

June 12-14, 2007 FENWT Meeting Notes

Attendance:	Email address	Agency/Member status
Pete Lahm	plahm@fs.fed.us	FS/FAICG acting chair
Robert Ziel	zielr@michigan.gov	MI DNR/FBC co-chair
Tom Wordell	twordell@fs.fed.us	FS/NPSG chair
Paul Schlobohm	Paul_schlobohm@blm.gov	BLM/FENWT Chair
Ray Dampier	Ray.Dampier@fire.ca.gov	CDF/NASF West
Eli Jacks	Elliott.jacks@noaa.gov	NOAA/NWS
Robyn Heffernan	Robyn_heffernan@blm.gov	BLM/FWC Chair
Joe Kennedy	Kennedy@northnet.org	NYS/NASF East
Larry Bradshaw	lbradshaw@fs.fed.us	FS/FDC Chair
Neal Hitchcock (by phone)		FS/NWCG liaison
Guests:		
Dr. Phillip Bothwell	Phillip.bothwell@noaa.gov	SPC
Dr. Joe Schaefer	Joseph.schaefer@noaa.gov	SPC
Dr. Russell Schneider	Russell.Schneider@noaa.gov	SPC
Dr. David Bright	David.Bright@noaa.gov	SPC
Dr. J.D. Carlson	jdc@okstate.edu	OSU/OK Fire
Dr. Renee McPherson	renee@ou.edu	OU/OK Mesonet
Dr. Tim Brown	tbrown@dri.edu	CEFA
Ed Delgado	Edward_delgado@blm.gov	BLM
David Andrus (by phone)	David.andrus@noaa.gov	OFCM

Tuesday June 12

- **Dr. David Bright** presented work the **Storm Prediction Center** is doing with ensemble forecasting and fire weather forecasting.
 - Joint Probabilities from Short Range Forecasts: 2 days, 45 km
Postage Stamp display of Medium Range Forecasts: 3-8 days
 - Modeled means outperform climatology.
 - Extreme events may occur on smaller scales than that of the ensemble, and thus won't be in the forecast.
 - Currently computing Fosberg Fire Weather Index. Ensembles will soon be used for NFDRS outputs.
 - Website: www.spc.noaa.gov
- **Dr. Phillip Bothwell** presented work **SPC** is doing with lightning and dry thunderstorm forecasts.

- NWS definition of dry thunderstorm: less than or equal to .10 inch precipitation
- Predictive Services is using these forecasts and they work well.
- **Dr. Renee McPherson** presented the technical features of the **Oklahoma Mesonet**.
 - Website: www.mesonet.org
 - Began due to need for information revealed by the big Tulsa flood of 1984.
 - 3300 Sensors
 - 119 stations
 - 5 full-time technicians
 - 1 calibration lab
 - Uses state law enforcement communication links.
 - Uses automated QA and a review from a QA Meteorologist. Original data is flagged for any errors. No estimate is made to replace.
- **Dr. JD Carlson** presented the fire applications of the Mesonet: **OK Fire**
 - OK Fire is a JFSP funded program, Ouachita NF is the local federal agency partner.
 - Fire Weather
 - Maps of customized products, using plug-ins
 - Fire Danger
 - Uses NDVI for live fuel moisture
 - Smoke Dispersion
 - Plume dispersion model
 - Website: okfire.mesonet.org
 - Animated loops at time steps of spatial change in fire danger indexes
 - Website is a good example of providing display of data for many different applications in one place.
 - Renee is the contact to discuss opportunities to use their mapping process.

Wednesday June 13

- **Ed Delgado** presented about **ROMAN**
 - Real-time Observation, Monitoring and Analysis Network (ROMAN). This effort was started 5 years ago. One of the core goals was to take advantage of other networks. It has become the ‘face’ of the RAWS network. It is on a BLM contract and is “interagency owned.”
 - Ed showed an interface with MADIS (Meteorological Assimilation Data Ingest System) on a slide but it was unclear exactly how ROMAN/Mesowest interface with MADIS.
 - Fifty percent of the RAWS observations are available in 5 minute after the observation, 80% are within 7 minutes. In 2001, the system had 8 million hits. In 2006, there were 125 million hits.
 - It is an interagency system, initially funded by the BLM, more recently, FY07 by the Forest Service (~\$60K – 2/3 programmer, 1/3 overhead). The total cost of development and support has been about ~\$600K. Current year funding is \$60K going to the University of Utah, Mesonet program. The ‘system’ resides at the NWS Western Region Headquarters in SLC. The NWS contribution is IT support (server housing, communications). Back up databases reside in several places.
 - What the \$\$ is buying:
 - Continuous coordination with NIFC Remote Sensing Support Unit (metadata issues, mainly with FIRE RAWS names and locations)
 - Monitoring of data flow
 - Bug fixes to core software
 - Email support
 - 2/3 UU programmer time
 - Cost sharing with NWS
 - Shifting costs for user support for the Remote Sensing Support Unit by being the ‘face’ of RAWS.
 - What the lack of funding is costing:
 - No program functional enhancements (stuff on Mesowest cannot be ported to ROMAN).
 - No software documentation
 - More reliance on Mesowest
 - Poor QA/QC

- Mesowest is the Development System (contact John Hurrel). Functionality that is on Mesowest but not operational in ROMAN include:
 - Creating and saving profiles for start up preferences.
 - GEOMAC layer overlays
 - NESDIS
- The ROMAN program is requesting funding (total) of \$150K/year.
- Tom Wordell noted that NPSG has worked to include ROMAN on the Forest Service FAM Information Technology Portfolio and has a 300 “Lite” documentation and even though FY07 funding has been approved it has not been officially received.
- **Dr. Tim Brown**, Desert Research Institute presented on **weather station density issues**. A lot was based on results from their Great Basin Study. He presented some points/consideration on International Network Standards:
 - Effect of station change
 - Station history
 - Processing algorithms
 - Observations with long uninterrupted periods of record
 - Calibration history
 - Backups
 - Long-term monitoring
 - Data management
 - Data-poor and sensitive-to-change areas should be given highest priority
- Appropriate Spacing: Maximum separation of stations (50 miles/84 km).
- Dr. Brown showed some results of working with North American Regional Reanalysis (NARR) datasets, a 32-km gridded three dimensional dataset that covers all of North America, which they have been using to provide data quality checks and enhancements to various climatological datasets in WIMS and at WRCC. They are getting correlations of 0.95 for temperature fields, 0.90 for relative humidity and solar radiation. Correlations of about 0.5 to 0.6 are being obtained for wind speed and precipitation due to their non-uniform nature.
- Concept of a reference network within a network (i.e. Global Climate, NFDRS within RAWS). Consider sharing costs of stations with resource programs that all use the data.
- Potential CEFA Projects:
 - Compare RAWS to other networks
 - Grid sensitivity analysis

- Regional RAWS comparisons
- Tom Wordell: We really need to define the need. Fire business needs to be comprehensive – smoke, prescribed fire, fire behavior, fire danger. Design national network based on local/regional business needs.
- Tim showed a picture of the US covered in station locations from many existing networks. The RAWS network overlaps in some places, but it also revealed its strength by filling in non-urban gaps not occupied by any of the other networks.
- Questions about the purpose of the RAWS network; studies to access other networks for fire business.
 - How much density to inform grid products?
 - What is the purpose of the network?
 - Fire vs. resources
 - Analysis vs. forecasting
 - Climatology vs. weather
 - Danger vs. behavior
 - All fire needs vs. specific fire needs
- **David Andrus** presented (via phone) on **OCFM’s report to Western Governors Association (WGA)** on the National Wildland Fire Weather Needs Assessment (NFWFNA). Director Sam Williamson gave a 10-minute briefing highlighting progress to date. Discussion of the assessment occurred off-line with governors and staff from AZ and AK.
 - Mr. Andrus followed up that the JAG will continue to work on the final report which will include a “gap” analysis that will identify the current gaps in services and products between the various service providers (e.g. NWS/USFS, Predictive Services).
 - The group then viewed a streamed video of the presentation by Mr. Williamson that was recorded at the meeting. After the video there was discussion.
 - Presentation went about 5 minutes.
 - The only need highlighted was a one-stop shopping web portal to national, regional, and local fire weather products.
 - There was general discussion on the OFCM effort and other resolutions from the WGA related to fire weather. Kennedy asked about the status of the other resolution from the WGA that fire weather become part of the core mission in NOAA/NWS mission. Eli responded that they are working to get it into the Strategic Plan, but getting it into the mission is also a congressional requirement. Eli has requested funding to expand the number of IMETs from 70 to 234 to cover the all risk mission.

- **POINT (by Tom W.):** IMET needs to be a red carded position to be fully part of ICS and all risk scenarios.
- The White Paper describing the needs identified by the respondents is available on the OFCM/JAG website.
- **Neil Hitchcock** via phone to discuss the intended scope and timing of the team's **RAWS/ROMAN assignment**. The question was how firm was the July date of our report to NWCG. Neal replied that if ROMAN support is to continue (which is our recommendation in principal), the earlier the better.
 - Scope: Wildland fire
 - Timing: As quickly as possible. October 2007 at the latest.
- Will Neal continue to be our liaison? Yes for the time being.
- **Shari Shetler** facilitation on the **RAWS/ROMAN assignment**. We worked on an analysis tactic to put meat on Paul Schlobohm's strawman final report to NWCG. (included as attachment).
 - Action Item: Provide 1-2 page summaries of various user assessments: **Due date, June 22, 2007.**
 NWS User Satisfaction: Eli
 NPSG User Needs: Tom
 Bluesky Rains: Pete (decided not applicable)
 OFCM: Larry
 NWFEA: Paul
 - We then came up with a basic "analysis" framework.
 - 1.0 Fire Business Area
 - 1.1 Activities
 - 1.1.1 Data Requirements
 - 1.1.1.1 Data Sources
 - 1.1.1.1.1 Data Standards
 - 1.1.1.1.1.1 Data Delivery
- We then worked on generating various spreadsheets that identified Activities, Data Requirements, Data Sources, and Data Delivery requirements. We did not get to the standards and attributes of Data Sources:
 - Accuracy
 - Confidence
 - Seasonality

- Availability
 - Frequency
 - Proximity
 - Representativeness
 - Historical Availability
- For each data element and delivery, we then attempted to:
 - Identify Current Sources
 - Identify Alternative Sources
 - Identify Preferred Network Source
- And for each, identify the pros, cons, risks (i.e. QA/QC, ownership, siting, and maintenance).
- The results of these are provided in the attached spreadsheets.
- Three matrices have been created to begin to address the RAWS/ROMAN assignment
 - data vs. function
 - data vs. system/network
 - display system vs. capability
- Some of the attributes of delivery found in the spreadsheets are:
 - Spatial, Climate Perspective (anomalies), tabular/graphic, real time, forecast, seasonal progression, open access, scalability, 24/7, value added, computation of indexes from raw data, interoperability among system, user defined queries, etc.
- **Ed Delgado** presented via conference call with the Interagency Fuels Group the progress on standing up a **National Live Fuel Moisture Database**, which can be seen at: <http://smoke-fire.us/lfm/NFMD/index.php>
- There was discussion both from the Fuels Group and FENWT about the value of the data since this is a voluntary project with no data standards. Paul questioned the status of this in the IT sequence; it could quickly become another ROMAN, a project without sponsorship and support, but one the field likes. For the short term, this project is under the umbrella of the WFAS project which does have continuing support in the Forest Service IT investment portfolio.
 - FS has the ITRB through Missoula.
 - Ed and Tom asked NIFCG to distribute information about the network in order to get feedback and recognition.
 - NIFCG asked Tom and Ed to provide further information about their objectives for the database.

Thursday June 14, 2007

RAWS/ROMAN assignment cont. – Continued work to assess information and discuss what we have heard from stakeholders and options to consider. Worked in context of report straw-man developed by Paul.

- Ideas discussed preliminarily, but not adopted as conclusions:
 - Recommend conducting research/study to determine which other networks can meet our needs. Hold RAWS numbers static until we have this information.
 - Develop criteria for the expansion of the observation network (i.e. in order to be approved to buy additional stations, the need meets this criteria)
 - The number of stations existing is likely enough. They might need to be moved around to reduce or increase density. The network is over-populated for fire danger; there will never be enough for fire behavior. The solution for event specific applications is gridded data at appropriate resolution. This is were the world is going.
 - Recommendations for strategy of analysis of the existing network
 - Needs to correlate with fire business (through FPA)
 - Include nearby alternatives of other observation networks
 - Need to investigate the standards of other possible networks to be included
 - This is a more plausible alternative now than when the RAWS network was originally established because of the increasing number of networks over the years and better communication systems. Communications technology now makes data sharing much easier than before. The need for our own network, because others do not exist is not so true.
 - A question we must try to address is “whether or not we still want to be in the business of data collection and dissemination 10 years from now.” This is key in determining the direction of the recommendations to FENWT.
 - New Paradigm: “Who else can help us?” Embrace use of multiple networks rather than carry forward the “We’ll do it all ourselves” philosophy.
 - We also need to address climatology impacts of removing or moving stations in our recommendations to NWCG as this will likely come up as a potential road block.
 - Technology as it stands today has provided us with tools to address this issue (i.e. using NARR and new NDFD observational grids to create or alter climatology for stations)
 - Create one display system that provides user access to data and display of data and possible analysis of data in one place

- Provide directors with at least one “out of the box” alternative
- The following process outlines a “To Do” list in order to develop a study report:
 - Review Pat Andrews framework on MFC – done at meeting
 - Review OFCM matrices – done at meeting
 - Review NWFEA business categories – done at meeting
 - Update matrices based on previous three items – done for Pat Andrews and OFCM items.
 - Complete survey summaries:
 - ◆ NPSG – Tom by 6/22
 - ◆ OFCM – Larry by 6/22
 - ◆ NWS – Eli by 6/22
 - ◆ NWFEA – Paul by 6/22
 - Validation of the data vs. system/network matrix – decided that we need to talk again with Joe O’Sullivan
 - ◆ **Action Item** – Schedule a conference call with Jim O’Sullivan regarding MADIS questions and validation of the data vs. system/network matrix – Paul
 - Write straw-man/analysis/conclusions
- The business categories were updated to include “prevention.” Business categories are below:
 - Prevention
 - Fuels
 - Planning
 - Suppression
 - Fire Use
 - Prescribed Fire
 - Resource Allocation / Decision Support
 - Fire Research
 - Air Quality
 - Rehab / BAER
- 3 Options discussed
 - Leave ROMAN as a stand alone system
 - Combine the functionality of WIMS and ROMAN into one system
 - Layer ROMAN functionality on top of MADIS
 - User picks and chooses the data, RAWS and non RAWS needed for the task at hand
 - Future is gridded observations and forecasts

- Question - Should the one site have access to or the ability to compute outputs for all our typical applications? NFDRS, FBPS, CFFDRS, etc.
 - Use a neutral site to mitigate firewall issues
- Examine the lifecycle risk of satellite infrastructure or other support to observation networks.
- Include recommendation that fire weather needs to be a core element for NOAA
- Zeke queried the FBAN/LTAN/IMET neighborhood in MFC with 4 questions related to this assignment. Response summary:
 - Need more observations in Western complex terrain
 - Need 15 minute observations
 - Keep RAWS, most other networks are biased toward pavement
 - Need high quality data
 - Most respondents did not see the value of gridded data.
 - They prefer to download data for their own analysis.
 - Greatly prefer ROMAN. They need a one-stop shop for fire weather.
- Station ownership and maintenance issues: With more folks accessing and depending upon RAWS data and derivations from it, like live fuel moisture algorithm in NFDRS, etc, we need a new philosophy for oversight, management, and override. This affects green-up dates, maintenance, and reliance on owners to add fuel model G to all stations in WIMS.
- Some users are pulling RAWS data from Wallops Island before it gets to ASCADS
- Enable national and local scale applications from the same station independently. Current interface in WIMS, for example, is too limiting.
- Miscellaneous items:
 - NWCG will probably ask for budget items in September. FENWT will discuss budget items in July.
 - Next meeting is December 4-6 in Reno, NV
 - April 1-3, 2008 in Boise
 - June 24-25, 2008 plan for virtual meeting: multiple-hour call and net-meeting format for parts of two or three days.
 - Next conference call is June 29th to discuss follow-up items from the June meeting