



Developing an autonomous cloud seeding system for rainfall enhancement

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Operational weather modification activities have been taking place in more than 50 countries for several decades. Operational weather modification technology has followed a fairly predictable path. There has been very little innovation made in cloud seeding operational techniques, equipment and sensing technology applied to cloud targeting. Yet, if cloud seeding is to be effective it must be applied precisely within the effective area.

Today, we are at an inflection point and that predictable path is soon to change. New technologies now exist that can provide the operator with the most updated information on the clouds that are being targeted for seeding. In-situ sensors can collect atmospheric data that can be used as criteria to determine whether a cloud is seedable. Instruments with built in algorithms can provide guidance on the seedability of the environment where the aircraft is flying.

This presentation will describe progress made towards developing an innovative approach towards developing new sensing technologies, to create new data assimilation tools, to design novel targeted sampling and delivery strategies, and to integrate them into an unmanned aircraft system (UAS) for real-time, autonomous guidance of rainfall enhancement operations.