



THE ATMOSPHERIC RESERVOIR

Examining the Atmosphere and Atmospheric Resource Management

"Fire Weather"

By Mark D. Schneider

Did you know that besides forecasting winds and precipitation to protect lives and property, the National Weather Service (NWS) forecasts fire weather? *Fire Weather* is defined by the American Meteorological Society (AMS) as, "weather variables, especially wind, temperature, relative humidity, and precipitation, that influence fire starts, fire behavior, or fire suppression." North Dakota had its share of fire weather conditions this spring and there were many watches and warnings issued to alert land management agencies, local authorities, and the general public.

See call out box.

Because the definition of a Red Flag event varies from one region to the next, the NWS Bismarck was consulted and Lead Forecaster Nathan Heinert was able to provide clarification. "The NWS Bismarck uses primarily relative humidity and winds to determine Red Flag events," said Heinert. "Forecasters watch for percent relative humidity to drop into the teens or twenties (or lower), in combination with winds of 20 to 30 miles per hour or more as indicators for triggering warnings."

Heinert further explained that fire weather criteria were lowered this spring due to very dry grasses. Well-below normal snowfalls across North Dakota during the 2014-15



Kraft Fire Complex 2002.

season and a late start to spring season rainfall set the stage for fire concerns. Significant snowfalls act to mat down grasses and vegetation. With minimal snow last season, standing grasses quickly spread flames through burning fields.

When using models to help forecast fire weather, fuel type and terrain are important variables. NWS Bismarck and Grand Forks forecasters use *grasslands* for their modeled fuel type and this is very similar to the NWS Rapid City with the exception of the Black Hills National Forest. In North Dakota, terrain becomes an important variable when considering fire conditions out west in the Badlands.

North Dakotans witnessed many grassfires this spring. Red Flag Warnings should be taken very seriously because they are an indicator of just how severe fire conditions are. NWS forecasters are using their talents to help protect us, in more ways than we know.



FIRE WEATHER PRODUCTS

The two main fire weather products issued by the NWS are:

FIRE WEATHER WATCH

alerts land management agencies of the potential for a Red Flag event in the near future. A forecaster is reasonably confident that Red Flag criteria will be met. Fire Weather Watches are generally issued 12-72 hours in advance of an event, but can be issued in the first 12 hours for dry lightning events.

RED FLAG WARNING

warns of a Red Flag event that is impending or occurring. These are issued when the forecaster has a high degree of confidence that Red Flag conditions will occur in the next 24 hours.



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