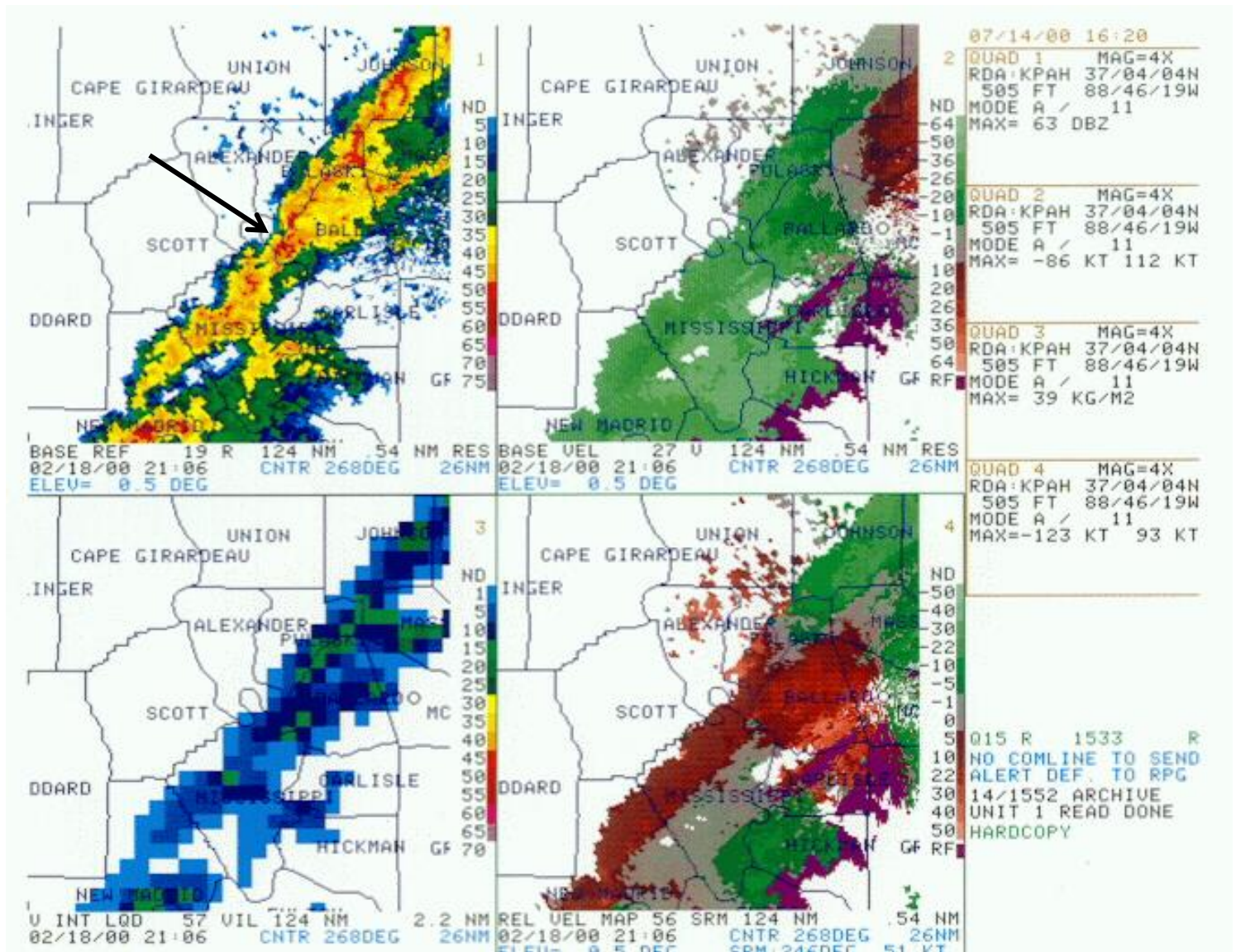


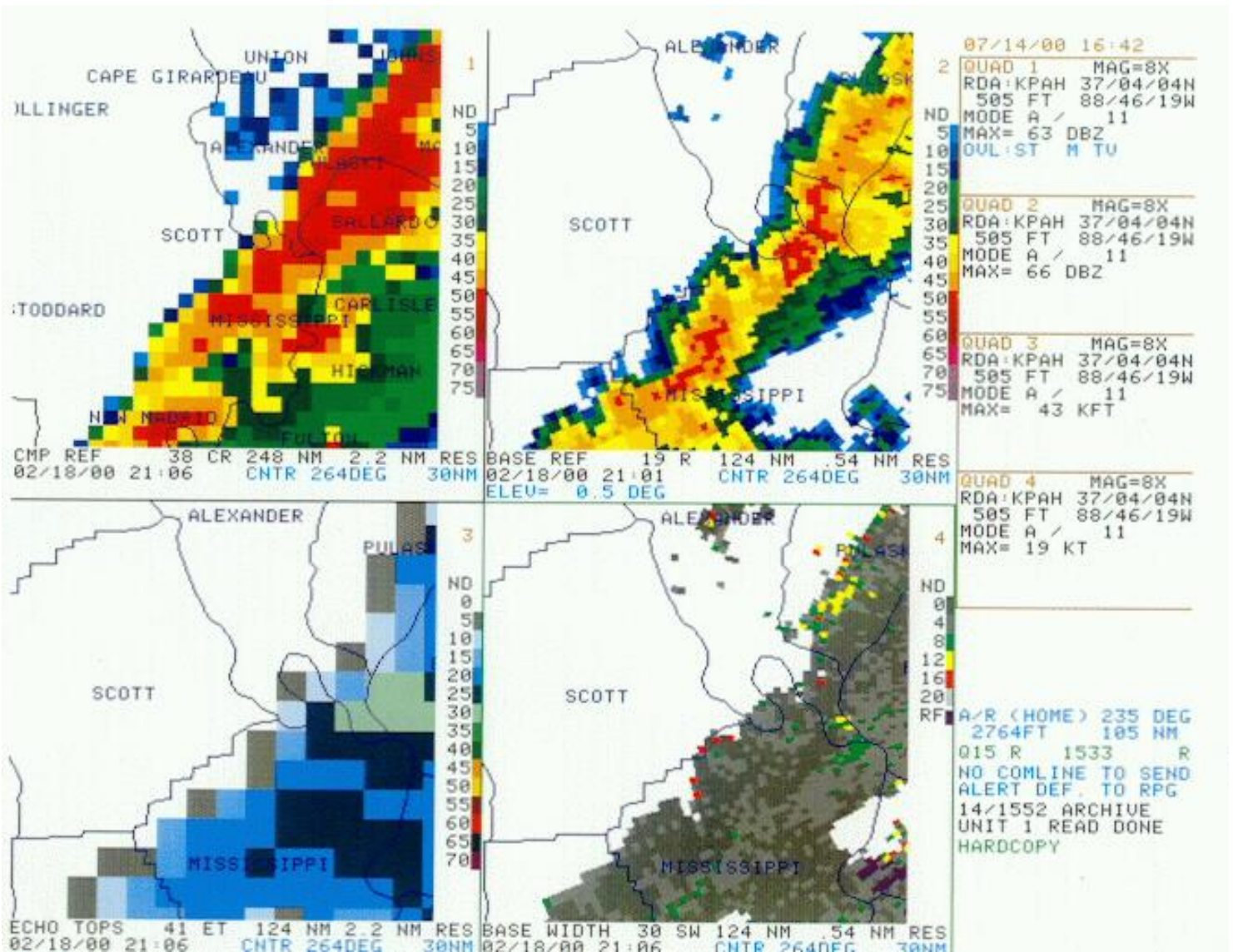
# CAIRO ILLINOIS MICROBURST FEB 18 2000

A short-lived but very intense thunderstorm microburst caused about a half million dollars damage in the center of Cairo. The affected area, which was 5 city blocks wide and about a mile long, was primarily residential. A total of 52 buildings were damaged or destroyed. Of these 52, eight were businesses, seven were outbuildings or garages, and the rest were houses. Five of the residences were moved off their foundation and considered total losses. In another 25 buildings, windows were blown out and roofs were damaged. For the remaining structures, the damage was relatively minor, consisting of porch damage or gutters blown off. Initial reports indicated there were some minor injuries, however, later investigation revealed no injuries.



The upper left hand panel depicts the 0.5 degree slice of reflectivity. The arrow points to a rear inflow notch, which may have been formed by descending winds in the back of the storm. The problem is that there were several other notches in the line which did not produce damaging winds. The upper right panel shows the 0.5 degree slice of base velocity, which is ground relative. Here the radar beam is a couple thousand feet above the ground. Wind speeds of 50 to 64 kts were shown near the southern tip of Alexander County, Illinois, which is where Cairo is located. If you look closely, you will see that these strong winds were over most of Mississippi County as well, where no damage was reported. The lower left panel is the VIL product. No storms stood out as being stronger than any of those in the squall line. The lower right panel is the 0.5 degree SRM where some weak rotation can be seen in the area, which may have been the base of a mesocyclone, which would help to explain the damage that occurred.





In this image, the upper left panel shows the composite reflectivity product. This product shows the highest reflectivity value anywhere in the volume scan. This seems to show that the strongest storms were moving out of the area. When you compare this product to the 0.5 degree reflectivity in the upper right hand panel, there appears to be a lot of 50 dBZ echo above the lowest slice. This is a sign of strong updrafts that can hold the 50 dBZ echo aloft. Again, though, this is seen throughout most of the squall line in Southern Illinois and parts of Western Kentucky. The lower left panel depicts the echo tops, which were generally 25 to 29,000 ft tall. In an attempt to see shear patterns, the lower right panel has a spectrum width product on it. It measures the variability of velocity measurements in a bin, or small box. The higher the number, or reds, yellows and light grays, depict high variability, which is an indication of shear. Again, very difficult to pick out any patterns. This just proves that some events are not going to be easily detected using the radar. It does a great job, but between our knowledge level of the science and the radar itself, some events are going to be missed.