steve Taylor** - Wildfire Management Decision Making – Fast and Slow: A systems framework for wildfire management research
36. **Steve Taylor** - Predicting Severe Wildfire Occurrence in Canada
37. **Fengjun Zhao** - Shift of fire season from spring to summer in northeastern China under global warming

