SIGNIFICANT FIRE POTENTIAL OUTLOOK 2005

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During January 19-21, 2005, the National Seasonal Assessment Workshop: Eastern and Southern States (NSAW) was held at the U.S. Fish and Wildlife Service National Conservation Training Center in Sheperdstown, West Virginia. This workshop was part of the third national assessment organized by the Desert Research Institute Program for Climate, Ecosystem and Fire Applications (CEFA), the National Predictive Services Group (NPSG), and the University of Arizona Climate Assessment for the Southwest (CLIMAS). This was the second workshop devoted specifically to the NPSG Eastern and Southern areas.

The primary goal of NSAW was to create a regional assessment of the 2005 significant fire potential for the Eastern and Southern Geographic Area Coordination Centers (GACC). The organizers brought together 21 climatologists, meteorologists and fuel specialists to prepare an assessment during the workshop. Agency participation included federal, state and university. Critical inputs considered in the assessment include climate information and forecasts, fuel conditions and resource considerations. One of main output products is a map of the upcoming season's fire potential. Fire potential is the likelihood of fire occurrence based on factors such as fuel conditions, weather and firefighting resources.

On the first day of the workshop, climatologists and meteorologists gathered to synthesize and prepare climate forecast information. State and regional level land managers and fuel specialists exchanged reports on conditions affecting fuels and then learned the forecast projections. The group then divided by Eastern and Southern areas and worked as teams over the next day and a half to produce their regional outlooks. Representatives from each area (Eastern and Southern) then shared their findings with each other on the third day of the workshop, along with recommendations that could further improve the process next year.

The workshop process requires each region to prepare an assessment report. A standardized outline and protocols have been established for this report and are shown in Table 1. The protocols listed are not strictly inclusive, and are provided for consideration for both western and eastern workshops, as not all necessarily apply to both regions. This list along with discussion in the workshop highlights specific climate information needs.

Each GACC typically considers seasonal scenarios including most likely, best-case and worst-case outcomes with assigned probabilities. Table 2 shows the Southern area scenarios produced during the workshop.

A product required of each area is an outlook map highlighting regions of high or low fire potential. These maps are combined into a single national map that is also posted at the National Interagency Fire Center. Figure 1 shows the final map resulting from the 2005 workshop. Table 1. Seasonal wildland fire assessment report outline and protocols.

A. Executive Summary

- 1. A specific forecast statement (i.e., "the bottom line") should be explicitly included in the executive summary and final summary and recommendations.
- 2. A statement of the expected range of possibilities (scenarios) for the season.
- 3. Include a statement about your confidence in the forecast. Mention why you do or do not have confidence, based on your assessment of the various tools used in your forecast.

B. Introduction and Objectives

1. Include guidelines for use of the report and a disclaimer.

C. Current Conditions (including comparison with historical records)

- 1. Snow (SNOWTEL data, SWE, others)
- 2. Precipitation anomalies (recent week, month, water year)
- 3. Temperature anomalies (recent week, month)
- 4. ENSO & other climate indices impact on weather and atmospheric circulation
- 5. Weather and atmospheric circulation
- 6. NFDRS, Fire Danger, and other fire potential indicators
- 7. Drought indices and maps (PDSI, SPI, KBDI, soil moisture, groundwater, etc.)
- 8. Vegetation status (NDVI, Greenness imagery)
- 9. Fuel moisture (live, dead and foliar if known)
- 10. Fire occurrence data (number, size, duration if known for current year)
- 11. Fire behavior observations and/or Farsite run comparisons (if appropriate)

D. Climate and Weather Outlooks

- 1. Long-range climate outlooks (NOAA-CPC, IRI, Scripps, others)
- 2. Projected atmospheric circulation
- 3. ENSO and other relevant index forecasts
- 4. Drought forecasts (including NCDC drought amelioration)
- 5. Soil moisture forecasts
- 6. Fire weather indices

E. Fire Occurrence and Resource Outlooks

- 1. Estimates on number of fires (based on historic lightning episode information, acres burned, duration, Scripps/Westerling model, others)
- 2. Estimates of expected resource needs

F. Future Scenarios and Probabilities

- 1. Fire Family Plus
- 2. Priority sub-regions within Geographic Area
- 3. Fuel-type considerations
- 4. Climate considerations
- 5. Season Ending Event Probabilities

G. Management Implications and Concerns

H. Summary and Recommendations

Table 2. Different scenarios for the projected likelihood of significant fire potential in the Southern area.

Scenario description for the 2005 fire season	Probability
Most Likely Scenario	
Dry pattern continues in Florida and fire activity will be	800/
normal to slightly above normal in Florida and normal for	0070
the rest of the Southern Area.	
Best-case Scenario	
Wet pattern begins, leading to minimal fire activity	10%
throughout the Southern Area.	
Worst-case Scenario	
Large-scale drying trend develops, leading to above-	10%
normal fire activity across the Southern Area.	



Figure 1. Final outlook map of significant fire potential for the Eastern and Southern geographic areas for February through July 2005.

The interactive process of the workshop, which emphasizes information sharing and communication, yielded a number of workshop goals that were met:

- Creating a comprehensive seasonal significant fire potential outlook for the Eastern and Southern geographic areas
- Fostering communication and enhanced information flow among fire managers in different states and at the federal levels.
- Helping fire managers understand the values and limitations of climate forecasts.
- Providing feedback to climatologists about how existing or potential products could be modified to better meet the needs of the nation's fire managers.

- Gathering feedback on the usefulness of the NSAW products.
- Devising recommendations that will continue to improve the workshop process and resulting outlooks.

Feedback and evaluation of the workshop is an important process to help ensure continued success. Recommendations for organizers, participants and climatologists are all part of the workshop outcome. Some of these may be highly detailed, but all are considered important. For example distributing the participant attendance list ahead of time so everyone will know which states will be represented at the workshop. It was recommended to the participants to produce explicit fuel maps documenting the areas of potential risk given current conditions of fuels. The climatologists were asked to consider creating climate products that better quantify specific topics of interest to fire managers, such as the probability of events occurring during certain time frames.

Of course, the ultimate value of the workshop products is their usefulness. Participants listed a number of purposes that the resulting information has been used:

- To inform fire chiefs and firefighters about the significant fire potential during the coming season, including the many volunteers who assist in suppression efforts on a call-when-needed basis.
- To predict whether and when firefighters and resources will be available to respond to national mobilizations.
- To better plan the timing of prescribed burns for the coming season.
- To assist in decisions of whether firefighters will be likely to have the opportunity to participate in seasonal training programs, conferences or workshops.
- To provide insight on budgetary matters, such as whether the money set aside for firefighting should remain untouched as belts tighten at the end of the fiscal year.
- To inform the public, such as helping to make stakeholders aware of the reasons for the timing of prescribed burns or debris-burning restrictions, and keeping lawmakers aware of the fiscal fallout.

A final report on this workshop complied by Lenart et al (2005) is available at: http://www.ispe.arizona.edu/climas/conferences/NSAW/east05/05east_proceedings.pdf.

References

Lenart, M., T. Brown, H. Hockenberry, and G. Garfin, 2005: National Seaonal Assessment Workshop: Eastern & Southern States, Final Report. February 2005, University of Arizona, CLIMAS, 31 pp.

Speaker bio: Dr. Brown conducts research in applied climatology and meteorology, with emphasis on the application of data analysis, statistical methods and scientific visualization to atmospheric sciences data. His primary research topics include analysis of wildland fire-climate and fire-weather relationships and applications product development for wildland fire management planning and decision-making. Dr. Brown established and is director of the Desert Research Institute Program for Climate, Ecosystem and Fire Applications (CEFA). He is graduate faculty in the Atmospheric Sciences Program at the University of Nevada, Reno.