

# Weather Modification and the Law

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**W**eather is a key component of our shared natural environment. Any attempt to alter it for the benefit of some has important ramifications for others nearby. Thus, we find the practice of weather modification is regulated in most regions of the United States, particularly in the West, where cloud seeding has been employed over the years for the enhancement of rain and snow, and, to a lesser extent, the suppression of damaging hail. Regulation is also essential because history is replete with instances of purported “rainmakers” who took money from desperate farmers and ranchers battling drought, only to be revealed as charlatans. Government efforts to screen potential practitioners of weather modification are aimed at protecting the public from such exploitation. Moreover, state regulation is justifiable because governments regulate the allocation of water from waterways to users, and cloud seeding traditionally has been used as a means to augment water supplies.

## Regulation in the Public Interest

State regulation of weather modification is designed to ensure that practitioners of the science 1) are competent, and 2) have the resources to compensate anyone harmed by those practices. Individuals or organizations seeking to conduct weather modification operations must secure a license and/or permit and demonstrate that the individuals in charge of the operations have the requisite training and work experience. Most states require those making day-to-day decisions about cloud seeding to possess academic degrees in meteorology or closely related fields. To show proof of financial responsibility, the purchase of liability insurance or the posting of a bond is often required.

An integral part of licensing and permitting is the requirement that weather modification plans be published in newspapers in “Notices of Intention.” Such notices inform the public when and how weather modification activities are

to be conducted and specify target areas (where the impact of the activity is aimed) and operational areas (where equipment used in the operations is to be located). The notices also inform residents how to obtain additional information or express their views on the proposed program.

Those holding licenses or permits for weather modification almost always must provide data and other information about their activities, usually on a periodic basis, to the appropriate state

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## Who owns the right to use the extra water that is produced?

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regulatory agency. All are required to report annually to the National Oceanic and Atmospheric Administration.

## Few Court Cases

Since weather modification technology was first developed and employed in the years following World War II, relatively few lawsuits have been filed in U.S. courts claiming that the use of the technologies is harmful. Litigation is filed prior to the onset of cloud seeding in order to prevent it, or afterward, when damage or loss to crops or other property result from the weather. When filing a suit to prevent a weather modification program, potential victims must show “irreparable harm” is in prospect: something that is unique and irreplaceable is about to be destroyed or damaged. Victims of weather gone awry who believe weather modification contributed to their misfortune can sue the individual or company that caused the undesirable change in weather.

Despite approximately a dozen court cases filed since 1950, none have resolved the most important issues surrounding the practice of weather modification. Very few judicial opinions have addressed the property rights of landowners to rainfall from clouds above their land or upwind of



their property. In the past 25 years, only two cases have addressed injunctions prohibiting cloud seeding or liability for alleged negligent cloud seeding. Since 1950, no plaintiffs in the United States have alleged deprivation of precipitation in a tort case involving cloud seeding. One law professor with vast experience in weather modification practices has described the history of case law on weather modification as “sparse and contradictory.”

## Why the Laws Are Cloudy

Ample reasons exist why U.S. courts have never adequately defined the law as it relates to the relatively new area of weather modification. With litigation being slow and expensive, events subsequent to the alleged incident, such as the abrupt end to a drought, may cause plaintiffs to lose interest in resolving all the issues in their original complaint. Furthermore, the task of a judge is only to decide the facts or law necessary to dispose of the case, not to issue an essay about novel legal issues that transcend the particular case.

Many problems with weather-modification law may be attributed to inadequate understanding of how clouds produce rain and how seeding them modifies the process of rain production. The confusion will be reduced as new research answers those questions about the efficacy of cloud seeding that continue to daunt weather modification friends and foes alike. Once the applicable scientific principles are understood fully, a rational application of law to weather-modification practices can be achieved, helping to

ascertain, for example, in tort litigation if a cloud seeder caused a flood or drought, or was in other ways negligent.

One legal issue heretofore ignored in U.S. courts is responding to the question, "Who owns the right to use the extra water that is produced in cloud seeding?" Should the cloud seeder be treated like other professionals (such as investment counselors, engineers, and surgeons) who provide services for pay, but the benefits and risks stemming from those services belong to their

clients? The cloud seeder, holding a license or permit issued from a regulatory authority, has the right to attempt to modify the weather, but the right to use any extra water rests with the property owner on whose land the additional water falls.

### ***Did My Neighbor Get My Water?***

One of the most complicated issues pertaining to weather modification is the perception, unsubstantiated as yet, that increasing rainfall in one area will result in a corresponding diminution in adjacent areas, particularly downwind. If landowners have a legal right to naturally occurring rainfall, would they then have a case if they could demonstrate that cloud seeding elsewhere was responsible for a rainfall reduction in their vicinity? Atmospheric physicists view any deprivation of rain suffered by downwind landowners as *de minimis*, a harm too trifling to be compensated and arguably too much a scientific challenge to substantiate satisfactorily. The amount of atmospheric water manipulated by cloud seeding is a tiny fraction of the total water volume in the air on a given day in any particular region.

### ***More Research Yields Clearer Laws***

It is abundantly clear that the technology exists to modify the weather. Moreover, it seems certain that more effective strategies for altering atmospheric processes to benefit society are in the offing. Society would benefit immensely if damage from drought, floods, and severe storms could be reduced, even eliminated. To reap these practical benefits, however, requires a substantive

investment in basic scientific research on clouds and their response to seeding. Such a commitment could eventually move us to a point of demonstrating efficacy of seeding beyond a reasonable

doubt. Such progress would be invaluable to our legal system in developing and refining laws and regulations governing all aspects of weather modification.

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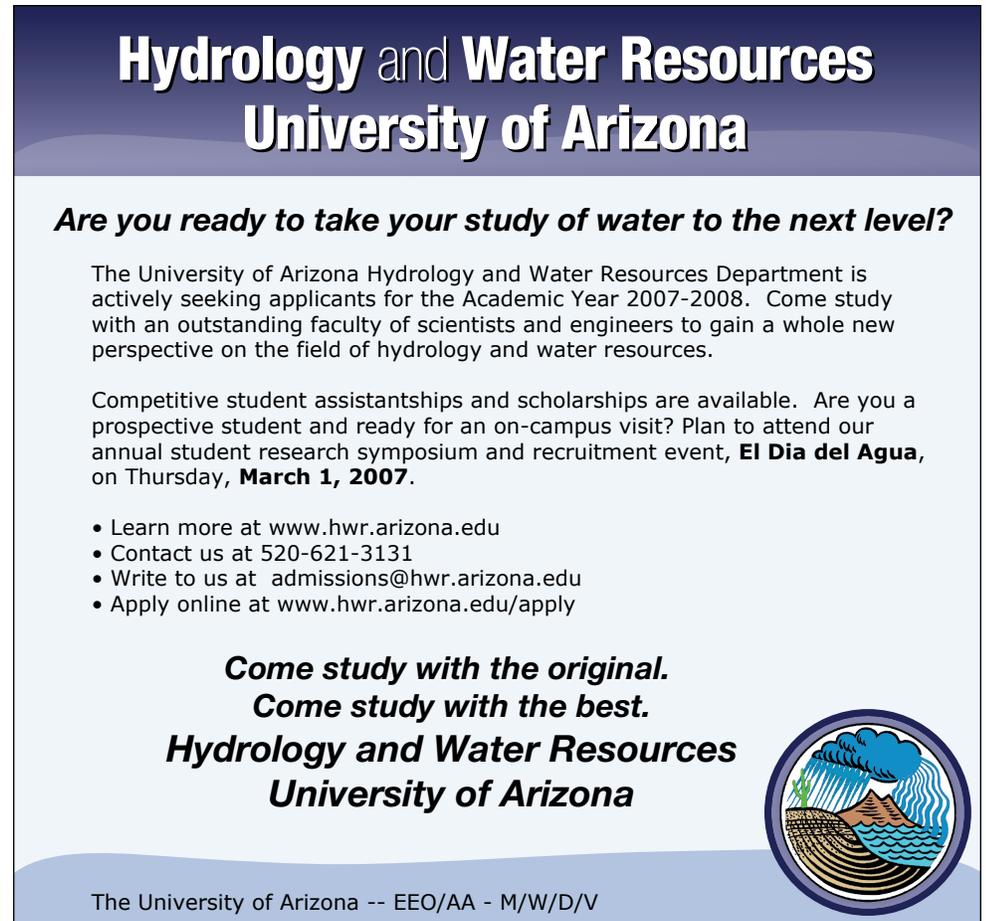
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