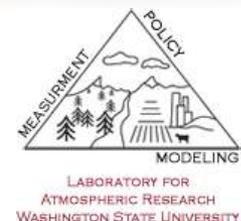
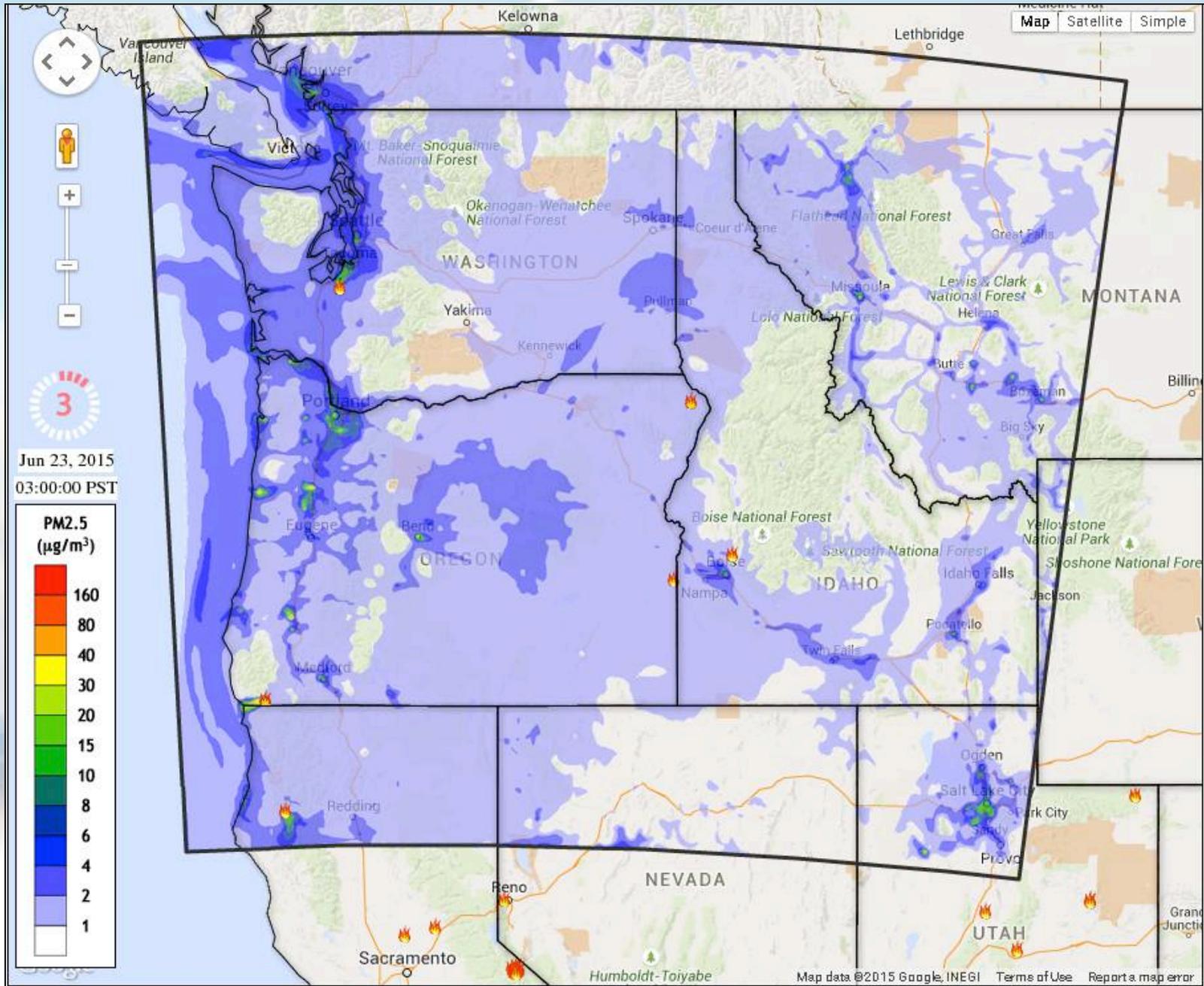


AIRPACT Fire Emissions

Status Update

Presented By:
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NW-AIRQUEST 2015 Annual Mtg.





Presentation Overview:

- ❖ AIRPACT Fire emissions framework.
- ❖ 2014 Fires in Washington (perspective)
- ❖ To-do List



Fire Emissions Framework:

- ❖ SMARTFIRE2 (USFS AirFire) combines multiple inputs:
 - *NOAA HMS fire-detects*
 - *Infrared fire perimeters from GEOMAC*
 - *Wildfire ICS209 reports*
- ❖ SMARTFIRE2 provides fire locations and sizes
 - Due to timing, the AIRPACT forecast is essentially modeling fire locations that are 2 days old.
- ❖ BlueSky 3.5.1 uses FCCS fuel loading with CONSUME and FEPS to estimate emissions and heat



Fire Emissions Framework (cont.):

- ❖ Job runs at 7 pm PST to query SF2 and run BlueSky
 - The AirFire PNW-4km standard run is used as a fail-safe
- ❖ WSU BlueSky settings are set to persist Rx and WFs from the previous 2 days
- ❖ Canadian Fire emissions obtained from BlueSky Canada system at <http://firesmoke.ca/data/emissions/sf2>
- ❖ SMOKE processor does speciation and plume rise



Recent Status

- ❖ Since Canadian fires were added (~ 2 weeks ago) we have not had a reported CAN fire in the AIRPACT domain.
- ❖ Fire processing in USA is still failing (after multiple retries) about once per week.
 - ❖ Disk-sync timing causes errors when running fires through the SMOKE processor
 - Check/Retry loops are included to deal with this
 - Fire processing is stopped if it is taking too long
 - Hoping that solid-state drive will alleviate this issue.

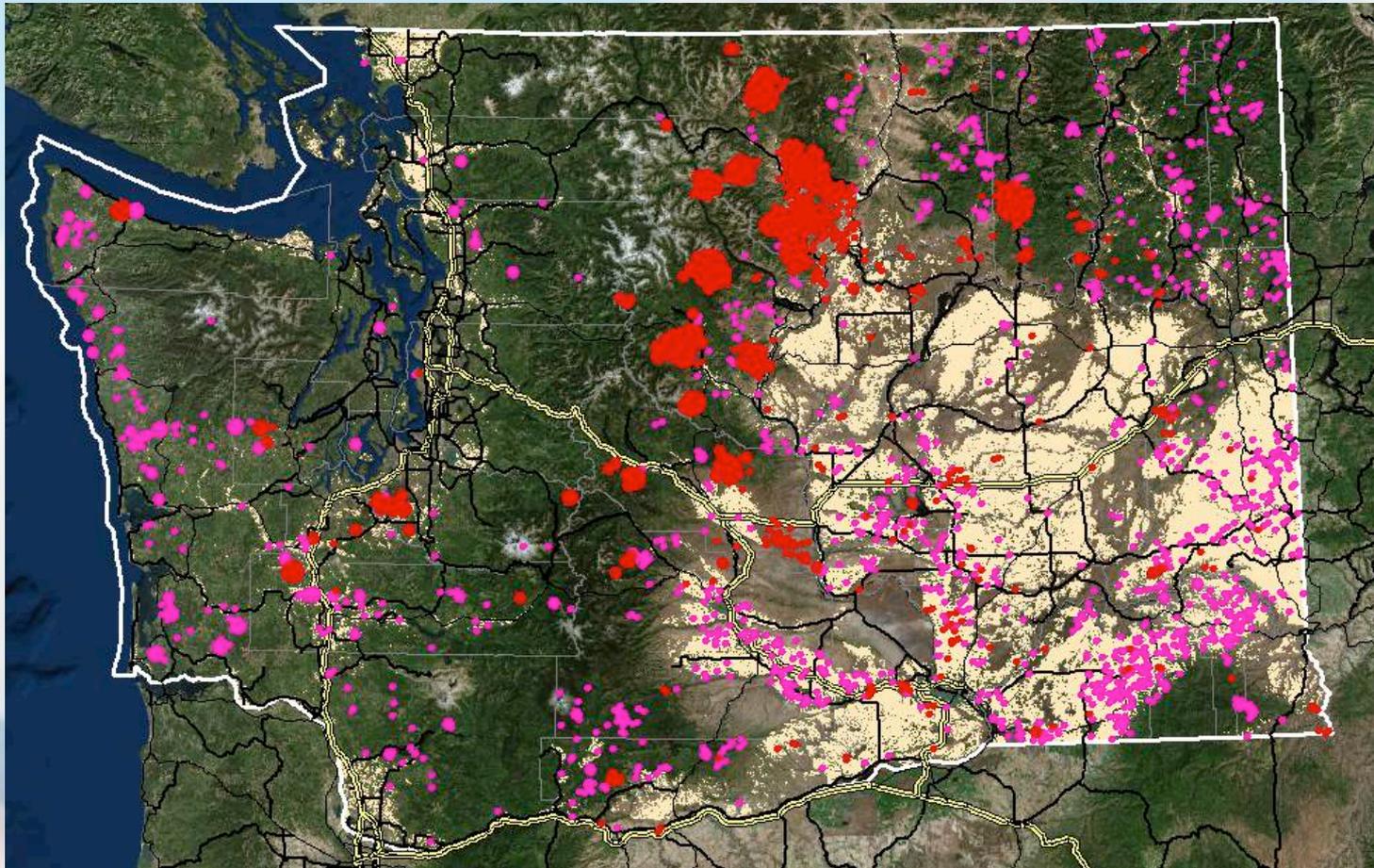


Fire Forecast Details & Implications:

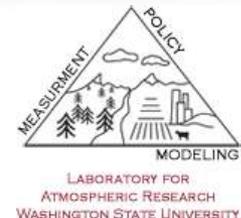
- ❖ SF2 satellite-detected-only fires are set to Rx/WF by month (“WF season” is June-Aug for WA/ID/OR/MT)
- ❖ Many fires in AG land are detected by HMS
 - ❖ But most AG burns are missed
 - ❖ Emissions are under-predicted due to size/type/fuel loading assumptions
 - ❖ AG fires are NOT included in the annual inventory but are available
- ❖ Rx pile burns are often detected by HMS
 - In forested areas, these emissions are sometimes overestimated due to size/type/fuel loading assumptions



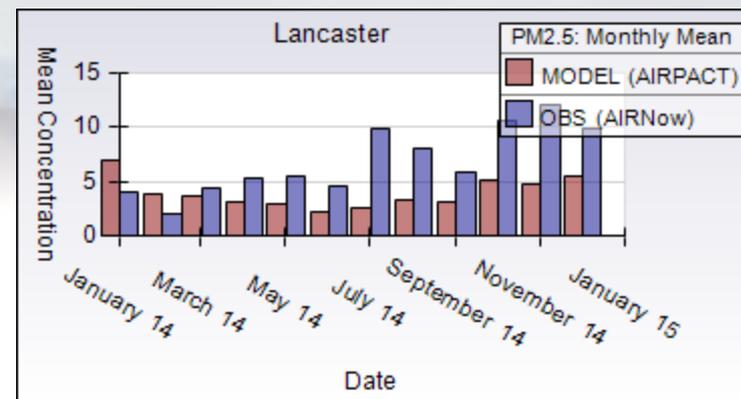
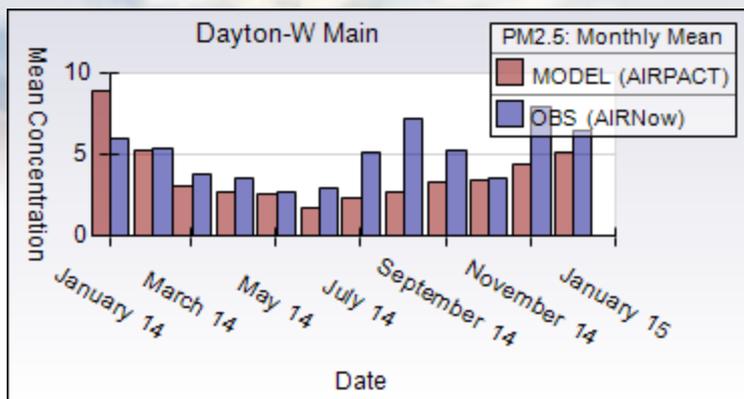
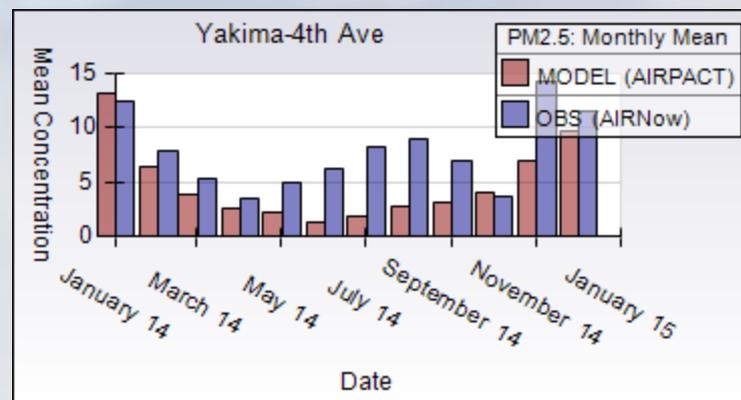
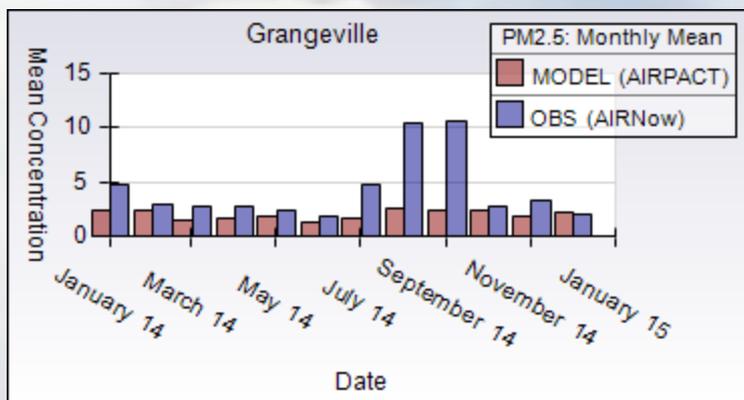
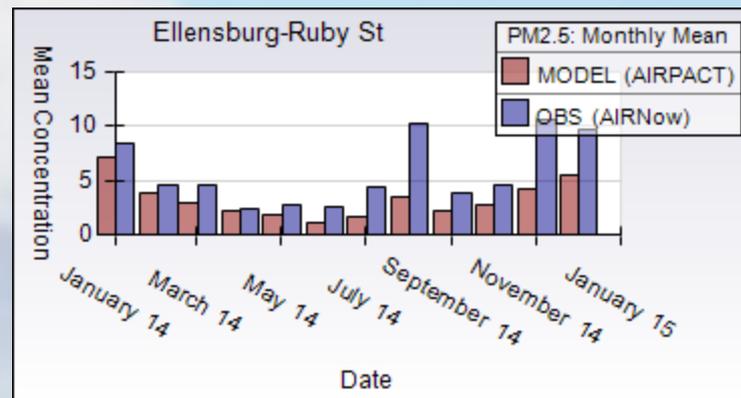
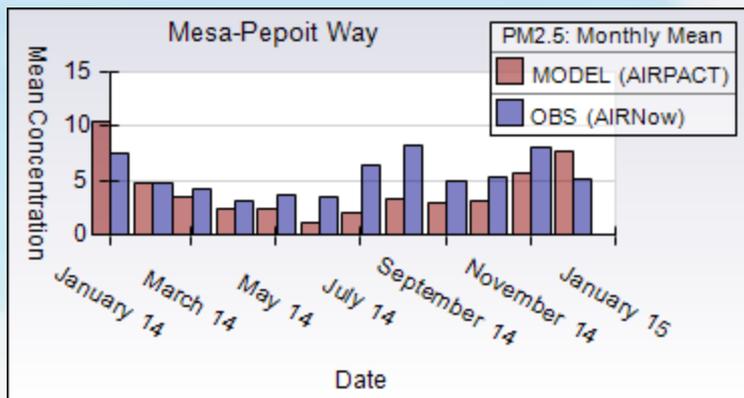
All WA Fires in 2014 from SF2 / BlueSky



* retrospective data, forecast data not as accurate

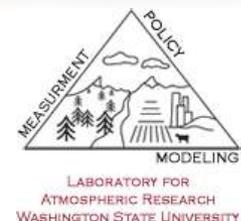


PM2.5 Performance in AG areas



To-Do List

- ❖ Consider including AG Fire emissions in the annual EI
 - This could help alleviate the PM_{2.5} under-predictions in AG areas
- ❖ QA/QC Day 2 fire processing
- ❖ Consider increasing the VOC emission factors
- ❖ Consider waiting for newest SF2 feed before kicking off the daily AIRPACT simulation (~1-hour lag)



Comments/Questions?

