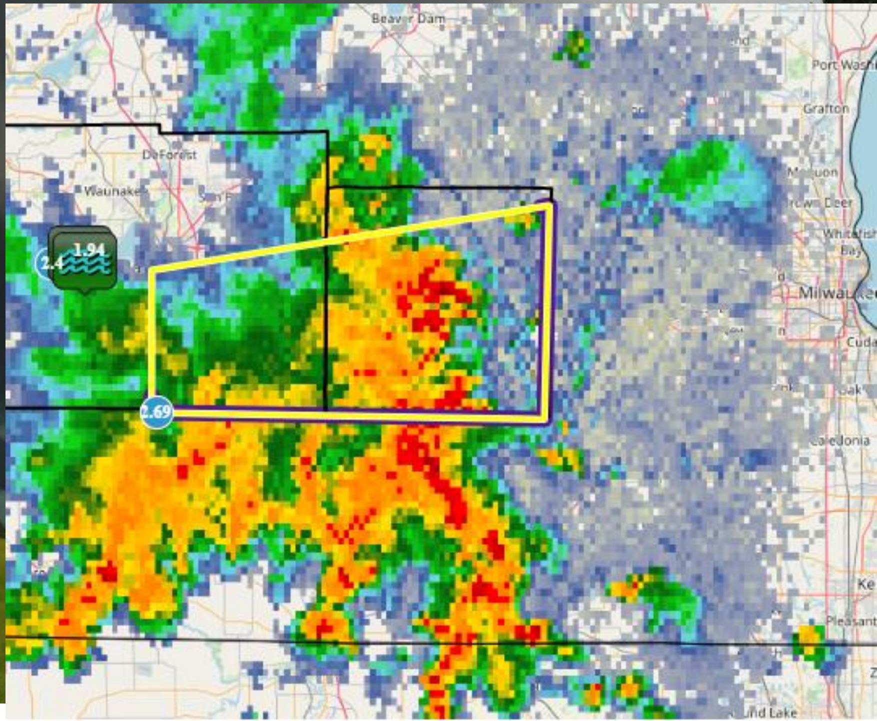
Radar Interpretation

How we use radar to diagnose what is happening



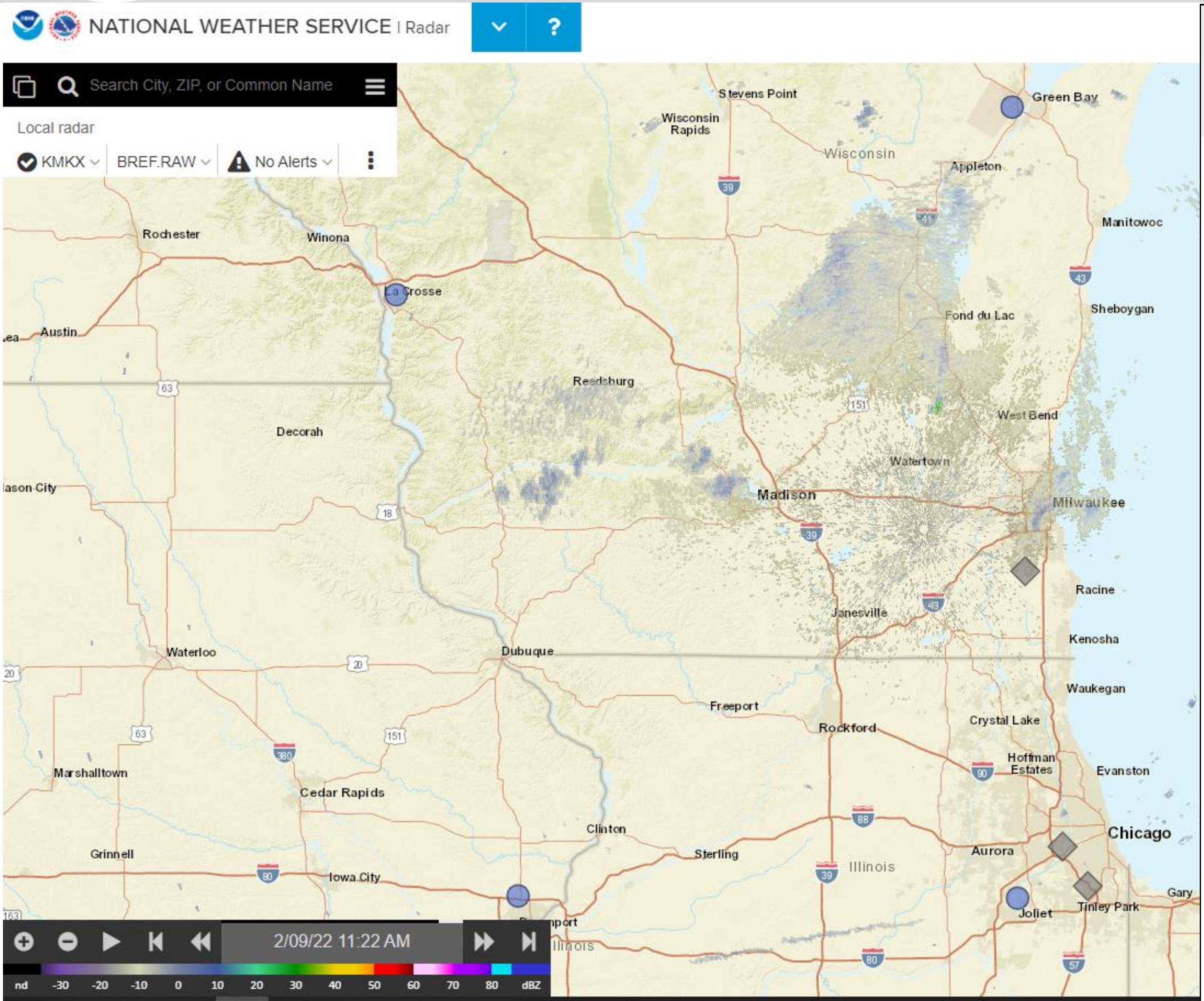
RADAR Background

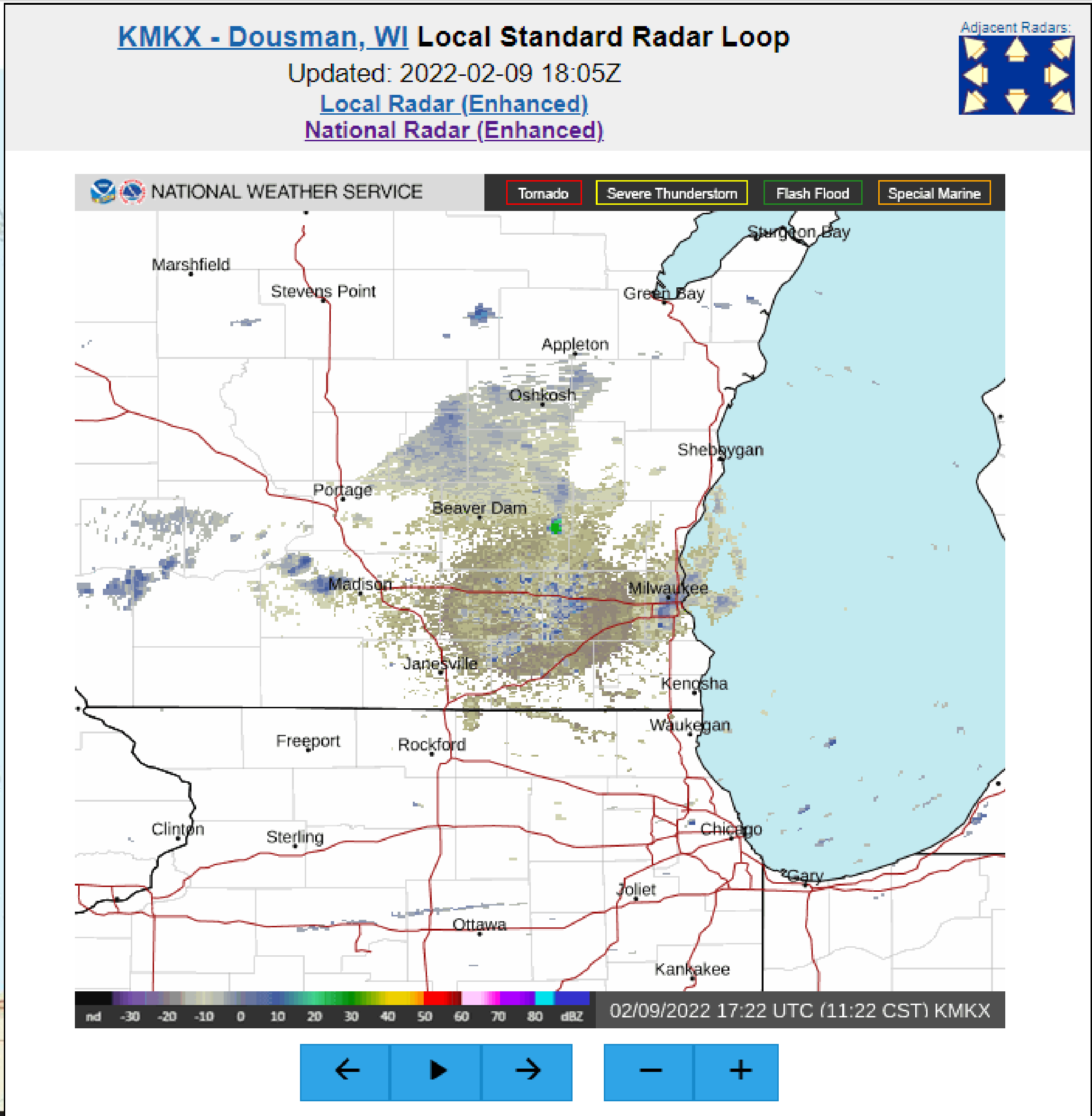
RAdio **D**etection **A**nd **R**anging

Prototype radar built in 1988
Weather Surveillance Radar-1988 Doppler (WSR-88D)

radar.weather.gov

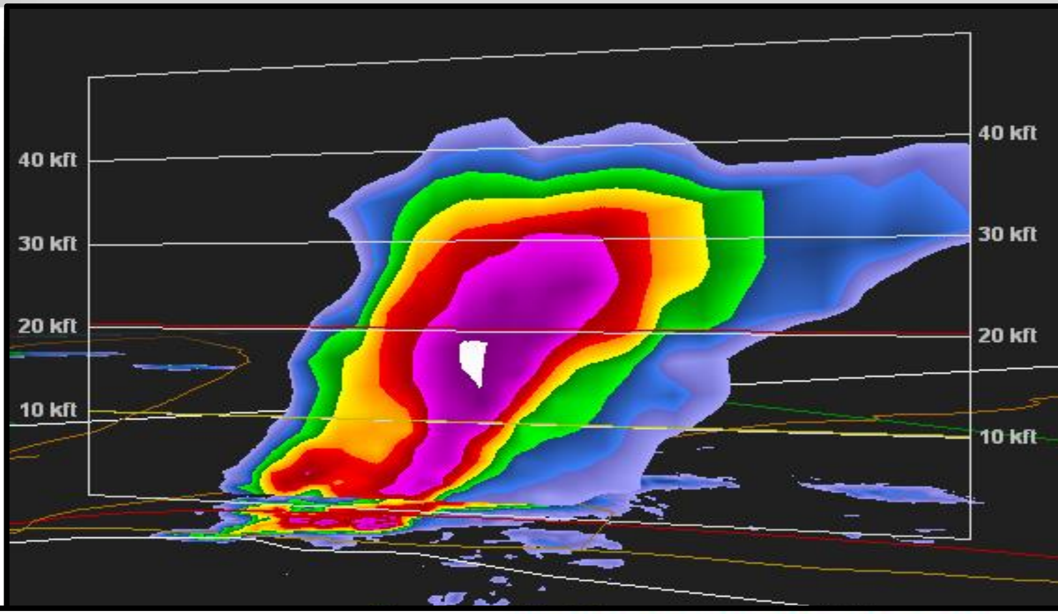
weather.gov/radar_lite

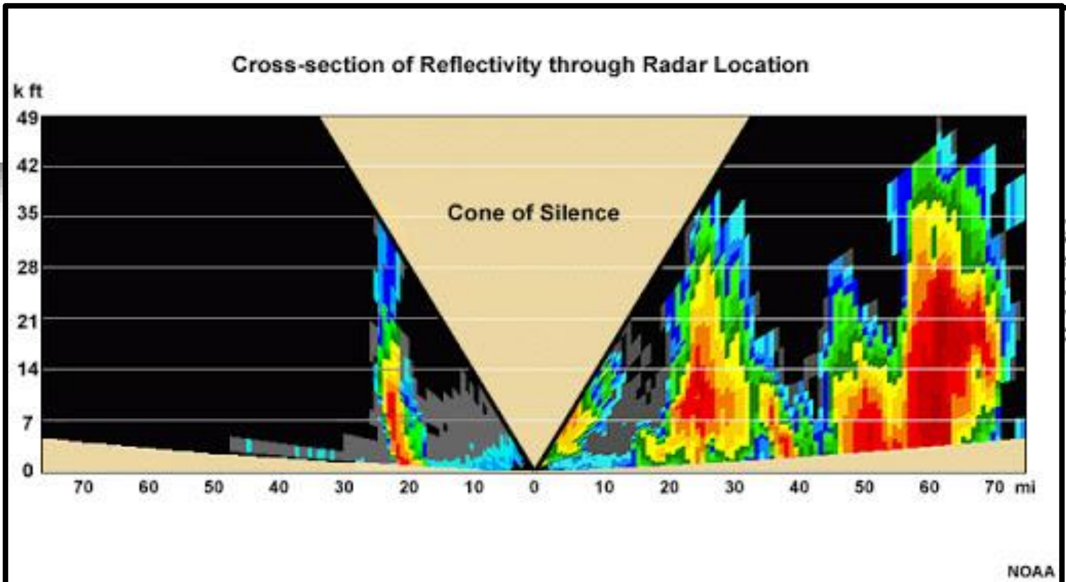


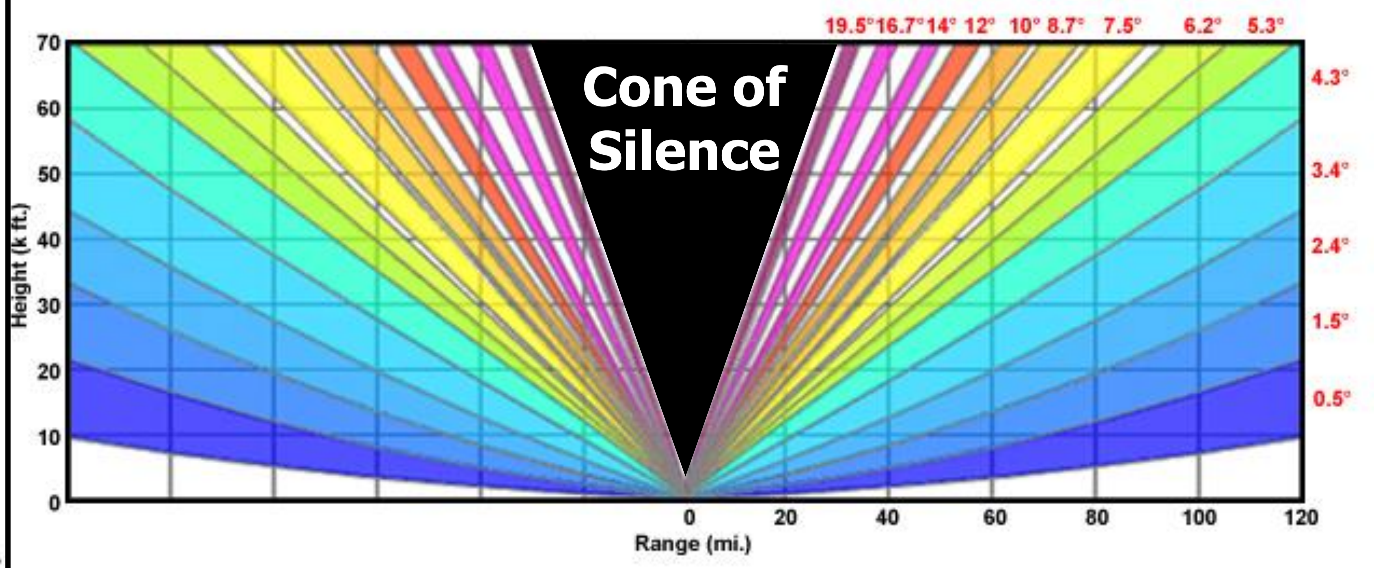


Radar Scanning

Radar is angled above horizon, scans upward through entire storm

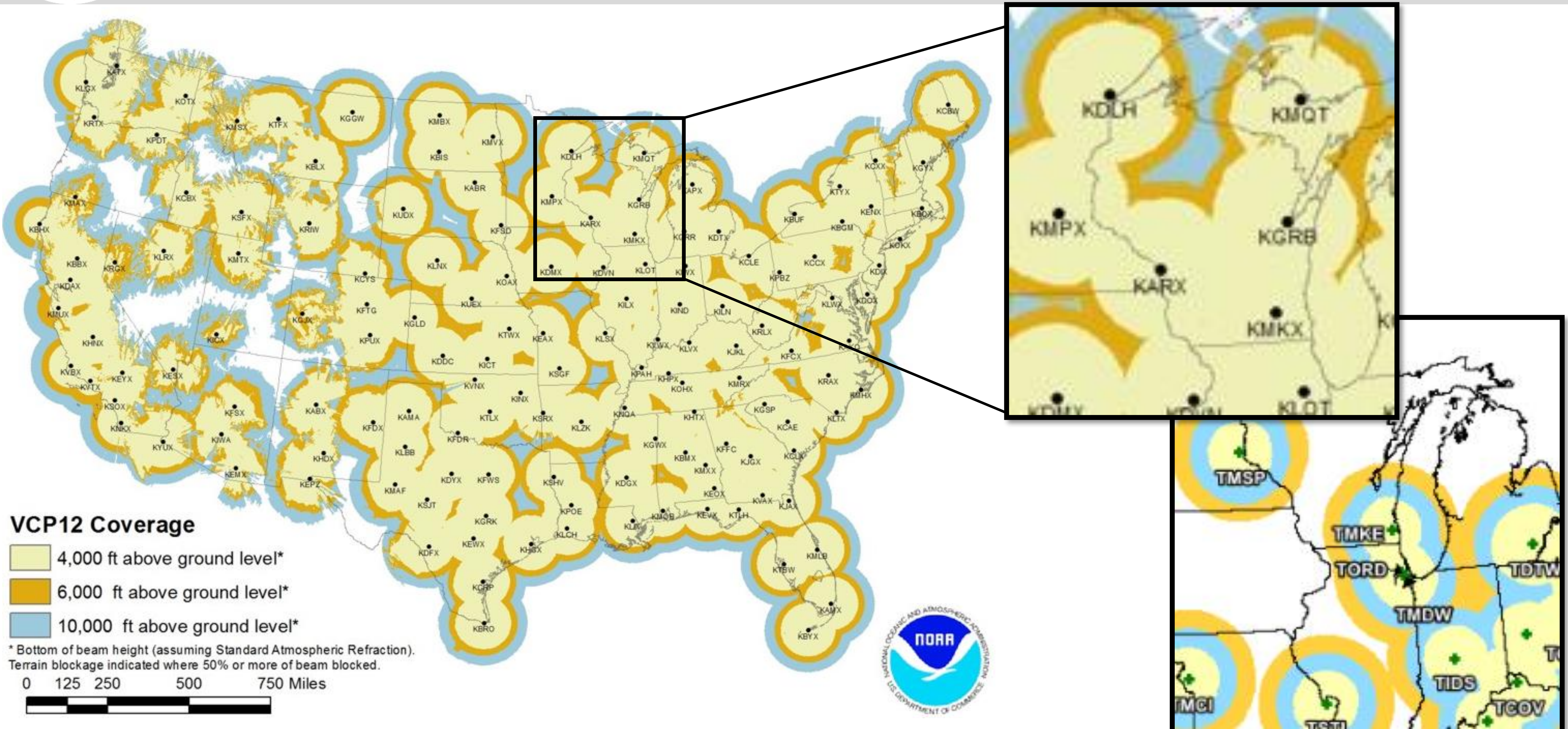






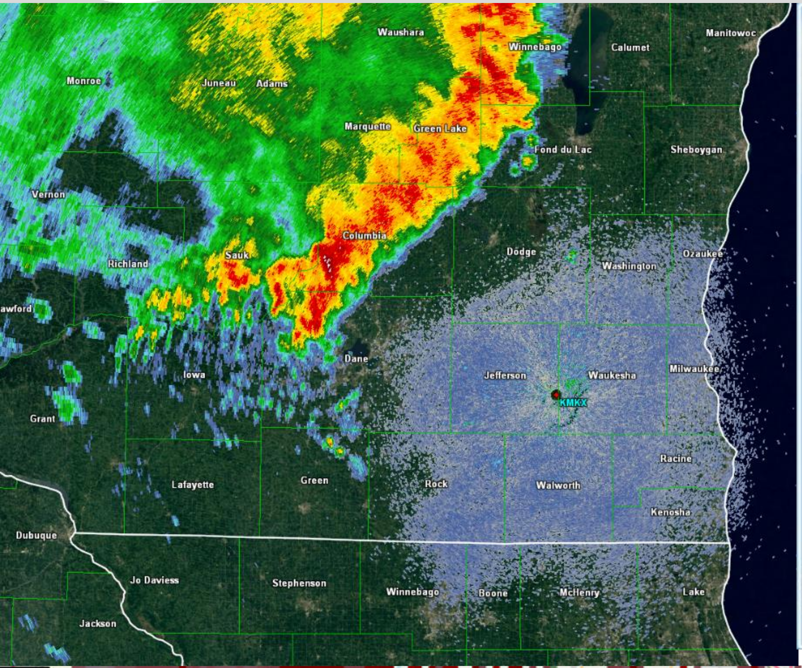
Radar Coverage below 10,000ft

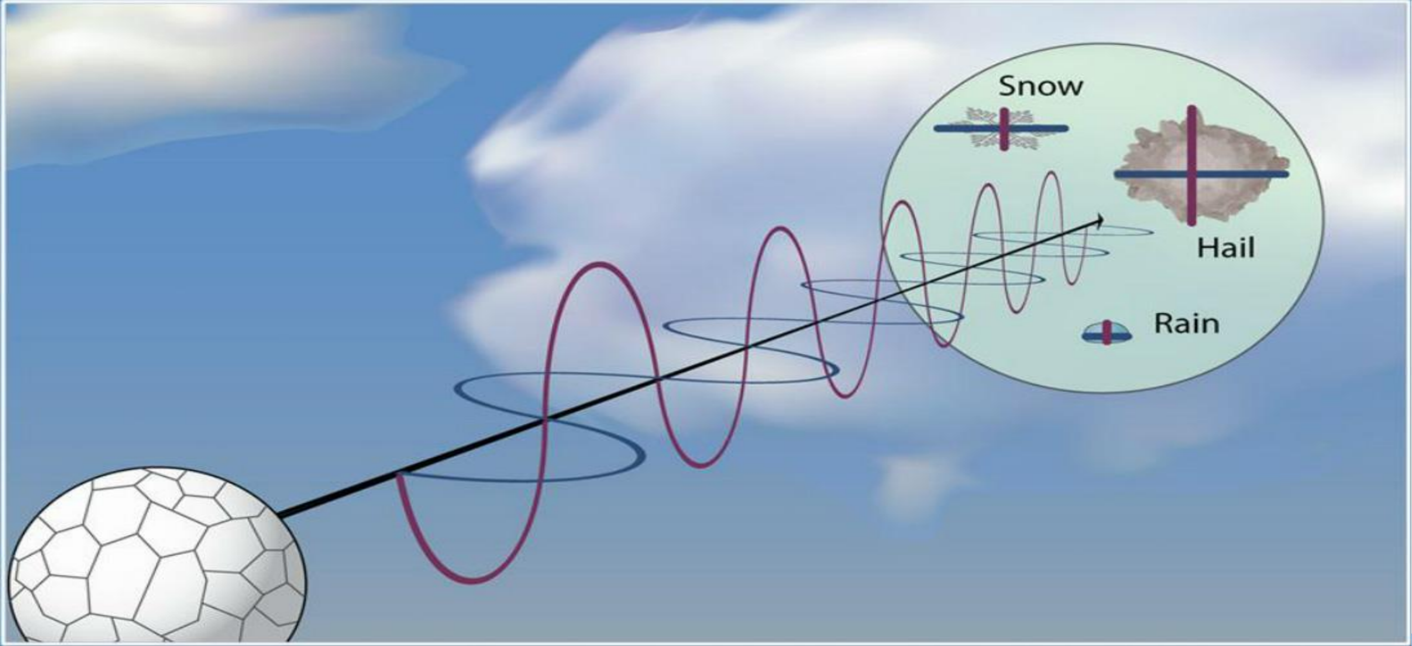
Closest to the ground near the radar, Gets higher the further away you get

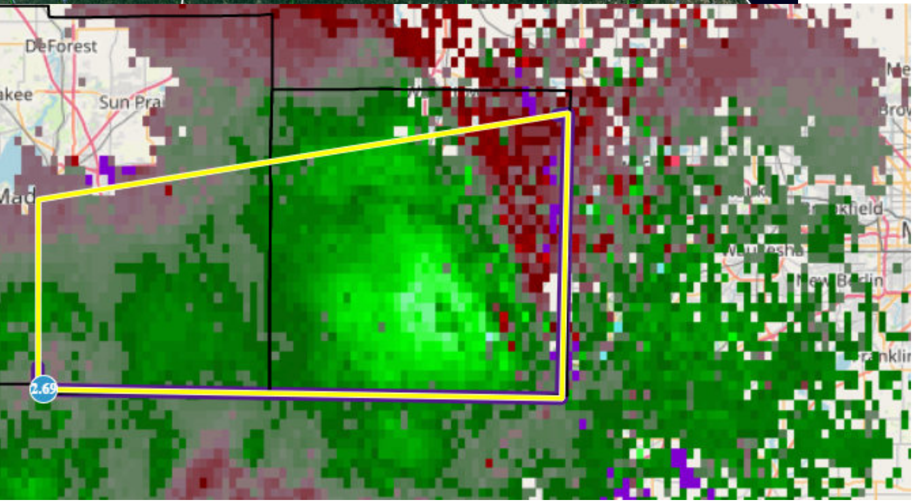


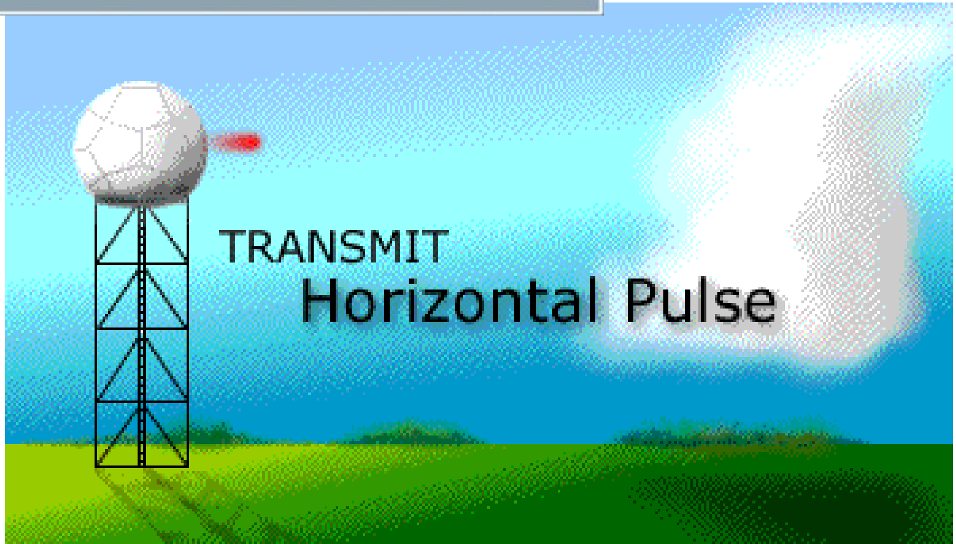
How Radar Works

Dual Polarization Upgrades in early 2010s (horizontal and vertical pulse)

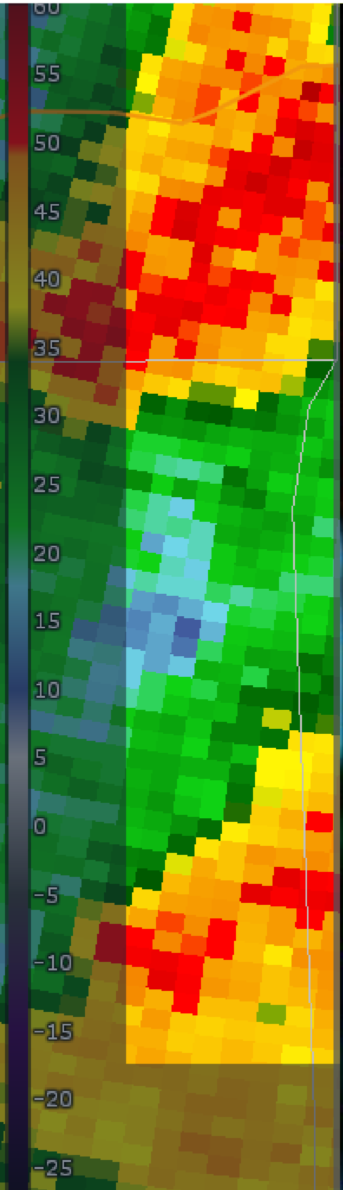








Reflectivity (Z)



Fancy Farm

70 dBZ — **HAIL**

60 dBZ

50 dBZ — **HEAVY RAIN**

40 dBZ

30 dBZ — **MOD RAIN**

20 dBZ — **LIGHT RAIN**

10 dBZ

Mayfield

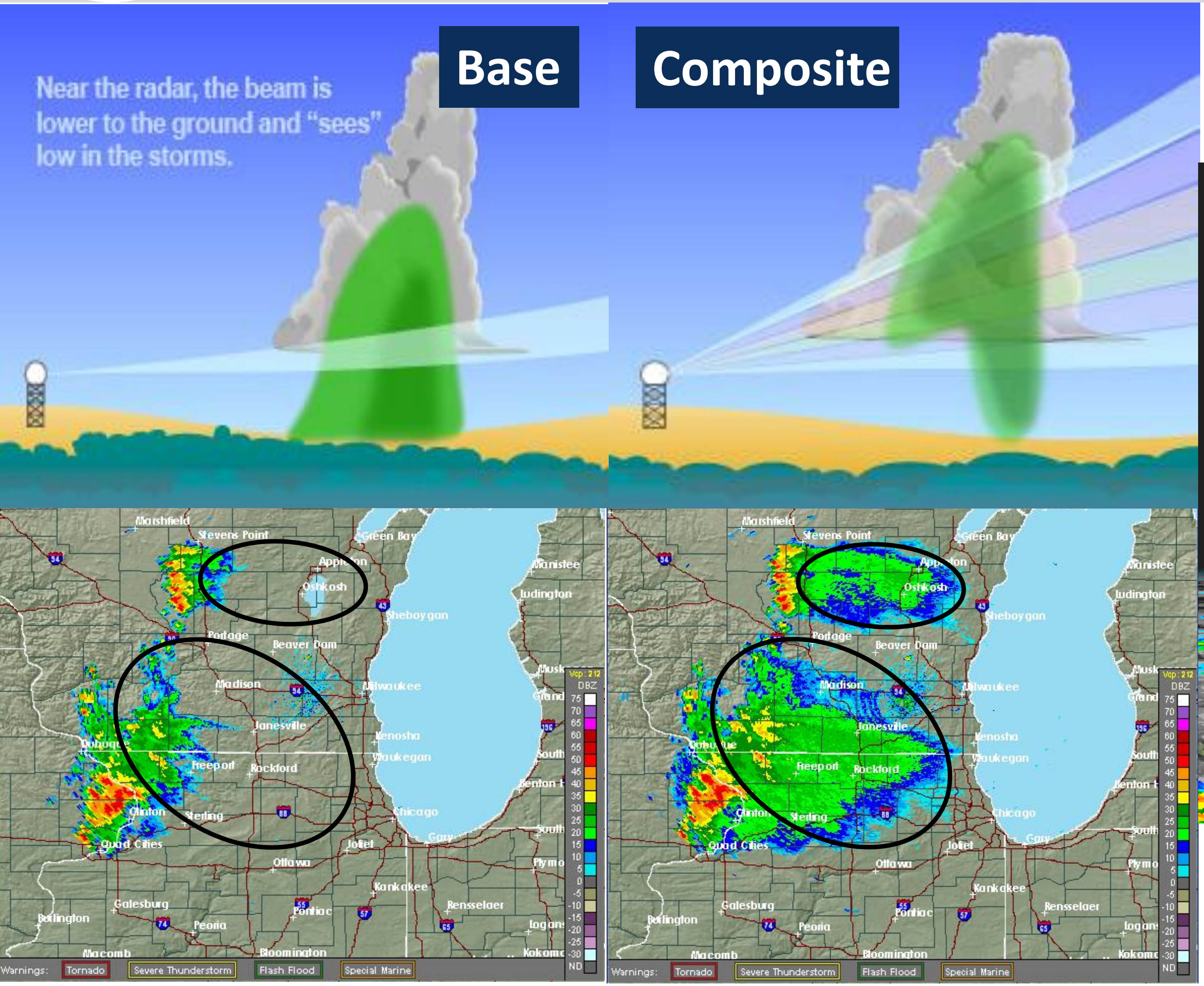
How much ‘stuff’ is there?

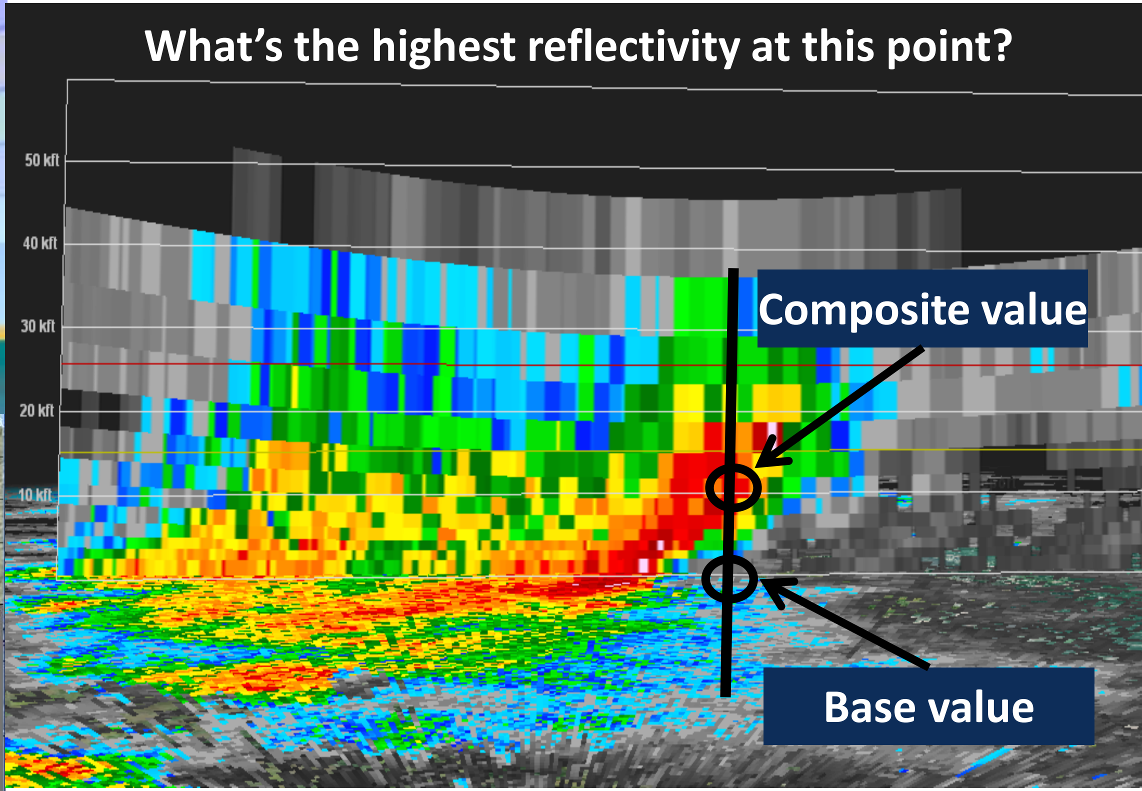
How big is it?

How ‘reflective’ is it?

Base vs. Composite Reflectivity

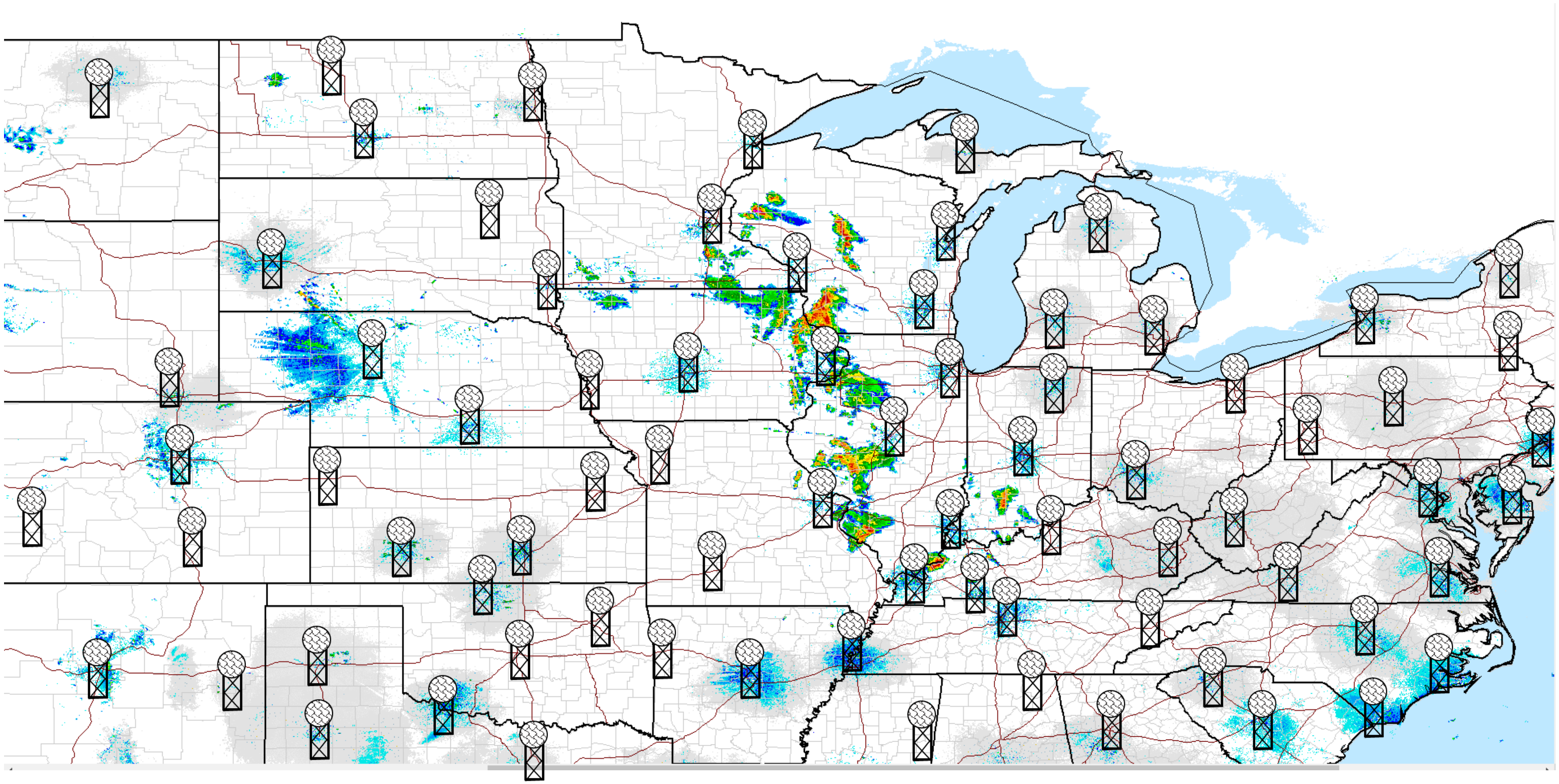
Base: Individual/lowest scan (0.5°) Composite: Highest reflectivity over a point



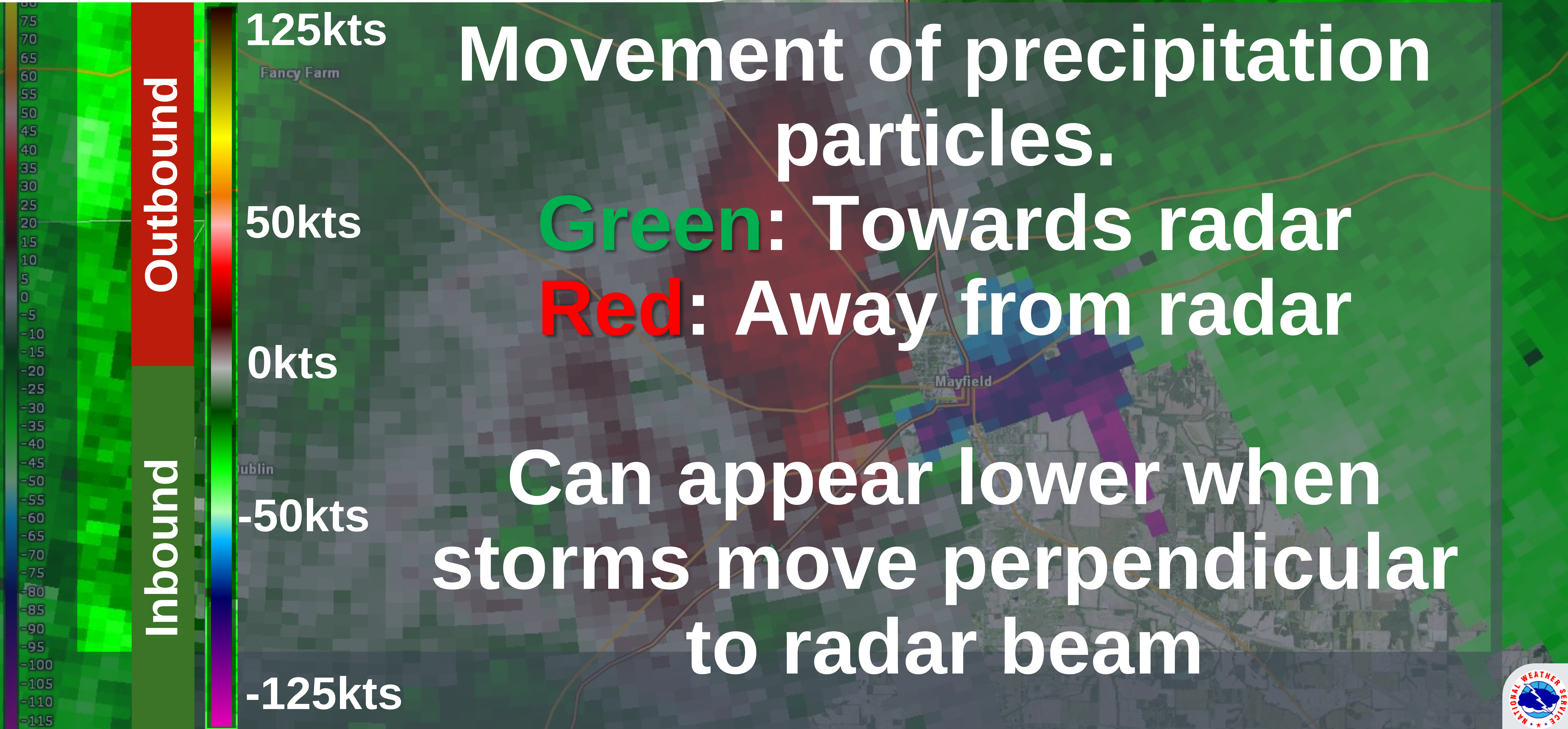


Radar Mosaic

Every radar's lowest scan, put on one map



Velocity (V)



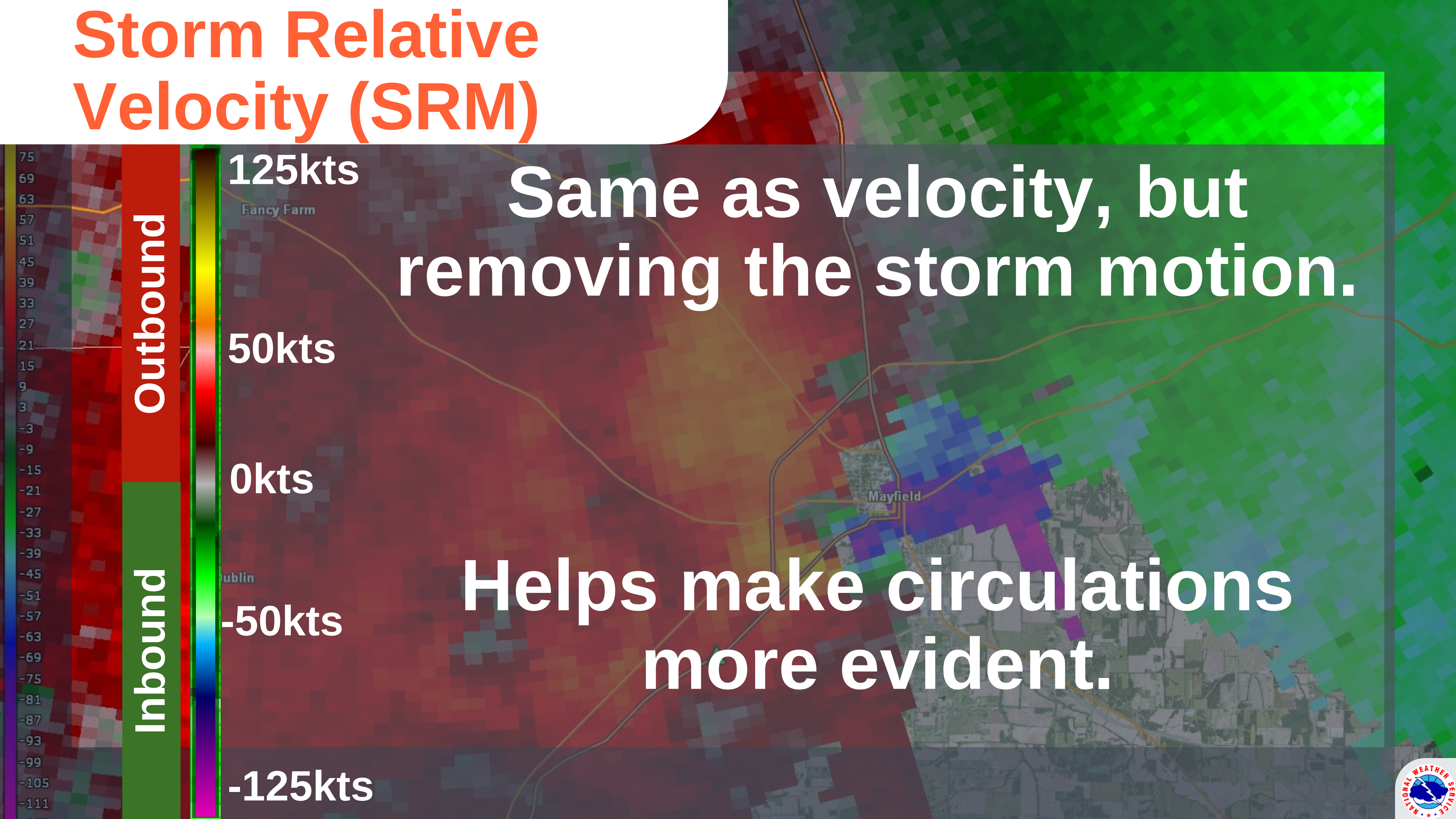
Movement of precipitation particles.

Green: Towards radar

Red: Away from radar

Can appear lower when storms move perpendicular to radar beam

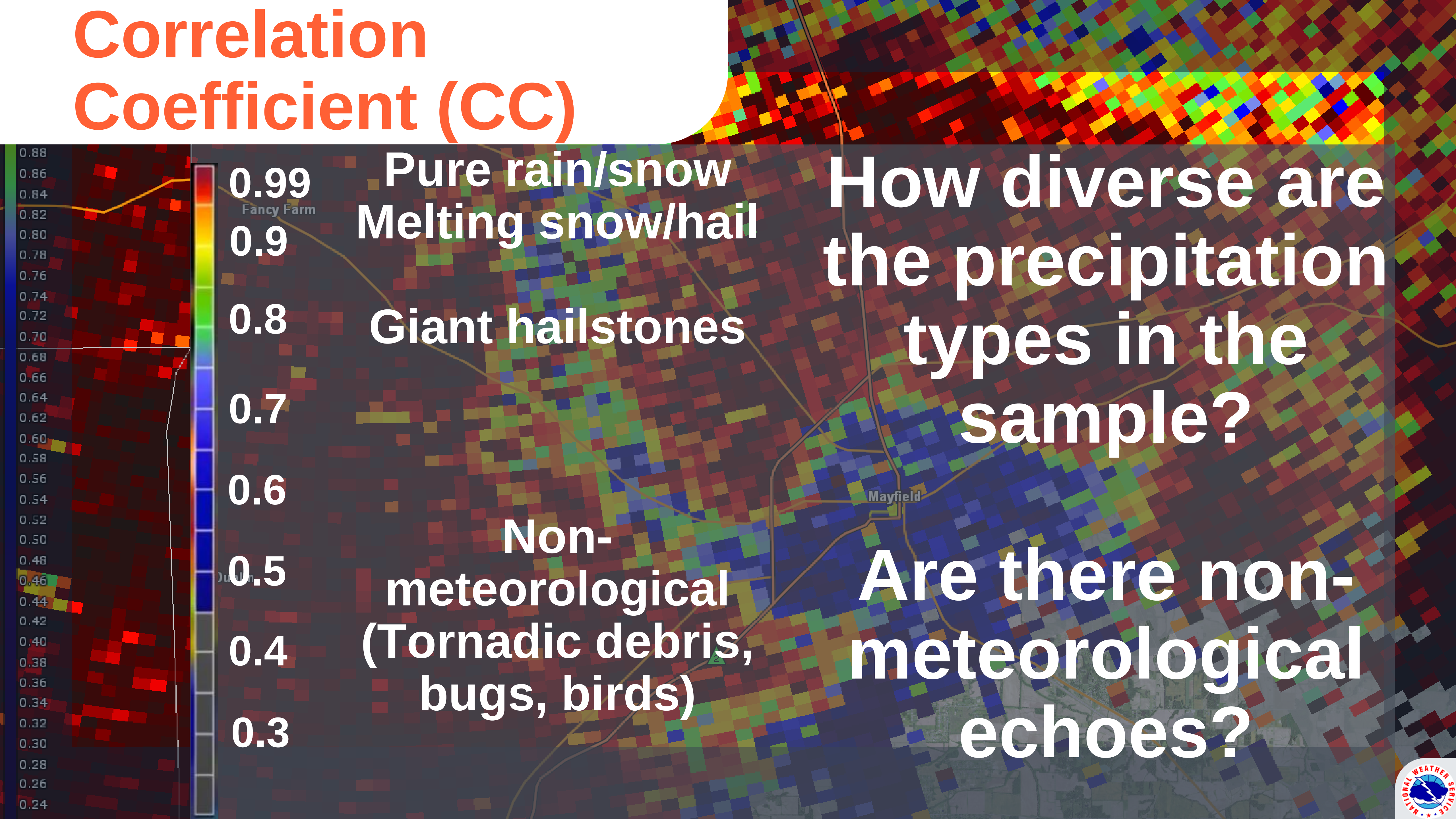
Storm Relative Velocity (SRM)



Same as velocity, but removing the storm motion.

Helps make circulations more evident.

Correlation Coefficient (CC)



0.99	Pure rain/snow
0.9	Melting snow/hail
0.8	Giant hailstones
0.7	
0.6	
0.5	Non-meteorological (Tornadic debris, bugs, birds)
0.4	
0.3	

How diverse are the precipitation types in the sample?

Are there non-meteorological echoes?