CONNECTIONS

IDAHO POWER®

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# Harvesting the Storm: Science Adds to Crucial Snowpack

Idaho Power uses modern wintertime cloud-seeding technology to increase high-elevation snowpack that provides additional water for our hydropower projects. Our customers benefit from the safe, reliable, affordable, and clean energy generated by Idaho Power's 17 hydro plants. Increasing snowpack also benefits irrigators, winter recreationists, river users, and fish and wildlife.

## Here's how it works

Idaho Power meteorologists monitor winter storms as they pass over the central Idaho mountains, looking for opportunities to increase the amount of snow that falls in high mountain drainages that feed the Snake River and its tributaries.

Water droplets in snow clouds need a starting point, like a dust particle, to come together and begin forming snowflakes. Most seeding projects, including Idaho Power's, use silver iodide as the active ingredient, because its shape makes it an effective seeding agent. It takes just a miniscule amount of silver iodide to start the snowflake-forming process.

Silver iodide doesn't react with other substances in the environment, so it's not harmful to plants or animals (including humans). It also does not dissolve in water, so it remains stable in the environment.

Studies conducted by programs around the world have found that traces of silver iodide in seeded areas are virtually undetectable above existing levels of silver in the soil.

Remote-controlled, ground-based generators and customized aircraft target high-elevation mountains in the Payette, Boise, and Wood River basins as well as the upper Snake River system. Both methods help storms produce a little more snow than they would have otherwise.

**"Cloud seeding can't create storms — it can only make naturally occurring storms slightly more efficient at producing snow," said Shaun Parkinson, Meteorology and Cloud Seeding Leader. "It's a long-term water management tool, not a way to avoid a drought or a dry winter."**

Analyses conducted by Idaho Power show annual snowpack in the target basins increased an average of more than 10% as the result of cloud seeding. Idaho Power targets high elevations because snow that falls there melts last, providing all-important runoff in the late summer when it's needed most.

And it's needed now more than ever. Hydro remains Idaho Power's largest energy source, providing a third or more of the electricity we deliver to customers.

Our original seeding program began in 2003 to increase snow accumulation in the south and middle forks of the Payette River watershed. In 2008, Idaho Power expanded its cloud-seeding efforts by enhancing a program operated by a group of counties and other stakeholders in the upper Snake River system above Milner Dam.

Since then, irrigators in the Boise, Wood, and Upper Snake river basins, as well as the Idaho Water Resources Board, have supported the program in order to increase water available for agriculture and aquifer recharge, because more water is good for everyone.

Remote cloud-seeding generator

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Remote cloud-seeding generator

# Research Shows Effectiveness of Cloud Seeding

Idaho Power's cloud seeding program was the centerpiece of a groundbreaking research project that continues to contribute to the broader scientific understanding of what happens within storm clouds during both seeded and unseeded winter storms.

Idaho Power participated in SNOWIE — Seeded and Natural Orographic Wintertime clouds: the Idaho Experiment — which was a collaborative research project conducted by several universities and the National Center for Atmospheric Research (NCAR). It was funded by the National Science Foundation and took place early in 2017, in the Payette River basin.

Although the immense amount of data gathered by researchers is still being analyzed, the research clearly shows that cloud seeding enhances precipitation in areas targeted by cloud seeding. Over time, the research will benefit weather modeling over complex terrain like the central Idaho mountains, improving our ability to forecast winter storm behavior. Better storm forecasting can help us use seeding equipment more efficiently.

For more information on the project, visit NCAR's website at **ncar.ucar.edu** and type "snowie" in the search bar.

Other sources for cloud seeding information:

- Desert Research Institute: **dri.edu**
- Utah Division of Water Resources: **water.utah.gov/cloudseeding**
- Weather Modification Association: **weathermod.org**
- North American Weather Modification Council: **nawmc.org**

## From the Electric Kitchen

November 2024
Dinner

### Tex-Mex Turkey Casserole

- 4 cups cooked, cubed turkey or chicken
- 1 cup skim milk
- 1 (15oz) can black beans drained & rinsed
- ½ cup salsa
- 12 (6-inch) corn tortillas
- 1 cup grated cheddar cheese
- 2 (10 ¾ oz) cans cream of chicken soup

Preheat oven to 350°. Spray a 9x13-inch baking dish with non-stick cooking spray. Place turkey cubes and beans in bottom of baking dish. Cut tortillas into small pieces and place over beans and turkey. In a large mixing bowl, combine soup, milk, and salsa. Pour over casserole. Bake for 45 minutes. Remove from oven and sprinkle cheese over top of casserole.

Serves 8.

*Recipe selected from Idaho Power's Centennial Celebration Cookbook.*



# White Streaks in the Sky? It's Not Cloud Seeding

We occasionally receive inquiries from our customers wondering if the white streaks or thin white clouds left behind by jet aircraft like the ones in the pictures above and below are the result of cloud seeding. The answer is no. These are condensation trails, commonly referred to as contrails. They are the result of water vapor produced by the combustion of fuel in a jet engine that condenses into a cloud-like formation.

Cloud seeding, on the other hand, cannot create clouds or increase cloud cover. It coaxes a little extra snow from naturally occurring wintertime storms.

Cloud seeding conducted by aircraft happens within or above the clouds over higher mountain terrain, and the equipment they use does not leave a visible trail. This happens far from residential areas because we are targeting high alpine regions and remote drainages.

The additional snow that falls from the clouds due to cloud seeding is a tiny portion of the water available within the clouds, so it doesn't reduce the amount of snowfall that occurs downwind. Instead of thinking of a storm cloud like a bucket of water floating overhead, with a limited amount of water, think about a storm system as a hose bringing water from the ocean overland, constantly replenishing itself as long as the storm's energy remains intact.

Dissipating contrails, not cloud seeding

## Did You Know?

**We're making strategic investments to maintain and upgrade our infrastructure to continue safely serving you with reliable energy.**

Please recycle this newsletter.