

Summary of Discussions/Action Items
TSS Team Meeting
Fort Collins, CO – March 29-31

This document summarizes the discussions and action items related to specific topics reviewed at the TSS Team Meeting, but does not summarize all presentations given. The list of topics discussed, along with the presentations given can be found in the interactive agenda for the meeting: <http://wrapair.org/forums/aoh/meetings/060329m/index.html>

A. Data Preparation Update

General comments made during Rodger's presentation of the TSS Query Wizard and discussion of how monitored data is stored in the TSS:

- Documentation for monitoring, modeling, and emissions data should be accessible from a link in the Query Wizard Network Description panel, similar to the existing "Detailed Information" link.
- There should be a limit on the available (or immediately viewable) network choices which include only those networks essential to SIPs (i.e., variations of the IMPROVE data network – raw, RHR version, old and new extinction equation). Access to other networks (e.g., CASTNet, FRM, NADP, etc.) should be under some sort of "Other" button or option.
- There should be a limit to other available choices as well. For example, the most prominent choices for selecting parameters should include the six or seven haze-causing species. Again, other parameters should be available, but grouped behind some sort of "Other" button or option.
- The "Help" function should be enhanced to walk users through selections. This could be accomplished by pairing down the information we show and using interactive help to support specific functions.
- Continue to offer the use of both a map and list box for the selection of sites.
- Shawn described a "user portfolio" concept that would allow users to make various selections across all TSS tools and have these selections saved for future use.
- There should be some way to easily review Query Wizard selections at the end of the process – currently this is not in a very user-friendly format.
- Change to the Query Wizard output were discussed: have the TSS create an Excel formatted file with one sheet containing header information, one sheet containing data.
- Add a "Baseline Period" selection option for the Query Wizard (and most tools) since this is the data period that SIP writers will most often need.
- Where applicable, have an option for multiple visibility scales (extinction, deciview, visual range), but only one trace. Make the secondary scales conform to the primary scale (e.g., increasing dv corresponds to increasing bext and decreasing visual range).
- The new IMPROVE equation uses a site-specific Rayleigh value, which, on clean days at sites above 5,000 feet elevation, can generate small negative deciview values. The current understanding of the group is that this has been reviewed and deemed "ok" by Marc Pitchford and Bill Malm, and the deciview equation does not need to be modified.

General comments made during Gerry's presentation of the how modeled and emissions data will be stored in the TSS:

- The model data should be able to be displayed using the old and new IMPROVE equations. This is possible and will be done.
- Only final versions of model and emissions runs will be stored on the TSS. For example, the current EI for 2002 is the Plan02b version. This makes the Plan02a version obsolete.
- There was concern that in the past model performance evaluation techniques were all presented as if they had equal weight and relevance. This is not the case, and it will be up to the TSS documentation team to identify the weight and relevance of specific model evaluation techniques. Most model evaluation summaries will reside only on the RMC web site. Only those evaluation summaries that are easily digestible and relevant will be presented on the TSS. These include a summary of site-specific model performance for the 20% worst days (and likely 20% best days) and site-specific comparisons with IMPROVE data for all of 2002. This topic will be discussed at the April meeting, particularly with the IWG members attending the TSS training session.
- There was some discussion about if and how the TSS should store and present CALPUFF model results. CALPUFF is not run uniformly across all of WRAP, so it is not yet clear how or if these results will be included.
- Besides the list of required model outputs (sulfate, nitrate, etc.) there was discussion of a list of optional parameters (CO, ozone, total PM2.5, etc.). Some of these optional parameters could be useful for tracing smoke or impacts, and should be made available on the TSS for analysts to review.
- The TSS will store 36-km gridded model results and emissions data. 12-km runs are not expected to be stored on the TSS at this time.
- Attribution results will be generated for Plan02 (includes typical fire, not actual fire) and Base18 (includes future growth and currently on-the-books controls) model runs.
- Connection between TSS and EDMS? The TSS team looked at connecting the TSS to the EDMS, but this proved difficult. Instead, the TSS will store the subset of emissions data that was used directly in the modeling effort.

General comments made during Jeff's presentation of the how metadata will be handled by the TSS:

- Jeff presented a proposed metadata outline, completed for a single model run. This format is compatible with national standards and is the metadata format that the TSS will use.
- The team will prepare this level of metadata for all data stored on the TSS.
- Jeff will prepare a final metadata template and metadata generation protocol for distribution to data creators and data processors.
- Analysts that upload data sets to the TSS will need to follow this metadata format.

General comments made during Jeff's presentation of the how metadata will be handled by the TSS:

- Jeff presented a proposed metadata outline, completed for a single model run. This format is compatible with national standards and is the metadata format that the TSS will use.
- Analysts that upload data sets to the TSS will need to follow this metadata format.

B. Data Documentation

General comments made during Gerry's/Joe's presentation regarding TSS data documentation:

- The level of detail to include in documentation for the TSS will be modeled after the level of detail given in the AoH Phase I report (March 2005). Fuller documentation will be available on other web sites (RMC, WRAP, IMPROVE, etc.) via hyperlinks.
- Concise specification sheets will be prepared for each emission inventory and model run. These will reference back to earlier versions as necessary.
- Hyperlinks will be available on the spec sheets to final EI spreadsheets so users can investigate what went into each EI in more detail.
- For IMPROVE data documentation there should be some indication when clogged filters occurred. New versions of the IMPROVE data set consider data from partially-clogged filters to be valid under most circumstances.
- For IMPROVE data documentation there should be some discussion: RHR data handling rules (e.g., patching missing values); purposes of network and data; analysis methods; uncertainties.

C. TSS Tools and Weight of Evidence

General comments made during Rodger's presentation of various TSS tools:

- Fix the "Hide Menu" button on each page (Shawn fixed it while the talk continued).
- Composition Tool: add the number of observations used in each pie chart.
- How should we select the 20% worst/best model data to average? The modelers use relative reduction factors (RRFs) based on the model days associated with the 20% worst/best monitored days. For displays similar to IMPROVE data displays, this method should be used.
- Tom suggested we also look at the monthly or seasonal distribution of best and worst days in the monitoring data and apply that to the model data.
- Tom also suggested that we don't rely on model data to estimate soil and CM.
- Glide slope tool: move the "baseline" value to the lower left of the chart so that the baseline data is easier to see.
- How will emissions data be "fit" into existing tools? Not sure yet. It was suggested that a daily timeline of emissions data be presented, but that might constitute more data than the TSS was expected to hold. The TSS team will scope out this topic.

General comments made during Joe's presentation of new WOE TSS products (see sample products on the interactive agenda for context):

- The correct back trajectory residence time overlay to use is the one based on the 20% worst extinction days (not 20% worst of individual species, though this is an informative graphic in its own right). The way the maps are depicted currently, both maps should indicate similar potential source regions.
- Use the back trajectory overlay to sum up (estimate) the emissions responsible for each species modeled mass concentration at a given site.
- Carbon and dust products may have maps based on PMF analyses instead of PSAT attribution analyses.

- For CM, we probably want to limit the radius of the back trajectory overlay. TSS team will evaluate and produce a mock up product for CM.
- There needs to be a clearly documented description of which source categories are summed for each species.

D. GIS Topics

General comments made during Jeff's/Patrick's/Gerry's presentation of GIS topics:

- We need to get the grid pattern used by HYSPLIT for display on TSS maps. This will be beneficial to displaying results generated by DRI for the Causes of Haze project.
- The Integrated Map and Analysis Tool (IMAT, formerly the "map widget") should contain "Back" and "Forward" buttons. This might be able to be tied into the current "bookmark" feature.
- There should be the ability to create user-defined names for the IMAT bookmarks.
- The IMAT should contain a title bar listing the year and version of the emissions being presented. This title bar concept should be carried over to other TSS tools as well.
- A scaling feature and a legend are currently under construction. When first coming up, a map would be auto scaled. Shawn indicated that he would like the user to be able to move the legend to customize the appearance of map products.
- The IMAT should have a simple "Save As" feature. This needs to be defined before implementation.
- Emissions data, once selected, should be able to be exported in a standard format so that users can manipulate these data on their own.
- There was some discussion regarding storing emissions and modeling data in raster versus vector format. TSS team members will need to evaluate the preferred method for storage.
- The TSS should have a document listing the optimal system requirements for its tools (e.g., browser types, access speeds, etc.)
- There was some discussion regarding how to best display the selections for emissions layers. A tree view was suggested, as this would allow hiding and unhiding various selections. Downsides to this were discussed. The TSS team will evaluate the preferred method.
- The TSS will need to store all emissions data separately by source category and pollutant, and some composite values (total, natural, anthropogenic, etc.)

D. Version Control

A method of version control was proposed (see interactive agenda for presentation) that was deemed acceptable by the TSS team and all participants. It was decided that "raw" model data will not be archived in each version as these data are not going to be stored on the TSS. The RMC will be charged with archiving all "raw" model data.

E. Future Work (Oct 2006 – Dec 2007+)

General comments made during the future work topic discussion:

- It was suggested that we add a table to the TSS that concisely lists the status of all products. A draft will be sent around to the TSS team members for review.
- Shawn plans to implement a user's forum on the TSS to allow direct feedback to the team.
- Jeff reiterated that the current web mapping service (WMS) will be augmented with a web feature service (WFS) by Oct. 2006, as this will provide the ability to analyze underlying data on map products.
- There was a discussion of the best way to store emissions data files. The solution is probably to store the emission layers as shape files for displaying map products, and to have a subset of the data imported into the TSS database. There would need to be a document describing how the EI data, shape files, and database data related.
- There was a discussion of the use of outside (non-TSS) GIS layers. The TSS team must evaluate which layers to allow connection to, and which layers are best managed in-house or outside of the TSS. An external site providing the locations and boundaries of all Tribal lands in the WRAP would be very helpful.
- There is a need to document the various IMAT and other map features. This could be done by updating the architectural document that Image Matters prepared last fall.
- Tom offered to summarize the documentation required for review/comment by the TSS team and the AoH work group.

F. Fire Tracking System

Dave Randall of Air Sciences described a conceptual method for designing a fire tracking system (FTS) for the WRAP Fire Emissions Forum. After Dave's presentation there was a discussion regarding how this concept fits into the TSS. Currently, the TSS is not designed to handle daily inputs of the types of data required by the FTS. However, it is likely that the FTS could be integrated into the TSS at a later time. Therefore, it was suggested that Air Sciences build the FTS in parallel to current TSS efforts, and that Air Sciences and the TSS team coordinate efforts to ensure future compatibility.