Operational Snow Enhancement Results: Utah WETA Installation

Sustained Enhancement Evidence: December 2025 – February 2026

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 cumulative operational performance and precipitation enhancement evidence across three consecutive months — December 2025, January 2026, and February 2026. Treatment effectiveness is assessed by comparing paired SNOTEL sites in the La Sal Mountains (treatment area) against matched sites in the Abajo Mountains (control area), evaluated against analog years with similarly dry historical conditions.

All three months were climatologically dry, placing the operational period within one of the most challenging winters in recent Western U.S. history. Despite these conditions, La Sal Mountain SNOTEL sites consistently maintained deeper snowpack and greater Snow-Water Equivalent (SWE) than Abajo control sites across all three months. The persistence of this pattern through sustained drought strengthens statistical confidence in ionization-induced enhancement and represents a meaningful milestone in WETA's operational validation.

Three Months of Operation at a Glance

December 2025
13 operational days
12 days with precipitation
Continuous operation through month end

January 2026
9 operational days
7 days with precipitation
3 major snow events: Jan 1–2, 8–9, 23–24

February 2026
9 operational days
8 days with precipitation
2 major snow events: Feb 12–14, 18–22

Cumulative Enhancement Results

Across all three months, La Sal Mountain SNOTEL sites maintained deeper snowpack with greater water content than Abajo control sites, and the differences exceeded climatological norms in each month. The table below summarizes snow depth enhancement estimates across the operational period. For all three months, results are expressed relative to analog-year baselines derived from the driest recent historical years, providing a consistent and appropriate comparison given the persistently dry conditions observed throughout the season.

Metric	December	January	February	Site
Snow Depth Enhancement	+4 in above analog baseline	+3.6 in above analog baseline	+2.4 to +3.6 in above analog baseline	La Sal Upper
Conditions	Below avg. snowpack	Below avg. snowpack	Below avg. snowpack	All sites

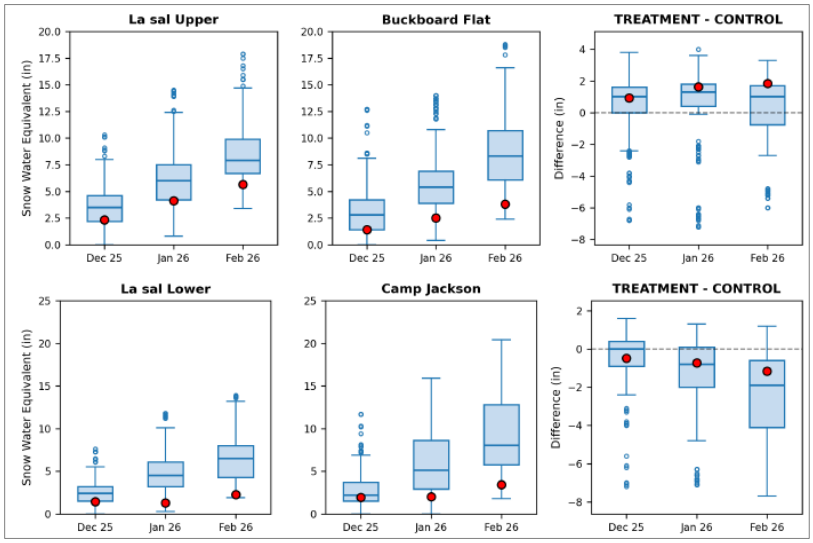

FIGURE 1. Box and whisker plots of SNOTEL-measured snow-water equivalent for December 2025, January 2026, and February 2026 at La Sal Mountain Upper, Buckboard Flat, La Sal Mountain Lower, and Camp Jackson. Difference panels (right column) show the treatment-minus-control gap for each pair across all three months. Red circles indicate current-season values. In both pairs, current-season differences consistently fall above the climatological median across the full operational period.

February Results: Enhancement During Active Snowmelt

February 2026 presented the most demanding test of the operational period. Record-warm temperatures across the Western United States caused ongoing snowpack melt and declining accumulated precipitation throughout the region, conditions under which snowpack would be expected to deteriorate at both treatment and control sites.

Despite this, La Sal treatment sites maintained measurably higher Snow-Water Equivalent than Abajo control sites throughout the month. **SWE gains of approximately 1.4 inches were observed at La Sal Upper relative to the analog-year baseline** achieved while active snowmelt was reducing water content across the broader region. For water resource managers, SWE is the critical metric: it measures the actual water stored in snowpack available for seasonal runoff. Maintaining positive SWE differences during a period of active melt demonstrates that ionization enhancement was contributing meaningful water content precisely when natural conditions were working against accumulation.

Independent Evidence: Radiometer Data

A Radiometrics microwave radiometer (Model MP3000A) deployed at the WETA site provides an independent observational capability, continuously measuring column-integrated liquid water content (LWC) in multiple azimuthal scan directions. During the February 18–22 snow event — coinciding with WETA's 3.5-day continuous operation milestone — the radiometer recorded significant and sustained differences in integrated LWC between the northeast direction (toward the La Sal range, within the ion plume treatment area) and the zenith reference direction.

The elevated LWC signal persisted throughout the multi-day snowfall period, consistent with ionization enhancement increasing the availability of supercooled liquid water for ice crystal growth and precipitation. The duration and magnitude of this signal — spanning multiple days rather than a single observation — provides a substantive independent line of evidence that complements the SNOTEL snowpack comparison. Radiometer-derived quantities will be incorporated as covariates in forthcoming analyses to evaluate whether cloud liquid water content moderates the magnitude of enhancement.

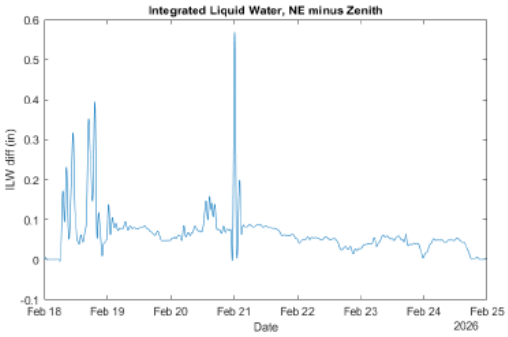

FIGURE 2: *Low-pass filtered difference in radiometer-estimated vertically-integrated liquid water between the northeast (treatment) and zenith (control) azimuthal directions, February 18–25, 2026. Elevated values persisting through the February 18–22 snowfall period indicate sustained increased cloud liquid water over the La Sal range during active WETA operations. The multi-day duration of this signal coincides with the system's longest continuous operating period to date.*

Path Forward

Three consecutive months of measurable enhancement during climatologically dry conditions represent a meaningful operational milestone. The consistency of the treatment-control signal across December, January, and February (each month independently analyzed against appropriate historical baselines) strengthens the evidentiary case for ionization-induced snow enhancement at the La Sal Mountains. Individual monthly results provide evidence; three months of uninterrupted enhancement during a historic drought establish a pattern. Continued operation through March 2026 will complete the winter season dataset, enabling a comprehensive seasonal analysis incorporating improved statistical techniques, including ridge model regression and Bayesian Structural Time Series methods, which will provide formal estimation of effect size and confidence intervals.

For more information about
Rain Enhancement Technologies
and how our ionization precipitation enhancement
can benefit your organization
Contact us at info@rainenhancement.com
www.rainenhancement.com