May 22, 2025 | Fire Weather Subcommittee Meeting

Members/Invited Attendees:
Darren Clabo (NASF/SD State, Chair), Jim Wallmann (USFS, Vice Chair), Dennis Burns (NASF), Larry Van Bussum (NWS), Drew Daily (NASF/OK Forestry Services), Kari Fleegel (NWS), Colby Neuman (NWS), Brian Potter (USFS), Paul Sopko (USFS), David Schultz (NWCG Coordinator/BLM), Nick Nauslar (NWS), Tom St. Clair (BIA), Eamon Engber (NPS), Robert Field (NASA/Columbia), David Church (NWS)

Actual Attendees: Darren Clabo, James Wallmann, Brian Potter, Kari Fleegel, Dennis Burns, Larry Van Bussum, Colby Neuman, Robert Field, Nick Nauslar, Eamon Engber, David Church

****These and past notes are also available internally in our Google Drive folder.**

Agenda

1. **New Fire Weather subcommittee members** (Darren Clabo)
2. **NWS Weather Forecast Office, Salt Lake City Tentative Presentation** (Darren Clabo)
3. **NWCG Publication Management System (PMS) 426-3 Fire Weather Station Standards** (Darren Clabo) - moved to next meeting
4. **Archiving Publications** (Darren Clabo) - moved to next meeting
5. **Fire Weather Handbook Updates** (Darren Clabo) - moved to next meeting
6. **Fire Environment Observation Unit and Lightning Unit Subgroups Update** (Darren Clabo) - moved to next meeting
7. **Round Robin** (all)

1. **New Fire Weather subcommittee members** (Darren Clabo)
   We welcomed Tom St. Clair from the BIA to our group at our last meeting. This time we welcome Eamon Engber from the NPS. Eamon is a Fire Planner with the western states (North Ops) and works as an FBAN, LTAN, and Burn Boss.

2. **NWS Weather Forecast Office, Salt Lake City Presentation** (Darren Clabo)
   David Church, the Science and Operations Officer from the NWS Salt Lake City forecast office presented about a mixing height climatology parameter that they created and have been using in their Fire Weather Forecasts. The motivation for

the new parameter was a federal user group in the Salt Lake City forecast area that was looking for a way to better understand mixing height and how it changes over the year. An example of the parameter was shown, with the latest available here: https://www.weather.gov/wrh/TextProduct?product=fwfslc

Archived RAwinsonde OBservations (RAOBs) or upper air soundings from around 6 NWS stations in CO, WY, AZ, NV, and UT were used from around 1995 to 2019 (latest date of Storm Prediction Center RAOB archive). The summer months were used as the base, from June 1 to September 30, instead of a day to day climatological value. Interpolation between the upper air sites can be tricky at the different elevations. The calculated value was then compared to the National Blend of Models (NBM) standard fire weather forecast of mixing heights. Darren Clabo mentioned that per Heath Hockenberry, the NBM uses the modified Stull method - and should be the same as the SPC RAOB climatology.

While a nation-wide approach would be possible, Darren Clabo and others suggested additional research and a peer reviewed scientific journal publication before full implementation. There is a need to think about what method would be appropriate, Stull, modified Stull, observed, or another way.

Brian Potter mentioned that the environment doesn't become unstable with the addition of a heat source. The fire and environment are separate, like a car vs a driver.

Eamon Engber mentioned that percentiles can be super helpful for folks moving from location to location (think Incident Management Team). He also suggested that changing up the seasonality would be important based on the region. David Church mentioned that annual or other climatology could be used.

Brian Potter mentioned that he was extremely concerned that mixing height is being thought of as a direct replacement for Haines Index. He also noted that there is similar work being done in the Pacific Northwest (Jon Bonk (Meteorologist, Northwest Interagency Coordination Center) and Stephen Bodnar (NWS Spokane). Jim Wallman mentioned that putting it into the operation forecast should not be done, but could be done in an experimental format on a separate page until fully vetted. Larry Van Bussum mentioned that we need to look at what goes into local NWS fire weather forecasts. A longer process that is scientifically vetted is important.

Nick Nauslar mentioned that working with partners on a replacement was in the original documentation we drafted about getting rid of the Haines index and lightning activity level, but that any sort of replacement should be peer reviewed. Jim Wallmann added that during presentations he's given so far this year that the need to look at the total fire environment has been highlighted: instability, Hot-Dry-Windy, wind in alignment, and more with the Bear Fire (North Complex) or East Troublesome fires being good examples.

Brian Potter suggested a white paper on the science we need to work on a potential instability parameter. He said that Pyrocu vs Pyrocb chances aren't the answer, as they are very different and are easily mixed up by practitioners. Mechanical or solar induced turbulence could be important and some of the science we needed.

Darren Clabo suggested a memo to NWCG Fire Environment committee/Heath Hockenberry about limiting the addition of new fire weather parameters in a forward facing method without an experimental period with scientific vetting.

3. **NWCG Publication Management System (PMS) 426-3 Fire Weather Station Standards** (Darren Clabo)
   https://fs-prod-nwcg.s3.us-gov-west-1.amazonaws.com/s3fs-public/publication/pms426-3.pdf
   Cheryl Bright has completed ~90% of the review. Changes have been made, specifically to the permanent RAWS section that we need to look at/review.
   THIS TOPIC/DISCUSSION HAS BEEN MOVED TO OUR NEXT MEETING

4. **Archiving Publications** (Darren Clabo)
   PMS 1003:What Is the Appropriate RAWS Network?, https://fs-prod-nwcg.s3.us-gov-west-1.amazonaws.com/s3fs-public/publication/pms1003.pdf
   Should this be left as a useful resource?

   PMS 932 (old NFDRS)
   Not ours but want to inform that it's out there.
   THIS TOPIC/DISCUSSION HAS BEEN MOVED TO OUR NEXT MEETING

5. **Fire Weather Handbook Updates** (Darren Clabo)
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6. **Fire Environment Observation Unit and Lightning Unit Subgroups Update** (Darren Clabo)
   Given the recent retirement of Robert Swofford (BLM), a new BLM representative in our subcommittee and new chair for the Fire Environment Observation Unit subgroup was needed. Darren Clabo asked Alan Hester if he would be interested. Alan is a RAWS (Remote Automatic Weather Stations) Technician.
   THIS TOPIC/DISCUSSION HAS BEEN MOVED TO OUR NEXT MEETING

8. **Round Robin** (all)
   Dennis Burns: The S-490: Advanced Wildland Fire Behavior Calculations rewrite continues. Julie Rutherford, USFS/North Ops Meteorologist brought

together other Incident Meteorologists and Meteorologists to assist with the re-write. The beta version will be ready as early as late September, but most likely in October.

Robert Field: Doug Morton at Goddard Space Flight Center is working on a fire sense program, evaluating models for FARSITE (Fire Area Simulator-model development and evaluation) to more complex models. This includes sensitivity testing and optimization. This is in collaboration with the NPS and USFS. Doug would be happy to hear from folks for additional collaboration, Douglas.Morton@nasa.gov.

Brian Potter: The Fire in Science Symposium was a success with 65 attendees, with 23 scientists presenting.

Next meeting June 19, 2025 at 11 am MT, *however it will likely be moved to a different day*

typically the 3rd Thursday of each month