

NOAA Science Advisory Board
Fire Weather Research Working Group

Terms of Reference

Background

The National Oceanic and Atmospheric Administration (NOAA) provides critical weather support to federal and state land management agencies responsible for mitigating and suppressing wildfires. Support is provided via fire weather outlooks, forecasts, advisories, watches and warnings and on-site services.

There now exists an imperative to enhance and expand this level of support due to:

- (1) Increased volume of biomass in the Wildland forests, resulting in hotter, more costly fires,
- (2) Increased level of community development at the boundary of wildland forests, and
- (3) Expanded use of NOAA's products and services beyond fire needs in the post-9/11 world.

These factors, combined with rapidly evolving science and technology, imply an increased need to ensure applied research efforts are quickly and effectively transitioned into NOAA operations. This need was underscored by The Western Governors' Association in their June 2005 Policy Resolution as "An integrated fire weather and fire environment research program is critical for the effective management and health of U.S. forests and rangelands". The term "integrated" is mentioned due to the many disparate research efforts which are ongoing within NOAA, the U.S Department of Agriculture, (U.S. Forest Service); local Weather Forecast Offices (WFO); and joint bodies made up of representatives from each of these entities.

NOAA provides a number of specific products and services related to fire weather. The WFOs provide regularly-issued fire weather forecasts, fire weather watches, warnings, and spot forecasts as needed, and Incident Meteorologist (IMET) services directly to fire scenes. NOAA provides specialized training to its volunteer IMETs to enable them to fulfill this role. In addition, NOAA's Storm Prediction Center provides fire weather outlooks for up to eight days in advance, as well as experimental lightning and ensemble products for specific fire weather variables. Finally, NOAA's Environmental Prediction Center provides high-resolution numerical weather prediction products for use by WFOs and IMETs in delivering their fire weather products and services.

NOAA's applied research in areas related to fire weather has resulted in new operational products in such areas as monitoring and prediction of air quality, smoke, and lightning. Interest in these products increasingly exists beyond the fire community; including among public health officials and emergency managers. NOAA also participates in research efforts with the land management community, some of which explicitly include fire weather as a focus.

FINAL March 2007

NOAA Science Advisory Board Charge

NOAA has requested the NOAA Science Advisory Board establish an *ad hoc* working group to (1) ensure NOAA's fire weather research priorities match those of its land management partners and other interested parties outside the fire community who are increasingly using NOAA's products and services, and (2) explore opportunities to leverage current NOAA-internal and external collaborative fire weather research efforts to ensure improvements to NOAA's fire weather products and services are implemented in a timely manner.

Representation on this working group should include fire weather researchers from the federal and academic communities, management representatives from federal, state, and local land management agencies, and fire/emergency management personnel from the federal, state, and local levels. The working group members should have the following qualifications:

1. National recognition in the topical areas served by NOAA's fire weather products, including (but not restricted to) land, smoke, and/or air quality management;
2. Knowledge of and experience with the science that supports NOAA's fire weather and related programs;
3. Knowledge of and experience with the organization and management of complex mission-oriented research and development programs; and
4. No perceived or actual vested interest or conflict of interest that might undermine the credibility of the review.

Fire Weather Research Review Working Group (FWRWG) Charge

The FWRWG should carry out an independent review of current fire weather research being conducted by NOAA and other federal agencies, and in universities and elsewhere, and examine how the results of that research are being further developed and transitioned to operations by NOAA. The FWRWG should examine fire weather-related research efforts conducted by groups external to NOAA and identify areas of commonality where research activities might be leveraged for mutual benefit. The FWRWG should develop findings and recommendations to ensure these research results lead to improved operational fire weather information and forecasts. In addition, the FWRWG should examine related research within NOAA not necessarily specific to fire but which could result in improved fire weather services or other NOAA emergency support operations. Such areas may include (but are not restricted to) Homeland Security and remote sensing.

Specific questions to be addressed:

Science and Science Planning

1. Are NOAA's fire weather-related research, development, and transition programs appropriately focused on the most critical operational needs among fire weather forecasters, public health officials, and emergency managers?
2. Where should NOAA increase collaboration with external research entities (e.g., JSFP, FCAMMS, USFS Fire Research Labs, academia, other) to maximize leverage potential?

Transition of Research to Operations

1. How should NOAA ensure it provides maximum benefit to its federal, state and local partners based on the fire weather and fire weather-related research and development that it and other entities conduct?
2. In which research areas would improved products/services result in the most significant operational improvements related to protecting life and property?
3. What operational needs are not being addressed by NOAA's research, development, and transition activities?

Resource Planning

1. Are current and planned NOAA resources (financial, institutional, & intellectual) adequate to make significant advances in improving fire weather forecasts?
2. Are current and planned resources allocated to fire weather consistent with NOAA's plans, goals, and objectives as articulated in the NOAA Strategic Plan, NOAA 5-Year Research Plan, NOAA Goal and Program Plans, and science and technology infusion plans?

Term

The FRWG will carry out this review in approximately twelve months once convened. It will prepare a preliminary report of its analysis and findings within six months of its first meeting, and a final report, including recommendations, will be completed within twelve months. The working group will be dissolved after completing any follow-on requests regarding the final report by the SAB. \