



**Fire Danger Working Team
Austin, Texas
January 8-10, 2002**

The sixth meeting of the National Wildfire Coordinating Group's Fire Danger Working Team was held at the Omni Austin Hotel, Austin, Texas, and hosted by the Texas Forest Service. Attendees are listed on the accompanying roster.

Predictive Services

Tom Wordell, FS, National Interagency Coordination Center, Boise, ID
(Powerpoint Presentation)

Tom presented the status and direction of the new Predictive Services function at the National Interagency Fire Center (NIFC). Products being developed include a 7-10 day fire weather outlook, a national description of fire danger, and a resource allocation decision process. The fire danger product will enable discussion of historic, current, and predicted fire danger throughout the country. Several options are under consideration.

Key elements of this program include: 1) explaining how fire danger applied at local, geographic area, and national levels is complimentary, not mutually exclusive; 2) defining and adopting standard terminology; 3) developing a process for determining appropriate decision thresholds at the sub-geographic area scale; 4) standardizing indicators of fire danger to remove spatial and temporal differences between areas; 5) providing necessary training (e.g. WIMS).

The FDWT has a role in the near-term to define fire danger terms, to assess and determine appropriate fire danger weather station networks, to determine regional fire danger thresholds or the process to determine those thresholds. Due to the function of the new GACC fire weather meteorologists, the startup of Predictive Services at national and GA levels, and the formation of more GACC and regional fire danger working groups, the application of fire danger rating is likely to advance.

Concern was expressed that applications of fire danger at the geographic area and national levels should be driven by those at the local level, not the other way around.

Interagency Fire Meteorologists

Rick Ochoa, BLM, NIFC Fire Weather Program Manager, Boise, ID
(Powerpoint Presentation; Handout)

Rick discussed the draft MOA up for review by NWCG next week. The Southern GACC meteorologists have been hired: meteorologist Denver Ingram & Kevin Scasny. Rusty Billingsly is the new NWS Rep for the NWS Fire Weather Program. He is to replace Paul Stokols.



He outlined the purposes of the Interagency Fire Weather Program as 1) promote safety, 2) improve fire weather management, 3) provide proactive resource allocation, 4) develop fire danger/weather station networks, 5) improve fire weather information, and 6) evaluate services.

The impact to the GAs is more assistance and guidance concerning: selection of weather station sites, following NWCG NFDRS Weather Station Standard, station network analysis, quality weather data collection and archiving, and training. There are still no spot forecasts for the states. However, due to the increasing interagency involvement concerning projects, spot forecasts can usually be acquired.

Forest Service RAWS Review

Karl Zeller, FS,
(Powerpoint Presentation)

Karl reported on a study he is leading (for Tom McClelland, FS, Watershed and Air Program and advisor to FDWT) of the interagency collection of remote automatic weather stations (RAWS). The reasons for the study are 1) the existing network is aging, 2) FS fire weather data needs are increasing, and 3) FS weather data needs go beyond strictly fire support. Weather station characteristics being studied include station siting, maintenance, measurement protocols, and potential new measurements. Included is a study of a “Super-RAWS.” This is a prototype station being tested in Minnesota with sensors other than those for fire danger. Different sample time averaging is also being studied.

Review of 1988 version NFDRS processor

General Discussion

The purpose of this discussion was to 1) assess the use of the 1988 version, 2) develop measures, if any, that would be necessary to continue the 1988 version as NFDRS processing becomes more automated in the future.

Based on reports provided at the meeting, the majority of 88 users are located in the Eastern and Southern geographic areas.

Kevin noted that in the South, both the 78 and 88 versions of NFDRS require much (manual) care and feeding in order to successfully model fire danger conditions. (Even the KBDI has difficulty with some environmental conditions, such as sheet flow of surface water.) Amongst the Southern states 1/3 are using the 88 version, 1/3 are using the 78 version and 1/3 are still operating on the 1964 NFDRS. Regardless whether the 78 or 88 version is being used, there is much needed work to make advances in the live fuel moisture part of the model. The FDWT has been advocating for a new live fuel moisture algorithm in the model, possibly based on remote sensing. Gary suggested that the future incorporation of such an automated live fuel moisture model might enable the 78 and 88 versions to be merged into one.



ACTION: Recommend that all NFDRS practitioners keep a local archive of green-up, (78 version) or season codes and greenness factors (88 version).

The FDWT would like to thank Kevin Walsh, NPS, for attending the meeting and contributing to this topic.

Larry Bradshaw confirmed that due to a typographical error in the original 1988 version documentation the actual .25 ft fuel bed depth parameter for fuel model C was erroneously entered into the model as .75, which would result in benign outputs compared to those expected.

ACTION: Recommend this error be corrected in all NFDRS processors as soon as possible. Correction will be a joint effort between Missoula Fire Lab & WIMS Support. Letters need to be sent to Remsoft and Forest Technology Systems to advise them of the need to update their NFDRS processor as well (Larry and Kolleen).

Missoula Fire Lab Update

Larry Bradshaw, FS, Fire Behavior Research, Missoula, MT
(Handout)

Larry provided a handout highlighting progress on fire danger projects in Missoula. Projects reported on included:

- 1) Firefamily Plus version 3.0 beta very near release (February 2002);
- 2) Wildland Fire Assessment System (WFAS): the archiving of data & animation is complete, see: <http://www.fs.fed.us/land/wfas/wfas1.html>. To WFAS, Larry will add: a) links to the Alaska Fire Service's Canadian fire danger model maps and b) map of greenness factors based on relative greenness;
- 3) Live fuel moisture/Greenness: 1989 to 2001 NDVI data is still being reprocessed with a new algorithm. Forty percent of the data remains to be processed. Researcher Bobbie Bartlette stills needs ground truthing sites to correlate with satellite data;
- 4) Dead fuel moisture: new 1-, 10-, and 100-hour fuel moisture algorithms are ready, 1000-hour is close;
- 5) A wind measurement study is to get underway this summer. This will include the comparison of ASOS, & NFDRS RAWS standards and weather readings used by FBA (e.g. stand or eye level wind speeds);
- 6) Automated Experimental NFDRS Next-Day Forecasts from ETA and MM5 models continue. The Florida Division of Forestry continues to assist through the efforts of Scott Goodrick;
- 7) Fire Plan Funding continues to short fire behavior research and improvements as there is no new money.

ACTION: 1. Members need to canvass constituents for potential participants for ground truthing sampling for the live fuel moisture research effort being conducted by Missoula Fire Lab.

2. This live fuel moisture effort and its proper funding needs to be considered as an item for the next time the NWCG FDWT budget is submitted.



3. *In the re-engineering of WFAS fuel temperature is to be added as one of the WFAS display products.*

Riverside Fire Lab Update

Francis Fujioka, FS, Riverside Fire Lab, CA
(Powerpoint Presentation)

Francis discussed fire applications of mesoscale weather modeling. There are 4 regional modeling centers funded (MI, GA, WA, CA) that received substantial funding out of the national fire plan in 2001. The modeling is going to attempt to forecast weather conditions 48 hours out. RAWs stations will be “essential” for initializing and validating the models. MM5 Modeling can be reviewed at <http://www.ices.ucsb.edu/asr>. Related fire behavior modeling conducted at Scripps can be viewed at <http://ecpc.ucsd.edu>. The FDWT should be engaged with these efforts to advocate for fire danger applications.

Fire weather modeling for Fire Severity Assessments did not sustain funding.

Patti Hiramani will take the lead. Also consider funding long-range forecasting efforts.

ACTION: Patti Hiramani will take the lead on this. She needs to follow-up to make sure that there is a mechanism in place for the four centers to coordinate closely. Also, the FDWT should review the status of funding for this effort as funding for long-range forecasting efforts were not acquired by Riverside.

North Central Lab Update

Gary Curcio, NC, for Brian Potter

Haines Index (HI) research continues. The protocol software analysis is complete for assembling a national database. One half of the eastern US database has been compiled. The remaining half of the eastern data and the complete western database is scheduled to be compiled for analysis of the HI nationally. While working on the HI, another term may soon come to rise, the “partial exchange potential energy”.

Program for Climate, Ecosystem and Fire Applications (CEFA) Update

Tim Brown, CEFA Director, Reno, NV
(Powerpoint Presentation)

Tim reviewed fire danger related projects at CEFA including:

- 1) completed Great Basin Station Network Analysis;
- 2) near real-time climate monitoring;
- 3) near-completion lightning climatology;
- 4) monthly and seasonal fire climate forecasts;
- 5) experimental hourly fire danger for California;
- 6) Accelerated Climate Prediction Initiative: computing fire danger many years into the future;
- 7) CEFA Operational Forecast Facility;



- 8) web-based RAWS data access through the Western Regional Climate Center (WRCC); and
- 9) 10-day Medium Range Forecast (MRF) fire danger outlooks.

Tim asked the team about the reason for the instantaneous measure for solar radiation in the new NWCG weather station standards. He suggested that an averaged value would be more appropriate. Larry noted that the Nelson algorithm for dead fuel moisture based on solar radiation was developed for instantaneous.

ACTION:

1. *Missoula Fire Lab, with Larry Bradshaw providing oversight, will review the sensitivity of Nelson's algorithm as to instantaneous measurements used by NFDRS or the WMO standard of 30 minute averaging or the observation period average. It was agreed that it was needed to explore differences in resulting index values with different solar radiation measures and report back to the team.*
2. *Once the results from this study are in, Tim Brown is to prepare a letter to the FDWT recommending the proper wording for the solar radiation sensor that is in the recently approved NWCG NFDRS Weather Station Standards.*
3. *All NFDRS GOES station data is stored at the WRCC and is web accessible. Station owners are responsible to work with the WRCC in making sure that the data fields are properly identified.*

The Texas Forest Service and Fire Danger Rating

Mark Stanford, Chief, Fire Operations; Clint Cross, Tom Spencer

Mark explained that in his position seasonal forecasting of when fire season begins and when it ends is more important to him than day-to-day forecasts. He described the evolution of their application of the Keetch-Byram Drought Index (KBDI). He suggested that outputs from this team are potentially more meaningful to him than most and that the FDWT needs to develop better briefing tools for state foresters East of the Rockies.

Clint described the Texas Forest Service Fire Danger and Preparedness Plan. This plan is a state-wide plan adapted from the Fire Danger Operating Plan framework presented at the Advanced NFDRS course at the National Advanced Resources Technology Center (NARTC). Of the 140 TFS personnel involved in fire, 6 are tasked full-time on assessment.

Tom explained their approach to developing automated web-based products including a method to compute KBDI using remote sensing imagery. He also presented an approach to assessing risk in the wildland-urban interface using remote sensing and GIS data layers.

Discussion: Consider new approaches for information flow to the state agency groups in the East and South. The team agreed to enable FDWT state members to attend, for example, meetings with state fire chiefs or meetings relating to fire danger rating at the regional or GA level.

ACTION: Add funds for state member travel (1-2 more events) to our future budget requests.



The FDWT would like to congratulate the Texas Forest Service for its innovative approaches to applying fire danger rating.

ASCADS

Ken Reninger, BLM, National Systems Support Group, Boise, ID

Ken reported on the DOI web-access restrictions due to the Cobell v. Norton case. One implication is to expect more IP security in the future.

Ken has contracted with Bob Straub for a needs assessment for the new ASCADS. This will become the basis for a requirements analysis. Ken asked for and the FDWT agreed to provide interagency user feedback to the process similar to the WIMS re-engineering. Other parties will also likely be involved. Following the completion of the needs assessment, Phase II will start and the expected completion timeframe of the hardware & software re-engineering is within 18 to 24 months.

Action: WIMS task group or a portion thereof will be a component of feedback on ASCADS re-engineering to Ken and BLM. (Other groups likely to be involved include Fire-Weather, RAWs mtce. personnel, DCP-coordinators, etc. The purpose of the WIMS Task Group in this effort is to provide oversight and guidance to the development effort as it relates to the WIMS re-engineering effort.)

Action: Paul and Ken will talk with John Gebhard about opening ASCADS for other users.

Action: Ken, Paul, and Doug Anderson develop joint request with FWWT that ASCADS function 24/7. Submit request to BLM (John Gebhard and Gary Bowers) and NWCG Parent Group.

WIMS Re-engineering

Mike Barrowcliff, FS, F&AM, Boise, ID

Jeff Barnes, FS, F&AM, Boise, ID

Russ Gripp, FS, Klamath National Forest, WIMS task group chair, Yreka, CA

Dan Keller, FS, WIMS Re-engineering Phase 2 Project Manager, Denver, CO

(Powerpoint Presentation, 3 Handouts)

Patti Hiram, FS, Fire Weather Program, Washington, DC

Jeff reported that the forms-to-web migration of Phase 1 is complete and the Oracle-to-8i migration is coming soon. Legacy WIMS retirement has been postponed until February, 2002.

Russ stated that the WIMS task group functioned well and provided the kind of technical feedback for which it was intended.

Action: A new Southern state representative for the WIMS task group needs to be chosen to replace Clint Cross (Russ and Paul).



Regarding Phase 1.5: Jeff announced that the data set collected from WRCC in 1998 to fill in gaps of missing data in NIFMID (from station start-up through 1997) has been merged and flagged as Estimate. No existing data was overwritten.

Action: Jeff will develop a notification to the field explaining the data merge and its implications.

Larry estimated that Nelson's dead fuel moisture algorithm using solar radiation will be ready for 1-, 10-, and 100-hour fuels by summer 2002.

Dan gave a presentation on Phase 2 requirements that included a general review of the entire WIMS re-engineering project. Location and system requirements were discussed. Phase 2 deliverables, production schedule, and roles/responsibilities were presented.

Action: A group consisting of the voting members of the FDWT and the WIMS task group chair will assist Dan with developing the Phase 2 project charter. The WIMS task group will continue to provide technical assistance during Phase 2.

Mike explained the FS WIMS funding situation. Last year \$250,000 was cut from WIMS Re-engineering. This year \$500,000 has been cut, leaving \$23,000 available for Phase 2.

Patti noted that the WIMS reengineering cost estimates are \$850,000. Past discussions with other Federal wildland fire agencies re: WIMS reengineering indicated that they may be willing to contribute funding towards the project. The timing is right to evaluate reengineering of both platforms, ASCADS and WIMS, and investigate possibilities of joint funding.

Action: Patti will frame a proposal to assess reengineering of ASCADS and WIMS together, and display funding options.

Action: Paul will discuss cost sharing possibility with IRM, FW, IOS, and FU Working Team chairs.

Brainstorming session: The future condition of a fire weather/danger system

General Discussion

To take advantage of the collective expertise and perspective in attendance a brainstorming session was held to put WIMS re-engineering-related ideas on the table for future consideration. Ideas expressed were as follows:

- Include visual products for the local level and managers
- Adhere to the FDWT vision statement
- Develop map products that are nested and allow drilling from national to local scale
- Incorporate meso-scale models into these map products
- Support RAWS network(s) as the foundation for outputs
- Meso-scale models will need more rapid data access



- Simple and integrated access. Seamless connectivity to related websites for the user (for products such as RAWs, lightning, greenness, fire danger, long-lead forecasts, other networks such as Oklahoma mesonet)
- Include Canadian Fire Danger outputs and or access to them
- Provide products as GIS layers
- Provide hourly products
- Provide assessment tools, specifically projections. Integrate with other weather models
- Provide query options that are easy to follow; also custom query options
- Include a “virtual” Firefamily Plus
- In graphic and tabular form the user should be able to easily access an entire spectrum of products from historical analysis to current conditions to future projections
- WIMS should handle the spectrum from historical to current or next day forecast, but due to the many possibilities for projections, these should be developed elsewhere and accessed via links
- Picture the user at the hub of a wheel. The user has access to several spokes. These spokes include a processors (such as a fire danger processor like FireFamily Plus), database (such as NIFMID), value added historical products, value added current products, and value added projections.
- Develop user profile portfolios – what you see is what you need to see
- Technology transfer/training is needed to prepare the new users for using this sort of information in this way
- The FDWT could provide content of “Gaining a Basic Understanding of NFDRS” on its website via hotlinks and topical layers
- Fuel models in the future NFDRS are still in question, as the FCCs under development are not sufficient
- Remember the KISS principle
- Provide periodic Pocket Card development for each local unit on a map in WIMS

Report from NWCG Parent Group and Role of the Working Team

Dave Cleaves, FS, NWCG Liaison, FS Fire Research, Washington, DC
(Handout)

Dave described current and emerging issues and influences for NWCG and their implications for working teams. He provided welcome insights to 1) the NWCG parent group and how to keep them informed; 2) revisiting the WT mission: we need to consider “Assessment;” 3) obtaining funding through NWCG, Joint Fire Science Program, and FS Fire Research. Also, the NWCG parent group wants all Working Teams to maintain a good working relationship and communications with the GACCs

“Gaining a Basic Understanding of NFDRS”

Paul Schlobohm, BLM, Fire Planning and Research, Reno, NV

Paul reported that many good editorial and content reviews have been received on the final draft.



Action: Paul to address review comments and send resulting document to the FDWT for one last look. Paul to send Larry the latest version by Feb. 8th for inclusion in the Advanced NFDRS course CD. Paul to send document to Publications Management System for publication and distribution.

A future project pending the startup of the team website and the completion of the document is for the team to present the document in a layered format on the website to provide on-line access to basic fire danger information in a viewer-friendly style.

FDWT Website

Kolleen Shelley, FS, National RAWS Coordinator, Orofino, ID

Kolleen presented a concept of what a FDWT website could look like by using the RAWS website as an example (see <http://www.fs.fed.us/raws/>). The site could be an efficient technology transfer tool for the team. It would require monitoring and care and feeding by the team and a budget for maintenance. Paul noted that NWCG may request certain formats, etc, but is okay with our development of concept and content.

Action: Larry will explore possible website content and concept design with Matt at Missoula and prepare a prototype to be reviewed by the Working Team.

States and FEMA requests (possible amendment of the Stafford Act)

Patti Hiram

Patti noted that there is interest on in Congress to amend the Stafford Act to include fire “severity-like” funding for States who demonstrate a need. The FS may be requested to serve as technical advisors to FEMA regarding eligibility for funding. States would be required to objectively assess and demonstrate high fire danger before FEMA would release funds.

This could create a higher need for NFDRS technical assistance to States, including fire weather data input and maintenance.

South Canyon IMRT fire danger recommendations and 30-mile Fire action items

Paul Schlobohm, Russ Gripp

Paul and Russ reviewed the recommendations provided by the National Advisory Group for Fire Danger Rating (predecessor to FDWT) for the Interagency Management Review Team of the South Canyon Fire in 1995. Many of the recommendations related to training development have been addressed (basic, intermediate, and advanced curriculum), while others have not (inclusion of fire danger training modules in other existing courses, especially fire behavior).

The 1995 situation with respect to fire danger was contrasted with that of 2001. While more opportunity for fire danger training is available, fires are still “surprising” us. In the case of 30-mile fire, FS views a system failure in ICS as a larger issue. However, there will be a push for all FS firefighters to have access to a pocket card. Larry B. is helping with that effort by setting



up prototypes for the local offices to complete. Pocket cards will be made for each FS district to promote situational awareness. Knowing how your fire season is tracking and how your daily fire danger compares to past history is important. For the day in question, a new maximum daily value was set for the 30-mile Fire. A joint FS-BLM Standards for Fire Operations document is in the works for 2002, modeled on the BLM document of the past 3 years. Implications for fire danger is that the BLM version has required fire danger operating plans in the Preparedness section.

Action: Paul will talk with the Fire Behavior Advisory Committee to the Training Working Team about adding fire danger modules to the 290, 390, 490 courses that are all under redevelopment.

Action: FDWT will send Doug Bright scenarios for presenting the fire danger pocket card and its application in a future edition of 6 Minutes for Safety.

Terminology

Russ Gripp

Russ explained that a variety of terms are being used to describe a geographical location as it relates to fire danger and or fire weather (e.g. fire zones, fire danger zones, fire danger rating areas, fire weather zones and so on). There is a need to clarify and recommend terms to be standardized for interagency use. Al and Mike felt this was a data management issue for the Data Administration Working Group (DAWG) in the Program Management Office (PMO).

Action: Paul and Russ update the glossary of terms in “Gaining a basic understanding of NFDRS” to address this issue. Submit to the PMO. Post on team website.

National Raws – BLM Maintenance Agreement

Kolleen Shelley

USDOJ has changed the processing of parts for those states on the maintenance agreement. Since the states come in on the contract through local National Forest Cooperative Agreements, it now requires working off a USFS Purchasing Order number. This negatively impacts timely maintenance. For example there are currently 4 RAWS that require maintenance in NC. Repairs can't be made because parts cannot be acquired until an ordering process is worked out. NC is currently working with the NC National Forests to work out a process that may be applicable in other Regions. USFS National RAWS Program & the USDOJ BLM are trying to establish the ability to accept government credit cards. If ordered parts are returned within 30 days, there is no charge to the cardholder.

FDWT Membership

Paul Schlobohm

John Swanson, FS, District Ranger on the Stanislaus NF was selected by the membership to be the Line Officer member of the team.



Pete Guilbert, CDF, was recommended by the Western States to replace Steve Dunlap as be the Western state team member.

Larry Van Bussum reported that Rusty Billingsley will be replacing Paul Stokols as the National Weather Service advisor to the FDWT.

Discussion of Strategic Plan, Roles/Responsibilities, and team operating plan was tabled until June.

Action: Paul to forward recommendations of John and Pete to the NWCG Parent Group for their approval.

Task List

Paul Schlobohm

The team reviewed its task tracking system and noted that 10 out of 23 ongoing tasks had been completed, most of which have been presented here.

NWCG Guidelines

Al Borup
(2 Handouts)

Al provided the team with NWCG guidelines for developing a charter and a white paper.

Next Meetings

Paul Schlobohm

June 11-13, 2002 Washington DC. Patti is the host and contact.

November 19-21, 2002 in the Southwest .

Action: Paul will contact Larry McCoy and Jay Ellington.

May 13-15, 2003. Possibly Alaska or Rocky Mountains or Great Basin.



Roster

FDWT January 2002 meeting
Austin, Texas

Doug Anderson, Minnesota DNR, FDWT vice-chair, St. Paul, MN
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Kevin Walsh, NPS, SERO