



**National Wildfire Coordinating Group (NWCG)
Smoke Committee (SmoC)
Monthly Activity Update – October 2011**



SmoC News:

HYSPLIT Trajectories with NWS Spot Weather Forecasts – The National Weather Service (NWS) is offering an experimental smoke trajectory forecast product in conjunction with requested Spot Forecasts. Robyn Heffernan (NWS) joined the final SmoC call of the month to give more information on this experimental product. Also included in the call were members of the Forest Service Smoke FARM Team and representatives from the Predictive Services Group. Through the end of the year, the NWS will include air parcel trajectories initiated at three different heights (500m, 1500m, and 3000m) using the HYSPLIT model when requested in Spot Weather forecast requests. The trajectories (not dispersion) are available by requesting them in the comments section of the NWS spot weather forecast webpage. The NWS is accepting comments until 12/31/2011 after which they will assess feedback, and if comments are largely positive it will become an operational feature in the Spot Weather page. They are looking for input on accessibility, utility, and whether or not this is a useful long term product. Also, feedback on the accuracy and performance of the trajectories and how this was assessed would be useful and would be directed back to the HYSPLIT developers.

Discussions centered around how it will be important to communicate to the user community what trajectories are, appropriate use of the information and utility for prescribed fires and wildfires. Trajectories provide information about where a parcel of air could travel and do not give information about smoke concentrations. Therefore, whether a burn is 5 acres or 5000 acres, the trajectory will appear the same for a given start-time, location and meteorological forecast. For prescribed burns, only trajectories from the burn ignition time are provided, thus if atmospheric conditions change during the course of the burn that will not be captured in the trajectories. The default trajectory release heights, which serve to simulate plume rise, are also at heights typically not achieved by many prescribed burns. The 500 m, and in some cases the 1500 m, trajectories can be useful information for prescribed burns, but the 3000 m release height is most useful for large wildfires, although this height (and the 1500 m height) can give information about high level transport winds. This can vary from region to region and burn to burn, thus the utility of this feature will likely vary from state to state (for example, heli-torch burns in the lake states have produced plumes that will punch through the mixing layer, or in areas of complex terrain the trajectory can be intercepted by the terrain).

A request will be submitted by SmoC to extend the comment period and other requests are being contemplated to improve the utility of the product for prescribed burning operations such as requesting lower trajectory release heights and more trajectory release times so that trajectories over the course of a prescribed burn can be tracked. Finally, training of interpreting results is critical for burners. If it's not understood it's not going to be used. SmoC is continuing discussions with the FS Smoke FARM team, Predictive Services, and the NWS and a whitepaper on the subject is being discussed as well as the possibility of a webinar.

Ozone National Ambient Air Quality Standards (NAAQS) – Gina McCarthy (EPA Air Administrator) announced that EPA will implement the 0.075 ppm ozone standard promulgated in 2008 under the prior administration which had been under reconsideration under the current administration. Using 2008-2010 monitoring data, 52 areas exceed the standard, which are fewer than estimated back in 2008 when the standard was promulgated. EPA has begun the official designation process for the 2008 standard and will be working with states to define boundaries and has committed to issuing an implementation rule for the 0.075 ppm ozone standard. EPA also plans to move ahead on changing ozone monitoring schedules per previous discussions with states. Smoke from wildland fires have been attributed to



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ozone exceedances during this monitoring period of time. SmoC will be developing a briefing paper on this topic and more information can be found at: <http://www.epa.gov/air/ozonepollution/>

Air Quality Index (AQI) Warning Levels on Wildfires – It was discovered this past season by the Forest Service Smoke FARM Team that there are several air quality indexes being used to express air quality impacts during wildfires. Further research is underway and will be distributed in a future briefing paper. The AQI gives information about when air quality conditions are good, moderate, unhealthy or hazardous based on ozone and/or particulate matter concentrations. The EPA has established a national standard based on the NAAQS, however many states have implemented their own AQI levels based on one hour particulate matter concentrations (versus the NAAQS which is a 24-hr average value).

Communications and messaging – SmoC continues to explore avenues to communicate our messages and information about smoke and air quality. The NWCG Smoke Perceptions Webinar was moved to the FRAMES server. http://frames.nbii.gov/portal/server.pt/community/emissions_smoke/211
We can now track downloads from that site. Efforts are underway to insure widespread distribution of the Monthly Activity Updates.

SmoC Websites (NWCG website, www.nifc.gov/smoke, two myfirecommunity sites) – Elizabeth Austin-Gonzalez (Humanitas, Inc.) presented a demonstration of the new NWCG portal website currently in development. Ideas for the structure are being solicited; Mike Broughton is the clearinghouse. The new site can have “portlets” on either side of the page for briefing papers, summary notes, and links to informative sites. The web site can be searched if there is a specific group or term for which the user is searching. Information can be posted either as a public doc or private, and the portal can be tracked with Google Analytics. Use of tags and keywords is important in this site to manage information. HTML coding is available for editing the site, but it does have to be 508 compliant. Mike Broughton as the SmoC webmaster has been working with the NWCG web portal team on our future SmoC web presence. This effort will encompass both our NWCG website and the www.nifc.gov/smoke website with retention of the current web identity.

Estimated Smoldering Potential (ESP) – Gary Curcio and Jim Reardon (Missoula Fire Lab) have been conducting research and set-up monitoring stations that indicate conditions when duff or organic soils could ignite. Such ignitions can lead to long-term (months) of smoldering and smoke production, and can also re-ignite surface fires. Thick (up to 8 ft) layers of these duff and organic soils exist in the southeastern US, areas of the central US, and up into Minnesota. ESP stations could complement existing NFDRS stations and data are currently transmitted using cell phone technology. Gary and Jim had presented this issue to the Fire Danger Subcommittee but it was difficult to convey the importance of this topic as most of the Subcommittee was from the western US where smoldering soil emissions are fairly rare. While the NFDRS is focusing on surface fuels, Gary is advocating for duff and organic soils to be addressed as well, working on getting the estimated smoldering potential numbers on the Missoula website. Gary has also been in contact with Roger Ottmar to tie this into Consume, which has not performed well in the past for smoldering organics in the south. Gary is following up with Jim to see if Midwestern burners and burn sites are a part of the smoldering soils ESP project.

AMS Fire and Forest Meteorology Symposium: Pete Lahm and Gary Curcio attended and presented, along with about 75-80 other people (a lot of national weather service meteorologists and smoke researchers). The one sector with very little participation was operational folks (FBANs and others outside of NWS and Predictive Services). A wide range of topics were covered in the presentations, including satellite data interpretation, and increasing concern about injecting fire emissions into the

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For additional information on SmoC go to: <http://www.myfirecommunity.net/Neighborhood.aspx?ID=279>



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lower stratosphere where the residence time can be 4-6 months. Of particular interest is the work of Crystal Kolden on Monitoring Trends Burn Severity (MTBS) fire perimeters. She is seeing a 25% greater perimeter in MTBS than what is actually found in records and ground monitoring. Recorded presentations from the symposium <http://ams.confex.com/ams/9FIRE/webprogram/9FIRE.html>

Reciprocating Internal Combustion Engines (RICE) emission Rule – Concern was mentioned for the Reciprocating Internal Combustion Engines (RICE) emission Rule

<http://www.epa.gov/airtoxics/rice/ricepg.html> which covers stationary and large portable pumps.

- Applies to diesel and gas fired engines
- Controls required for engines above 300 hp and above 500 hp (complex rule)
- If your pumps are under 300 HP you can still be impacted by these rules.

Implications for wildland operations are possible and thus, referred to the NWCG Equipment Committee.

SmoC Subcommittees Activity Reports

Technical Smoke Topics Subcommittee:

Smoke Management Guide Revision (Funded through DOI Fuels Management committee): Progress continues on revisions to the Smoke Management Guide (SMG). December 1 remains the deadline for the first drafts of the new chapters.

Retrospective Emission Inventory Task Team: Progress continues on the initial task for this work group which is to help EPA improve the 2008 EPA National Emission Inventory (NEI). EPA is looking to classify the approximately 64% of the fires in the 2008 NEI that are unclassified. Classification categories are: wildfire, prescribed fire or agricultural burn. A call on October 25 had Tom Moore (Western Regional Air Partnership) present the Fire Emission Tracking System (FETS) and Roshelle Pederson (OWFC) cover interagency fire record efforts.

Smoke Managers Subcommittee:

A conference call is planned for November 8 @ 10 am MT. A regular feature planned for the bi-monthly or quarterly calls is a Smoke Challenge/Smoke Solution segment, where subcommittee members engage in out-of-the-box discussions of real-world air quality and smoke challenges.

Smoke Training Subcommittee:

Subcommittee Call: A call was held on Oct 21 to discuss the two topics below and website directing folks to smoke modeling tools and training.

Smoke Training Assessment (Funded through DOI Fuels Management Committee): Review continues on the final report for the Smoke Training Assessment, reviewing the occurrence of smoke and air quality information within 91 NWCG courses and 125 position task books (PTBs) within the national interagency incident management system (NIIMS) as of April 2011.

Report on Fire Personnel Positions with Smoke Management Training within the Incident Qualification and Certification System (IQCS) (Funded through DOI Fuels Management Committee): Comments were being taken on the first draft of a report based on queries performed against the Federal IQCS to determine what wildland fire positions currently have RX-410 and RX-341 training.

Updates to Online Training (Funded through DOI Fuels Management Committee): Major revisions to the Smokepedia (a compendium of over 600 air quality and smoke related terms) is approaching finalization.



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Briefing Papers (BP) – Three new briefing papers have been identified which have been discussed above.

- Wildfire Impacts and Air Quality Index (AQI) Levels
- Ozone NAAQS Standard Revision/Implementation
- NOAA HYSPLIT trajectories with NWS Spot Weather Forecasts

Round robin

- There should be final version of the black carbon assessment out from EPA for agency internal review later this month.
- Mike Broughton was contacted by one of the refuges in WA State. They were recently billed by WA Dept. of Natural Resources for back fees from Rx fires going back a couple years. There was an impression that Feds were not required to comply with state rules on burn fees if there was no approved smoke implementation plan, although this was incorrect. He also shared that WA State is planning to revise their fee structure for silvicultural Rx burns. They are recovering only 18% of their costs using their current fee structure. They are quoting that they are planning on raising the current \$1.70/acre fee for public land burning. (Planning on tripling for smaller burns and close to doubling it for larger burns. They are going by tons of fuel, not acre). See: http://www.dnr.wa.gov/Publications/rp_burn_qa_permitfee_increase.pdf

Upcoming Conferences and Meetings:

- American Geophysical Union (AGU) Fall Meeting, December 5-9, 2011, San Francisco, CA
<http://sites.agu.org/fallmeeting/>
- Wildland Fire PM Emission Factor Workshop, Feb 7, 2012, Atlanta, GA
- Southwest Fire Ecology Conference, Feb 27 - Mar 1, 2012, Santa Fe, NM
<http://humboldt.edu/swfire/abstract.html>
- 3rd Human Dimensions of Wildland Fire Conference, April 17-19, 2012, Seattle, WA
www.iawfonline.org