Seeding Change in Weather Modification Globally

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Operational programmes to modify the weather – including to disperse fog, enhance rain and snowfall, and suppress hail – are taking place in more than 50 countries worldwide. Since the discovery in the late 1940s that crystals of silver iodide can form ice crystals in some water vapor, scientists have been working to understand how to alter the way water forms and moves within a cloud. Despite decades of research, deep skepticism still surrounds cloud seeding due, in part, to the challenge of verifying the efficacy of the technique – establishing cause and effect – given the complexity and variability of weather systems.

Warm or cold, polluted or clean, over a mountain or a field, a cloud's characteristics are key to the success or failure of cloud seeding efforts. New tools are enabling meteorologists to study and understand clouds and their modification with greater precision than ever, while new technologies such as nanotechnology are expanding the possibilities for the field. Bolstered by an international drive for research and funding to secure water resources, scientists are cautiously working to modernize rainmaking for the 21st century.

Indeed, says Dr. Abdullah Al Mandoos, director of the National Centre for Meteorology and Seismology in the United Arab Emirates (UAE): "Any country that has a plan to implement cloud seeding projects needs to investigate the physical and chemical properties of the frequent and available clouds in their territory."