

Three rockets to study Polar Mesospheric Clouds launched from Poker Flat Research Range

In late January 2018, scientists launched three Terrier-Improved Orion sounding rockets from the Poker Flat Research Range in Alaska for the Super Soaker mission.

The Super Soaker mission seeks to understand the formation of Polar Mesospheric Clouds, or PMCs. PMCs are notoriously sensitive to small changes in the atmosphere, but the extent and dynamics of this sensitivity is not well understood.

The Super Soaker rockets sprayed water vapor into the atmosphere, which was then observed by ground based instruments. The observations help quantitatively characterize the thermodynamics associated with the water vapor release including any PMCs generated by the release. Additionally, a separate canister in each payload released a standard chemiluminescent tracer to assist optical tracking of Mesospheric winds in the region of the water release.

The first rocket was launched on Jan. 26 at 9:11 a.m. EST, the second at 9:48 a.m. the third rocket at 9:49 a.m. Quick-look results from these flights indicated a fully successful mission.

The process to disperse water in the upper atmosphere during the Super Soaker mission is tested at NASA's Wallops Flight Facility.

