ClearSky Reruns for Accomplished Agricultural Burning by Automated FETS Access

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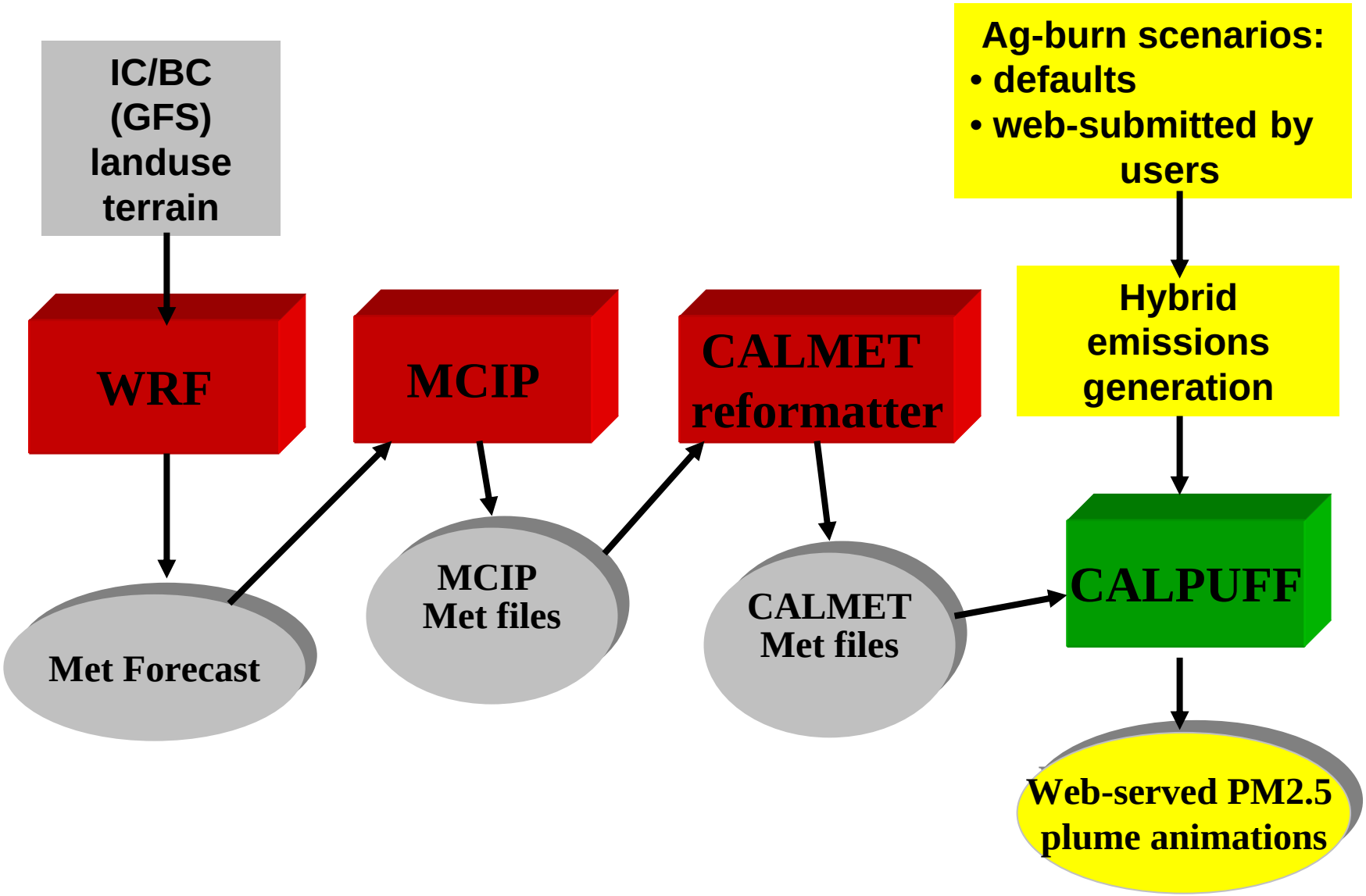
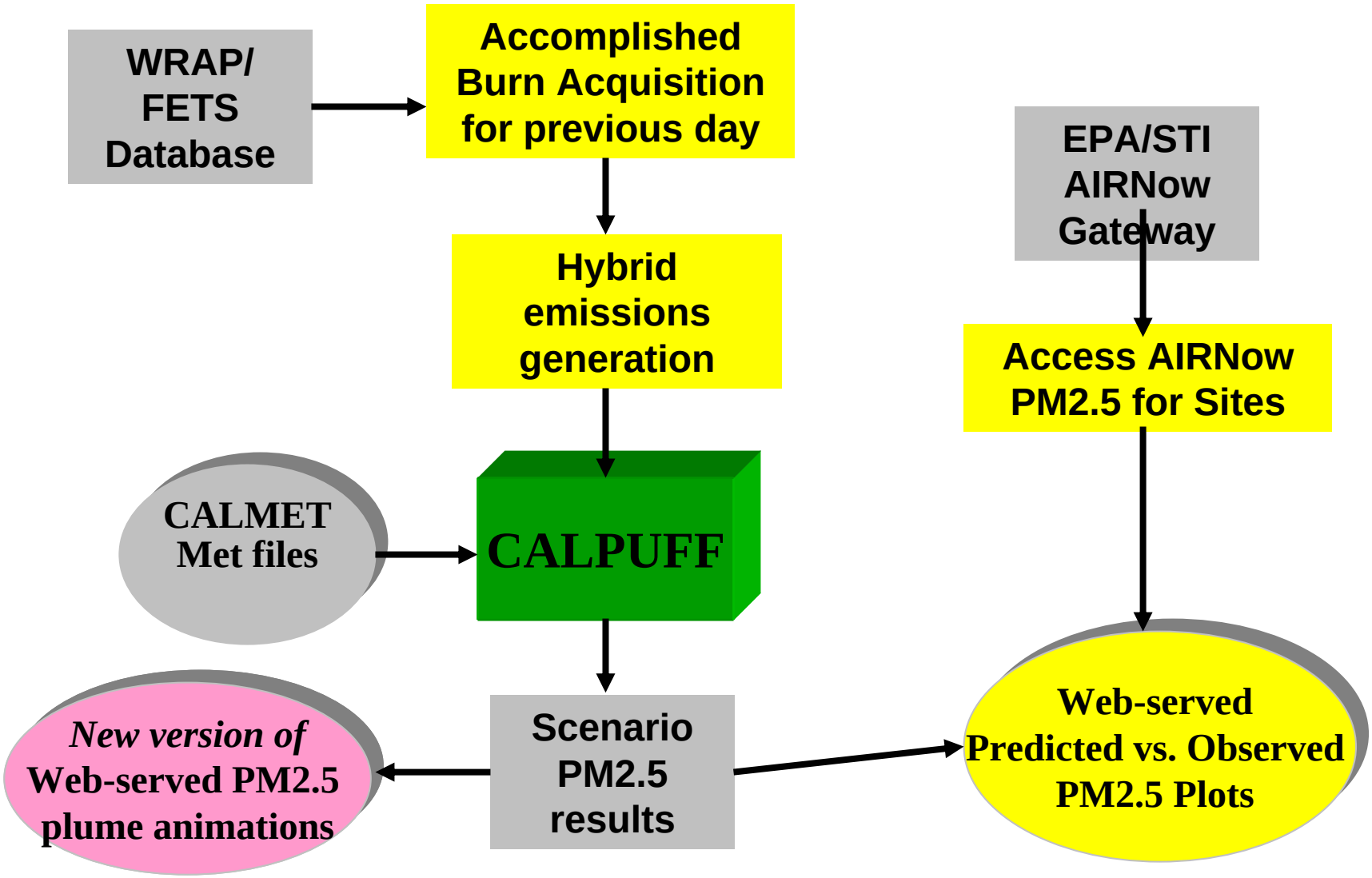
Standard Overnight Run of the ClearSky Ag-Burn Smoke Dispersion Modeling Decision Support System



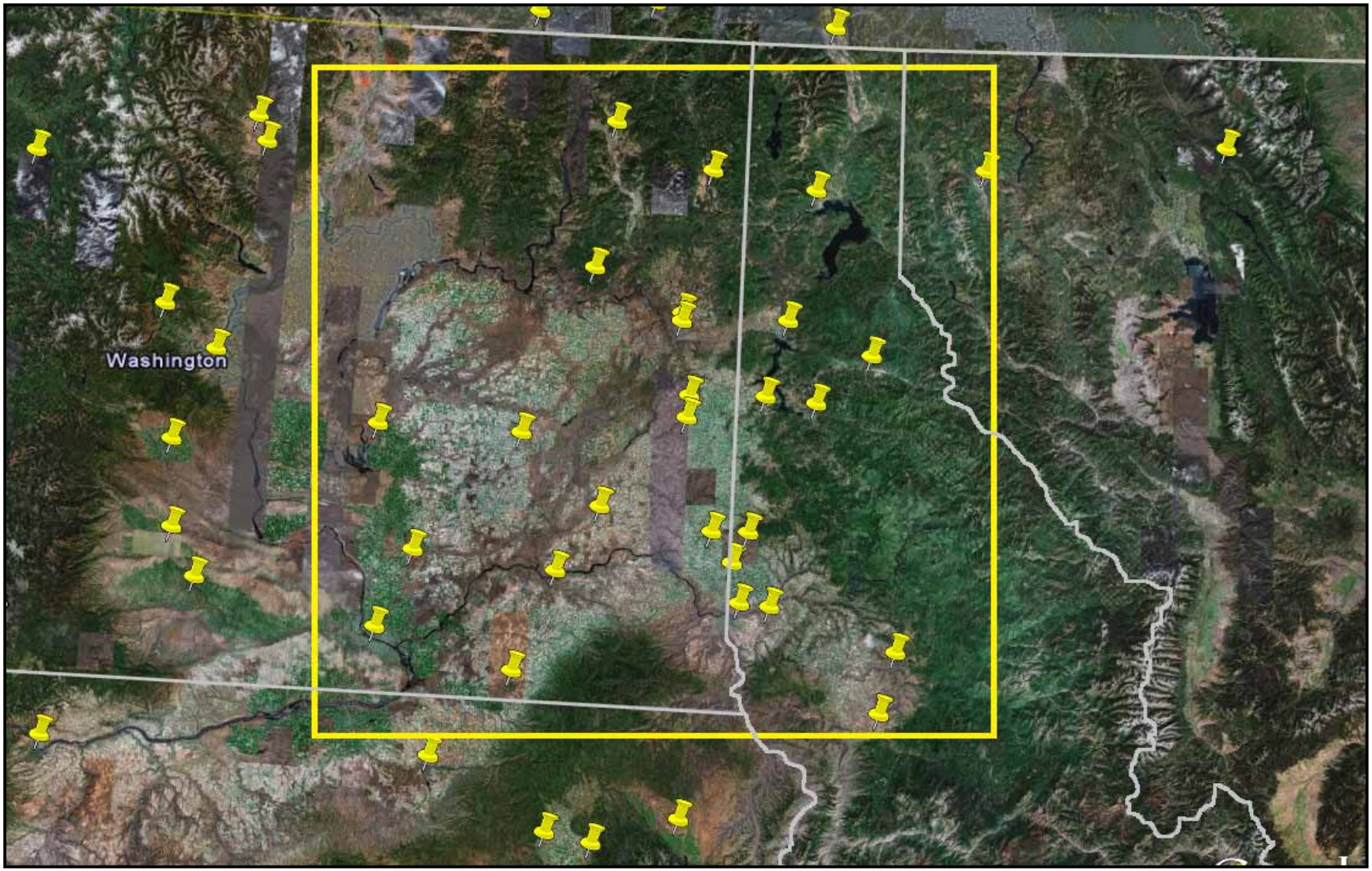
ClearSky Use & Evaluation

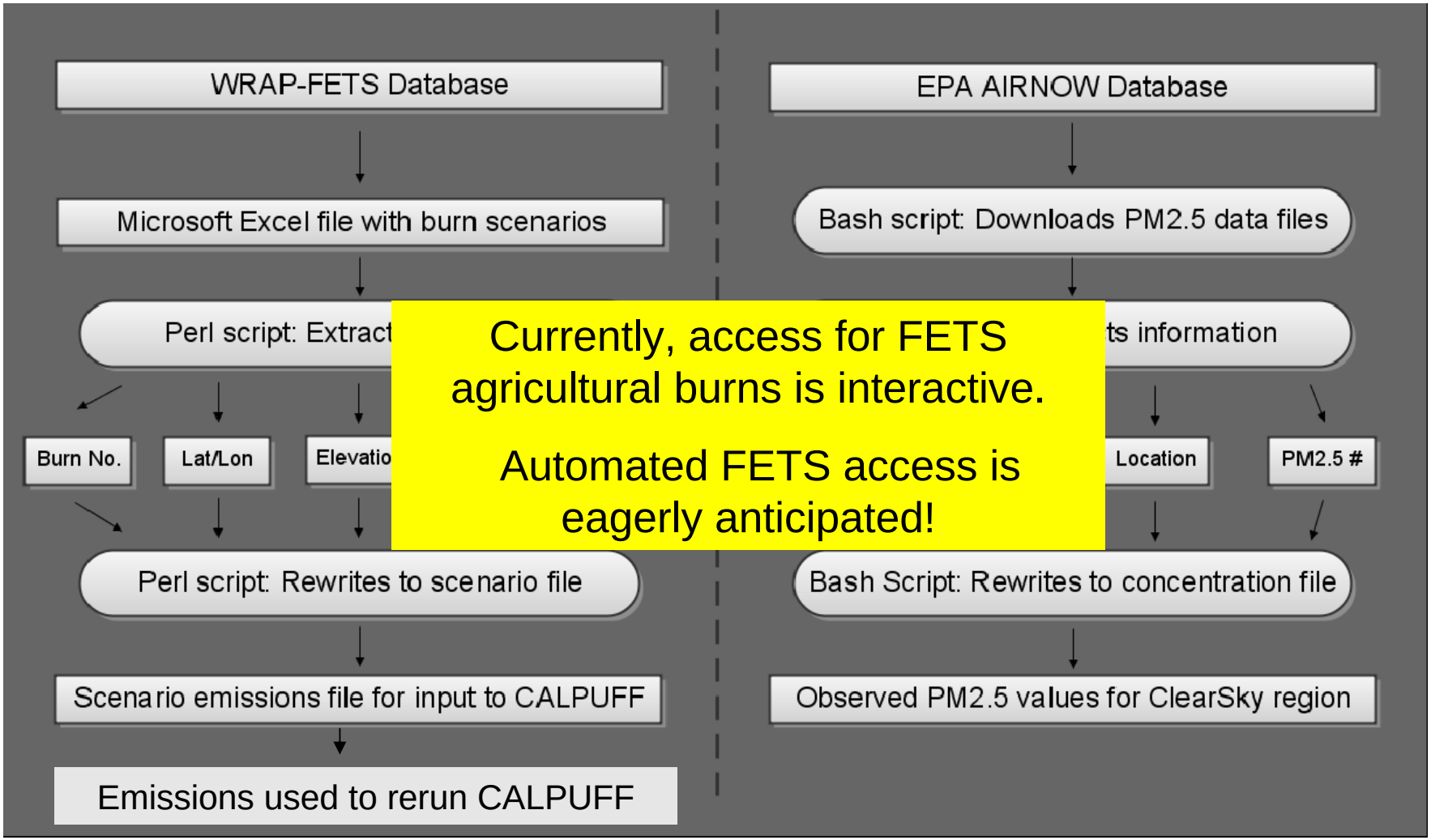
- ClearSky runs nightly with default emission scenarios and/or with user submitted scenarios
  - Emission scenarios are potential burns (may have little to do with the next day's reality)
- Previous evaluations have been post-burn season
  - Compilation of accomplished burns
  - Compilation of available PM2.5 ambient observations
  - Rerun of ClearSky for each burn day for the season
  - Analysis of model results and observations
  - A very labor intensive process, hampered by inconsistent methods for identifying accomplished burns
- FETS offers a new way to approach ClearSky Evaluation
  - Rapid (Automated) access to accomplished burns
  - Automated access to AIRNOW PM2.5 observations
  - Automated processing each day to develop performance statistics

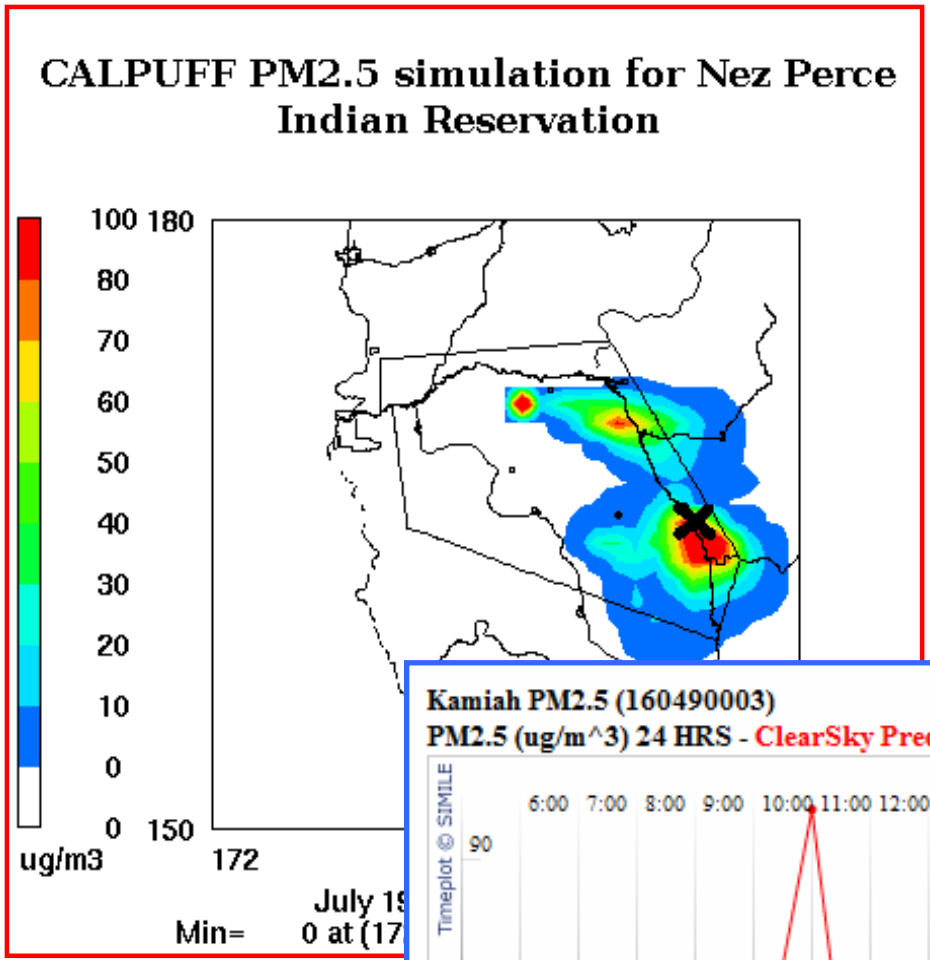
Accomplished Burn Rerun of ClearSky using FETS



Monitoring data for PM2.5 for comparison to ClearSky CALPUFF PM2.5 results is obtained via the AIRNow gateway



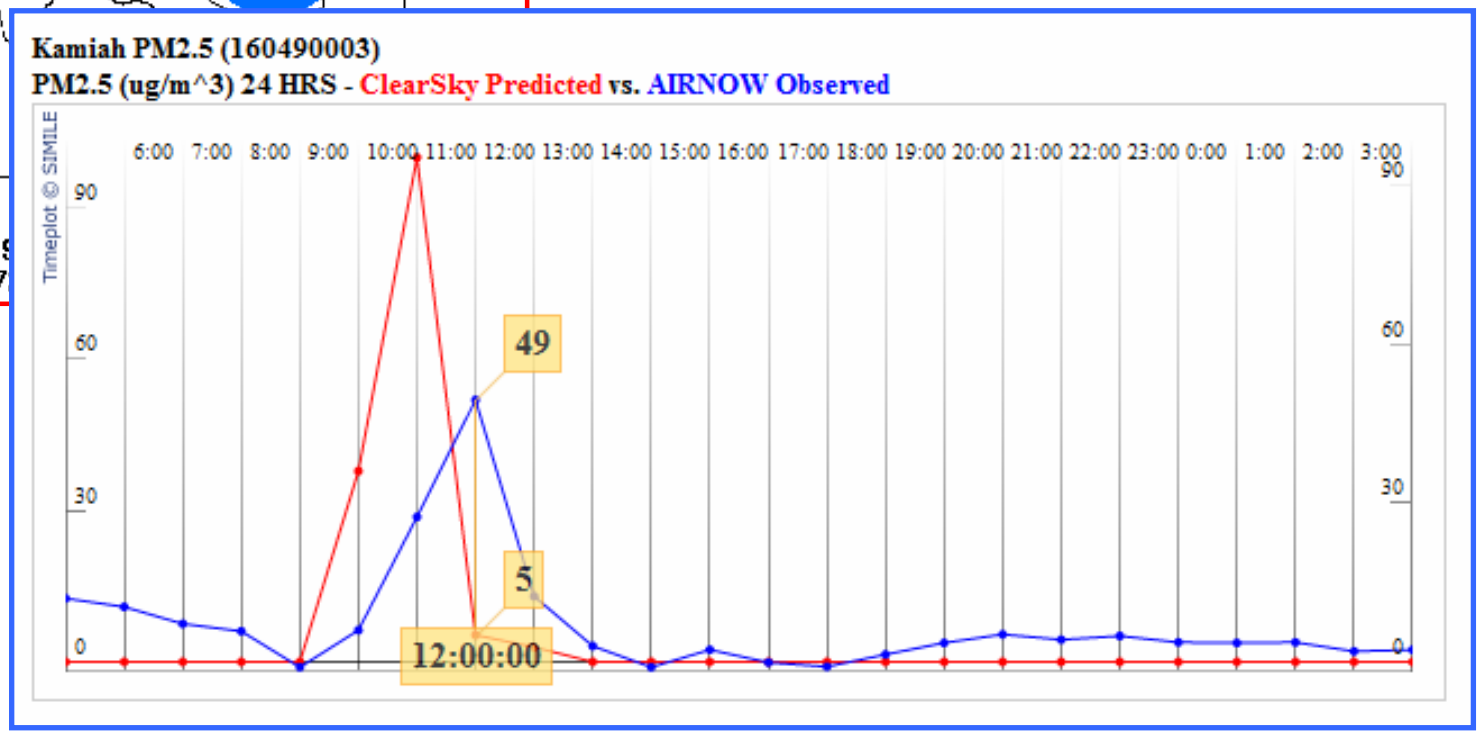

WRAP-FETS Database
Microsoft Excel file with burn scenarios
Perl script: Extract
Burn No.
Lat/Lon
Elevatio
Perl script: Rewrites to scenario file
Scenario emissions file for input to CALPUFF
Emissions used to rerun CALPUFF
EPA AIRNOW Database
Bash script: Downloads PM2.5 data files
ts information
Location
PM2.5 #
Bash Script: Rewrites to concentration file
Observed PM2.5 values for ClearSky region
Currently, access for FETS agricultural burns is interactive.
Automated FETS access is eagerly anticipated!



Example

Left: ClearSky image for a model re-run for July 19, 2009. The Kamiah, ID PM2.5 station is marked "**x**".

Below: line plot of modeled and observed PM2.5



Summary

- In this project, we attempt to provide burn coordinators with a way to retrospectively compare ClearSky PM2.5 results for accomplished agricultural burns against PM2.5 observations retrieved from EPA's AIRNow database.

- This prototype system accesses accomplished burns, submitted by the Nez Perce Tribe, from the WRAP Fire Emissions Tracking System (FETS) and uses these to generate ClearSky scenarios to model.

- Our goal is to improve how well ClearSky can support agricultural-burning decisions. Automated re-simulation of accomplished ag burns will build a database of well-matched simulated and observed results for use in improving ClearSky and in improving user confidence.

Thanks for your attention!

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