

Tuesday, May 11

1:00 P.M.–2:00 P.M.

13FIRE

Session 7: OPERATIONAL FIRE WEATHER I

Chair: Nicholas Nauslar, Bureau of Land Management, Boise, ID

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

7.1 *HDWI 2.0: Updates to the Hot-Dry-Windy Index.* **Alan F. Srock**, St. Cloud State Univ., Saint Cloud, MN; J. J. Charney, J. M. McDonald

1:10 P.M.

7.2 *Comparison of Hot-Dry-Windy and GOES-17 Data for the Pacific Northwest in 2018.* **Katherine M Tannhauser**, St Cloud State University, St Cloud, MN; B. E. Potter, A. L. marsha

1:15 P.M.

7.3 *The Colorado Fire Prediction System (CO-FPS) and How It Incorporates Fuel Moisture in Simulations.* **Branko Kosovic**, National Center for Atmospheric Research, Boulder, CO; J. C. Knievel, J. Cowie, P. A. Jimenez, J. Boehnert, D. Munoz-Esparza, A. R. S. Anderson, W. Petzke, M. Frediani, T. W. Juliano, K. Sampson, B. G. Brown, B. Mahoney

1:20 P.M.

7.4 *The Storm Prediction Center's Internal Web-Based Visualization Tool for Synthesizing Fire Weather Data in Operations.* **Matthew S. Elliott**, SPC, Norman, OK; N. J. Nauslar

1:25 P.M.

7.5 *Fueling the Future: Experimental NWS Enhanced Fire Methodologies and Forecast Tools.* **B.J. Simpson**, NWS, Amarillo, TX; A. M. Ward, K. A. Rutt, S. Bieda III, M. Beat, R. Barnes, T. T. Lindley, T. Ryan, J. Frederick, B. R. Smith, D. Daily, W. M. Jolly

1:30 P.M.

7.6 *Forecasting Development of Pyrocumulus Clouds over Large Fires.* **Ryan N. Leach**, NWS, Missoula, MT; C. V. Gibson

1:35 P.M.

7.7 *October 2019 USFS Eldorado NF (CA) Caples Creek Prescribed Burn - Disregarding Credible NWS Forecasts of Red Flag Conditions Followed By Cold Fronts.* **Fred J. Schoeffler**, Sheff LLC, Pine, AZ

1:40 P.M.

7.8 *A Probabilistic Characterization of Large-scale Meteorological Conditions for California Fire Weather.* **Yizhou Zhuang**, University of California, Los Angeles, Los Angeles, CA; R. Fu, G. Wang

1:45 P.M.

7.9 *A Guide to the Storm Prediction Center's Research and Tools to Improve Its Fire Weather Outlooks.* **Matthew Elliott**, SPC, Norman, OK; N. J. Nauslar, R. Clark III

1:50 P.M.

Poster Session 1: Welcoming Remarks.

13FIRE

Poster Session 2: 13FIRE: TUESDAY POSTER SESSION

F1 *Study of Atmospheric Condition at Smoke Event and Detection of Smoke Distribution in North Barito.* **Ayu Vista Wulandari**, Indonesian Agency for Meteorological, Climatological and Geophysics, Muara Teweh, Indonesia

F2 *Past and Future Changes of Wildfire Risks in Korea in Association with Anthropogenic Climate Changes Revealed from Meteorological Reanalysis and HAPPI Simulations.* **Chun Geun Kwon**, National Forest Research Institute, Seoul, Korea, Republic of (South); S. J. Lee, J. H. Jeong Sr., S. Y. Kim Jr., K. W. Seo Sr., S. H. Han

F3 *Effects of Density Current, Diurnal Heating, and Local Terrain on the Mesoscale Environment Conducive to the Yarnell Hill Fire.* **Jan Ising**, North Carolina A&T State University, Greensboro, NC; Y. L. Lin, M. L. Kaplan

F4 *Establishment of a Mixing Height Climatology for Use Toward Predicting Daily Large Fire Potential.* **Christopher N. Woody**, South Dakota School of Mines and Technology, Rapid City, SD; D. Clabo

F5 *A Numerical Study of Fire- and Forest Canopy-Induced Turbulence During a Management-Scale Prescribed Fire in the New Jersey Pine Barrens.* **Michael T. Kiefer**, Michigan State University, East Lansing, MI; W. E. Heilman, S. Zhong, J. J. Charney, X. Bian, N. S. Skowronski, K. L. Clark, M. Gallagher, J. L. Hom, M. Patterson

3:00 P.M.–4:00 P.M.

I3FIRE

Session 8: OPERATIONAL FIRE WEATHER II

Chairs: Stephanie Redfern, National Renewable Energy Laboratory (NREL); Kara Yedinak, USDA, Madison, WI
3:00 P.M.

Welcoming Remarks.

3:05 P.M.

8.1 *NWS and Partner Collaboration Efforts on Early Wildfire Detection and Modeling Using Satellite and Real-Time Weather Prediction.* **Alexander O. Tardy**, NOAA/NWS, San Diego, CA

8.2 *WITHDRAWN*

3:15 P.M.

8.3 *Communicating Fire Weather Danger Potential Using Climatology-Based Surface Pressure Gradients and Percentiles in Southern California.* **Lisa Phillips**, DOC, Oxnard, CA

3:20 P.M.

8.4 *NWS Decision Support Services for Riverside County Emergency Management Department – Onsite and Coordinated Warning and Public Notification.* **Alexander O. Tardy**, NOAA/NWS, San Diego, CA

3:25 P.M.

8.5 *Extreme Fire Behavior Forecasting: Adjusting Red Flag Warning criteria utilizing a decade of large fire data.* **Sarah Jakober**, DRI, Reno, NV; T. Brown, T. Wall

3:30 P.M.

8.6 *Pyrocumulonimbus Firepower Threshold.* **Kevin Tory**, Bureau of Meteorology, Melbourne, Australia; J. D. Kepert

3:35 P.M.

8.7 *Examining Seasonal Predictability of Lightning in Alaska Using ERA5 Reanalysis.* **Jonathan Chriest**, University of Alaska Fairbanks, Fairbanks, AK; U. Bhatt, P. Bieniek, A. Young, H. Strader, R. Ziel

3:40 P.M.

8.8 *Dynamical Approach for Land and Forest Fires Policy in Indonesia.* **Anni Arumsari Fitriany**, Agency for Meteorology, Climatology, and Geophysics of the Republic of Indonesia (BMKG), Jakarta Pusat, Indonesia; D. Khoirunurrofik, P. J. Flatau

3:45 P.M.

8.9 *The Fire Danger Rating System (FDRS) in Indonesia Current and Future Development.* **Erwin Eka Syahputra Makmur**, Indonesia Agency for Meteorology, Climatology, and Geophysics (BMKG), Jakarta, Indonesia; A. Agustan, W. Fitria, M. H. Nurrahmat, M. Saepudin

Wednesday, May 12

1:00 P.M.–2:00 P.M.

13FIRE

Session 11: MODELING FIRE-ATMOSPHERE INTERACTIONS ON ALL SCALES I

Chair: Adam Kochanski, San Jose State Univ., San Jose, CA

1:00 P.M.

Welcoming Remarks.

11.1 WITHDRAWN

1:10 P.M.

11.2 *High Resolution Numerical Modeling of Mountain Wave cases in the Southern Appalachians Mountain region.* **Marcus D. Williams**, USDA, Athens, GA; C. Ramseyer, M. E. Anderson, D. G. Hotz

11.3 WITHDRAWN

1:20 P.M.

11.4 *The Importance of Resolving Small-Scale Processes and Their Impacts on Large-Scale Smoke Plume Dynamics.* **Derek V. Mallia**, University of Utah, Salt Lake City, UT; A. K. Kochanski, S. Urbanski, J. Mandel, S. K. Krueger

11.5 WITHDRAWN

1:30 P.M.

11.6 *GOES-16/17 ABI Fire Detection and its Utilization in an Operational System in California.* **Christopher C. Schmidt**, Univ. of Wisconsin, Madison, WI; S. Strenfel, C. Guastini, E. Dahl

1:35 P.M.

11.7 *Seasonality and Trends in Lightning-Caused Wildfires in Canada.* **Mike Flannigan**, University of Alberta, Edmonton, Canada; P. Jain, X. Cai, S. C. P. Coogan

1:40 P.M.

11.8 *Wildfire Smoke-Plume Rise: A Simple Energy Balance Parameterization.* **Nadya Moisseeva**, University of British Columbia, Vancouver, Canada; R. Stull

1:45 P.M.

11.9 *Radar Observations of Fire-Generated Tornadoic Vortices.* **Neil P. Lareau**, University of Nevada - Reno, Reno, NV; N. J. Nauslar, E. Bentley, M. Roberts

1:50 P.M.

Poster Session 2: Welcoming Remarks .

13FIRE

Poster Session 3: 13FIRE: WEDNESDAY POSTER SESSION

F6 *The Fire Environment.* **Robert Ziel**, IARC, Fairbanks, AK; J. Tonkin

F7 *Factors that Influence the Predictability of Wildland Fire Potential in the Northern Rockies of the U.S..* **Coleen M Haskell**, Predictive Services, Missoula, MT

F8 *Development of an On-Demand UAV Communications Network for Forest Fire Detection and Monitoring.* **Thomas Zambrano**, AURA Network Systems, Inc., McClean, VA

F10 *A 'Domino Fall' Guidance Process Linking Climate to Strategic Seasonal Actions for Fire Operations in Oklahoma.* **T. Todd Lindley**, NOAA, NORMAN, OK; D. Daily, T. J. Brown

3:00 P.M.—4:00 P.M.

I3FIRE

Session 12: MODELING FIRE-ATMOSPHERE INTERACTIONS ON ALL SCALES II

Chair: Marcus D. Williams, U.S. Department of Agriculture, Athens, GA

3:00 P.M.

Welcoming Remarks.

12.1 *WITHDRAWN*

3:10 P.M.

12.2 *Trends in Nocturnal Atmospheric Moisture in the Western United States.* **Brian E Potter**, USDA Forest Service Pacific Northwest Research Station, Seattle, WA; A. M. Chiodi

3:15 P.M.

12.3 *Climate Change Attribution of Nighttime Fire Behavior.* **Timothy Brown**, DRI, Reno, NV; D. McEvoy

3:20 P.M.

12.4 *A Dynamically Coupled Fast-Response Microscale Fire and Wind Model.* **Matthew Moody**, University of Utah, Salt Lake City, UT; R. Stoll, E. Pardyjak, S. K. Krueger, J. A. Gibbs, P. Willemssen, A. K. Kochanski, J. Mandel

3:25 P.M.

12.5 *Machine Learning Estimation of Fire Arrival Time in a Coupled Atmosphere-Wildland Fire Model Using Satellite Data.* **Angel Farguell**, San Jose State University, San Jose, CA; J. Mandel, J. Haley, A. Kochanski, D. V. Mallia, K. Hilburn, A. Morrison

3:30 P.M.

12.6 *Estimation of Fuel Moisture Content Based on MODIS Satellite Observations Using Machine Learning.* **Branko Kosovic**, National Center for Atmospheric Research, Boulder, CO; T. McCandless, W. Petzke, P. Jimenez, S. Massie, A. R. S. Anderson, A. DeCastro, D. J. Gagne II, S. Meech, S. Alessandrini, S. E. Haupt

3:35 P.M.

12.7 *Observational and Numerical Studies of the Camp Fire (2018) in Northern California.* **Justin Gerard Riley**, North Carolina A&T State Univ., Greensboro, NC; M. L. Kaplan, Y. L. Lin

3:40 P.M.

12.8 *A Coupled Fire-Atmosphere Model with Mass-Consistent Wind Downscaling.* **Jan Mandel**, University of Colorado Denver, Denver, CO; A. K. Kochanski, A. Farguell, D. V. Mallia, J. Haley, A. Morrison, E. Shapiro, P. Willemssen, B. Bozorgmehr, R. Stoll, E. Pardyjak, M. Moody, K. Bergstrom, K. Hilburn, S. K. Krueger

3:45 P.M.

12.9 *ACCESS-Fire: Coupled Fire-Atmosphere Modelling.* **Mika Peace**, BoM, Melbourne, Australia; J. Greenslade, H. Ye, J. D. Kepert

3:50 P.M.

12.10 *Modeling and Observations of Plume Dynamics during the FASMEE Field Campaign.* **Adam Kochanski**, San Jose State Univ., San Jose, CA; N. P. Lareau, S. Hoch, C. B. Clements, J. Mandel, K. Hilburn, R. Ottmar

Thursday, May 13

I3FIRE

Session 15: FIELD STUDIES AND SUBSYNOPTIC FIRE-ATMOSPHERE INTERACTIONS

Chairs: Coleen M Haskell, Predictive Services Northern Rockies, Missoula, MT; Jonathan Chriest, NOAA/NWS, Fairbanks, AK, , University of Alaska Fairbanks, Fairbank, AK

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

15.1 *Improving Drought Overwintering for Fire Danger Rating in Canada.* **Chelene C. Hanes**, University of Toronto, Sault Ste. Marie, Canada; B. M. Wotton, D. Woolford, S. Belaire, D. L. Martell, M. Flannigan

15.2 *WITHDRAWN*

15.3 *WITHDRAWN*

1:20 P.M.

15.4 *Quantifying the Impact of Intense Pyroconvection on Stratospheric Aerosol Loading.* **David A. Peterson**, NRL, Monterey, CA; J. R. Campbell, E. J. Hyer, M. D. Fromm, T. Van, M. Berman, C. Bennese

1:25 P.M.

15.5 *Formation Mechanisms of the Mesoscale Environment Conducive to the Cedar Fire (2003) on the Lee Slope of the Mountains.* **Shak Md Shajedul Karim**, North Carolina A & T state University, Greensboro, NC; Y. L. Lin, M. L. Kaplan

1:30 P.M.

15.6 *Key Organizing and Evolving Atmospheric Circulations Affecting the East Bay Hills Fire in Oakland, CA (1991).* **William Agyakwa**, North Carolina A&T State University, Greensboro, NC; Y. L. Lin, M. L. Kaplan

1:35 P.M.

15.7 *Meteorological Analysis of the Camp Fire, November 2018.* **Alfred M Klausmann**, ERM, Boston, MA; S. Ramaswamy

1:40 P.M.

15.8 *The Meteorology of the 2018 Camp Fire.* **Clifford F. Mass**, University of Washington, Seattle, WA

1:45 P.M.

15.9 *The Multi-Scale Environmental Dynamics Organizing the Convective Density Currents That Redirected the Yarnell Hill Fire.* **Michael Lewis Kaplan**, Embry-Riddle Aeronautical University, Prescott, AZ; C. N. James, A. A. Taylor, M. Sinclair, Y. L. Lin, J. Ising, J. G. Riley

15.10 *WITHDRAWN*

1:50 P.M.

Poster Session 3: Welcoming Remarks.

I3FIRE

Poster Session 4: I3FIRE: THURSDAY POSTER SESSION

F9 *Drought Indicators and Flammability in Alaska.* **Robert H. Ziel**, IARC, Fairbanks, AK; P. A. Bieniek, U. Bhatt

F11 *Decision Support and Fire Warnings During the 26 November 2019 Oklahoma Wildfires.* **T. Todd Lindley**, NOAA/NWS/Norman WFO, NORMAN, OK; B. R. Bowers, D. Daily, C. Gravelle

F12 *Numerical Weather Prediction (NWP) Derived Canadian Fire Weather Indices (FWI)..* **Christopher Edward Rodell**, University of British Columbia, Vancouver, Canada; R. Stull, R. Howard

F13 *Improved Fire Activity Time Series by Accounting for Variation in Viewing Geometry.* **Edward J. Hyer**, NRL, Monterey, CA; D. A. Peterson, C. P. Camacho

F14 *Real-Time Intelligence for Wildfire Safety: The Pacific Gas & Electric Weather Station and Camera Networks.* **Ashley Erin Helmetag**, Pacific Gas & Electric Company, San Ramon, CA

F15 *Live Fuel Moisture Sampling and Modeling at Pacific Gas and Electric.* **Richard B. Bagley**, Pacific Gas and Electric Company, San Ramon, CA; S. Strenfel, S. Capps

F16 *2017 Northern California Wildfires - A NASA Health and Air Quality Applied Sciences Team (HAQAST) Tiger Team.* **Susan M. O'Neill**, USDA, Seattle, WA; M. Diao, S. Raffuse

3:00 P.M.–4:00 P.M.

I3FIRE

Session 16: FIRE AND SMOKE ATMOSPHERIC INTERACTIONS –ROOM 1

Chairs: Angel Farguell Caus, San Jose State University; Chelene C. Hanes, University of Toronto, Sault Ste. Marie, Canada

3:00 P.M.

Welcoming Remarks.

3:05 P.M.

16.1 *Sensitive Fire Behavior: Complexity in a Turbulent World.* **Kara Yedinak**, USDA, Madison, WI; A. Jonko, R. Parsons, R. Linn, A. L. Atchley

3:10 P.M.

16.2 *Updating the Black Book: Improving the Fire Weather Handbook for the Next Generation.* **Darren Clabo**, South Dakota School of Mines and Technology, Rapid City, SD; L. Kriederman, N. Hosenfeld

3:15 P.M.

16.3 *The Link between Polar Jet Stream Dynamics and Extreme Wildfires in North America.* **Piyush Jain**, Natural Resources Canada, Edmonton, Canada; M. Flannigan

3:20 P.M.

16.4 *Recent Increase in Large Santa Ana Fires and Corresponding Circulation Changes.* **Yen-Heng Lin**, University of California, Los Angeles, Los Angeles, CA

3:25 P.M.

16.5 *Atmospheric Conditions Associated with High Growth Events on the Largest Fires.* **Brian E Potter**, USDA Forest Service Pacific Northwest Research Station, Seattle, WA; D. McEvoy

3:30 P.M.

16.6 *A New Perspective of the Weather Effects on the Energy Release Component in the National Fire Danger Rating System: The Reaction Intensity Partitioning Concept.* **Francis Fujioka**, Retired, Oxnard, CA; D. Weise, S. C. Chen, S. H. Kim, M. Kafatos

3:35 P.M.

16.7 *Environmental Controls on the Physical and Optical Properties of Biomass Burning Aerosols Measured during Firex-AQ.* **Elizabeth Brooke Wiggins**, NASA Langley, hampton, VA

3:40 P.M.

16.8 *Validating Wildfire Smoke Transport within a Coupled Fire-Atmosphere Model Using a Novel High-Density Instrumentation Network.* **Derek V. Mallia**, University of Utah, Salt Lake City, UT; A. K. Kochanski, K. Kelly, L. E. Mitchell, J. Mandel, A. Farguell-Caus, S. K. Krueger

3:45 P.M.

16.9 *Wildland Fire Emissions Factors in North America and the New Smoke Emissions Reference Application (SERA).* **Susan M. O'Neill**, USDA, Seattle, WA; S. Prichard

3:50 P.M.

16.10 *Remote Sensing of Wildfire Smoke Plume Height from Satellites and Airborne Sensors during the FIREX-AQ/ER-2 Field Campaign.* **Michael J. Garay**, JPL, Pasadena, CA; O. V. Kalashnikova

3:55 P.M.

16.11 *Remote Sensing Observations of Smoke Properties from Airborne Sensors during the FIREX-AQ/ER-2 Field Campaign.* **Olga V. Kalashnikova**, JPL, Pasadena, CA; F. C. Seidel, M. J. Garay, J. A. Al-Saadi