

ARMOR Operations - 3/19-20/18 - Severe Convection - Supercells - VORTEX-SE

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Operations of ARMOR for severe convection during the first official VSE deployment in N AL. OU SR3 was located at New Market, OU SR2 was at the Grove Oak, and MAX was at the Sylvania site. All VCPs are defined in the VCP Excel spreadsheet. ZDR still needs to be properly calibrated, looks to be about 1-1.5 dB too high. PhiDP is also in error and should be shifted 188 deg. Dual PRF scans in the beginning have twice the width of calculated radials (almost 2 degrees).

Throughout the day, a warm front lifted north across Alabama. Dew point temperatures were in the low 60s across much of the ARMOR domain. A cold front propagated southeastward through the domain during the evening hours. Discrete cells developed along the warm front during the first part of the operating period. Several more discrete cells developed throughout the domain ahead of the cold front, including many supercells, some of which passed through the dual-Doppler lobes between ARMOR, KHTX, and deployed radars. Several confirmed reports of tornadoes and severe hail were observed throughout the operating period.

1442 UTC - Began Ops with D.C. as ARMOR operator. ARMOR running in VCP 202 already. Continued this mode until convection began to form within the range of ARMOR

1509 UTC - Switched to VCP 215 as a test of dual PRF

1528 UTC - Changed to VCP 216 as another test of dual PRF

~1600 UTC - Convection begins to enter the domain

1719 UTC - NWS reports hail and lightning in storm located to the west

1737 UTC - Severe thunderstorm warning issued for convection entering W AL from MS

1745 UTC - Switched to VCP 217 (ended VCP running midway through to sync with other radars)

1838 UTC - Tornado warning issued on cell W of ARMOR

1852 UTC - C.A. began ARMOR support; D.C. continues as ARMOR operator.

1854 UTC - Local Storm Report (LSR): 0.75 inch hail reported 1 mile NNE of Muscle Shoals.

1902 UTC - Tornado Warning canceled for Colbert County.

1906 UTC - Cell to west appear to have split.

1909 UTC - LSR: 1.00 inch hail 5 miles SSE of Elkmont.

1941 UTC - Severe Thunderstorm Warning issued for Limestone and Madison Counties, effective until 3:15 PM CDT.

1942 UTC - Switched to VCP 218

1950 UTC - Stopped and restarted VCP 218 to attempt to sync up with mobile radars. Attempts to sync with mobile radars after this was made only when feasible to avoid the break up of data

1958 UTC - Maintenance required warning, V Noise Temperature was too high (don't know what this entails or effect on data)

2013 UTC - Severe Thunderstorm Warning issued for Franklin, Jackson, Madison Counties, effective until 4:00 PM CDT.

2021 UTC - LSR: 1.75 inch hail 1 mile south of Meridianville.

2026 UTC - SPC issues Tornado Watch, effective until 0400 UTC (Particularly Dangerous Situation, Tornado Potential = 90%, EF-2+ Potential = 80%).

2040 UTC - Switched to VCP 219

2055 UTC - Switched to VCP 220, update time is about 5 min 15 sec

2055 UTC - Severe Thunderstorm Warning issued for Jackson County, effective until 4:30 PM CDT.

2148 UTC - Severe Thunderstorm Warning issued for Colbert, Franklin Counties, effective until 5:30 PM CDT.

2158 UTC - Tornado Warning issued for Colbert, Franklin Counties, effective until 5:30 PM CDT.

2212 UTC - LSR: 1.00 inch hail 9 miles north of Red Bay at 5:05 PM CDT.

2216 UTC - Tornado Warning issued for Colbert County, effective until 5:45 PM CDT.

2220 UTC - Tornado Warning (with observed tornado) issued for Franklin, Lawrence Counties, effective until 6:00 PM CDT.

2224 UTC - LSR: 1.75 inch hail 2 miles NNE Red Bay at 5:15 PM CDT.

2227 UTC - Tornado Warning issued for Colbert, Franklin, Lawrence Counties, effective until 6:00 PM CDT.

2230 UTC - LSR: 2.75 inch hail reported 10 miles NE Vina at 5:20 PM CDT.

2254 UTC - Tornado Warning issued for Franklin, Lawrence Counties, effective until 6:45 PM CDT.

2300 UTC - Several LSRs of wind damage and possible tornado around Russelville were noted from around 5:34 PM CDT.

2302 UTC - Severe Thunderstorm Warning issued for Lauderdale, Limestone Counties, effective until 6:30 PM CDT.

2304 UTC - Tornado Warning issued for Lauderdale, Limestone Counties, effective until 6:30 PM CDT.

2312 UTC - LSR: 1.00 inch hail reported 2 miles NNW of Moulton at 6:07 PM CDT.

2319 UTC - LSR: wind damage 5 miles ENE of Lexington at 6:05 PM CDT.

2325 UTC - Tornado Warning issued for Cullman, Lawrence, Morgan Counties, effective until 7:00 PM CDT.

2325 UTC - Tornado Warning issued for Lincoln, Limestone, Madison Counties, effective until 7:00 PM CDT. ARMOR operators noted that this cell was located in the center of the ARMOR-SR3 dual-Doppler lobe at this time, and was also located within the ARMOR-KHTX dual-Doppler lobe.

2325 UTC - LSR: 1.75 inch hail reported 1 mile north of Moulton at 6:13 PM CDT.

2326 UTC - LSR: wind damage reported 1 mile west of Moulton at 6:18 PM CDT.

2330 UTC - Pedestal fault error which then cleared itself. This happened a few other times during the night. This seems to occur when the dish cannot lock in on the selected EL

2332 UTC - LSR: 1.75 inch hail reported 6 miles SW of Flint City at 6:29 PM CDT.

2340 UTC - Tornado Warning (with observed tornado) issued for Cullman, Morgan Counties, effective until 7:00 PM CDT.

2342 UTC - Tornado Warning (with observed tornado) issued for Lincoln, Limestone, Madison Counties, effective until 7:00 PM CDT. ARMOR operators noted that this cell was still within the ARMOR-SR3 and ARMOR-KHTX dual-Doppler lobes.

2348 UTC - Tornado Warning issued for Cullman, Marshall, Morgan Counties, effective until 7:15 PM CDT.

2348 UTC - SR2 stopped scanning due to a burst pulse issue.

2350 UTC - Severe Thunderstorm Warning issued for Cullman County, effective until 7:15 PM CDT.

2355 UTC - Tornado Warning issued for Lincoln, Madison Counties, effective until 7:30 PM CDT.

2357 UTC - Tornado Warning issued for Cullman County, effective until 7:30 PM CDT.

0000 UTC (3/20) - Noise Temp Error again

0011 UTC - Tornado Warning issued for Cullman, Marshall Counties, effective until 7:45 PM CDT.

0016 UTC - Severe Thunderstorm Warning issued for Cullman County, effective until 7:45 PM CDT.

0020 UTC - Severe Thunderstorm Warning issued for Franklin, Lincoln, Jackson, Madison Counties, effective until 7:45 PM CDT.

0031 UTC - Tornado Warning issued for Franklin, Jackson Counties, effective until 8:00 PM CDT.

0031 UTC - LSR: 0.50 inch hail reported 3 miles north of Albertville at 7:29 PM CDT.

0034 UTC - Tornado Warning (with observed tornado) issued for Franklin, Jackson Counties, effective until 8:00 PM CDT.

0039 UTC - Severe Thunderstorm Warning issued for Cullman County, effective until 8:15 PM CDT.

0041 UTC - Tornado Warning issued for DeKalb, Marshall Counties, effective until 8:15 PM CDT.

0045 UTC - Severe Thunderstorm Warning issued for Franklin, Jackson Counties, effective until 8:15 PM CDT.

0048 UTC - Tornado Warning issued for Franklin County, effective until 8:15 PM CDT.

0105 UTC - End of Ops. Left in VCP 220 as severe storms were still located in the southern ARMOR-HTX DD lobe. Was going to switch into VCP 202 the following morning however Baron took over the radar to perform maintenance