Drought and Climate Services in Arizona

The Socio-Economic benefits of National Hydro-Meteorological Services: Making a Business Case for Support

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HydroMeteorological SERVICES

Data, data, data!

Decisionmaker Needs
Services Society

http://www.weddingchannel.com/
2008 National Seasonal Assessment Workshop for the Eastern & Southern Geographic Areas

On January 29-30, 2008, wildland fire, weather, and climate specialists convened at the U.S. Fish and Wildlife Service National Conservation Training Center in Shephardstown, West Virginia for the fifth annual National Seasonal Assessment Workshop for the eastern United States. A fire potential outlook for the Eastern and Southern Geographic Areas was presented. This briefing document includes a description of existing climate forecasts, fuel conditions, and potential resource impacts.

Significant Fire Potential Forecast (February – June 2008)

The map below shows the significant fire potential forecast for the Eastern and Southern Geographic Areas. Significant fire potential is defined as the likelihood that a wildland fire event will require mobilization of additional resources from outside the area in which the fire situation originates. Areas highlighted as "Above Normal" are likely to require resources mobilized to augment local capability at some point during the forecast period of February through June, 2008.

The results of the workshop indicate there is a normal significant fire potential in portions of Texas and Oklahoma, much of Florida, southeastern Georgia, and the southern Appalachian Mountains up the East Coast. The critical factors influencing the fire potential for this outlook period are:

- La Niña is expected to persist into summer and bring dry conditions and associated above-normal fire potential to south-central and southeastern portions of the country into spring.
- Current severe drought conditions across the Southeast and Florida are expected to elevate fire potential leading to a second consecutive active spring fire season in the Southeastern Geographic Area.
- Dry conditions will likely expand across western Texas and Oklahoma increasing the likelihood of rapid fire spread, spotting and higher difficulty of control especially during high wind events.
- The combination of unseasonably warm and dry weather, along with insect infestation and associated defoliation will lead to above normal fire potential along the Eastern Seaboard.

Above normal significant fire potential is expected across western Texas, eastern New Mexico, western Oklahoma and portions of Colorado and Kansas in February. During the extended outlook period, above normal fire potential is forecast to persist or expand across much of the area described above as well as develop across much of Florida and southern Georgia. Another area of increasing fire potential is expected to occur over northern Georgia and extend as far north as Virginia.

The main factors influencing fire potential this outlook period are:

- La Niña is expected to persist into summer and bring dry conditions and associated above-normal fire potential to south-central and southeastern portions of the country into spring.
- Current severe drought conditions across the Southeast and Florida are expected to elevate fire potential leading to a second consecutive active spring fire season in the Southeastern Geographic Area.
- Dry conditions will likely expand across western Texas and Oklahoma increasing the likelihood of rapid fire spread, spotting and higher difficulty of control especially during high wind speed events.
- Unseasonably warm temperatures and below normal precipitation forecast for the eastern seaboard in spring along with numerous insect infestations and associated defoliation will lead to above normal fire potential.

Note: Significant fire potential is defined as the likelihood that a wildland fire event will require mobilization of additional resources from outside the area in which the fire situation originates.

National Wildland Significant Fire Potential Outlook

National Interagency Fire Center
Predictive Services

Issued: February 4, 2008
Next Issue: March 3, 2008

Wildland Fire Outlook – February 2008 through May 2008

http://www.nifc.gov/nicc/predictive/outlooks/outlooks.htm
Lake Powell’s decline
J. Dohrenwend, USGS

Water Hauling,
Northern Arizona Rocky
Mountain Elk Foundation

Southwest U.S. forest die-off
T. Degomez, UA Cooperative Extension

Soil desiccation
Arizona Daily Star
Arizona Drought Monitoring Technical Committee

NRCS Natural Resources Conservation Service

Arizona Department of Water Resources

CLIMAS

NOAA National Oceanic and Atmospheric Administration

National Weather Service

DPS Delivering More Than Power

The University of Arizona

Arizona Cooperative Extension

College of Agriculture and Life Sciences

Arizona Division of Emergency Management

USGS Science for a Changing World

Water Resources of Arizona
Short-term Update

Drought conditions in July and August 2008 have led to a short-term drought improvement in many watersheds, mostly in the southern half of the state. In central and southwestern Arizona, five watersheds improved from abnormally dry to moderate drought, and three watersheds in southern Arizona improved from moderate drought to abnormally dry. May-August precipitation had been greater than average, and the other nine are abnormally dry. August precipitation has also been greater than average, so the short-term drought status should continue to improve with next month’s update.

Long-term Update

Long-term drought conditions are based on the average July, August, and September precipitation. The current 36- and 48-month precipitation maps show significant improvement in the southern third of the state. The monsoon has been very weak through July, and the August data will show wetter than average conditions in the southern half of the state. It is expected that this year’s monsoon will lead to some improvement in the long-term drought status, based on the July-September data.
Local Drought Impact Groups (LDIGs)

- 7 = established
- 2 = initial meetings
- 5 = near future
Northwestern Arizona

MA+CT+RI
Belgium
Taiwan
Lesotho
Panama 50%

But…
Elevation range: ~2,400 m
Information Infrastructure
Dynamic Drought Index Tool

Dynamic Drought Index for Basins in North and South Carolina

Steps
- Select time scale
- Select drought index
- Select display type

Results
- Map
- Graph
- Table

Selected variables:
- Monthly time scale
- Percentiles
- > 100% Monthly PDSI
- Map
- > February 2008
- Quantile
- > 5 classes
- Same class intervals

Scalable Vector Graphics
The Scalable Vector Graphic (SVG) has recently been developed. Scalable Vector Graphics (SVG) defines the next generation of vector graphic formats, which are preferred over rasters. This website is optimized for Microsoft Internet Explorer and Firefox. If you see a circle keeps changing, you may have native SVG capabilities. If not, please download and install a compatible plug-in. Safari and Opera 9+ has been tested.

http://drought.dnr.sc.gov
This is a Drought Information System
Increasing Awareness and Building Capacity

El Niño & Winter-Spring 2006-07 Climate Outlook

December 13, 2006

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User Needs and Priorities

• Concerns
  – Sustainability of long-term supplies
  – Agricultural water allocations, frost
  – Fires, insect disturbance, invasive species

• Needs and Priorities
  – Monitor consumptive water use – ET, crops
  – Monitor mountain snow and rain
  – Forecast monsoon onset, drought
  – Simple tools → alternatives, growth

• Discussion Support
Evaluation

• Degree of collaboration
• Quality and relevance of research and decision support to stakeholders and researchers
• Perceived credibility and reliability
• Evidence of impact or planning and decision making (by users)

Miles et al., 2006 – Proceedings of the National Academy of Sciences
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