

# Fire Environment Committee Meeting

Virtual via WebEx

May 12, 2021

## Welcome and Introductions

- Guests attending this meeting:
  - Jon Blanchard, head of natural resources for NC State Parks
  - Bradley McLamb and Elliot Tardif, NC Division of Air Quality
  - Bob Mickler, NCSU
  - Greg Hicks, assistant state forester for forest protection at NCFS
- Part of NCSU's MOU with NCFS requests they have a permanent member in the FEC

## Review and Discussion of Minutes from Nov. 2020

- Action items from the last meeting:
  - David Greathouse and Cabe have prepared a series of YouTube videos as an ADM refresher
    - Intro to ADM: <https://www.youtube.com/watch?v=P3sq8bes6Nk>
    - VSMOKE Web: <https://www.youtube.com/watch?v=2qJ2awb35fs>
    - Completing an ADM Request Form: <https://www.youtube.com/watch?v=V7UXhI9noso>
    - Intro to PC HYSPLIT: <https://www.youtube.com/watch?v=EB1wtyXUU0k>
    - Still working on VSMOKE PC
  - The memo to AirFire re: turning VSMOKE back on was sent out through the Prescribed Fire Council
- Minutes from Nov. 2020 meeting are approved

## Prescribed Fire in NC Assessment (Jon Blanchard, NC State Parks)

- Background:
  - A few years ago, an assessment of vegetation at state parks tried to determine how much they should be burning
    - Resources did follow that assessment
    - Determined they needed to be burning minimum 15k acres per year out of 200k acres total
  - Across multiple agencies, "nobody thinks they're doing enough prescribed fire"
- Goals:
  - Determine what needs to be burned and what has been burned on properties across the state (mainly public land, but also some private)
  - Get peer-reviewed agreement of how often burning should occur within natural communities and habitats
  - Get data from agencies and their properties to determine what has been burned
    - Can do a GIS comparison of where burns are needed vs. what actually occurs
- NC Prescribed Fire Council has contributed \$10k toward a grad student at UNCW, working under two professors to do the analysis
  - Student will start in the fall with work continuing through the spring semester

- Having a detailed analysis could help secure more funding from the legislature to support prescribed fire where it is needed and lacking
- A similar study was done in Illinois in 2016; email John if you want a copy (jon.blanchard@ncparks.gov)
- Would like to be able to quantify stats by agency and even by property
- Be thinking about how you may be able to supply data from your agency about what and where you're burning
  - State Parks reports burns in a database going back 10+ years

### **fiResponse Demonstration** (Greg Hicks, NCFS)

- fiResponse is a computer-aided dispatching system tailored to wildland fire
- Capabilities include:
  - Incident management
    - Tracking/mapping incidents and their history
    - IRWIN-compatible (cloud-based clearinghouse for fire data)
  - Resource management
    - Keep up with the status of resources and assign them to incidents
    - Mobile apps for phones and tablets to help track resources
  - Situational awareness
    - View incidents across county, state, and agency boundaries
- NC will primarily be using the web and mobile platforms, but is still developing a production system
- Situational awareness map includes a statewide map of incidents, and for each incident, can view logs, resources assigned to that incident, photos/videos, current weather, history, and an ability to generate a PDF fire report
- Also planning to track prescribed burns using this tool
  - Will track similar info. to wildfires, but also has a smoke management section containing fuel types, tonnage, etc.
- Includes a dashboard to view daily activity by district and by county
- Will have a public-facing map view showing fire locations over the past 48 hours with stats such as fire size and percent containment
  - Will replace the existing system (an Access database that updates a district-based activity map)
- Other southeastern states (incl. TX, GA, MS, TN, and VA) are already using the fiResponse system
- Plan to go live in NC beginning on July 1

### **Recent Weather and Seasonal Outlook** (Corey Davis, SCO)

- A La Niña event was in place over the winter, but it had few impacts on our weather
- Instead, we had our 13<sup>th</sup>-wettest winter on record and a jet stream storm track that brought many storm systems out of the Gulf of Mexico and across NC
- The ENSO phase has since transitioned from La Niña back to neutral, and is expected to remain in a neutral phase this summer
  - Too early to say what pattern we may see this fall
- So far this spring, we've had regular cold frontal passages, but they haven't brought in much moisture, so we've been generally dry since early March

- Abnormally Dry (D0) conditions cover about half of the state now, and drought could emerge if spotty rainfall continues
  - Main impacts so far are declining soil moisture and streamflow levels
  - Spring fire season is largely finished by now since most of the state (outside D8/southern coast) has fully greened up
- Summer outlook from the Climate Prediction Center shows above-normal temperatures likely, and increased odds of above-normal precip. in NC, but...
  - That temperature outlook is based on the old 1981-2010 normals, and the new 1991-2020 normals are 0.5 to 1 degrees warmer across NC
    - New climate normals: <https://www.ncei.noaa.gov/products/us-climate-normals>
  - Summer precipitation outlooks are generally no more skillful than a coin flip, so at least some parts of the state could remain dry
- The 30-year normals for tropical Atlantic activity have also been updated and show an increase to 14 named storms and 7 hurricanes per year, on average
- NCSU's forecast calls for 15-18 named storms and 7-9 hurricanes this year
  - Actual activity could depend on which way ENSO goes this fall
  - At the moment, there is warm water in the Gulf and off our southeast coast, so we could see activity there in the next month

#### **New SCO Website and Cardinal Tool (Corey Davis, SCO)**

- In early April, the SCO launched a new website to move to NCSU's servers and content management system ([climate.ncsu.edu](http://climate.ncsu.edu))
- We have also overhauled our data access system, replacing CRONOS (which limited how much data you could pull and required submitting requests that had to be manually completed)
- The new Cardinal tool offers nearly instant access to data for stations across NC
- For viewing individual weather stations, use the Station Scout tool
  - Can view station information, history, and recent observations
- To get more data, sign up for a free account and use the Request Builder to select locations, time periods, and parameters of interest, then choose and request the best-matching stations
  - Note: When requesting RAWs wind data, make sure to click the "Show additional levels" button to view the 6-meter wind parameters

#### **New Fire Website and FWIP Updates (Corey Davis, SCO)**

- We recently created a new fire-focused website to house information and resources related to the FWIP, other tools for monitoring local conditions, and educational content ([climate.ncsu.edu/fire](http://climate.ncsu.edu/fire))
  - Includes an updated User Guide for the FWIP with example use cases
  - Resources for NCFs page links to the Station Status tool, RAWs QC Viewer, and Hazard Assessment Tool
  - Short-Range Outlooks are posted on this site
  - Background page includes short summaries of weather-related fire topics such as seasonal fire climatology and fire history

- What other background info. would you like to see? Ideas include summaries of specific fire events, how NWS forecasts are created, how to use and interpret CPC outlooks, and ENSO's relationship with NC's weather and fire activity (let Corey know if you like any of these ideas or have others in mind)
    - Cabe: There is a book somewhere that describes the history of wildfires since NCFS began, so that could be a good resource if we could find it
  - Research page will include summaries of findings from research projects, including any that others have done, such as ADI/vent rate comparison and mixing height methodology
  - A blog on the website will post short news and updates, such as Short-Range Outlooks when they are posted
- A few recent updates to the Fire Weather Intelligence Portal:
  - It has been moved onto a new server but the functionality and web address ([climate.ncsu.edu/fwip](http://climate.ncsu.edu/fwip)) are the same
  - We have added new fire grids based on the NWS's National Blend of Models product
    - For mixing height, Burning Category, transport wind speed, stability class, ADI, and LVORI
    - These are available at high resolution up to 5 days out across the Southeast region
    - A case study for a prescribed burn day last September showed good agreement between these grids and the NWS forecast fire grids
      - NWS grids may increase ADIs earlier in the morning and decrease them faster in the evening than NBM; if you do any burns and check these grids, let Corey know how they compare with the sort of dispersion you notice
  - NFDRS2016 will be rolled out for NC stations soon; some behind-the-scenes work still taking place to get Adjective Rating and readiness plan breakpoints calculated for all stations and FDRAs

#### **Ambient Information Reporter Tool** (Bradley McLamb, NC DAQ)

- NC DAQ and SCO have jointly developed a new tool for viewing air quality and meteorology data across NC
  - Designed to help air quality forecasters and professionals view detailed data while also helping show the public about air quality and weather hazards
- Includes Past, Current, and Forecast Conditions tabs, similar to the FWIP, for viewing data at different timescales
- Can view both air quality and meteorology data at the same time, allowing comparison between air temperatures and AQI, for instance, or ozone concentration and radar imagery
  - Mapping them together can show how they interact, such as dust or smoke in the air reducing visibility
- Layer options include NOAA's satellite-detected smoke plumes and fire locations
- Can view forecasted AQI values over the next 3-4 days

- AIR tool is currently in the final stages of development, with a soft launch expected this summer

**Atmospheric Dispersion Modeling Discussion** (Cabe Speary, David Greathouse, John Cook, Chris Jordan, Kenny Griffin)

- The smoke plan is based on the 24-hour average (not hourly) values. Make sure to look at those values from HYSPLIT to see if they exceed the NAC guidelines.
- VSMOKE is now available in BlueSky v3.5
- In BlueSky, PM2.5 concentrations are not converted to the AQI colors on the map; only shown in grayscale or redscale
  - Link: <https://tools.airfire.org/playground/v3.5/emissionsinputs.php>
  - Do we feel comfortable using this as a go/no-go tool? We could add it as an option along with PC HYSPLIT
  - Try running or re-running some model runs and do some comparisons to see how easy it is to interpret the grayscale colors
    - Could invite Megan Johnson (postdoc at NCSU) to present her findings at the next FEC Meeting with a model comparison she did – can Thomas contact her?
  - Remember that BlueSky is a modeling *framework* containing a half-dozen different models, and it includes some assumptions about fuel loading that may not always be accurate for the east coast (but those settings can be adjusted, and are easier in BlueSky than in FEPS)
  - Could ADM-certified modelers on the FEC look at 3-4? runs in BlueSky for comparison with PC HYSPLIT-generated runs? (using the same consumption and fuel settings)
    - Could also show run data to the burn bosses who were working on those modeled burns and see if the BlueSky data would be sufficient
- NC Wildlife is now on state IT-imaged computers, and PC HYSPLIT doesn't run well on them
  - Bill Jackson has finished a beta version of Fire Fuel Tools including FEPS that should be compatible

**Training Needs/Offerings**

- NC Forest Service holding 3 virtual offerings of S-491 (Intermediate Fire Danger), including one for the eastern area in June
  - Courses are full
  - Could move to a blended virtual and in-person course in the future
- Certified burner course was offered in March
  - Classroom portion was virtual
  - Small groups met across the state for the field portion
  - Another being held next week, then probably again in the fall
- Virtual S-290 is open for nominations
  - Will be a hybrid including a WebEx discussion at the end of each day to cover material that the slides miss
  - Pre-work is due May 15
- RX-410 course is coming up; announcement will be shared with NCFS soon

- ADM training will include watching videos, FEPS tutorial, then being matched with a mentor to do sample runs

### Agency/Program Updates

- Kevin Harvell: Conservation Corps of NC crew is available for all agencies in the FEC
  - A 5-person crew is trained and red-carded at the firefighter 2 level
  - Has worked on ~20 burn projects in Division 2 and one TSI project
  - Contact Randolph Harrison (crew coordinator; [rharrison@conservationlegacy.org](mailto:rharrison@conservationlegacy.org)) if you want to use this crew for projects
    - NCFCS can request through Region 1 and Region 2 ops rooms
- NCFCS Central Office:
  - Webmaster Amanda Hubbard left last fall, but have hired Ashley Snyder as a new multimedia specialist to work on social media, website, video production
  - No news on hiring a new IT or GIS person
  - Since Nov 12, NCFCS has done 605 burns for 53,934 acres (89 acres/burn)
- The Nature Conservancy:
  - Good burn season in the Mountains, above 20,000 acres assisted
  - Statewide, slightly behind typical conditions, but assisted with 125 burns on ~30,000 acres
  - Margit is retiring at the end of June
- US Fish & Wildlife Service:
  - Burned ~6,000 acres, mostly in smaller burns
  - Had a lightning strike fire in Dare County off US64 on May 10
  - Have been granted approval to advertise an entry-level TS5 firefighter position
- NC State Parks:
  - So far in 2021, have burned at 24 different parks
    - 6,000 acres burned in March and April
  - Last 12 months, have burned 10,000 acres
  - Ordered 2 forestry mulchers, staged in north district and at the coast
  - May add a 3<sup>rd</sup> crew for the Mountains based at Lake Norman
  - In discussions to renew MOA with NCFCS before it expires in January
    - Gives them access to helicopters and equipment for burns
- NC Wildlife Resources Commission:
  - Good burn season compared to last year; 20,000 acres on 162 burns
    - With help from NCFCS, TNC, and State Parks
- State Climate Office:
  - Hiring a new associate director starting in June who will oversee research work and the ECONet
  - Installing a new ECONet station by the end of the year at Jockeys Ridge State Park, which will help inform prescribed burning at that site
- BIA:
  - Hiring 2 more engine operators for type-6 engines
  - Still working on interagency agreements between federal partners
  - No large-scale burning so far this year
- NCSU:

- Preparing for forestry summer camp (hybrid this year with online instruction and small group meetings) at Schenk Forest
- Have conducted prescribed burns at Hill Forest on forestry management research tracts to help teach students how to burn
- Have agreements with state agencies including NCFS and NC State Parks to allow student interactions
- Cabe: Can use community service leave for tutoring forestry students
- NCFS Region 1:
  - Spring burning is done and have a couple active wildfires
- NCFS Region 3:
  - Good spring for prescribed burning
  - Down several staff with several vacancies at the county level
- NCFS Region 2:
  - Lots of burning so far this year, mainly beginning in March (393 burns for 31,261 acres since Nov. 12)
  - Have had an active fire season especially in the Sandhills recently
    - Including a 1,500 acre in Scotland County

### **Next Meeting**

- Hopefully in-person again this fall?
- Looking at November for the next meeting