

Scientist reveals intricacies of cloud seeding in Sierra

By Stephen Ward

INCLINE VILLAGE – Using a propane flame to shoot silver iodide into the sky with a unit that resembles a prison watchtower with a trash barrel aimed at the sky attached to the top is how the Desert Research Institute is helping Mother Nature produce more moisture.

Ground tactic cloud seeding is the only type of seeding being done by DRI this year.



Arlen Huggins

Arlen Huggins addressed his area of study with a swiftness that marginalized the nearly 23 years of research he has devoted to the project. And with each slide projected on the screen underpinning the complex procedure he was presenting, Huggins offered observers a detailed look at cloud seeding – a method local scientists use to augment rain and snowfall in Lake Tahoe.

The lecture last week at the Tahoe Center for Environmental Sciences on the campus of Sierra Nevada College before roughly 50 began with an array of definitions for words meant to bridge the gap between the scientist and the public's disparate lexicons. Words like cloud drops, or small water spheres, and the ice nuclei silver iodide were among the

highlighted expressions.

From there, Huggins briefed the crowd on the history of cloud seeding, with its genesis being in the late 1940s with studies conducted by scientists Vincent Schaefer and Bernard Vonnegut, the older brother of the popular American novelist.

“Cloud seeding helps enhance rainfall during the growing season, as well as reduce the damaging effects of hail,” he said. “It also has the capability to increase runoff in the spring for power generation, and has potential for increasing water supply.”

Although no studies have been conducted, Huggins said there are no health effects to cloud seeding.

“It would be a concern if the mass were a lot,” he said. “But we’re nowhere close to EPA levels.”



Cloud seeding in the Sierra brings more moisture to the area. Photo/Provided

Not everyone was convinced cloud seeding is an effective process. Steven McQuinn of Incline Village believes DRI might have ulterior motives.

“I didn’t get a sense of any conclusive evidence,” he said. “The nature of their statistical studies ... doesn’t achieve

proof of cause and effect. There could be other motivations, such as a water manager under pressure. Moreover, I feel there's more evidence for climate change. Compared to (climate change), cloud seeding evidence is negligible."

The effectiveness of cloud seeding has been measured by instrumented aircrafts with probes on the wings that count the ice crystals and plume in a cloud. In addition, DRI uses radars and its own process of snow sampling, where they push snowfall through a cheese grater-like apparatus, collect it and examine it in a lab.

The silver iodide particles rise into the clouds at minus 5 degrees Celsius, causing cloud moisture to freeze and create ice crystals. This process takes about 20 to 30 minutes. Once the ice crystals grow big enough, they fall as snow.

The entire process is done through a generator that took nearly a decade to get. Each generator costs about \$30,000 to build, between \$40,000 to \$50,000 to run for a year.

Loren Rupp, a 10-year Incline Village resident and graduate student at Sierra Nevada College, received answers to the questions he brought with him to the meeting.

"I came here with two questions: effectiveness and how it's measured," he said. "I see how they gather their results through blind and parallel studies."

Airplanes have also been used in the past for cloud seeding by flying over clouds and dispersing silver iodide through nozzles attached to the wings of planes. This was done by the DRI west of Lake Tahoe for most of the past decade before losing state funding because of the sagging economy.

DRI conducts the majority of its cloud seeding research with the help of Truckee Meadows and Southern Nevada Water authorities.