

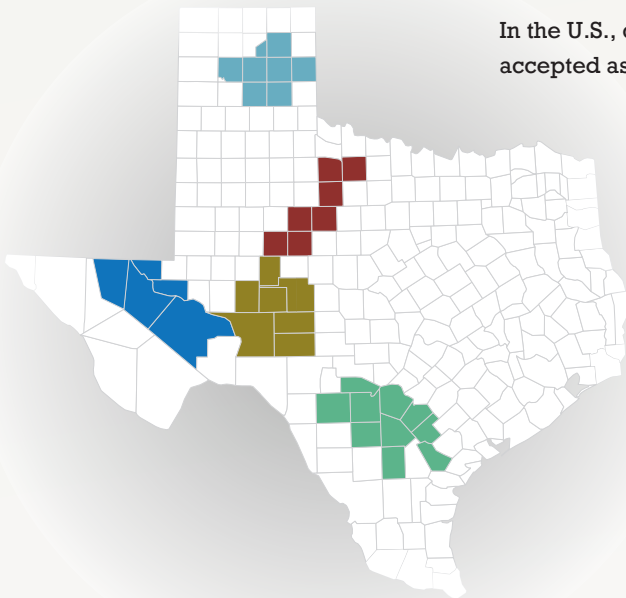
WHAT IS CLOUD SEEDING?

- Cloud seeding is a weather modification technique used to stimulate clouds and increase the likelihood of precipitation.
- Aircraft spray clouds with small particles such as silver iodide, which have a structure like ice.
- The particles cause the moisture in the cloud to condense into water droplets until they are heavy enough to fall as rain.

THE PANHANDLE GROUNDWATER CONSERVATION DISTRICT (PGCD) CONDUCTS CLOUD SEEDING OPERATIONS TO AUGMENT GROUNDWATER RECHARGE OVER THE OGALLALA AQUIFER. **THIS IS A TARGET AREA OF NEARLY 4.1 MILLION ACRES IN THE EASTERN SECTOR OF THE TEXAS PANHANDLE,** WHICH ALLOWS ACCESS TO CLOUD SYSTEMS MOVING OUT OF OKLAHOMA.

WHY IT'S USED AND WHERE

In the U.S., cloud seeding is increasingly accepted as an effective method of providing relief in drought-stricken states such as Arizona, California, Colorado, Idaho, New Mexico, Utah and Wyoming. To help supplement the Texas water supply, some areas of the state are using periodic cloud seeding attempts to increase rainfall.



NECESSARY CONDITIONS

Most efforts to produce additional rainfall using cloud seeding in Texas occur under the following criteria:

- Dates between April 1 and Sept. 30.
- Cloud bases between 4,000 feet and 12,000 feet.
- Convective clouds (i.e., clouds that have vertical depth extending beyond the freezing level of the cloud along with sufficient cloud base inflow).

LICENSING

The Texas Department of Licensing and Regulation issues licenses and permits for cloud seeding through its Weather Modification Program.

OUTCOMES

According to the World Meteorological Organization, cloud seeding may increase precipitation between 10 percent and 30 percent. On its own, cloud seeding is not a major source of new water in Texas, but it is one of many water management strategies that help ensure enough water is available for future needs. The 2022 State Water Plan recommends that cloud seeding provide about 5,000 acre-feet of water per year for irrigation users by 2070 — about 1 percent of the total recommended strategy supplies in that year.

CURRENT TEXAS CLOUD SEEDING PROJECTS	APPROXIMATE LOCATION	APPROXIMATE SIZE (ACRES)
■ WEST TEXAS WEATHER MODIFICATION ASSOCIATION	BETWEEN MIDLAND AND SAN ANGELO	6.4 MILLION
■ SOUTH TEXAS WEATHER MODIFICATION ASSOCIATION	BETWEEN THE EDWARDS PLATEAU AND THE COASTAL BEND	6.0 MILLION
■ TRANS PECOS WEATHER MODIFICATION ASSOCIATION	ALONG AND WEST OF THE PECOS RIVER	5.1 MILLION
■ PANHANDLE GROUNDWATER CONSERVATION DISTRICT	EASTERN SECTOR OF THE TEXAS PANHANDLE	4.1 MILLION
■ ROLLING PLAINS WATER ENHANCEMENT PROJECT	FROM ABILENE EAST TOWARD THE RED RIVER VALLEY	3.5 MILLION

Sources: Texas Department of Licensing and Regulation; Texas Weather Modification Association