

**Paper 94:**

**A modeling study to evaluate the silver iodide dispersion from ground generators seeding flares**

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Annually an average of 10% of the agricultural production in the Mendoza Province in western Argentina is lost as a result of severe hailstorms, and approximately 20% of the agricultural area receives hail precipitation. Operational hail suppression programs have been based in Mendoza since 1970', designed to lessen the economic impact in the vineyards. Lately cloud seeding program have been done with planes and ground generators. This modeling study is designed to assess the evidence of silver iodide dispersion in order to evaluate if potential clouds are reached and secondarily to optimize the location of such generators.

In that sense, 3-D simulations with the version 3.4 of the Weather Research and Forecasting model with Chemistry (WRF/Chem) are conducted for several typical hailstorms, which peak activity commonly occurs near sunset (approximately 0000 UTC, or 2100 local time), and storms lasting past local midnight. Three nested modeling domains are set to downscale the physical properties of the atmosphere in the predominant storm generation zones. The model physical and chemical parameterizations were previously tested and found to produce the more accurate estimation of temperature, humidity and wind fields at surface and upper-air levels. The emission sources are properly characterized with emission rates, temperatures and velocities from direct measurements on the generators.

Finally, silver iodide mass concentrations at different heights and dry deposition rates are estimated with the modeling system for the entire modeling domain.

Results of the model are compared to TITAN radar echo reflectivity's.