Operational Snow Enhancement Results: Utah WETA Installation

January 2026 Performance Analysis – Expanded Methodology

Abstract

Rain Enhancement Technologies (RAIN) has operated the Weather Enhancement Technology Array (WETA) targeting the La Sal Mountains, Utah, continuously since mid-November 2025. This report summarizes operational performance and precipitation enhancement evidence for December and January 2026.

January 2026 was the second consecutive climatologically dry month at both the treatment and control sites. Despite this persistent drought, the La Sal Mountain SNOTEL sites continued to maintain deeper snowpack and greater Snow-Water Equivalent (SWE) than their counterpart sites in the Abajo Mountains. The observed differences exceeded climatological norms, consistent with ongoing ionization-induced enhancement.

Treatment-Control Methodology

The WETA system is installed on Flat Iron Mesa outside Moab, Utah. Treatment effectiveness is assessed through comparison of paired SNOTEL sites in the La Sal Mountains (treatment area) and the Abajo Mountains (control area). For January 2026, the analysis expands to two pairs of sites: La Sal Mountain Upper (SNOTEL 572) compared to Buckboard Flat (SNOTEL 1153), and La Sal Mountain Lower (SNOTEL 1215) compared to Camp Jackson (SNOTEL 383). Both pairs are climatologically matched in elevation and seasonal snowpack behavior. Both pairs experience the same regional synoptic weather patterns, making differences between them attributable to local factors, including ionization enhancement.

Observed snow depth, SWE, and accumulated precipitation differences between La Sal and Abajo sites are evaluated against 25-year climatology. Abajo data is used to select equivalent precipitation years from La Sal data sets. For example, if the current year precipitation for January closely matches the year 2018 for the control site (Abajo), then the data from January 2018 is used as the comparison reference for La Sal performance. To ensure the analysis is more robust additional sets from the next 4 years with the next highest precipitation than the equivalent year are used to form an average upon which comparison is based.

Operational Results

The WETA system operated on nine days during January 2026, with precipitation observed on seven of those days. Three main snow periods drove the month's accumulation: January 1–2, January 8–9, and January 23–24. WETA was active during all three events.

As in December, January 2026 was climatologically dry — both La Sal and Abajo SNOTEL sites recorded snowpack well below their long-term averages. Despite these challenging conditions, the La Sal sites consistently maintained deeper snowpack with greater water content than the Abajo sites, and the difference between them exceeded the climatological mean. Figure 1 presents box and whisker plots of SWE at the paired SNOTEL sites for December and January, showing that the current-season observations (red circles) place La Sal above expectation relative to the Abajo control sites.

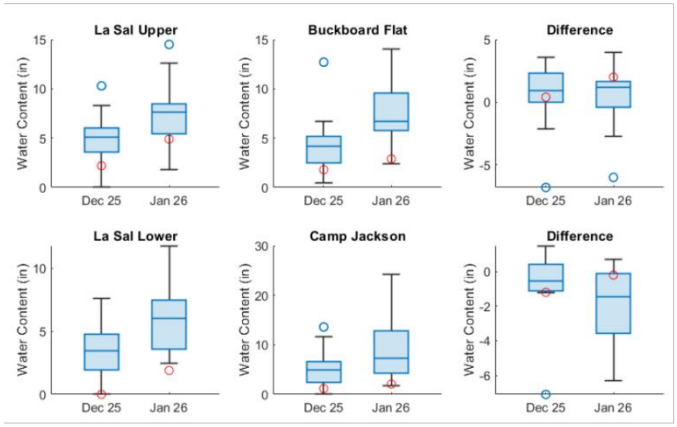

FIGURE 1. Box and whisker plots of SNOTEL-measured snow-water equivalent for December 2025 and January 2026 at La Sal Mountain Upper, Buckboard Flat, La Sal Mountain Lower, and Camp Jackson. Difference panels (right column) show the treatment-minus-control gap for each pair. Red circles indicate the current season; blue circles indicate historical outliers. In both pairs, the current-season difference falls above the climatological median, consistent with WETA-induced enhancement.

Quantifying Enhancement: Analog Year Comparison

To quantify enhancement above what the climate alone would produce, observations from January 2026 were compared against a dry-year baseline derived from the five analog years identified in the methodology. The differences between La Sal and Abajo sites observed during those analog years establish the expected La Sal–Abajo relationship under similarly dry conditions. Any additional difference observed in January 2026, above that baseline, is attributed to WETA-induced enhancement rather than natural climate variability. Figure 2 summarizes the results.

	Snow Depth (in)	Snow-Water Eq (in)	Accum. Precip (in)
LA SAL UPPER	+3.6	+2	+0.74
LA SAL LOWER	+0.8	-0.94	+0.36

FIGURE 2. Estimated January 2026 enhancement at La Sal Upper and La Sal Lower, calculated as the difference between current-season La Sal–Abajo observations and the expected difference derived from the five driest analog years (2014, 2018, 2022, 2024, 2025). Results show estimated snow depth enhancement of 3–4 inches and SWE enhancement of approximately 2 inches at La Sal Upper.

Key Enhancement Estimates — La Sal Mountain Upper (January 2026)

Snow Depth: +3.6 inches above analog-year expectation
Snow-Water Equivalent: +2.0 inches above analog-year expectation
Accumulated Precipitation: +0.74 inches above analog-year expectation

Path Forward

January 2026 results extend and strengthen the evidence for WETA-induced snow enhancement at the La Sal Mountains. The analog year methodology provides a more rigorous baseline than climatological averages alone, accounting for the persistently dry conditions that characterized both December 2025 and January 2026, and the quantified enhancement estimates of 3–4 inches of snow depth and approximately 2 inches of SWE at La Sal Upper represent meaningful water resource additions during a drought-stressed winter.

Continued operation through the remainder of winter 2025–2026 will expand the observational dataset and strengthen statistical confidence. Installation of additional instrumentation in the La Sal Range is planned for March–April 2026, and treatment probability maps are being developed using HySPLIT trajectory modeling to produce a full event-based catalog of spatially-varying treatment probabilities.

A Radiometrics microwave radiometer (Model MP3000A) deployed at the WETA site has been fully operational since early February 2026, following resolution of power supply issues. The radiometer continuously measures column-integrated liquid water content in multiple azimuthal scan directions, providing an independent observational capability that is entirely separate from snowpack accumulation comparisons. Radiometer-derived quantities will be incorporated as covariates in forthcoming analyses to evaluate whether cloud liquid water content, and particularly supercooled liquid water content, moderates the magnitude of WETA enhancement. This capability represents a significant analytical advance that will be reported in future white papers as the February and March datasets mature.

For more information about
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