AIR SCIENCES INC.
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# WESTERN REGIONAL AIR PARTNERSHIP

# FIRE EMISSIONS TRACKING SYSTEM UPDATE

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**PROJECT:** WRAP FETS/DEASCO$_3$/PMDETAIL

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Since 2007, the Western Regional Air Partnership (WRAP) Fire Emissions Tracking System (FETS, at www.wrapfets.org) has been accepting fire activity data and providing fire emissions data to support: 1) real-time decision-making of Smoke Management Programs (SMP) and 2) development of regional modeling, "State Implementation Plan-grade," fire emissions inventories. The development and maintenance of the FETS have been funded by the WRAP. Ongoing operations and enhancements to the FETS are being funded through Joint Fire Sciences Program (JFSP) grants to the WRAP for fire emissions/regional air quality research projects. The WRAP and its technical contractors continually work to identify technical enhancements and other ways to "leverage" the FETS so that it can effectively support evolving air quality planning initiatives of tribes, states, and federal agencies. This briefing paper presents the status of the FETS, including current operations, recent enhancements, and future development.

## FETS – Current Status

The FETS continues to meet the operational and air quality planning needs of the FETS target audiences, SMPs, and air quality management agencies of western states and tribes. The FETS routinely accepts planned and accomplished fire activity data from approximately 20 state, federal, and tribal data sources. These data are mined/uploaded, given an initial QA/QC review, made immediately available to SMP's, processed through a variety of fire-science technical nodes to prepare refined emission estimates, and stored for future use in SIP-grade emission inventories.

## FETS – Recent and Upcoming Developments

Recent technical developments of the FETS (funded by the JFSP project "Deterministic & Empirical Assessment of Smoke's Contribution to Ozone" (DEASCO$_3$)[1]) include the augmentation of ground-based tribal, state, and federal fire activity data with data from the Monitoring Trends in Burn Severity (MTBS)

[1] http://www.wrapfets.org/deasco3.cfm

data set and fire-detects data from the satellite-based Hazard Mapping System (HMS). A summary of this augmentation of the FETS, including the methods implemented to reconcile and QA/QC the data and examples of the anticipated improvements to the coverage and quality of fire emissions data, was presented at the United States Environmental Protection Agency (US EPA) 2012 International Emission Inventory Conference and is available online[2]. With these technical enhancements, the FETS is being utilized to prepare a nation-wide, SIP-grade, and CMAQ regional modeling-ready fire emission inventory for 2008. The 2008 fire emission inventory and CMAQ modeling results will be used in the DEASCO$_3$ project to develop online decision-support tools for tribal, state, and federal agencies to help characterize the role of fire emissions and smoke management efforts in areas with elevated ozone levels.

WRAP is also about to begin a companion JFSP-funded project to DEASCO$_3$, also utilizing the capabilities of FETS, called "Prescribed and Other Fire Emissions: Particulate Matter Deterministic & Empirical Tagging & Assessment of Impacts on Levels" (PMDETAIL)[3]. This project will further improve the 2008 emissions and air quality modeling in DEASCO$_3$ with respect to Particulate Matter (PM) impacts. PMDETAIL will also build a comprehensive 2011 fire inventory with analysis through modeling and empirical assessments in the same fashion as DEASCO$_3$, and extend the on-line decision-support tools for tribal, state, and federal agencies to help characterize the role of fire emissions and smoke management efforts in areas with elevated PM levels.

PMDETAIL and DEASCO$_3$ are specifically designed to assist states, tribes, and federal agencies with air quality planning and exceptional event analyses under existing and future national ozone and PM air quality standards.

## FETS – Leveraging Effort to Support the National Emissions Inventory

WRAP is responding to the request by the US EPA and the United States Department of Agriculture (USDA) – Forest Service to utilize valuable fire activity and emissions data stored in the FETS to support the US EPA's National Emissions Inventory (NEI). Air Sciences Inc. has developed a method to provide to the US EPA, on a batch basis, fire activity and emissions data for 2011. The intention of this effort is to generate tribe- and state-specific fire emission files from the FETS, provide tribes and states with an opportunity to review and supplement the data, and, by providing these data files to the US EPA, to improve the quality of fire emissions data in the NEI.

[2] http://www.epa.gov/ttn/chief/conference/ei20/session2/mmavko.pdf
[3] http://www.wrapair2.org/pdf/PMDETAIL_Attachment_1_Technical Proposal11_18_2011final.pdf