

## **Topic: Use of the WET FLAG when enter observations into WIMS**

When using either the New Observations (NOBS) or Edit Observations (EOBS) functions within WIMS the user has a choice of retaining the default WET FLAG value keyed to the State of Weather or to override it.

**There is only one instance, in the Southwest Area, when you may want to override the default flag. This is for when fuels are snow covered.** There is no direct NFDRS entry that tells the model whether the fuels are covered with snow or not. As a result it is not unreasonable to experience weather conditions that would generate potential drying of the dead fuels in the model even though they are snow covered. Visualize a clear, spring day when the temperature may be in the 60's and the RH in the 20's with snow on the ground. The State of Weather would probably be entered as a 0 or 1 for these conditions. The NFDRS model would calculate fine fuel moisture based on those values and produce intermediate calculations and NFDRS outputs accordingly when in reality the indices should be zero since the fuel is covered with snow. The only way to keep the model from making these calculations is to set the WET FLAG to YES to reflect the fact that they are snow covered. Again the IC, SC and BI outputs are set at zero because the WET FLAG is set to YES.

In this situation, there is probably some snow melt occurring under the conditions described but there is no option to record how long it occurs. To account for this, a few years ago an algorithm was developed to feed moisture into the model based on the daily values entered for State of Weather, temperature, and WET FLAG entry. The assumption is that when you set the WET FLAG to YES and show a state of weather code of 0, 1, 2, or 3 you have told the model that the fuels are snow covered. At the same time keying off the temperature, the model assumes that some melting is occurring and moisture should be entering into the calculations.

Internal to the model, a precipitation duration value is entered into the calculations based on the following table:

Temperature Range	Precipitation Duration Assumption
Less than 35 degrees	No duration
36-40 degrees	2 hours of precipitation is assumed
41-50 degrees	6 hours of precipitation is assumed
51-60 degrees	10 hours of precipitation is assumed
61 degrees or higher	14 hours of precipitation is assumed

The above adjustments work fine as long as the fuels are snow covered. This brings up another interesting topic...how to determine if the fuels are snow covered. In many instance the unit dispatcher or the individual responsible for entering information into WIMS is NOT able to directly see the area around the RAWS in order to make a determination as to the snowcover situation around the RAWS. Due to

this...there are several things one can do to ensure the most accurate portrayal of the snow situation.

1. Phone or radio some personnel that might be able to view the area around the RAWS. Beyond seeing the area around the RAWS yourself, this is probably the next best option.
2. For those RAWS that have fuel temperature sensors on them, snow can be detected by monitoring the fuel temperature readings. In general, when the sensors are covered with snow, they usually read a constant 28-30 degrees around the clock.
3. Inspect a couple web sites that give snowcover information. Each of these sites is different and has various focus areas...for questions on understanding and/or interpretation...please call Southwest Area Predictive Services

<http://lwf.ncdc.noaa.gov/oa/climate/research/snow/snow.html>

<http://www.nohrsc.nws.gov/>

<http://www.wcc.nrcs.usda.gov/snow/>

<http://www.ssd.noaa.gov/PS/SNOW/index.html>