

NATIONAL WILDFIRE COORDINATING GROUP
Fire Environment Committee
Briefing Paper 2012-1
RAWS Network Analysis

Date: August 15, 2012

Topic: Remote Automated Weather Stations (RAWS) Network Analysis Report

Issue: Introduction to the RAWS Network Analysis Report and how this report can be used as a guiding document for future RAWS infrastructure decisions and integration of other non-NFDRS weather data.

Background:

Over the course of the last couple of years, the NWCG Executive Board has asked the fire management community, “*What is the Appropriate RAWS Network?*” These questions came about for many reasons not withstanding an ever increasing need to review the fiscal implications of maintaining a large network of physical stations throughout the United States. A research effort was launched in 2009 to begin the quantitative analysis approach to this question. A contract was awarded to the Desert Research Institute to analyze all the existing RAWS stations throughout the US. The resulting deliverable is a report called “*Report to the NWCG: What is the Appropriate RAWS Network?*” and it is available [here](#).

Key Points:

- NWCG Executive Board has accepted the RAWS Network Analysis Report.
- This report is a tool for managers to make informed decisions about the current and future viability of their RAWS and where, if any, efficiencies can be gained.
- The purpose of this study was not to make any specific recommendations regarding any individual RAWS. The decision on how RAWS will be managed into the future rests with the individual agencies, GACCs and/or local units.
- This report will help fire managers and meteorologists interpret and use the RAWS Uniqueness Index (RUI) to assess their local and geographic RAWS Network.
- RAWS Uniqueness Index (RUI):
 - The RUI is based on terrain complexity, uniqueness of data, period of record, and maintenance record.
 - The RUI metric is intended to be used as a starting point to assess the viability of existing stations and is not meant to be used as a “cut-off” for which stations have “high value” and which stations have “low value”. Further in-depth research into each station’s value may reveal inaccuracies and assumptions not readily apparent at first glance. For example a station may have good station maintenance, but poor record keeping rendering a low score for station maintenance.
- Data Denial:
 - Data Denial is an analytical technique that assesses the local impact of removing a station from the network.
 - If a station is moved or removed it may have an adverse impact on the network if the station is isolated from other stations and is located in complex terrain. Conversely, if a station is moved to an area with poorer coverage, this decision will enhance the network coverage.

Recommendations:

- Use the report as an initial assessment tool when making decisions to move, remove or add RAWS within a geographic area.
- Communicate and coordinate with local units and Predictive Services to validate the RUI value. A process for addressing what may be perceived as missing or inaccurate RUI values may still need to be addressed.
- Use a collaborative effort between local, geographic, and agency members to recommend decisions on choosing which RAWS stations to move, remove or add.
- Consider opportunities to integrate other weather observation networks (ASOS for example) into local fire weather-related analyses to improve fire weather forecasting, fire danger ratings, and fire behavior assessments without the purchase and maintenance costs of new RAWS.
- Encourage local units to apply the RUI to their RAWS network analyses, such as that performed in the development of a Fire Danger Operating Plan (see Chapter 10 of the Interagency Standards for Fire and Fire Aviation Operations (Red Book)).

Future Fire Environment Committee Plans:

- The Fire Environment Committee will continue to assess the value added to the RAWS Network by increasing the type and kind of weather data collection systems, especially in areas void of RAWS data where assessing fire danger and fire behavior is critical.
- Look for progress on these and other RAWS activities at the Fire Environment Committee website: <http://www.nwcg.gov/var/sections/equipment-and-technology/fire-environment-committee-fec> .

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