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WEATHER MODIFICATION, Inc.

ATMOSPHERIC RESOURCES MANAGEMENT TECHNOLOGIES
FOR THE 21st CENTURY

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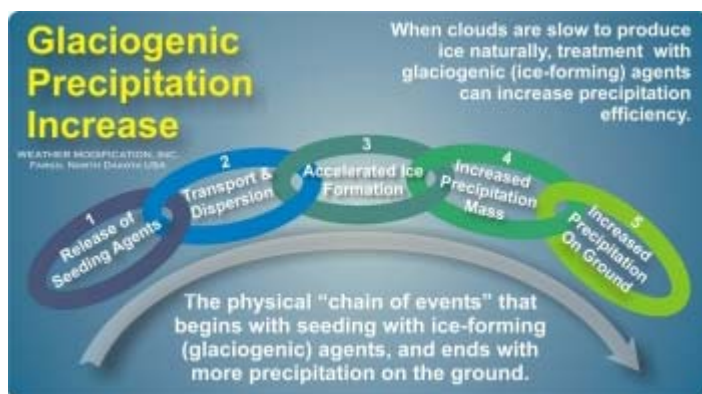
PRECIPITATION INCREASE

Weather Modification, Inc., offers comprehensive solutions to your precipitation augmentation needs. Whether it dictates a wintertime or warm season program, or glaciogenic or hygroscopic treatment, WMI is ready with equipment, expertise, and training to get your program off to a successful start.

We tailor our services to the user's needs, offering everything from turn-key programs to those specific services. While we excel in rapid-response deployment of turn-key airborne seeding programs, we also provide complete transfer programs through which the clients have full ownership of self-run programs. We also provide **seed instrumentation, aircraft conversions, and digital weather radars.**

Many clouds do not make precipitation efficiently because they are slow to make ice, or because they have droplets too small to readily form raindrops. When wintertime clouds or the warm season cumulus clouds are the solution is **glaciogenic seeding**. When the clouds are comprised exclusively of small droplets, as is the case in polluted areas, **hygroscopic seeding** is often the answer.

Click on the images below for more information on glaciogenic or hygroscopic precipitation increase.



Apart from correctly identifying those clouds that will react favorably to treatment, the other two critical aspects are the delivery of the seeding agent to the cloud volume of interest (often this is called "targeting"), and of course, quality of the seeding agent itself.

Clouds can be seeded to enhance precipitation several ways. The least complicated method is to dispense the seeding agent from the ground. This approach, called ground-based seeding, relies upon either convective air currents (that are forced upward by topography to lift the seeding material aloft and into the clouds). In some cases, particularly in mountainous areas, programs designed to increase precipitation over mountains, this can be quite effective—providing, of course, that the release sites are high enough that the seeding agent produced does not simply pool in stagnant valleys.

What may be gained by simplicity is often lost by the need to treat a larger area, however. Few programs target areas that effective treatment by only one or two ground-based sites is possible. Wind directions vary, increasing the number of sites required.

The most direct method to target suitable clouds is by release of the seeding agent directly into the clouds. For **glaciogenic treatment**, this means release into supercooled cloud volume, either at cloud top, or in the middle of the cloud base. For **hygroscopic seeding**, the seeding material must be released in updraft directly below the cloud, providing time is allowed for transport of the seeding material aloft within the cloud. All of these are done with aircraft.

Though airborne seeding is often thought of as being more expensive, this is many times not so. The speed of aircraft allow treatment of many more clouds than from a fixed, ground-based site. Ultimately, it turns out that ground-based sites are often needed, which may increase cost even beyond that of airborne treatment.

The treatment methodology should be selected only after all aspects of each program are considered. Some programs are optimized only when both methods are used.

For assistance with program design, [contact us](#).

The reader should note that precipitation enhancement technologies can work only when suitable clouds are present. Properly designed cloud seeding programs can increase precipitation, it should not be viewed as a "magic" technology. Greatest benefits are attained when conditions are nearer to normal.

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