Fire Prediction Across Scales

Monday, October 23rd – Union Theological Seminary

8:00 AM    Sign-in
8:30 AM    Welcome – Adam Sobel
8:45 AM    Introduction – Robert Field

Fire Prediction and Operational Needs (Chair: Robert Field)

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 (Chair: Robert Field)

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 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
12:40 PM   Lunch

Seasonal Fire Prediction (Chair: Jennifer Beverly)

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 (Chair: Jennifer Beverly)

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    Day 1 Discussion – Progress and Needs in Fire Prediction for Operations
            Panelists: Steve Taylor, Israr Albar, Ross Bradstock, Ed Delgado, Ellie Graeden
            Rapporteurs: Akli Benali, Taylor McCorkle
5:20 PM    Evening Poster Reception (including complimentary appetizers, beer, and wine)
7:30 PM    End of Day 1
Tuesday, October 24th – Davis Auditorium

**Pyrogeography 1 (Chair: Park Williams)**

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 (Chair: Park Williams)**

11:00 AM  Leroy Westerling – Simulation of extreme wildfire events across spatial scales for California's Fourth Climate Assessment and the USDA Forest Service’s Sierra Nevada Forest Management Plan Revisions

11:20 AM  Trent Penman – Non-linear changes to future fire in forests and grasslands

11:40 AM  Steve Taylor - Predicting Severe Wildfire Occurrence in Canada

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 (Chair: Park Williams)**

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 (Chair: Park Williams)**

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  Day 2 Discussion – Long-term Prediction of Fire and its Impacts

Panelists: Lesley Ott, John Abatzoglou, Paulo Artaxo, Rachel Loehman, Doug Morton

Rapporteurs: Katherine Glover, Winslow Hansen

5:10 PM  End of Day 2

6:00 PM  Informal happy hour at Harlem Tavern (2153 Frederick Douglas Blvd / http://harlemtavern.com). The conference will provide 1 round of appetizers and a drink ticket for the first 70 arrivals. After that we are all on our own for further purchases.
Wednesday, October 25th – Davis Auditorium

Smoke (Chair: Kátia Fernandes)

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  Robert Field – Long-lead prediction of the 2015 fire and haze episode in Indonesia
10:40 AM  Break

Global fire modeling and Intercomparison 1 (Chair: Kátia Fernandes)

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  Stephane Mangeon – Addressing the Fuel Consumption biases in Global Fire Models
12:00 PM  Lunch

Global fire modeling and Intercomparison 2 (Chair: Kátia Fernandes)

1:20 PM  Niels Andela - Predicting human-driven changes in global fire activity
1:40 PM  Matthias Boer – A hydroclimatic model of global fire patterns
2:00 PM  Dominique Bachelet – The challenges of modeling fire: climate and CO2 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  Day 3 discussion – Meeting Overview
Panelists: Mark Finney, Niels Andela, David Bowman, Gitta Lasslop, Karen Riley
Rapporteurs – Keren Mezuman, Derek Mallia
3:00 PM  Closing Remarks
3:20 PM  Conference End
Poster Presentations
Monday, October 23rd, Union Theological Seminary

1. Akli Benali - How can satellite data improve our knowledge on large wildfires?
3. Douglas Morton - Seasonal to sub-seasonal predictions of understory fire risk in Amazon forests
6. Erin Hanan - Using remote sensing to account for disturbance history in process-based, carbon cycling models
7. Fengjun Zhao - Shift of fire season from spring to summer in northeastern China under global warming
8. Hety Herawati - Tools for Assessing the Impacts of Climate Variability and Change on Wildfire Regimes in Forests
9. Israr Albar - Fire Prediction and Management in Sumatra, Indonesia during the 2015 El-Nino
10. Jan Mandel - Coupled fire-atmosphere-fuel moisture online modeling system WRF-SFIRE
12. Jiajue Chai - Tracking nitrogen oxides, nitrous acid, and nitric acid from biomass burning
13. John Abatzoglou - Global patterns of interannual fire-climate relationships
14. Jonathan Nichols - Climate, Fire, and Vegetation Control on Peat Carbon Accumulation in Borneo
15. Joshua Heyer - Exploring relationships between fire, climate, land-use, and vegetation in the southwestern Amazon near Noel Kempff Mercado National Park, Bolivia
16. Keren Mezuman – PyrE, an interactive fire module within the NASA-GISS Earth System Model
17. Kyu-Myong Kim - Seasonal-to-interannual variation in biomass burning over the contiguous United States
18. Lesley Ott - Chemical weather forecasting of smoke events: lessons on predictability from NASA’s GEOS modeling system
19. Marcus V. Athaydes Liesenfeld - Underground stem: A postfire resprouting advantage for palms in Amazon forest
20. Mark Parrington - Estimating and predicting fire emissions for operational forecasts of global atmospheric composition in the Copernicus Atmosphere Monitoring Service
21. Matthias Boer - Early warning system for unseasonal forest flammability
22. Melanie Follette-Cook - Predictive Fire Emissions in the NASA GEOS-5 Earth System Model
23. Muhammed Ali Imron - PeatFire: An Agent-based model for peat fire prediction in a protected area of South Sumatra Indonesia under weather uncertainties
24. Nicholas McCarthy - Predicting pyroconvection: a challenge for fire management as well as fire research
26. Paulo Artaxo - Increasing deforestation in Amazonia and its effects on the forest carbon dynamics
27. Piyush Jain - The relationship between the polar jet stream and fire spread days in Alberta, Canada
28. Sandra Oliveira - The social context of fire-affected areas. A first assessment regarding the extreme fire events in central Portugal (June 2017)
29. Scott Rabenhorst - Modeling Pyrocumulonimbus Blowups and Cloud-Aerosol Interactions
30. Simin Rahmani - Predicting the pollution level from smoke plumes
31. Steve Taylor - Wildfire Management Decision Making – Fast and Slow: A systems framework for wildfire management research
32. Taylor McCorkle - Communicating Fire Weather Risks at Short Lead Times using the High-Resolution Rapid Refresh Forecast Modeling System
33. Xiaohua Pan - Investigation of Indonesian fires during 1979-2016: connection with the type of El Niño and phase of Indian Ocean Dipole
34. Zhihua Liu - Global biophysical effects of forest fire differ by region