June 20, 2024 | Fire Weather Subcommittee Meeting

Members/Invited Attendees:
Darren Clabo (NASF/SD State, Chair), Jim Wallmann (USFS, Vice Chair), Larry Van Bussum (NWS), Drew Daily (OK Forestry Services), Kari Fleegel (NWS), Colby Neuman (NWS), Brian Potter (USFS), Paul Sopko (USFS), Robert Swofford (BLM), David Schultz (NWCG Coordinator/BLM)

Actual Attendees: Darren Clabo, Drew Daily, Kari Fleegel, David Schultz, Brian Potter, Jim Wallmann, Larry Van Bussum, Nick Nauslar, Colby Neuman
****These and past notes are also available internally in our Google Drive folder.**

Agenda

1. **Haines Index/Lightning Activity Level updates** (Darren Clabo/Jim Wallmann/Dave Schultz)
2. **Incident Response Pocket Guide Haines Index/Lightning Activity Level Removal and Replacement** (all)
3. **Fire Environment Mapping System updates, including Quality Assurance/Quality Control RAWS Dataset** (Jim Wallmann/Nick NauslarDarren Clabo)
4. **BLM Lightning Contract** (Darren Clabo)
5. **Handbook Revision Budget** (Darren Clabo)
6. **Fire Weather Testbed** (Drew Daily)
7. **Supply of Belt Weather Kit or Kestrel Weather Meters** (Larry Van Bussum)
8. **Round Robin**

1. **Haines Index/Lightning Activity Level updates** (Darren Clabo/Jim Wallmann/Dave Schultz)
   A report is due to the NWCG Executive Board next month, which will include a list of who has viewed the presentation on the Haines Index (HI) and Lightning Activity Level (LAL), the HI/LAL Talking Points document and Executive Board draft memo. Mark Loeffelbein (NWS WRHQ) assisted with editing the Talking Points document. Darren will email the Fire Weather Subcommittee these documents for review within the next 72 hours. Dave Schultz would like the final feedback by June 25th.

2. **Incident Response Pocket Guide Haines Index/Lightning Activity Level Removal and Replacement** (all)
   January 2022 Incident Response Pocket Guide (IRPG): https://fs-prod-nwcg.s3.us-gov-west-1.amazonaws.com/s3fs-public/publication/pms461.pdf?VersionId=lXUgkLMK9mRTMyssaamowdM3y6u7CKpl. Darren Clabo shared his latest proposal text and graphics during the meeting. The subcommittee members were asked to review the information with final feedback by August at the absolute latest. The Mixing Height section was mainly discussed. Brian Potter proposed modifying the days…near surface…section to add "and erratic fire behavior." Larry Van Bussum suggested adding the word "gustiness." Other changes were highlighted, where Chance of Wetting Rain should not include any specific values, as different regions use varying values.

   Since Mixing Height will become more important as we highlight it was proposed that Larry Van Bussum highlight the Storm Prediction Center sounding climatology page, https://www.spc.noaa.gov/exper/soundingclimov2/, as it contains 6 calculations of Mixing Height.

   Brian Potter brought up drought information, and more specifically the Drought Monitor, EDDI, 10-hour Fuels. Nick Nauslar mentioned that Fuelcast (https://www.fuelcast.net/) attempts to work with fine fuel buildup. Fuelcast is the work of Matt C. Reeves, Research Ecologist with the Human Dimensions Program at Rocky Mountain Research Station. He received funding from the USFS, and will continue to work on the project. Jim Wallmann noted that Fuelcast should be ready next year. Drew Daily mentioned that the Oklahoma Forestry Services used hay prices to help indicate fuels status.

3. **Fire Environment Mapping System updates, including Quality Assurance/Quality Control RAWS Dataset** (Jim Wallmann/Nick Nauslar/Darren Clabo)
   The plan is to use Remote Automatic Weather Stations (RAWS) Quality Control on the period of record prior to 2005, and use Tim Brown's (Research Professor, Climatology and Director of Western Regional Climate Center) gap-filled techniques from 2005 forward. There will be no backfill of data if a station came online after 2005. Quality Assurance/Quality Control RAWS Dataset will be voted on during the Fire Environment Committee meeting next week.

   There is a push to put together a climatology similar to what the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI) does with their data. Not included are the virtual weather stations that Matt Jolly (Research Ecologist, USFS Rocky Mountain Research Station) had created - one virtual RAWS in each Florida county for the Southern Area Coordination Center (SACC). The practice of creating virtual RAWS is no longer being done.

There was a discussion on Mesonets, and which should be included and which should not. Gridded data standards were also discussed, as there is currently no NWCG standard for gridded data. This is where our subcommittee becomes involved, as there is a need to see what can be adapted from World Meteorological Organization (WMO), National Weather Service (NWS), and other standards, with an emphasis on the needs for fire weather. Definitions and Standards are being worked on.

4. **BLM Lightning Contract** (Darren Clabo)
   Darren Clabo will reach out to Paul Sopko, the chair of the Lightning Unit (LTNU) to get the process moving. The current contract is valid through April of 2025, with the Bureau of Land Management (BLM) folks noting that the process needs to start 6 months prior to that time. Jim Wallmann and Nick Nauslar can search out a BLM contact if needed. Larry Van Bussum suggested that the contract specialist be included in any discussions, to help speed up the process.

5. **Handbook Revision Budget** (Darren Clabo)
   The final product will be 12-13 chapters with 20 different graphics in each chapter. The cost for graphics would be around $48,000 for an average of 250 graphics through the same folks who are creating the S-290 graphics. A funding request will be needed for the next fiscal year.

6. **Fire Weather Testbed** (Drew Daily)
   The Fire Weather Testbed in Boulder, CO conducted its first in-person testing, which was an Integrated Warning Team (IWT) approach to detecting and warning for a series of fires using the Next Generation Fire System (NGFS) Dashboard (https://cimss.ssec.wisc.edu/ngfs/alerts-dashboard/ and/or https://re-ngfs.ssec.wisc.edu/?products=G16-C-BAND07-TC,NGFS-SCENE-CONUS-EAST) and issuing warnings. Participants were grouped into pairs of land management/forestry and NWS individuals for 4 regions across the U.S., including NC, CA, KS, and 1 other region. Scenarios spanned across the country, and the testing lasted parts of 2 days. The principal investigators were Todd Lindley (NWS Norman), Drew Daily (OK Forestry Services), Mike Pavalonis (NOAA/National Environmental Satellite, Data, and Information Service (NESDIS)).

   Similar to S-520, there was a steep learning curve for the participating Meteorologists. A lot of the land management and meteorologists found out that strengthening their coordination would be needed. A report will be coming out from this testbed. One finding will be that each region may need to work differently. For example, NGFS detection of NC fires that are less than 5 acres may not be super helpful. CalFire found benefits to this - supplementing their FireGuard program and vast camera network. Drew Daily felt that going through this process as a principal investigator was a watershed/career defining moment, noting that there is a lot of great future work that will come about from this. He also highlighted the need to continue to speak openly, candidly, and with a

scientific knowledge - looking at concerns holistically in a fire environment. Mike Pavalonis was excited to see the NGFS being used and how beneficial it is. Drew suggested that Mike Pavalonis give us a presentation on NGFS. Darren Clabo agreed, and will ask Mike Pavanois to present at one of our next meetings.

Nick Nauslar expressed his gratitude to Zach Tolby, Director and Lead Scientist, NOAA Fire Weather Testbed, and everyone else involved. He seconded Drew Daily's feedback that fire detection and fire warnings will not be a one size fits all approach across the nation, but that a set of base standards will be beneficial.

7. **Supply of Belt Weather Kit or Kestrel Weather Meters** (Larry Van Bussum)
   Larry Van Bussum has been speaking with cache management folks, and they would be in favor of removing belt weather kits. This would need to go through the Risk Management Committee to bring back up to the Executive Board. It was originally brought up during COVID, but we are not sure how far the process got. Original concerns were that Kestrel Weather Meters could be taken from supply and not returned. Recalibration and refurbishing could be a concern, and the Fire Environment Observation Unit (Robbie Swofford, Chair) should have something that talks to how often they should be recalibrated. Darren Clabo was wondering if they needed to be carried at the caches at all, as many folks carry their own Kestrel or other weather meters.

8. **Round Robin**
   Drew Daily has been looking retrospectively at larger fires to see when Fire Warnings would have been issued. He highlighted that using the Hot-Dry-Windy Index (HDWI) and its inclusion of Vapor Pressure Deficit has been a powerful indicator. The Marshall Fire had a 10 fold difference in Vapor Pressure Deficit from the day before to the day of the fire. Drew thanked Brian Potter for his research on Vapor Pressure Deficit in the HDWI.

   Brian Potter was asked to do a webinar on prescribed burn needs to national fire managers, and the different ways that weather matters from pre-planning to after the fire. Brian sent a link to the "Meteorology for Prescribed Fire" webinar to the Fire Weather Subcommittee members.

   Darren Clabo suggests that we start thinking about an in-person meeting during the spring of 2025.

Next meeting July 18, 2024 at 11 am MT
typically the 3rd Thursday of each month