Eastern Area Spring 2003 Fire Weather/ Fire Danger Outlook

Updated
March 11, 2003

EACC Predictive Services

Introduction and Executive Summary

The following outlook was made with the most recent weather and climate data available at the beginning of March 2003. It is a general report intended to provide fire management personnel with an area wide outlook for the spring of 2003. Information included in this outlook was presented at the 2003 National Seasonal Assessment Workshop held in Mesa, AZ in late February. Due to the variability in the data and weather computer model limitations, it is important for the local fire manager to know their own area of responsibility and to base their actions on those conditions.

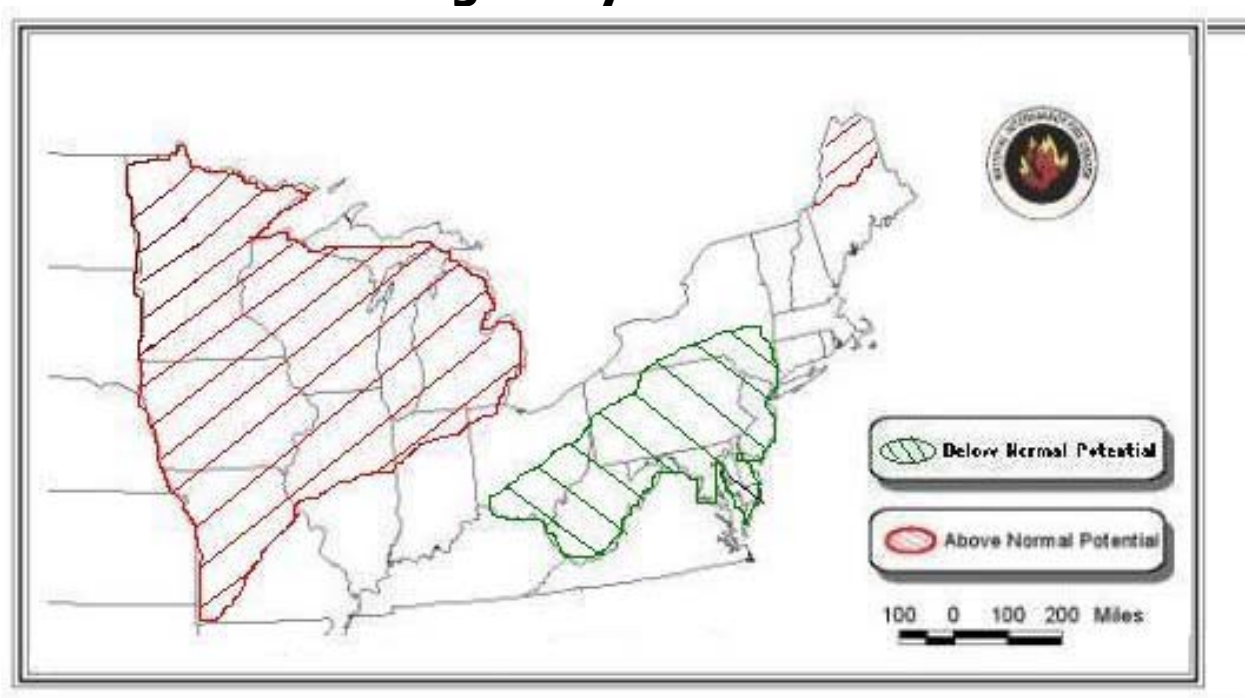
Above normal rainfall over portions of the Great Lakes Compact through the summer and fall of 2002 created an abundance of fine fuels. Outside of the areas that receive lake effect snowfall, below normal snowfall has prevailed across much of the Great Lakes. This has allowed grass fuel types to remain standing with no compaction of other fine fuels.

The lingering impacts of El Nino are expected to continue the trend of below normal precipitation across the Great Lakes and northern Big Rivers Compacts into the early spring months of 2003. Current snowfall and/or precipitation deficits in place combined with abundant fine fuels will likely lead to above normal fire potential in the areas highlighted below. Northern Maine has been beyond the northern extent of storms that have recently affected the rest of the Northeast. This along with any extended dry period this spring will create above normal fire potential.

The eastern Mid-Atlantic and southern Northeastern states have received above normal precipitation (mostly in the frozen state) during the latter portion of the current winter season. This trend is expected to continue at least into the early spring months. This should lead to below normal fire potential across much of the Mid-Atlantic and southern Northeast Compacts.

The graphic displayed below shows expected fire potential for March through May of 2003. This outlook incorporates the state of fuels across the Eastern Area based on the latest precipitation and soil moisture anomalies, drought and snow depth data. The outlook also utilizes the consensus climatic outlook presented at the 2003 Climate Assessment Workshop held at the end of February 2003 in Mesa, AZ. In addition, the continuing impacts of analog or "similar" El Nino winter seasons of 1957-58 and 1969-70 were also used in this outlook.

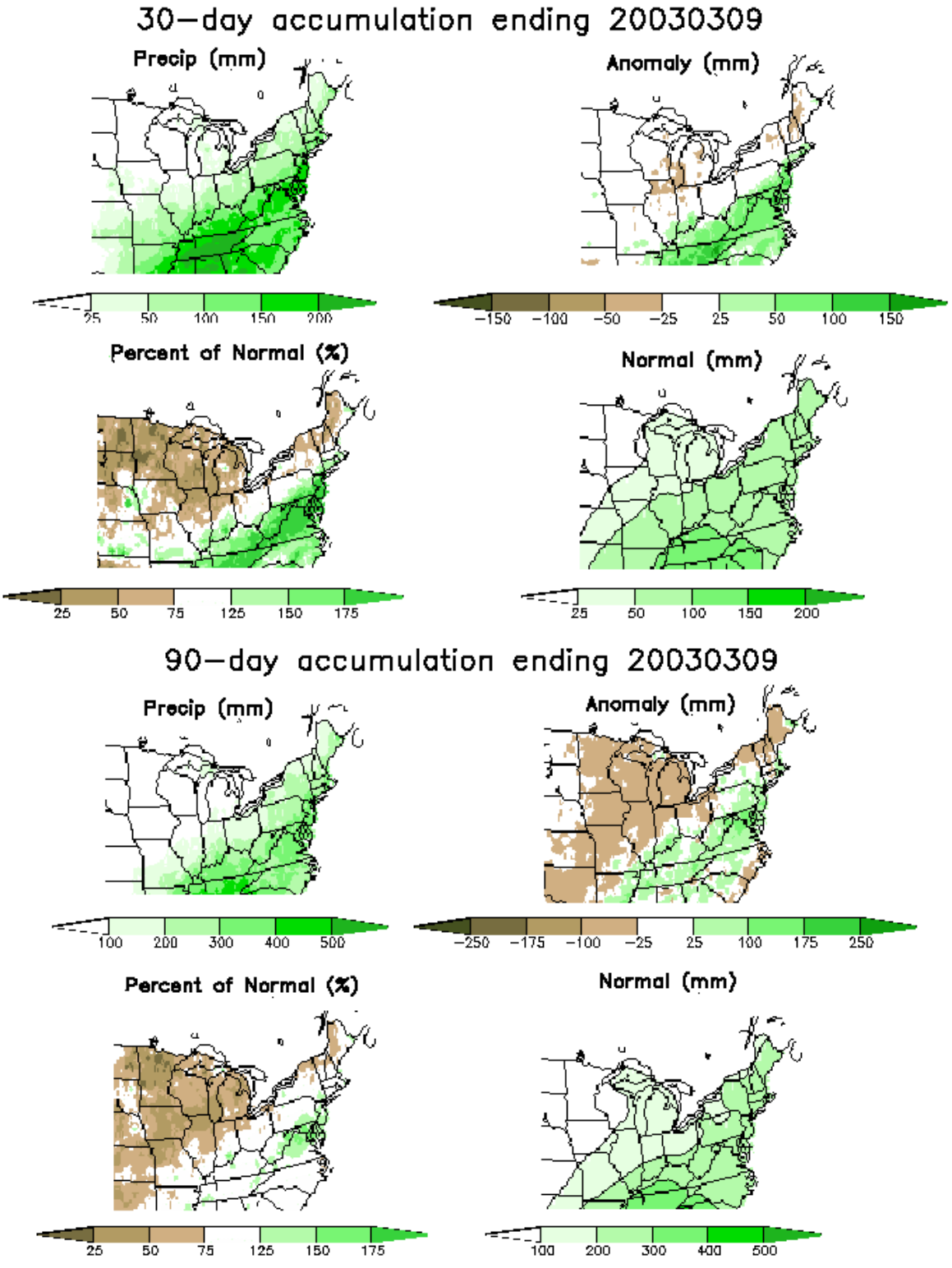
March Through May 2003 Fire Potential



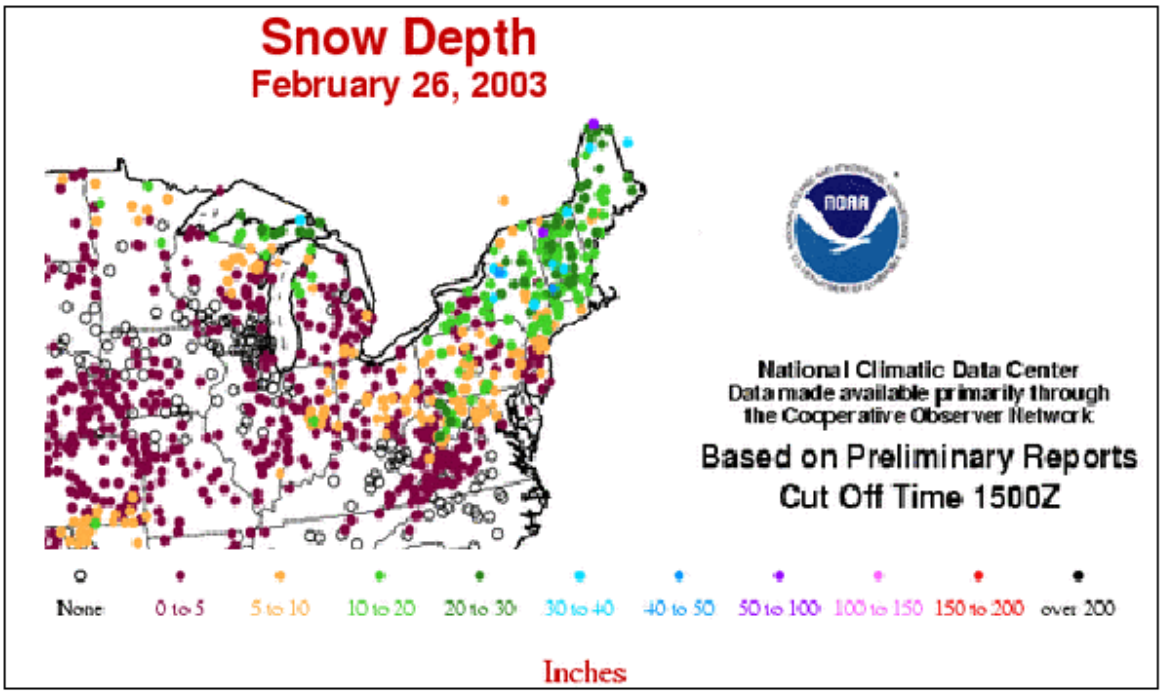
Current Conditions

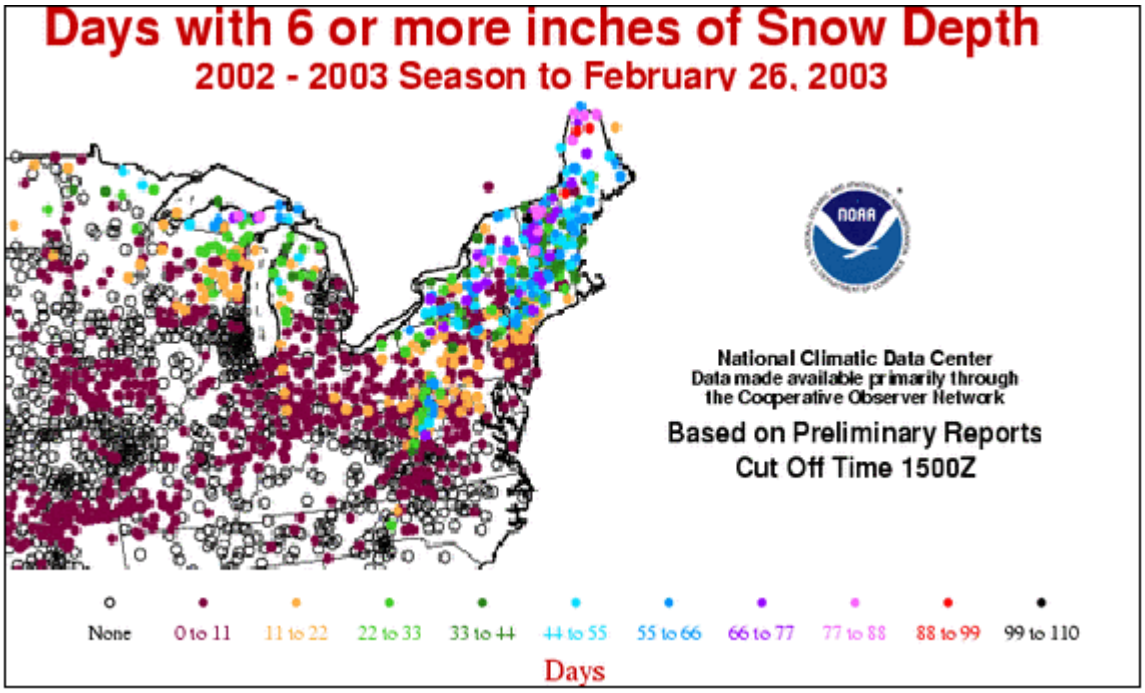
Accumulated Precipitation and Drought Review

The following graphics display accumulated precipitation data for the previous 30 and 90 day periods ending on March 9, 2003. Over the 30 days leading up to March 3rd portions of the Great Lakes and Northern New England states received below normal amounts of precipitation. The 90-day period preceding March 10th produced below normal amounts across much of the Great Lakes Compact, the northern Big Rivers Compact and northern states of the Northeast Compact. The 90-day precipitation anomalies ending on March 9th are also fairly similar to the latest U.S. Drought Monitor graphic.



Snow Depth

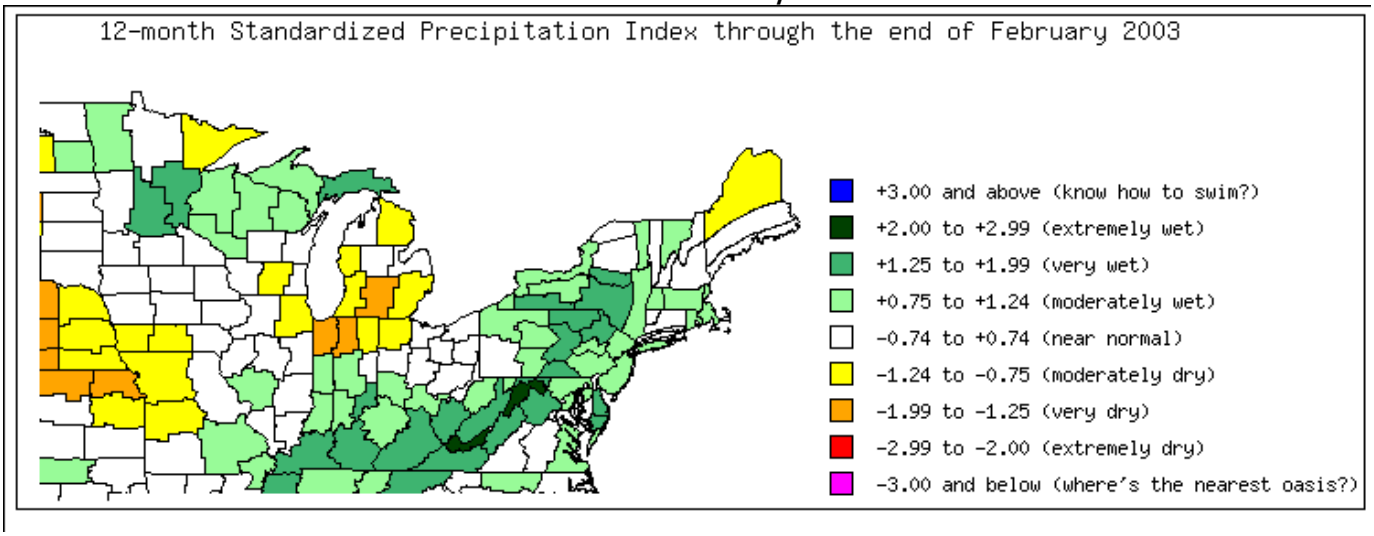




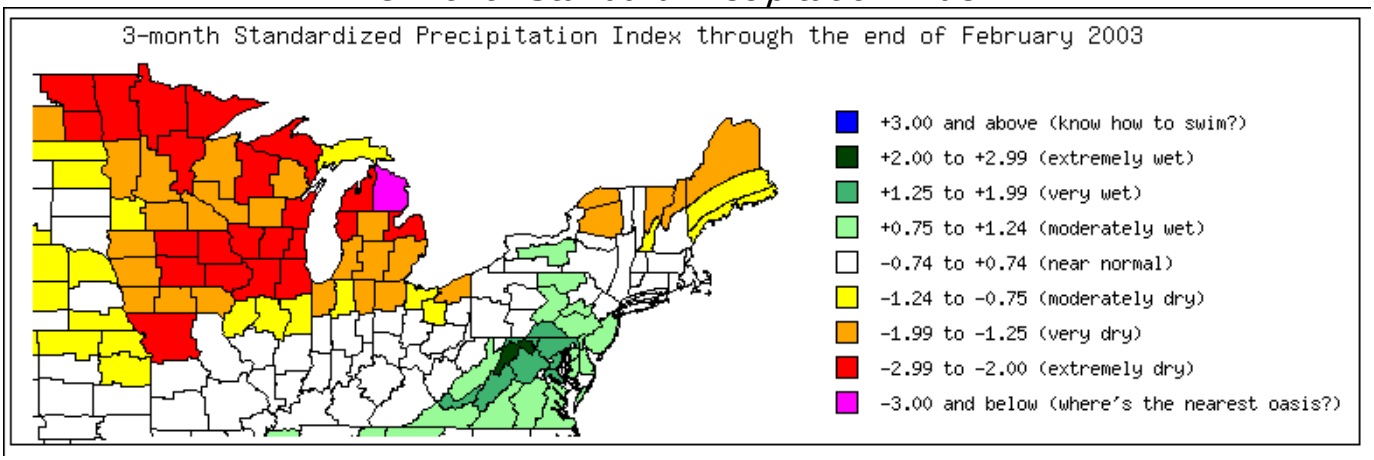
Snow depth information ending on February 26, 2003 are displayed above. The graphic displayed at the top of this page depicts the current snow depth as of this date. The deepest snow cover as of February 26th was found over the Upper Peninsula of Michigan, the Northeast and portions of the Appalachians. These areas have also incurred the highest number of days with snow depths of 6 inches or greater during the 2002-03 winter. A series of low pressure systems have also recently produced some significant snowfall amounts across the eastern and southern Mid-Atlantic states as well as portions of the Northeast.

Standard Precipitation Index

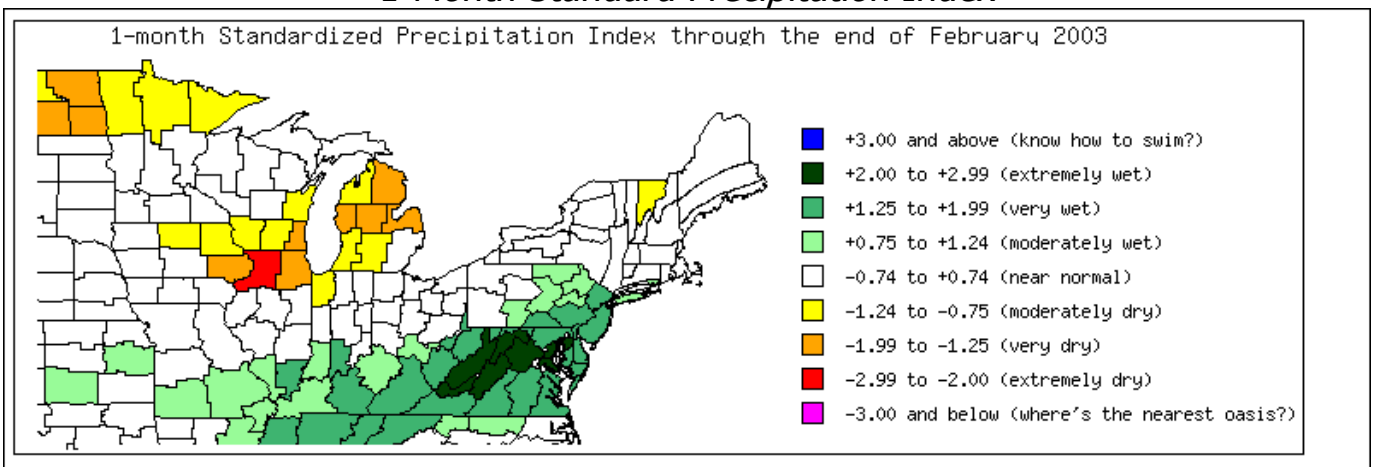
12-Month Standard Precipitation Index



3-Month Standard Precipitation Index



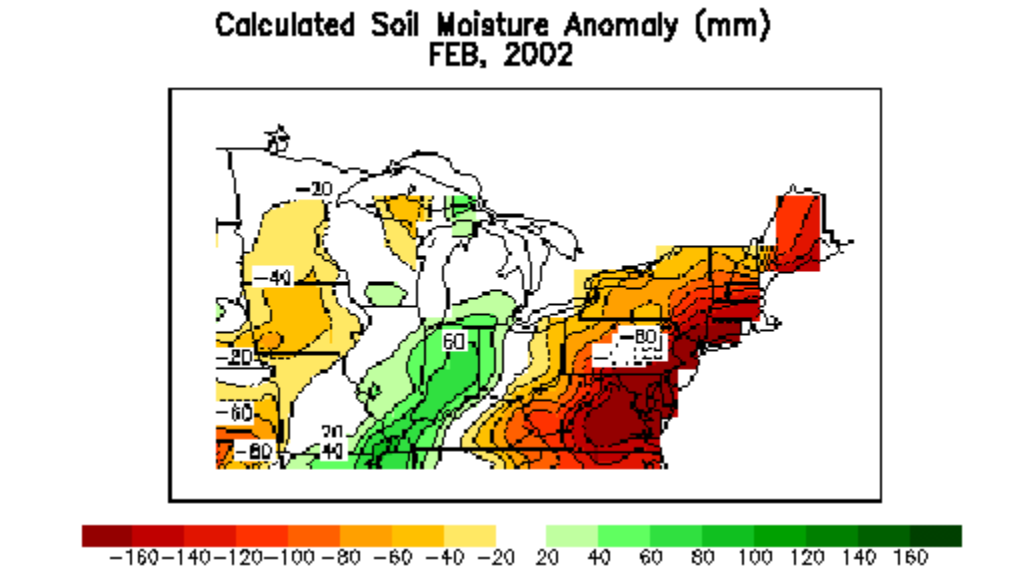
1-Month Standard Precipitation Index

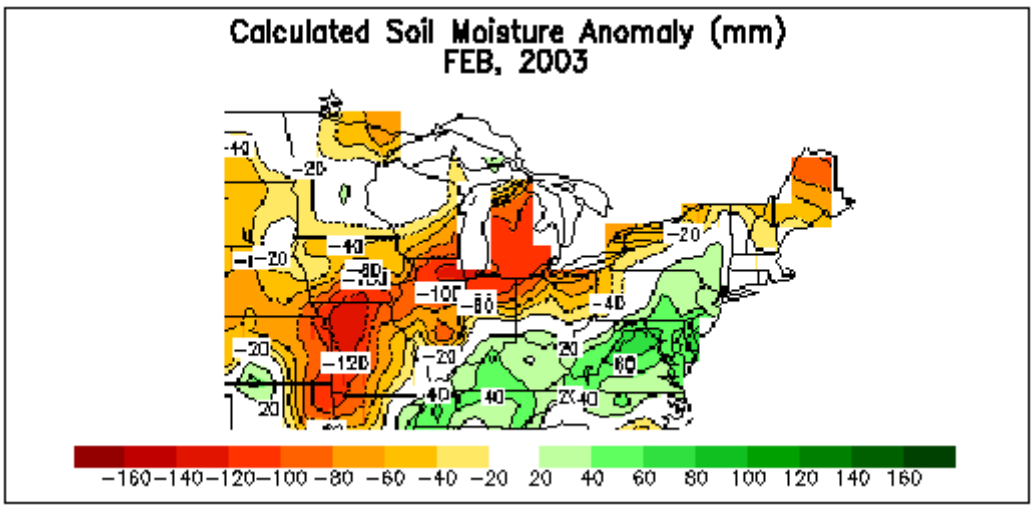


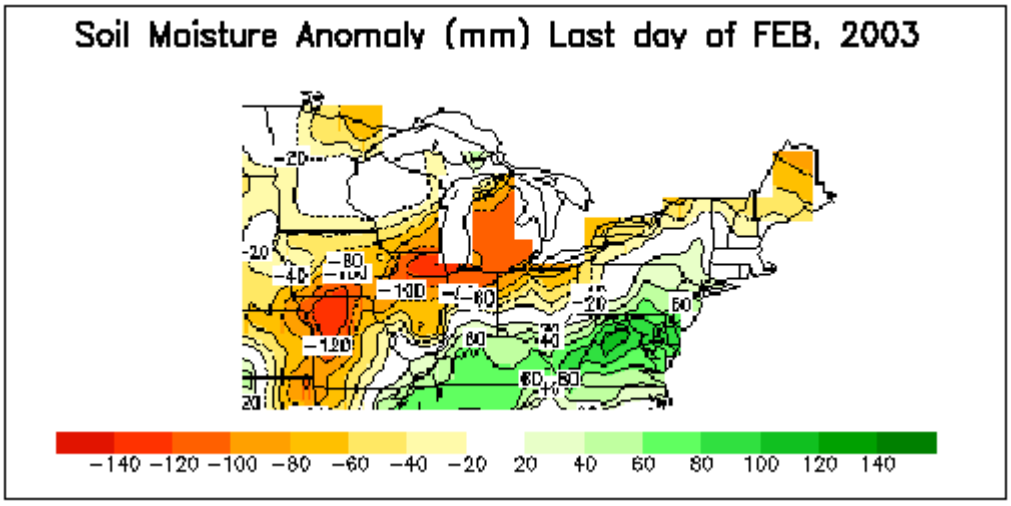
Standard Precipitation Index charts displayed above depict precipitation anomalies within each climate zone over the past 12, 3 and 1 month periods. Fairly frequent and significant precipitation events during the winter of 2002-03 have provided some relief to the long term drought which was in place across the Mid-Atlantic states and eastern seaboard at the end of the Fall of 2002. Meanwhile, precipitation deficits across much of the Great Lakes and northern Big Rivers Compacts have created drought conditions over the 3 month period leading up to March. Frequent storm systems moving through the lower Ohio Valley have mitigated the precipitation deficits depicted in this area in the latest 1 month SPI graphic.

What is the Standardized Precipitation Index?

Soil Moisture Anomalies

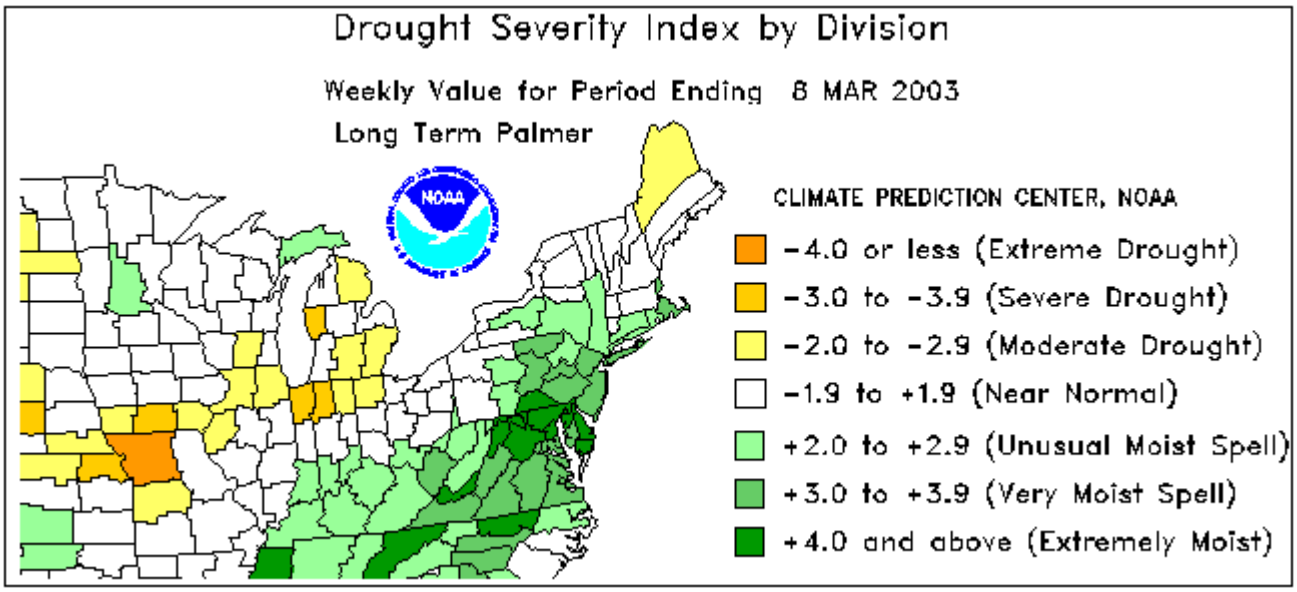




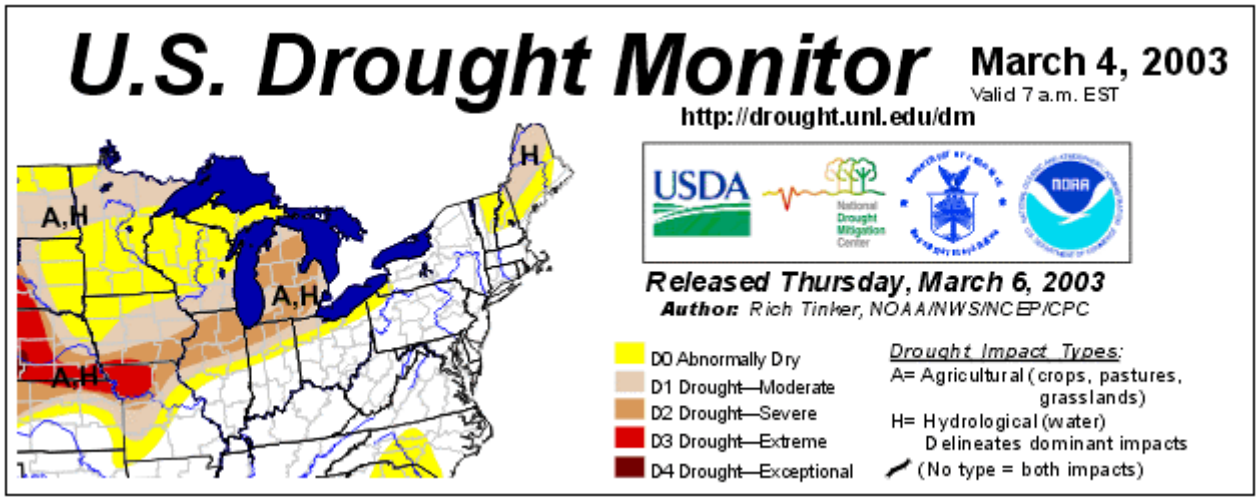


Soil moisture anomalies can be used as a valuable indicator of not only the possibility of fire ignition but also longevity. 12 month soil moisture deficits have shifted from the eastern states to the southern Great Lakes and western Big Rivers Compacts as depicted by the 12 month soil moisture anomalies ending in February 2002 and February 2003 displayed above. 30 day soil moisture anomalies ending on February 28, 2003 are shown directly above.

Current Long Term Drought Information



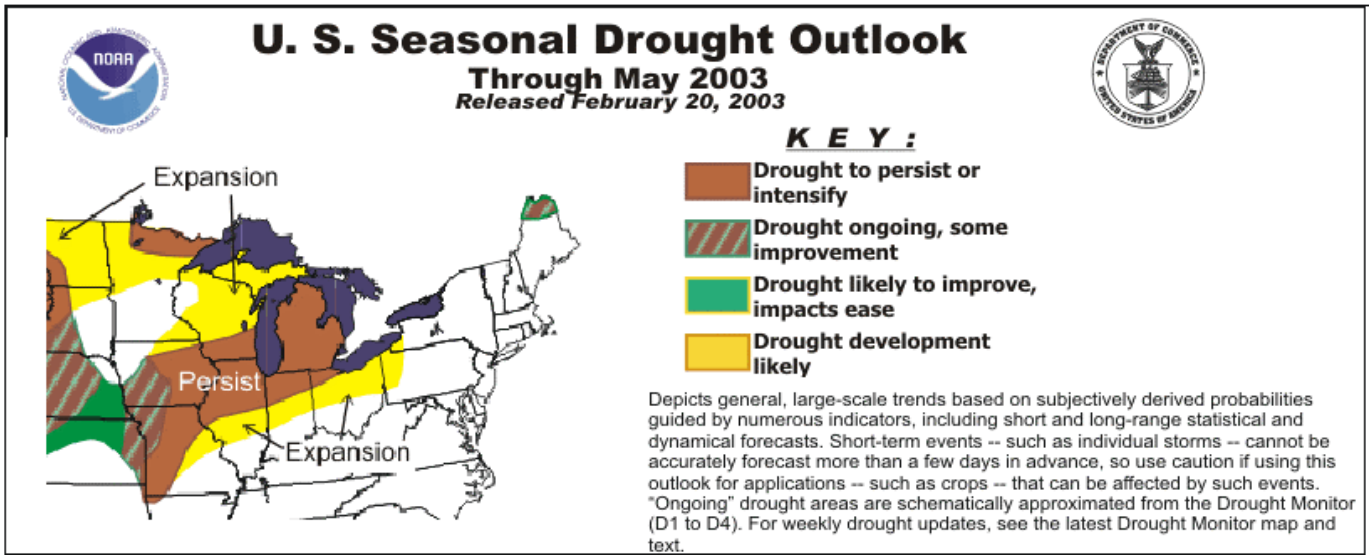
The above graphic displaying the latest Long Term Palmer Drought Index reflect the areas where the highest precipitation anomalies are in place. While portions of the eastern and southern Great Lakes and western Big Rivers states are currently in a moderate to severe drought, much of the eastern Mid-Atlantic and southern New England state compacts are recording high levels of moisture. The U.S. Drought Monitor graphic displayed below also reflects where the highest precipitation deficits are in place at the beginning of March 2003.



Long Range Drought and Precipitation Outlooks

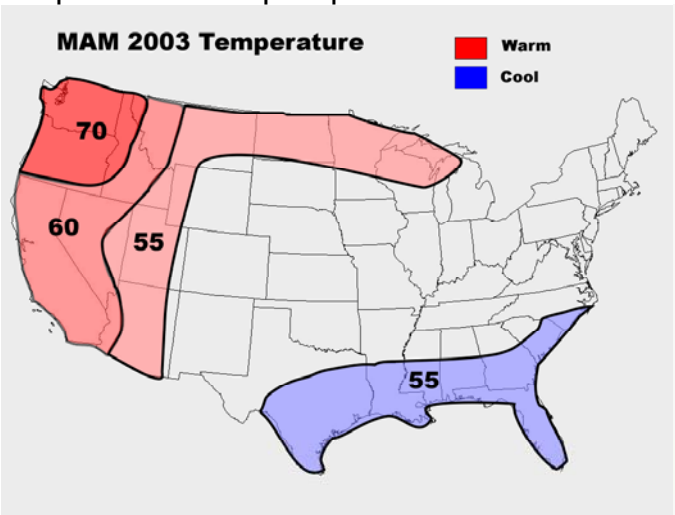
Drought Outlook

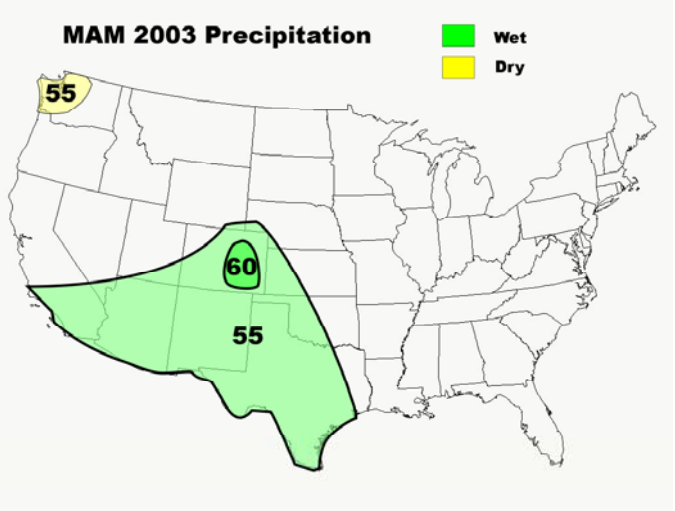
Based on the Climate Prediction Center's 90-Day temperature and precipitation outlooks for March through May of 2003 the graphic below indicates areas where drought is expected to expand, persist or improve. Besides the western Big Rivers states and northern Maine, drought is expected to persist or expand across much of the Great Lakes and northern Big Rivers compacts.



Long Range Precipitation and Temperature Outlook

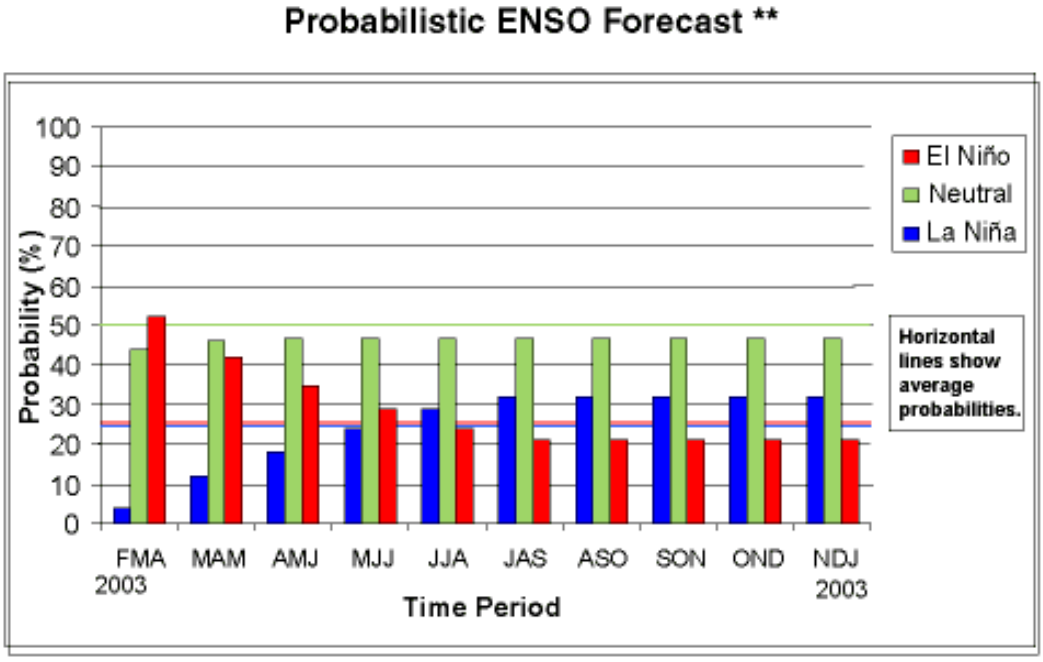
The following graphics below display the temperature and precipitation outlooks for the spring of 2003 assembled by various climate experts at the 2003 National Seasonal Assessment Workshop. The areas contoured in light pink in the northwestern Great Lakes in the graphic on the left indicate a 55 percent chance of above normal temperatures during March through May of 2003 and a 45 percent chance of below normal temperatures. Areas in white over the rest of this graphic and the precipitation outlook indicate an equal chance of above or below normal temperatures and precipitation.

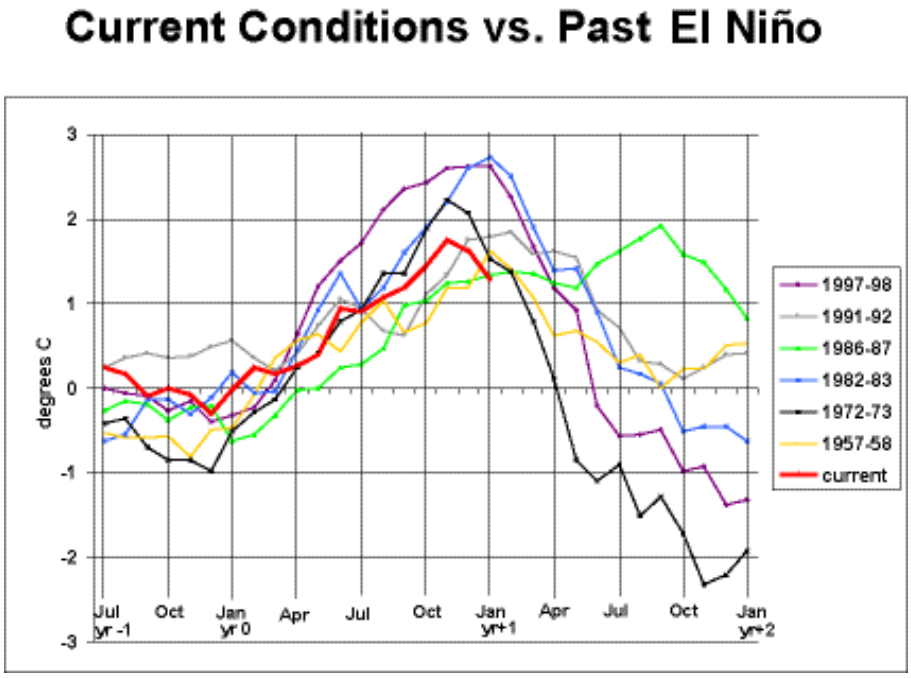




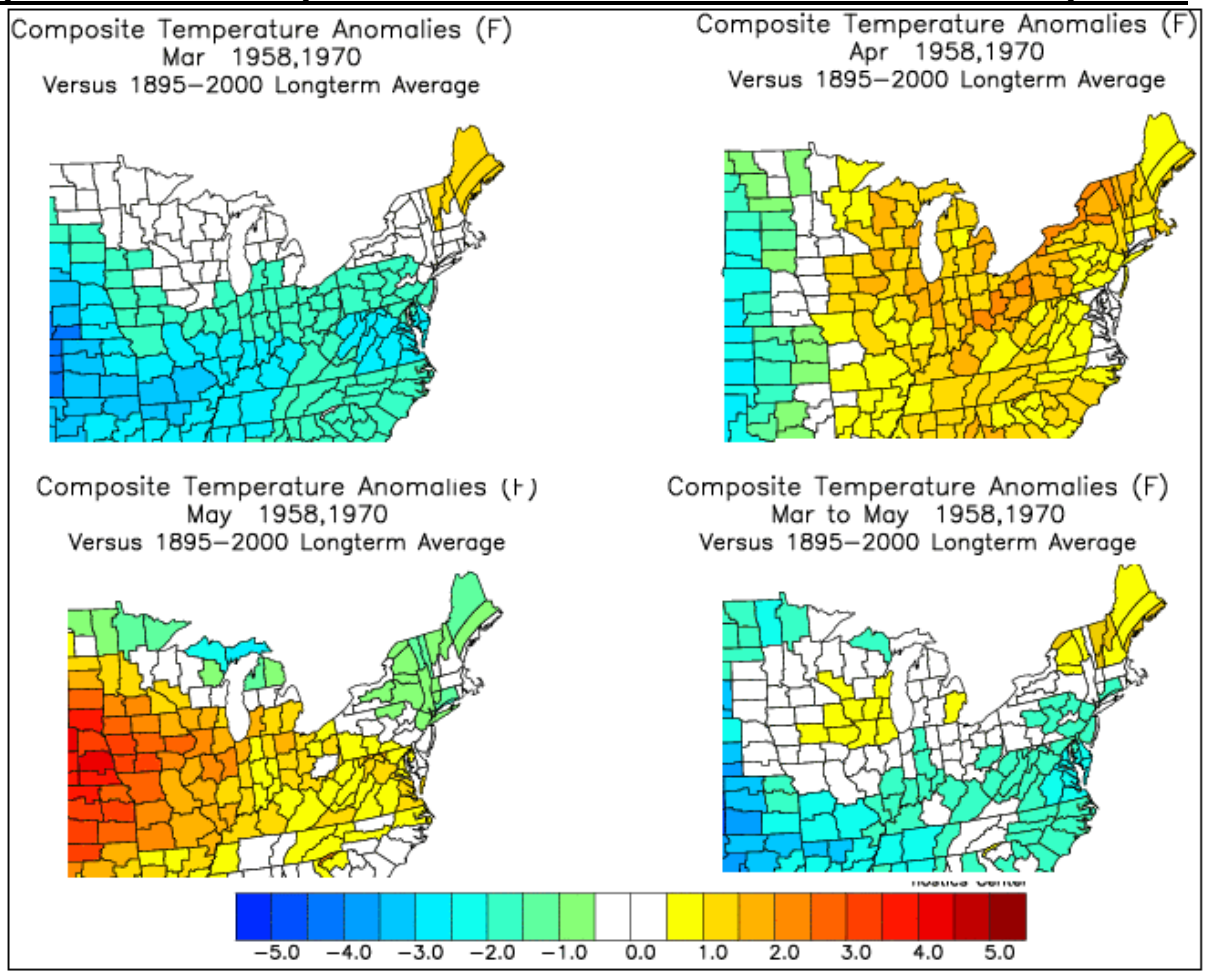
El Nino/Southern Oscillation Discussion

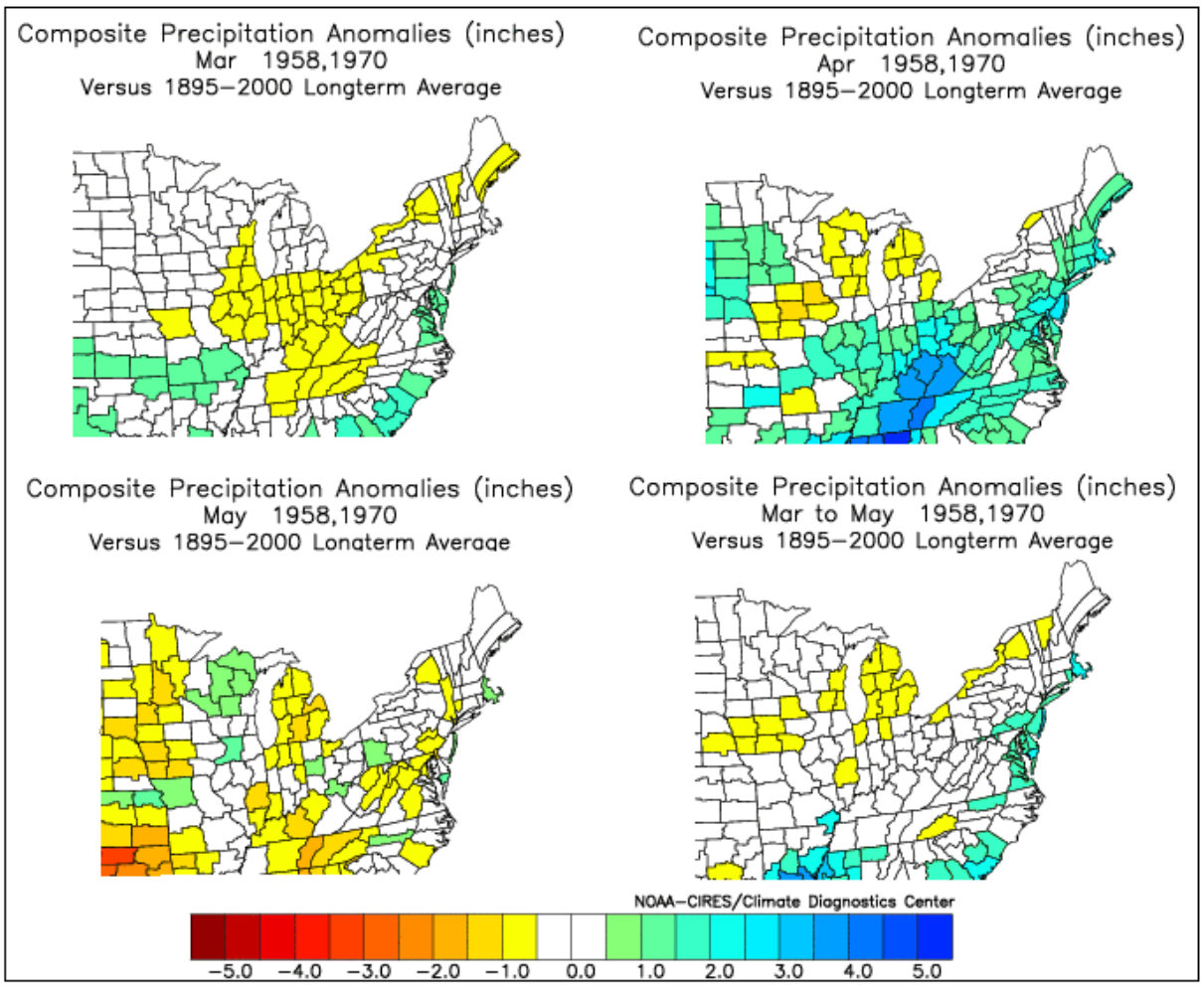
The El Nino/Southern Oscillation (ENSO) refers to anomalies in sea surface temperatures (SST) across the southern Pacific Ocean. An El Nino episode refers to warmer than normal SST's over the eastern tropical Pacific while a La Nina episode refers to cooler than normal SST's over the same area. The current El Nino episode is expected to persist into the spring of 2003 as shown in the figure below. The winters of 1957-58 and 1969-70 are previous El Nino episodes that were similar to 2002-03 regarding their onset, strength and forecast duration. Temperature and precipitation anomalies that occurred during these similar or "analog" seasons have corresponded fairly well to the current winter season. The graphics below display temperature and precipitation anomalies that occurred during these similar El Nino seasons from March through May. Anomalies for each month have been displayed because confidence in the strength and duration of the current El Nino episode decreases with time. However, at this time it is likely that the current El Nino episode will slowly diminish later this spring into early summer.





Temperature and Precipitation Anomalies of Similar Previous El Nino Episodes





Resource Outlooks

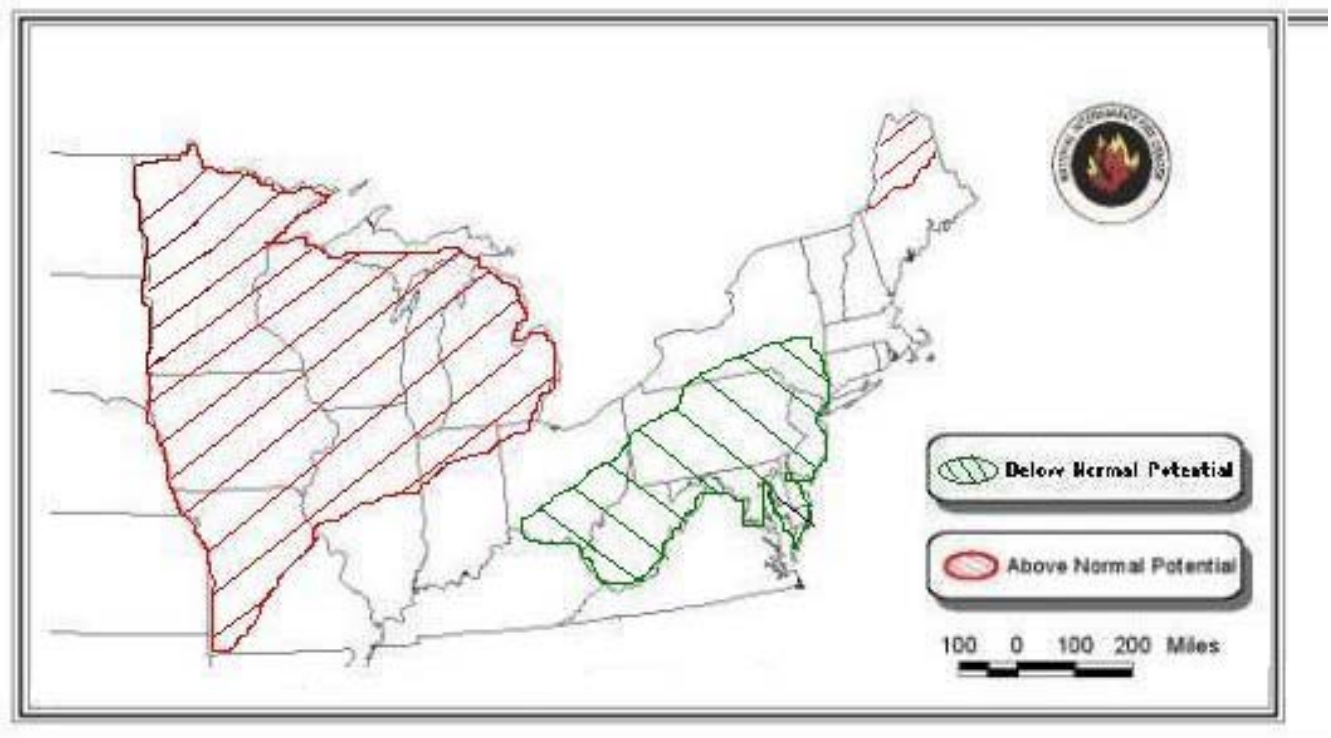
Historically the Eastern Area does not import large amounts of resources. However, based upon current information the spring 2003 fire season could be robust in nature in certain areas. With below normal snow depths past season grasses have not been compressed and are still standing in the parts of the Great Lakes. With precipitation deficits expected to continue any ignitions will burn deeper and may require extensive mop up operations. Fires in the peat soil areas may be very problematic.

The spring fire season may require the ordering of national resource Air Tankers and Type 1 crews as well as Type 2 Incident Management Teams. These resource needs are especially likely if ignitions occur on extreme fire danger days in the Boundary Water Canoe Area of far northeast Minnesota where extensive areas of dead, large fuels are in place. The typical spring prescribed fire season may also arrive earlier than normal in the areas forecast to be in above normal fire potential.

Eastern Area Spring 2003 Fire Potential Outlook

After combining current conditions with the consensus climatic outlook compiled at the National Seasonal Assessment Workshop and the projected spring composite temperature and precipitation anomalies from the analog winter seasons of 1957-58 and 1969-70 we have projected the following areas of above and below fire potential in the graphic below.

March Through May 2003 Fire Potential



The consensus climatic outlook for the spring of 2003 was made by the following people:

Tim Brown, CEFA, Desert Research Institute
Klaus Wolter, Climatologist, NOAA-Climate Diagnostics Center
John Roads, Research Meteorologist, Scripps Institute of Oceanography
Russell Martin, Meteorologist, NOAA-Climate Prediction Center
Tony Barnston, International Research Institute