

# The 2023 June 21-22 Severe Weather Outbreak in Eastern Colorado

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2023 June 21-22 was an extremely active period of severe weather for the Front Range of northern Colorado, and across the eastern high plains. This presentation will explore the unique characteristics and important radar signatures of three significant convective events that occurred within a 25 hour period. The convective events were fueled by abnormally high low-level moisture with strong low-level easterly flow (surface dew points in the 70s across eastern Colorado) and supported by 30 kts of southwest flow in the mid-levels, resulting in organized convective activity, including supercells and quasi-supercells.

The first event we will discuss occurred across Washington and Logan Counties in eastern Colorado. Stationary supercells formed by mid-afternoon on 21 June, and produced a total of 36 tornadoes in about 4 hours. Most tornadoes were weak and short lived, but a few reached EF-2 intensity. 27 of the tornadoes occurred out of a single supercell. We will examine the radar characteristics and important near storm environmental signatures contributing to long-lived, nearly stationary supercells.

On the evening 21 June 2023, a severe thunderstorm tracked across the Front Range foothills into the western Denver metropolitan area. The storm produced a 68 mph wind gust, along with a swath of 1.5 to 2 inch diameter hail from Evergreen to Lakewood. The storm notably struck Red Rocks Park and Amphitheatre, a large outdoor concert venue, where roughly 100 people were injured from falling hail. Many injuries were significant requiring hospitalization. We will examine the radar signatures of this event, as well as a timeline of NWS warning products and key actions taken from officials associated with Red Rocks.

The final event we examine occurred the following day, June 22, across south metro Denver. A supercell produced an EF-1 tornado in Highlands Ranch - an urban area within the southern Denver metro - damaging structures and trees along an 8 mile path. This presentation will discuss the important radar signatures associated with the tornado, as well as highlight the importance of quickly developing a damage track before doing a damage survey.