The Great Socorro Hail Storm • October 5, 2004 • 2–3 p.m.

Socorro, NM was struck with a devastating hailstorm on Oct. 5, 2004 with hail clearly larger than a golf ball to nearly baseball in size. Damage estimates are "in the millions." The area around the New Mexico Tech campus and the NRAO Array Operations Center (AOC) seems to be the hardest hit. At the AOC, about 80% of the employee's cars in the parking lot suffered severe damage – from major denting and pelting from the hailstones, to completely destroyed windows. Many cars had to be towed out of the lot.

The following photos were taken during some of the storm and the aftermath. There are no photos of the worst part of the storm, as the golfball and baseball sized hail made it way too trecherous to even attempt to crack a door for a photo. All photos were taken by Paul Harden. NRAO employees have full permission to use the photos for insurance or personal purposes.

The onset of the storm about 2 p.m., looking east from the AOC first-floor patio area. Marble-sized hail fell for the first few minutes, growing to golf ball sized.

One of the golf ball sized hailstones at the beginning of the storm.

The view across the AOC lawn as the golf-ball sized hail began. The hailstones would bounce several feet in the air after hitting the grass.

A hailstone captured about midway through the storm. Thisone measures 50cm., or 2 inches. After the storm, stones from 2.5–3.0 inches were found on the ground. Note the larger hailstones were nearly solid ice. The storm persisted about 45 minutes.

The view from the AOC "back door" by the receiving dock, looking east, when the heavy hail began falling. These NRAO vehicles were damaged.

A small part of the AOC parking lot after the storm. All vehicles suffered heavy dent damage and most had severe window damage. Many of the cars (3 shown here) had their rear windows completely blown out from the hail damage.

Following the storm, electricity & phones were out. This is some of the flooding facing NRAO employees trying to get home. Bullock Ave. west of California St. (shown here) was closed by the police.

An alternative route from Bullock Ave. – Franklin Street – was not much better!

Damaged vehicles at the dorms, New Mexico Tech, about 1/2 mile SE of the AOC. Note heavy denting and destroyed windshields.

Even the "cops" didn't escape the storm. NMT Police unit was damaged – emergency lights on top busted off, no passenger window, heavily busted windsheild.

Typical house damage. Many north and west facing windows were broken. The hailstones passed through the triple-paned windows on this home.

Homes and buildings with tile roofing were severely damaged – this is a local dentist's office about a mile southwest of the AOC.

The Storm (for the weather-neophytes)

Numerous severe thunderstorms and damaging hail formed west of the Rio Grande and traveled northeastward. According to the National Weather Service, this was the result of warm, moist tropical air flowing northward, colliding with a cold front moving into New Mexico from the north. Tropical southern moisture mixing with cold, dry air is what fuels supercell storms and tornadoes in eastern New Mexico, Texas and Oklahoma.

The Socorro storm was a supercell, tornadic storm. NWS radar observations and weather spotters in Socorro observed that once the storm passed Socorro to the east of the Rio Grande, rotation was noted and the classic "hook return" was seen on NWS radar – signifying an active funnel cloud about six miles east of Socorro. Due to the remoteness of this area, it is not known if the funnel reached the ground for a true tornado. (If it remained above ground, this is known as a "funnel aloft."). A wall-cloud was seen east of Socorro, though it is not known if it was a true wall-cloud or a vapor-cooled shroud often forming around an exhausted hail shaft.

Belen and Los Lunas also experienced these same supercell storm formations, producing 1.5-inch hail and sighted funnel clouds on the Belen west mesa and east of Los Lunas. Socorro received the worst damage from the storm, with hail stones in the 2 to 3 inch diameter range.

A supercell storm is a classification of severe storm formation, and not indicative of it's physical size. The storm that went over Socorro was about 5 miles in diameter with about a 1/2 mile diameter hail shaft.

A hailstone 2 inches in diameter typically strikes the earth about 95 mph; a 3 inch hail stone about 120 mph.