



THE ATMOSPHERIC RESERVOIR

Examining the Atmosphere and Atmospheric Resource Management

Legislation Would Establish Federal Weather Modification Research Program

By Darin Langerud

Legislation recently introduced in the U.S. Senate and House of Representatives would establish a federal weather modification research program. Senate bill 1807, introduced by Senator Kay Bailey Hutchison (R-TX) and companion bill H.R. 3445, introduced by Rep. Mark Udall (D-CO) would create an advisory board to review and fund proposals for research in the area of weather damage mitigation, commonly known as cloud seeding.

“We see potential for research in this area and the bill I’ve filed would direct the development of a comprehensive and coordinated national research effort through federal and state programs,” said Senator Hutchison. Ten western states are currently operating cloud seeding programs to increase precipitation, reduce damaging hail and disperse fogs. More than \$10 million per year is spent by states and local sponsors for existing cloud seeding programs.

A 2003 report by the National Research Council, an arm of the National Academy of Sciences, recommended a federal research program in weather damage mitigation. If passed, the legislation would make available \$10 million per year for 10 years to further develop and improve existing technologies.

“The western states with weather modification programs will benefit greatly from the passage of this bill,”



said Joe Busto, Chairman of the North American Interstate Weather Modification Council. “Better understanding our atmospheric resources will be invaluable in long term planning for decreasing snowpacks, water shortages, drought sensitivity, crop losses, and population growth already occurring in the West.”

North Dakota has been a leader in weather modification research, especially in the area of hail suppression. Multi-agency field research campaigns were conducted in the state in 1985, 1987, 1989 and 1993 under the National Oceanic and Atmospheric Administration’s (NOAA) Atmospheric Modification Program (AMP). Significant progress was made during those years in the understanding of precipitation-formation processes and cloud seeding techniques. More recently, the Bureau of Reclamation funded research in 2002-03 which focused on atmospheric aerosols, computer modeling, and operations evaluations.

A new program would allow scientists in the weather modification field to take existing knowledge to a new level primarily through the use of vastly improved satellites, radars

and computing power as compared to the last significant effort which ended in 1994.

Future research would likely expand into a new area where scientists have identified links between pollution and reduced precipitation. In numerous locations around the globe, small particulates in the atmosphere from vehicle exhaust, industrial pollution, or biomass burning have been shown to affect a cloud’s ability to produce precipitation. The problem seems to be most acute downwind of urban population centers where much of the precipitation falls as rain and snow in hilly or mountainous regions.

Recent studies in California have indicated that precipitation has decreased downwind of urban centers in the Sierra Nevada Mountains. Further, indications are that existing cloud seeding programs in some of these locations are helping to combat these losses. This indicates that the two processes, inadvertent weather modification from pollution and planned cloud seeding are opposite sides of the same coin. Research in one will undoubtedly be applicable to the other.

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