WFDSS Air Quality Tools Integration

http://firesmoke.us

Developed for use in wildfire decision-making process
Wildland Fire Air Quality Tools
WFDSS Integrated Tools v1.0 (Beta Test)

STEP 1
Set your fire location:

Latitude 47.50°N
Longitude -115.00°E

Click on map or type location.

STEP 2
Select Your Tool:

- Smoke Guidance Point Forecast
- Smoke Guidance Regional Maps
- Diurnal Surface Wind Pattern Analysis
- Climatological Ventilation Index Point Statistics
- Current Air Quality Conditions Map
- Fire Information & Smoke Trajectories
- Customized Fuels, Consumption, & Smoke Modeling
- Probabilistic Smoke Impacts based on Past Weather

See below for tool description, attributes, and other details.

Tool List
Current filter applied: none (viewing all products)

Smoke Guidance Point Forecast
localized text summary of atmospheric conditions affecting smoke
Goals:

- To provide “one-stop” portal access to the most useful and relevant air quality tools
- To use data from WFDSS to drill-down into existing tools for relevant information
- To modify tools as necessary to better serve WFDSS needs
- To avoid the need for duplicate entry of information
- To provide help and how-to-use instructions

8 Tools Identified

- Includes climatologies, current conditions and forecasts
- Many give fire-specific, customized information
- More can be added
Tools

- Smoke Guidance Point Forecast
- Smoke Guidance Maps
- RAWS Wind-roses
- Current Air Quality Monitoring Data
- Climatological Ventilation / Mixing Height Statistics
- Probabilistic Smoke Impacts based on Climatology
- Custom While-you-wait Trajectories
- Custom While-you-wait Fuels, Fire Consumption, and Smoke Impact Modeling

- Each Tool briefly explained on website
- What is this? & How can I use it? information provided for each tool
- Tools labeled and searchable based on characteristics to help quickly identify what you are looking for

- Tools provided by USFS AirFire, DRI/CEFA, FCAMMS, STI
BlueSky Playground Redevelopment

• Better support for prescribed burn planning and operations
  – Higher-resolution meteorology
  – Simplified dispersion
  – Support for broadcast burns by section
  – Support for pile burns

• Automated report generation

• Improved infrastructure to support more simultaneous users (especially during training)

• Redesigned interface for a better user experience

• Additional new features
2012 Development Plan

• Making sure smoke information is fully operational on a 24/7 basis.
  – Hardening of existing tools; Fix items identified by user feedback (Playground higher resolution & Rx fire choices, etc…); Specific operations person to be tasked.

• Development of new help resources (experts) and training materials.
  – Emphasis on mentoring; trying to get a specific lead mentor with operational expertise.

• Development of a new, simple, text based smoke forecast guidance report product.
  – Suitable for non-experts

• Beginning development of more integrated smoke modeling system.
  – Advanced development work with benefits in 2012.
Model output can be found at:
(Not a complete list)

- [http://firesmoke.us](http://firesmoke.us)
- [http://www.getbluesky.org](http://www.getbluesky.org) (login/password)
- [http://today.airfire.org/pnw4/](http://today.airfire.org/pnw4/) (Pacific Northwest 4-km output)
- [http://airquality.weather.gov/sectors/conus Loop.php#tabs](http://airquality.weather.gov/sectors/conus Loop.php#tabs) (NWS-NOAA air quality)
- [http://ready.arl.noaa.gov/HYSPLIT.php](http://ready.arl.noaa.gov/HYSPLIT.php) (NOAA HYSPLIT)
Thank you

http://firesmoke.us

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More information:

Miriam Rorig
mrorig@fs.fed.us
206-732-7843

Sim Larkin
larkin@fs.fed.us
206-732-7849
Scenario #1

Using your North Creek case study, and assuming you are planning a burn for tomorrow (37.896, -111.771):

• Where would smoke typically go this time of year?
• Where is the smoke likely to go tomorrow?
• What PM$_{2.5}$ concentrations would you expect?
• Other considerations?
Scenario #2

Use a lat/long of 34.24, -78.18 and planning a burn for today:

• What fuels will you use?
• What are the dispersion conditions?
• Which direction will the wind carry the smoke?
• What might happen with smoke tonight after the burn?
• Other considerations?