



Fire Weather Research Report: Progress and Needs (June 2014)

**A presentation to the
Subcommittee on Disaster Reduction;
Wildland Fire Science and Technology Task Force**

**NWS Office of Climate, Water & Weather Services
NWS Office of Science and Technology
June 17, 2014**



Outline

- Purpose and Background
- Key Past Initiatives and Reports
- Progress Summary
- Transformation of Services
- Remaining Gaps
- Prioritized, un-met recommendations
- Other Examples of Success
- Desired Future Outcome; Best Chances for Success.



Purpose

- To provide an update on NOAA/NWS advancement of fire weather science:

Based mainly on the 2008, NOAA Fire Weather Research Report

Also:

- Provide status on key initiatives since 2008.
- Illustrate remaining gaps and needs
- Discuss recent interaction with NWS leaders.
- Provide a desired outcome of activities.



Background

- NWS involvement in wildfire management
 - The NWS provides all scales of fire planning forecasts.
 - Key Products; Planning Forecasts, Storm Prediction Center Outlooks, National Fire Danger Rating System Forecasts.
 - Special “spot” forecasts and Incident Meteorology (IMETs)
- High-level attention continues
 - California’s recent drought emergency
 - Western Governors’ Association (WGA)
 - Fire investigations



Past Initiatives and Reports



2000: National Fire Plan transitioned to

2005: WGA Policy Resolution 05-04:

“Operational fire managers need improved products and (weather) services...for fire operations decision making”

“NOAA should complete a national needs assessment for fire weather information and prescribed fire decision-making,...”

2007 & 2011: Office of the Federal Coordinator for Meteorology Report, “A Summary of User Needs and Issues”.



The 2008 NOAA Science Advisory Board Report



- NOAA concurred with all of the 2008 recommendations.
- Some progress has been made, but efforts were hindered by Federal fiscal cuts beginning in 2009.
- Plans need to be refined and resources identified.

Given budget limitations, must continue to identify highest priority items consistent with needed fire weather services.



The 2008 NOAA Science Advisory Board Report



- Who was involved?
 - Dr. John Snow (Dean of the College of Atmospheric and Geographic Science - University of Oklahoma).
 - Numerous Federal land managers.
 - Numerous private and fire agency wildland fire researchers.
 - University representatives.
 - The National Interagency Fire Center (NIFC).
- How was it reported to NOAA?
 - Reported to NOAA leadership in November 2008.



Progress to Date Summary



- The NWS mobile, on-site display platform is now operational (2014)
- A 2012 Fire weather research NOAA/USFS MOU is signed.
- There is a designated NWS fire weather research lead (OS&T).
- There are now 1.33km resolution fire weather model runs.
- Wildfire/structure and downscaling research from NIST, OAR/GSD.
- Coupled fire/atmosphere modeling research in Boulder, Colorado.
- Santa Ana wind research and mobile fire environment observation technology developed from UCLA and San Jose State University.
- Interagency Joint Fire Science Program funds weather forecast accuracy projects (2010 & 2012).
 - 2010 Improving fire weather forecasts
 - 2012 Spot forecast accuracy



NCAR and ESRL-GSD Work (Progress to Date)



- Historically, fire weather research efforts have originated from several key organizations (such as NCAR/UCAR, NIST, USFS, NOAA ESRL/GSD)
- The NCAR/GSD work is promising and output needs to be reviewed by users (e.g., IMETs, DOI and USFS) to clarify requirements and ensure necessary partnerships
- Those partnerships exist within the Fire Weather MOU team.
- NCAR and GSD have expressed willingness to share their work for user review.



NCAR and ESRL-GSD Work (Example)



GoToMeeting Viewer
Webcams Zoom: 100%
Now viewing Sher Schranz's screen

WRF-SFIRE as an integrated system

The diagram illustrates the WRF-SFIRE system as an integrated system. It features a landscape with hills and a fire burning on a slope. A yellow star represents the sun. Blue arrows indicate ambient wind blowing from left to right. A vertical double-headed arrow labeled 'Fire-induced updraft' shows air rising from the fire. A vertical double-headed arrow labeled 'Max plume height' shows the height of the smoke plume. The smoke plume is labeled 'Smoke'. The fire is labeled 'Fire Area'. The fire releases heat, labeled 'Fire-released heat'. The heat causes fuel to dry, labeled 'Fuel drying'. The fire also causes fuel to wet, labeled 'Fuel wetting'. The terrain is labeled 'Topography'. The text 'WRF-SFIRE' is overlaid in large, semi-transparent letters across the center of the diagram.



NCAR and ESRL-GSD Work (Example)

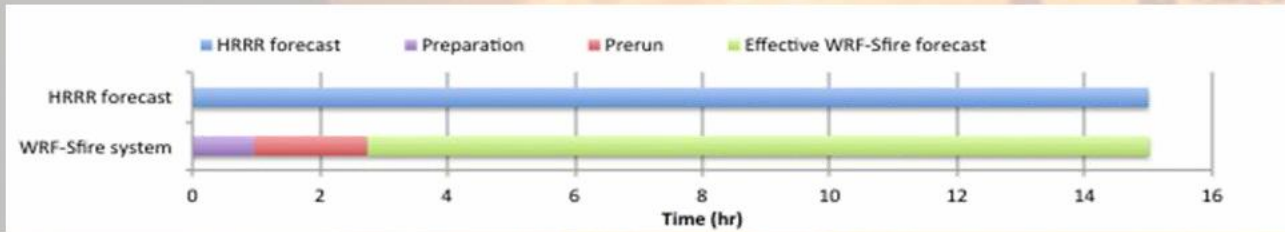


GoToMeeting Viewer

Webcams Zoom: 100%

Now viewing Sher Schranz's screen

Web Portal: Initiation and Monitoring of 12- hour Fire Forecast



NASA project #11-FIRES11-0038 submission



System status

System: gross.ucdenver.edu
 Queued jobs: 0
 Total simulations: 7
 Active simulations: 0
 Free nodes: 12/12
 Status: ONLINE
 Last updated: 2013-09-29_23:01:58

Ignition control

Ignition time: 2012-09-09 01:00:00
 Ignition latitude: 47.83160
 Ignition longitude: -119.4667
 Forecast length (hr): 12

Start job

System messages

2013-09-29_22:59:48 - Hello from wrfx2 web server.
USAGE
 Click anywhere on map to place ignition point. Coordinates will appear on control panel. Adjust parameters as desired and submit to start a fire simulation. Note the ignition time is fixed in the prototype. After submission, you will be redirected to a page that will render the results of the simulation.

Fire simulation monitor



Job status and control

36.7%
 Current HTML view: 2012-09-09_02:45:00
 Stage: WRF
 Completion time: 2013-09-24_12:44:54
 Time in simulation: 2012-09-09_02:56:06
 Speedup vs. RT: 5.06x

System messages

2011-09-24_11:39:48 - CONNECTED
 2013-09-24_11:39:48 - You are monitoring job 3305337-2443-4462-ae69-2334e091310f
 2013-09-24_11:39:50 - Simulation in stage "WRF".



Transforming The Services



NEXT:

2008 SAB Vision still applies:

“NWS forecasters are equipped with a full suite of fire-scale weather and smoke prediction information from seasonal outlooks to short-term decision support, displayed, manipulated or delivered to any electronic device.”



Review of 2008 Identified Transformation Requirements:



- Fire weather and smoke modeling
- Research with and access to observed data
- Operational fire weather capabilities and services
- Organizational strategy for fire weather research



Gaps



Gaps still exist with respect to the 2008 vision:

- NOAA needs continued fire weather research to effectively:
 - * Assist in pre-positioning of resources.
 - * Downscale models to landscape scale.
 - * Assist in smoke dispersion and transport forecasting.



Un-Met SAB Recommendations for Prioritization



SAB Key Recommendations:

- Assimilate output from all local observation resources (2.1)
- Explore use of remote sensing methods (2.2)
- Increase R&D of integrated fire weather modeling systems (3.1)
- Use assimilation from 2.1 to generate high res fire danger maps (5.1)
- Develop Intelligent Assistant tool for WFOs and deployed IMETs (8.1)
- Explore emerging communication and low bandwidth technologies (12.1)
- Collaborate with USGS on rainfall rate thresholds for debris flows (15.1)
- Designate lead NOAA/NWS lab for R&D, provide budget/authority (18.2)
- Team with land agencies to establish fire weather test bed (18.3)



IMET Upper Air Systems (Success in Observation Capability)



- Currently the NWS has 24 IMET upper air kits.
- New upper air kits were used operationally in 2012 & 2013.
- These observations will be integrated into the current modeling suite.



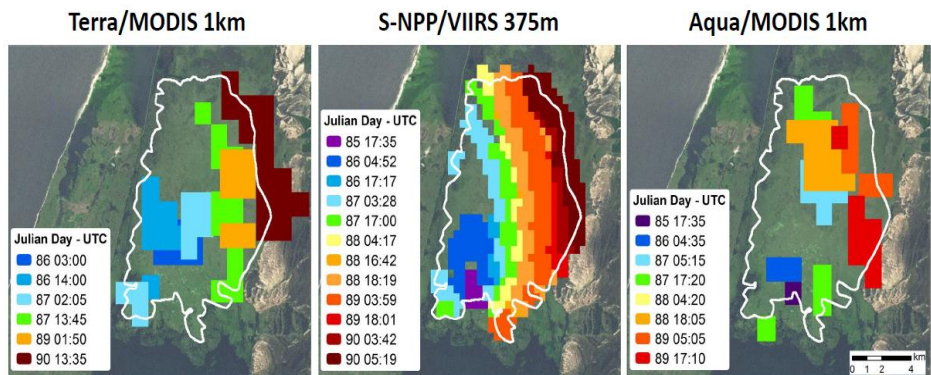


VIIRS and Coupled Fire-Wx Models



- Trending fire management policies dictate improved mapping of fires
- Assimilate new remote sensing fire data into cutting-edge coupled fire-weather model

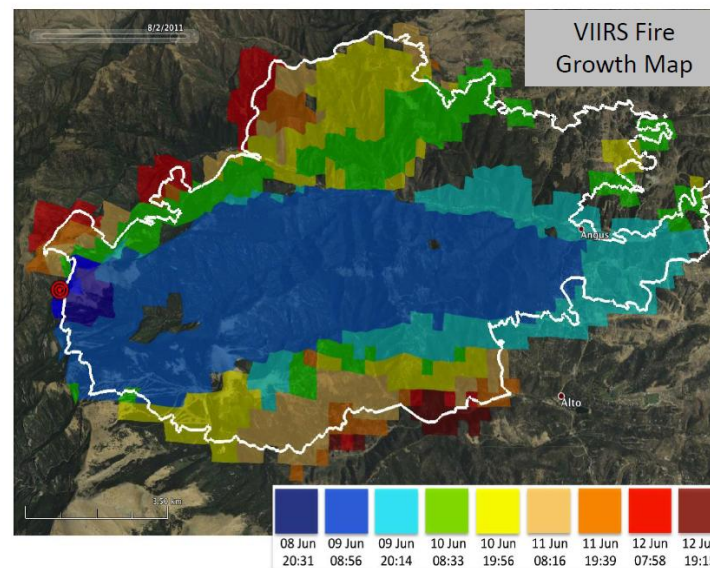
Improved Satellite Mapping of Active Fires Achieved Using VIIRS I-bands



Wildfire in southern Brazil, March/2013

Coupled Fire-Weather Modeling

Little Bear Fire, New Mexico June 2012



Coen and Schroeder [2013]



Best Chance for Success in Near Future



Recommendations:

- Assimilate output from all local observation resources (2.1)
- Use assimilation from 2.1 to generate high res fire danger maps (5.1)
- Develop Intelligent Assistant tool and explore emerging communication and low bandwidth technologies (8.1 and 12.1)
- Seek opportunities to contribute to interagency research priorities through the Joint Fire Science Program.
- Integrate VIIRS data into coupled fire-weather modeling (2.2 and 3.1)
- Support work underway at NCAR and GSD/ESRL (18.2 and 18.3)



Proposed Way Ahead

- Short-term Field and Modeling Work
 - Coordinate with partners on assessing fire weather research progress, applying R2O, and supporting research needs → **Joint Fire Sciences Program partnership**
 - Allocate any available NWS and OAR funding resources to assist in **obtaining local observations** and conducting model validations, as well as to perform tasks under MOU umbrella
 - Utilize IMET upper air systems to **advance model initialization** and research-ready data sets
 - **Integrate VIIRS** into coupled fire-weather models being developed by UCAR/NCAR

- Validation of 2008 SAB recommendations
 - Can this Task Force help validate the top priorities for NOAA/NWS fire weather?
 - NWS must formalize a Fire Weather Research to Operations Plan.
 - Must explore links with U.S. Weather Research Program and other research partners.

 - Must all be done with the idea in mind of efficient resource allocation and responder safety.



Backup slides to Follow





Grand Challenges NWS Update



Grand Challenge #1: Provide hazard and disaster information where and when it is needed.			
Develop national databases of burn severity and fire perimeters for both wildland and wildland-urban interface fires;	BIA, BLM, USFS, USGS	FWS, NASA, NOAA, NPS	
Implement continuity missions for moderate-resolution satellite data (15-30 m) for characterizing fuels and burn severity and for active fire remote sensing	NASA, USGS	NOAA	The VIIRS satellite algorithm (launched in 2011) improves upon MODIS fire detection, with higher resolution imagery. Data can be found in several formats here: (https://data.goes.noaa.gov/dataset/active-fire-detection).
More fully integrate across hazards to identify and illustrate interactions, including environmental benefits of natural wildland fires;	FEMA, NPS, USFS, USGS	BIA, BLM, FWS, NASA, NOAA	NWS is actively providing hydrologic support to Burned Area Recovery (BAER) teams through our National Agreement for Fire Weather Services (known just as the "National Fire Weather Agreement").
Develop national geospatial coverage and modeling systems for fuel types, fire regimes, and condition classes appropriate for a new generation of fire models;	USFS, USGS	BIA, BLM, FEMA, FWS, NASA, NOAA, NPS	Unknown NOAA contributions here.
Use Earth observation systems (ground and remote sensing) to develop and regularly update fuels, weather, and other data bases needed for fire prediction and monitoring	BLM, NOAA, NPS, USFS, USGS	BIA, FEMA, FWS, NASA	NWS Incident Meteorologists employ mobile RAWS stations to monitor and forecast for active fires. In 2014, the NWS successfully tested upper air data set transmission for inclusion in NWS Numerical Weather Prediction (NWP) models.
Develop and support analysis, computing, and communication capabilities to improve risk-informed assessments and analysis;	USFS, USGS	BIA, BLM, FEMA, FWS, NOAA, NPS	
Great geospatial data layers and integrated information, decision support systems, and models to support fire management planning and incident response.	BLM, FEMA, NOAA, USFS, USGS	BIA, DOE, EPA, FWS, NPS	The NOAA/NWS NOAA Environmental Modeling Center produces 13km model runs specific to fire weather and smoke dispersion improvement. Geospatial weather data layers are available from the National Digital Forecast Database (NDFD) and can be found here: (Graphical: https://www.noaa.gov/data/ndfd/ndfd.html and https://www.noaa.gov/data/ndfd/ndfd.html) (Grid2: https://www.noaa.gov/data/ndfd/ndfd.html) (Grid2: https://www.noaa.gov/data/ndfd/ndfd.html). Google Earth kml (https://earth.google.com/web/@37.629278,-122.491121,15t/data=!3m1!1e3!1m2!1s-122.491121,37.629278,15t/data=!3m1!1e3!1m2!1s-122.491121,37.629278,15t).
Grand Challenge #2: Understand the natural processes that produce hazards.			
Develop an interagency coordinating group for wildland and wildland-urban interface fire research and development;	BIA, BLM, FWS, NPS, USFS, USGS	CDG, DOT, NIST, NOAA, NSF	NOAA/NWS and USFS Fire Consortia (FCAMMS) now has an active Memorandum of Understanding for fire weather research. NOAA/NWS would like to participate in any group formed for the purpose of R&D.
Improve understanding of the processes of wildland fire events to accurately model and predict the potential occurrence, behavior, and impacts of wildland fire on resources, the environment, and physical infrastructure;	FEMA, USFS, USGS	BIA, BLM, DOT, EPA, FWS, NASA, NIST, NOAA, NPS, NSF	Several research proposals are underway involving the National Center for Atmospheric Research (NCAR) and the Earth System Research Laboratory (ESRL), to improve understanding of processes leading to active fire spread.
Integrate new process understanding into improved 3-D fire behavior models that incorporate complex fuels (including structures), terrain, and fire/atmosphere interactions into predictions of fire probability, fire behavior, fire severity, fire emissions, smoke transport, and ecosystem fire effects	USFS	BIA, BLM, CDC, DOE, DOT, EPA, FEMA, FWS, NASA, NIST, NOAA, NPS, NSF, USGS	Several research proposals are underway involving the National Center for Atmospheric Research (NCAR) and the Earth System Research Laboratory (ESRL), to improve understanding of processes leading to active fire spread.
Grand Challenge #3: Develop hazard mitigation strategies and technologies.			
Assess the benefits of fuel treatment, other preparedness activities, societal attitudes and decision-making processes in reducing potential impacts;	NPS, USFS	BIA, BLM, HHS, FEMA, FWS, NIST, NSF, USGS	
Improve understanding of costs and benefits of wildland fire and fuel management	BIA, BLM, FWS, NPS, USFS	HHS, FEMA, NIST, NOAA, NSF, USGS	NOAA/NWS would like to contribute, in the form of understanding how NWS fire weather information is actively utilized to minimize costs.
Develop and implement integrated landscape and larger scale modeling and analysis systems for wildland fire planning and wildland-urban interface community design that incorporate risk mitigation, fuels, fire behavior, smoke transport, resource and social values;	USFS	BIA, BLM, HHS, DOE, DOT, EPA, FEMA, FWS, NASA, NIST, NOAA, NPS, NSF, USGS	NOAA/NWS ARL (https://www.noaa.gov/arl) continues to supply smoke dispersion forecasts for wildland fire management. The NWS spot program now includes the option of automated provision of HYSPLIT forecast runs, accompanying spot forecast request.
Use remote sensing and burn severity mapping to monitor fuel treatment effects and effectiveness;	BIA, BLM, FWS, NPS, USFS	HHS, FEMA, NASA, NIST, NOAA, NSF, USGS	The VIIRS satellite algorithm (launched in 2011) improves upon MODIS fire detection, with higher resolution imagery. Data can be found in several formats here: (https://data.goes.noaa.gov/dataset/active-fire-detection).
Develop risk-based methods for deciding on the best strategies for mitigating the negative effects of wildland fire on ecosystems and communities;	BIA, BLM, FWS, NPS, USFS	HHS, DOT, FEMA, NASA, NIST, NOAA, NSF, USGS	NOAA/NWS would like to contribute to Agency efforts in this arena.
Understand the factors that motivate individuals to undertake risk mitigation activities.	NPS, USFS	BIA, BLM, HHS, FEMA, FWS, NIST, NSF, USGS	Social science is a growing area of concern for NOAA/NWS.
Grand Challenge #4: Reduce the vulnerability of infrastructure.			
Assess the fire safe characteristics of community designs, including layout, landscaping, and structure design and building materials, and make recommendations for improved fire safety. Improve information and analysis tools for homeowners and planners on fire-safe construction, landscaping, and community planning	BIA, BLM, FWS, NPS, USFS	CDG, DOT, FEMA, NIST, NOAA, NSF, USGS	NOAA/NWS is participating with FEMA's preparedness lists, designed for the general public's use in wildfire situations.
Develop data and validated models to assess how well different community and landscape designs and post-fire restoration activities mitigate fire risk and damage, including off-site effects such as flooding and erosion, and damage to transportation and energy infrastructure;	BIA, BLM, FWS, NPS, USFS, USGS	CDG, DHS, DOE, DOT, EPA, FEMA, NASA, NIST, NOAA, NSF	Unknown how NOAA would participate. This would likely be a DOC/NIST function.
Develop improved approaches to increase the resistance of infrastructure and communities to damage from wildland fire and its after effects.		BIA, BLM, DHS, DOE, DOT, FWS, HUD, NIST, NOAA, NPS, USFS, USGS	
Grand Challenge #5: Assess disaster resilience.			
Assess logistical needs and evacuation plans for a variety of fire scenarios, including wildland and wildland-urban interface fires;	BIA, BLM, FWS, NPS, USFS	CDG, DHS, HHS, DOT, FEMA, NIST, NOAA, NSF, USGS	NOAA/NWS can contribute, providing Red Flag Warning statistics and suggesting potential improvement to the Red Flag program's effectiveness through modification of warning protocols. A proposal can be shared with the group.
Understand why individuals evacuate or choose to stay;	NSF, USFS	BIA, BLM, CDC, HHS, FEMA, FWS, NIST, NOAA, NPS, USGS	Social science is a growing area of concern for NOAA/NWS. Suggest contacting Australia Bureau of Meteorology and gaining their experience in dealing with the Black Saturday fire storm event from 2009.
Link fire safe community information with geospatial data for evaluating and predicting local to national impacts of fuel and fire management and community design;	BIA, BLM, FWS, NPS, USFS, USGS	CDG, DHS, HHS, DOT, FEMA, NIST, NOAA, NSF	Unknown NOAA/NWS involvement.
Establish methods to assess the adequacy of community resources for a successful response to a likely fire hazard;	BIA, BLM, FEMA, FWS, NPS, USFS	CDG, HHS, DOT, NIST, NOAA, NSF, USGS	Unknown NOAA/NWS involvement.
Improve and apply validated methods to enable consistent, rapid, and accurate fire severity mapping and assessment of the benefits of natural wildland fire and the risk of severe erosion, flooding, and other ecosystem damage;	BIA, BLM, FWS, NPS, USFS, USGS	HHS, DOT, FEMA, NASA, NIST, NOAA, NSF	NOAA/NWS can contribute with briefings and information on availability of post-fire hydrologic models and BAER team interactions.
Develop methods to model recovery of fire-impacted ecosystems under various climate change scenarios;	NOAA, NSF, USFS, USGS	BIA, BLM, CDC, HHS, FEMA, FWS, NASA, NIST, NPS	NOAA/NWS Climate Program can contribute available long term forecast scenarios and expertise.
Develop improved systems to assist homeowners and communities to recover from impacts of wildland fire;	FEMA	BIA, BLM, CDC, HHS, DOT, FWS, NIST, NOAA, NPS, NSF, USFS, USGS	
Great common tools for assessing impacts of wildland fire as well as validated methods to enhance resilience to wildland fire and restore fire-impacted ecosystems and communities.	BIA, BLM, FWS, NIST, NPS, USFS, USGS	CDG, HHS, DOT, FEMA, NASA, NOAA, NSF	

2008 SAB Report Recommendations



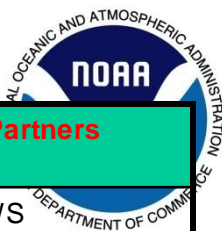
SAB Ref	Current Action	Period/Completion	Progress	Lead	Partners
1.1	Fire Scale observations and field studies needed to verify downscaled weather models	Long-Term Unknown	Several JFSP research proposals. NOAA-NIST. UAV work	NOAA-OAR-GSD	OCWWS JFSP Program Universities Private Industry
1.2	Explore jointly-funded program of wildland fire-related weather research with all partners	Mid-Term Ongoing	Meetings coordinated with USFS. JFSP proposals. AMS Policy statement	NOAA-OAR-GSD	OCWWS USFS Desert Research Inst
1.3	Matching of requirements to current and future satellite sensors	Long-Term	Discussions with NWS satellite team	NWS-OST	OCWWS USFS
1.4	Fire Scale observations and field studies needed to verify downscaled weather models	Long-Term Unknown	Several JFSP research proposals. NOAA-NIST. UAV work	NOAA-OAR-GSD	OCWWS JFSP Program Universities Private Industry
2.1	Perform model physics and data assimilation research to downscale existing models to sub 1-km	Long-Term Unknown	Meetings with USFS and OCWWS. JFSP proposals submitted	NOAA-OAR-GSD	OCWWS USFS JFSP Program
2.2	Perform model physics and data assimilation research to downscale existing models to sub 1-km	Long-Term Unknown	Meetings with USFS and OCWWS. JFSP proposals submitted	NOAA-OAR-GSD	OCWWS USFS JFSP Program
3.1	Leverage NCAR modeling with NIST, OAR, USFS efforts in coupling	Mid-Term Ongoing	Ongoing work with NIST. Member of USFS Fire Sciences Research Team. Coord with GOES	NOAA-OAR-GSD	NIST USFS Washington Inst

2008 SAB Report Recommendations



SAB Ref	Current Action	Period/Completion	Progress	Lead	Partners
4.1	Establish fire incident archive and test bed for model research/verif. Started discussions with MIT Lincoln Lab about their testbed	Long-Term Unknown	Meetings with USFS. JFSP proposals submitted	NOAA-OAR-GSD	OCWWS USFS JFSP Program MIT LL
4.2	Expand use of downscaled wind forecasts in terrain and maintain forecast database	Short-Term Ongoing, incremental	Several JSFP proposals. HPCC Incubator proposal. Downscale wind training	OCWWS	USFS OST NOAA-OAR-GSD JFSP Program
4.3	Expand use of downscaled wind forecasts in terrain and maintain forecast database	Short-Term Ongoing, incremental	Several JSFP proposals. HPCC Incubator proposal. Downscale wind training	OCWWS	USFS OST NOAA-OAR-GSD JFSP Program
5.1	Utilize NOAA gridded forecasts and data assimilation system to produce daily fire danger forecasts	Short-Term 06/30/10	Prototype NDFD-based National Fire Danger Rating System	USFS Missoula Lab	OCWWS
	Perform model physics and DA research for downscaling to sub 1- km resolution	Long-Term Unknown	Meetings with USFS and OCWWS. JFSP proposals submitted	NOAA-OAR-GSD	OCWWS USFS JFSP Program
5.2	Utilize NOAA gridded forecasts and data assimilation system to produce daily fire danger forecasts	Short-Term 06/30/10	Prototype NDFD-based National Fire Danger Rating System	USFS Missoula Lab	OCWWS

2008 SAB Report Recommendations



SAB Ref	Current Action	Period/Completion	Progress	Lead	Partners
6.1	Expand use of NOAA data for longer range (2-10) day fire danger Forecasts	Mid-Term Ongoing	Prototype NDFD-based National Fire Danger Rating System	USFS Missoula Lab	OCWWS OST
6.2	Expand use of NOAA data for longer range (2-10) day fire danger Forecasts	Mid-Term Ongoing	Prototype NDFD-based National Fire Danger Rating System	USFS Missoula Lab	OCWWS OST
6.3	Expand use of NOAA data for longer range (2-10) day fire danger Forecasts	Mid-Term Ongoing	Prototype NDFD-based National Fire Danger Rating System	USFS Missoula Lab	OCWWS
7.1	Coordinate with DRI, Univ. of AZ, and NIDIS to better understand role of fire in climate system; improve fire weather outlooks	Mid-Term Ongoing	Ongoing work at seasonal assessment workshops (NOAA Climate Diag Ctr).	National Predictive Services (Robyn Hefferman)	NOAA CDC UA CLIMAS Program OST
7.2	Coordinate with DRI, Univ. of AZ, and NIDIS to better understand role of fire in climate system; improve fire weather outlooks	Mid-Term Ongoing	Ongoing work at seasonal assessment workshops (NOAA Climate Diag Ctr).	National Predictive Services (Robyn Hefferman)	NOAA CDC UA CLIMAS Program OST
7.3	Coordinate with DRI, Univ. of AZ, and NIDIS to better understand role of fire in climate system; improve fire weather outlooks	Mid-Term Ongoing	Ongoing work at seasonal assessment workshops (NOAA Climate Diag Ctr).	National Predictive Services (Robyn Hefferman)	NOAA CDC UA CLIMAS Program OST
8.1	Develop standardized intelligent assistant or DSS tool for WFO	Long-Term Unknown	HPCC Incubator proposal For Spot Forecast tools	NOAA-OAR-GSD	OCWWS OST Raytheon/WFO ITOs
8.2	Prove usefulness/validity of uncertainty products and DSS tools used by IMETs. Also, perform model physics and DA research for downscaling to sub 1-km resolution	Long-Term Unknown	Several JFSP proposals OAR research	OCWWS	JFSP Program NOAA-OAR-GSD USFS

2008 SAB Report Recommendations



SAB Ref	Current Action	Period/Completion	Progress	Lead	Partners
9.1	Analysis of future alternatives for national LDS.	Long-Term Unknown	NWS relooking national LDS	OCWWS	OST
9.2	Provide improved lightning probability guidance including fuels state data and lightning climo	Short-Term 05/30/10	Second quarter milestone for SPC. Intent to implement in 2010	SPC	OCWWS Missoula WFO
	Conduct lightning microphysics research	Long-Term Unknown	Some work being conducted by various universities	SPC Univ of AL Birmingham	SPC, NSSL OST OCWWS
10.1	Participate in JFSP project to develop Smoke Science Plan, work with partner agencies	Mid-Term Ongoing	Coordinating WFO /user level survey of smoke science needs. NWSEO	USFS JFSP-funded smoke science plan	OCWWS USFS
10.2	Continue funding fire weather ops, equipment, training and provision of FX-Net data to IMETs	Short-Term Ongoing, each FY	Coordinating funding levels for FX-Net via CFO and AWIPS; fund IMET workshop and COMET	OCWWS	CFO AWIPS PO NOAA-OAR-GSD
10.3	Collaborate with social scientists on best approaches to disseminate smoke, fire potential and debris flow information to public	Long-Term Unknown	Interacting with Jen Sprague of NWS. Drafted SOW and looking for funds	OCWWS	OST NWS/SPPO
11.1	Disseminate IMT spot forecasts from the field	Short-Term 04/30/11	Sharepoint server implemented at WFO Boise. HPCC Incubator proposal.	OCWWS	OST WFO ITO WG Predictive Services
11.2	Verify daily fire danger forecasts via the web and set fire weather element performance standards	Short-Term Ongoing	Verification branch already posting NFDRS info. System for Red Flags set up. JFSP proposals submitted	NWS Verification Branch	JFSP Program OCWWS NWS Regions



2008 SAB Report Recommendations



SAB Ref	Current Action	Period/Completion	Progress	Lead	Partners
12.1	Expand capability to provide GIS-based product access via low-bandwidth technologies	Short-Term 04/30/11	Prototype hand-held distribution systems already implemented	NWS Western Region	NWS Regions NOAA-OAR-GSD
13.1	Develop and deploy improved 3-D weather visualization tools including GIS capability	Mid-Term Unknown	NOAA HPCC Incubator proposal submitted for Spot visualization tools	NOAA-OAR-GSD	OCWWS OST
13.2	Develop and deploy improved 3-D weather visualization tools including GIS capability	Mid-Term Unknown	NOAA HPCC Incubator proposal submitted for Spot visualization tools	NOAA-OAR-GSD	OCWWS OST
13.3	Ensure NWS forecast products are compatible with Wildland Fire DSS (WFDSS)	Short-Term Ongoing, follow WFDSS versions	Ongoing changes, in consultation with USFS. Ingest of NDFD data	USFS WFDSS program developers	OCWWS
14.1	Continue funding fire weather ops, equipment, training and provision of FX-Net data to IMETs	Short-Term Ongoing, each FY	Coordinating funding levels for FX-Net via CFO and AWIPS; fund IMET workshop and COMET	OCWWS	CFO AWIPS PO NOAA-OAR-GSD
15.1	Collaborate with social scientists on best approaches to disseminate smoke, fire potential and debris flow information to public	Long-Term Unknown	Interacting with Jen Sprague of NWS. Drafted SOW and looking for funds	OCWWS	OST NWS/SPPO
15.2	Determine/refine concept of operations for USGS and NWS for debris flow warnings/forecasts	Long-Term Unknown	Started interactions with OHD about USGS-NWS involvement in debris flow	OCWWS	OST OHD



2008 SAB Report Recommendations



SAB Ref	Current Action	Period/Completion	Progress	Lead	Partners
16.1	Coordinate with DRI, Univ. of AZ, and NIDIS to better understand role of fire in climate system; improve fire weather outlooks	Mid-Term Ongoing	Ongoing work at seasonal assessment workshops (NOAA Climate Diag Ctr).	National Predictive Services (Robyn Hefferman)	NOAA CDC UA CLIMAS Program OST
	Verification field studies needed to transition algorithms for climate effects on fuels treatments	Long-Term Unknown	Unknown	Unknown	Unknown
16.2	Use fire detections from NOAA satellites to develop fire climate data record	Mid-Term Unknown	Unknown	NOAA-NESDIS	OCWWS OST
17.1	Formalize national and international exchange of operational and research personnel	Short-Term Ongoing	Consultation with Australian Bureau of Meteorology. Also, assessments with Mexico and Canada	OCWWS	Australian Bureau of Meteorology National Predictive Services
17.2	Formalize national and international exchange of operational and research personnel	Short-Term Ongoing	Consultation with Australian Bureau of Meteorology. Also, assessments with Mexico and Canada	OCWWS	Australian Bureau of Meteorology National Predictive Services
18.1	Increase NOAA Strategic Plan focus, designate "fire season", ID fire weather research focus and test bed location.	Short-Term Unknown	OCWWS Fire and Public Weather Branch will work for NWS; coord with MIT LL et al.	OCWWS	NOAA-OAR-GSD NWS SP OST
18.2	Work with fire agencies, NWS and NIST to determine appropriate roles/funding for R&D and OTE required for new high-res models	Long-Term Unknown	Ongoing work in Boulder, involving NOAA/OAR and NIST. NOAA/OAR to take lead	NOAA-OAR-GSD	NIST OST NCEP

2008 SAB Report Recommendations



SAB Ref	Current Action	Period/Completion	Progress	Lead	Partners
18.3	Establish fire incident archive and test bed for model research/verif. Started discussions with MIT Lincoln Lab about their testbed	Long-Term Unknown	Meetings with USFS. JFSP proposals submitted. Discussion on MOU for testbed	NOAA-OAR-GSD	OCWWS USFS JFSP Program MIT LL
18.4	Increase NOAA Strategic Plan focus, designate "fire season", ID fire weather research focus and test bed location. ID leveraging	Short-Term Unknown	OCWWS Fire and Public Weather Branch will work for NWS; coord with MIT LL et al.	OCWWS	NOAA-OAR-GSD NWS SP OST
18.5	Continue funding fire weather ops, equipment, training and provision of FX-Net data to IMETs	Short-Term Ongoing, each FY	Coordinating funding levels for FX-Net via CFO and AWIPS; fund IMET workshop and COMET	OCWWS	CFO AWIPS PO NOAA-OAR-GSD
19.1	Work with fire agencies, NWS and NIST to determine appropriate roles/funding for R&D and OTE required for new high-res models	Long-Term Unknown	Ongoing work in Boulder, involving NOAA/OAR and NIST. NOAA/OAR to take lead	NOAA-OAR-GSD	NIST OST NCEP
19.2	Lead a survey to identify leveraging opportunities	Short-Term Unknown	Unknown	NOAA-OAR-GSD	OCWWS OST
19.3	Continue on NCWG's Fire Environment Committee	Short-Term Ongoing	OCWWS and OST interacting with committees on many issues	OCWWS	Land Agency Partners