SENSOR DEPLOYMENT AND SITING REQUIREMENTS: RAWS STATIONS

Adapted from: ***NATIONAL FIRE DANGER RATING SYSTEM (NFDRS: Weather Station Standards***

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Weather Station Standards Task Group

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Sensor Deployment Requirements Automated NFDRS (RAWS) Stations

Precipitation

Sampling Height 1-6 feet, varies with mounting tower

Wind Speed

Sampling Height 20 feet

Wind Direction

Sampling Height 20 feet

Air Temperature

Sampling Height 4-8 feet

Relative Humidity

Sampling Height 4-8 feet

Solar Radiation

Sampling Height 5-8 feet (so not to be shaded during the day)

SITE SELECTION

Process for Installing a New and/or Moving an Existing Station:

1. When installing any station, it is particularly important to involve a weather forecaster and other interagency personnel (as appropriate) in determining a new site or relocating an existing station.
2. When moving an existing station, the NWS must be contacted to assist in the entire administrative process and to make contact with interagency partners and other users. It is particularly important to contact your agency weather station coordinator when moving an existing station in order to maintain integrity of historical data. Station relocation information must be updated in ASCADS and WIMS to clearly include the fact that the station is reporting from a new location.
3. Contact the agency or regional RAWS/AWS coordinator. To find out who your contact would be, call the Information Systems Help Desk located in Boise, Idaho at 800-253-5559 or the interagency web page at http://www.fs.fed.us/raws .
4. Obtain the following station site information: station name, legal (Township, Range, quarter-section), county, elevation and lat/long in degrees, minutes, seconds format.
5. Obtain a 6-digit National Weather Service (NWS) identification number (also referred to as the WIMS number) for your station.
6. Transmission via GOES satellite requires a National Environmental Satellite Data Information Systems (NESDIS) Identification Number in addition to the NWS ID number. Contact your agency NESDIS ID coordinator. If you don't know your agency coordinator, contact the Information Systems Help Desk or use the interagency RAWS web page http://www.fs.fed.us/raws .

Site Selection Considerations:

The standard RAWS station should be located in a large, open area away from obstructions and sources of dust and surface moisture. The station should be on level ground where there is a low vegetative cover. Furthermore, it should be situated to receive full sun for the greatest possible number of hours per day during the fire season. If located on a slope, a south or west exposure is required to meet fire danger rating standards (Deeming, Lancaster, Fosberg, and others 1972).

Consider security (from animals and human vandalism) when selecting a site. To prevent any damage from wildlife, livestock etc., installation of a fence is highly recommended.

The following rules should govern the location of RAWS station:

1. Locate the station in a place that is representative of the conditions existing in the general area of concern. Consider vegetative cover type, topographic features, elevation, climate, local weather patterns, etc.
2. Select a site that will provide for long-term operation and a relatively unchanged exposure. Consider site development plans, e.g., roads, buildings, parking areas;

ultimate sheltering by growth of vegetation; and site accessibility during the intended operational period.

3. Arrange the station so as to give data that is representative of the specific area in which the station is situated. Consider exposure requirements for each instrument in relation to such things as prevailing winds, movement of the sun, topography, vegetative cover, nearby reflective surfaces, and wind obstructions.

In accordance with the above rules, the following situations should be avoided when selecting a station site:

1. Sources of dust such as roads and parking areas. If unavoidable, locate station at least 100 feet on the windward side of the source.
2. Sources of surface moisture such as irrigated lawns, pastures, gardens, lakes, swamps, and rivers. If unavoidable, locate station several hundred feet to the windward side of the source.
3. Large reflective surfaces such as white painted buildings. The same holds for natural reflective surfaces such as lakes, ponds, canals, and large rock surfaces. If unavoidable, locate station on north side, but far enough away so as not to be artificially shaded or influenced (at least a distance equal to the height of the reflective surface or 50 feet, whichever is greater).
4. Extensively paved or black-topped areas. If unavoidable, locate station at least 50 feet to the windward side.
5. Large buildings, trees, and dense vegetation. Locate station so that any obstructions to wind speed are mitigated according to the guidance in The Weather Station Handbook, PMS 426-2, pages 66 and 67.
6. Distinct changes in topography such as gullies, peaks, ridges, steep slopes, and narrow valleys.

For additional information: Weather Station Handbook-An Interagency Guide for Wildland Managers, PMS No. 426-2, NFES No. 2140 (March 1990).