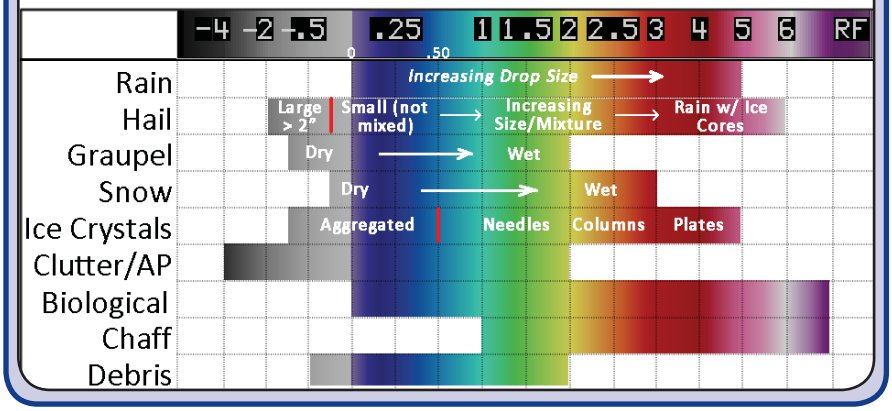
WSR-88D Dual Polarization Guide

Differential Reflectivity (ZDR)

Definition: The horizontal reflectivity minus the vertical reflectivity.

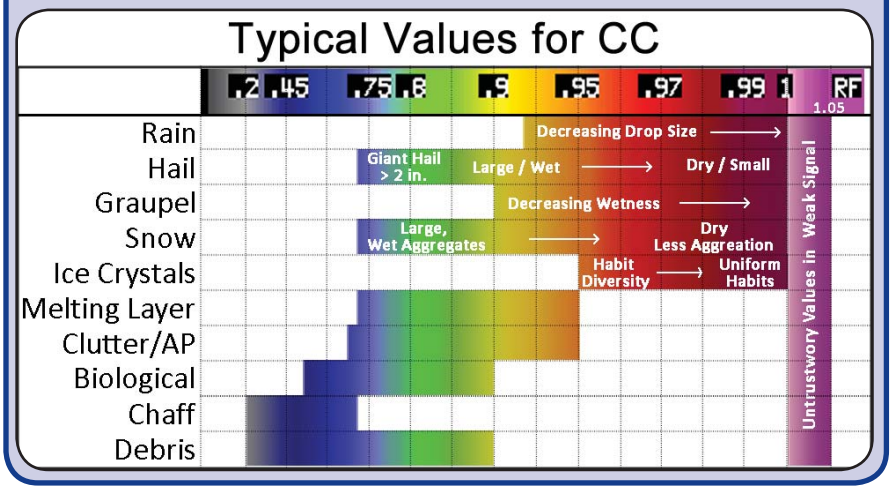
Typical Values for ZDR (dB)



Correlation Coefficient (CC)

Definition: The measure of the consistency of the shapes and sizes of targets within the radar beam.

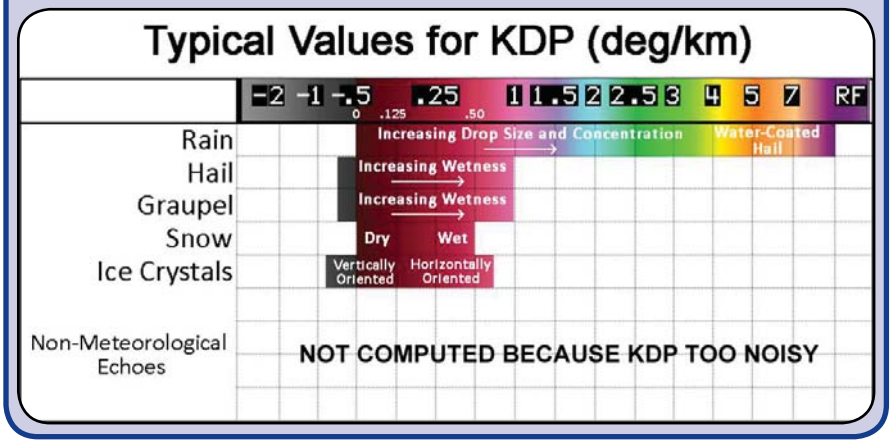
Typical Values for CC



Specific Differential Phase (KDP)

Definition: Indicator of liquid water content sampled within the radar beam

Typical Values for KDP (deg/km)



Hydrometeor Classification (HC)

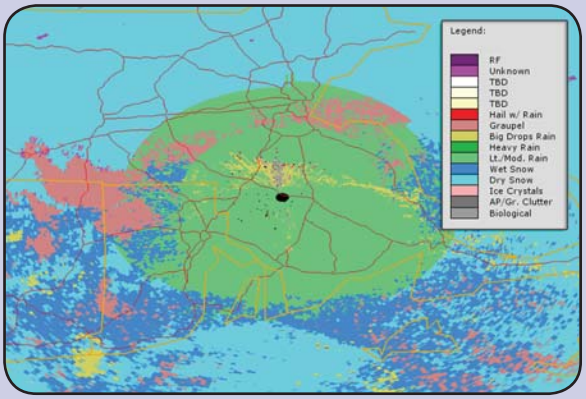
HC Applications

- Primary input for rainfall estimation
- Safety net for novices attempting hydrometeor indentification using base data

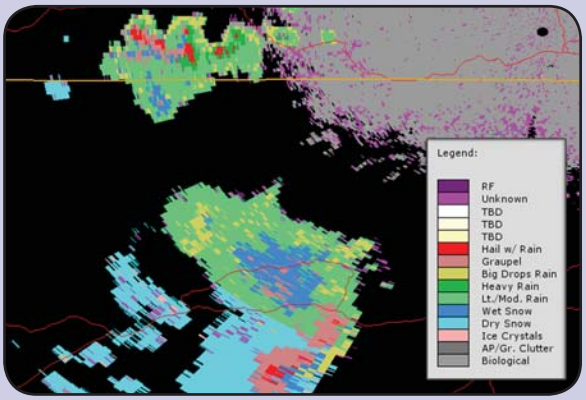
HC Limitations

- Uncertainty in classification not presented
- Relies on accurate Melting Layer Detection Algorithm output for successful classifications
- Overlapping product characteristics leads to improper classification
- Often will not represent what is occurring at the ground

Cold Season Example:



Warm Season Example:

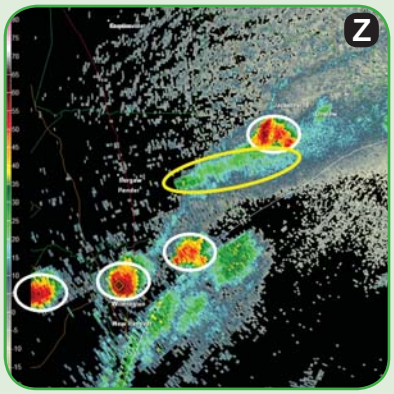


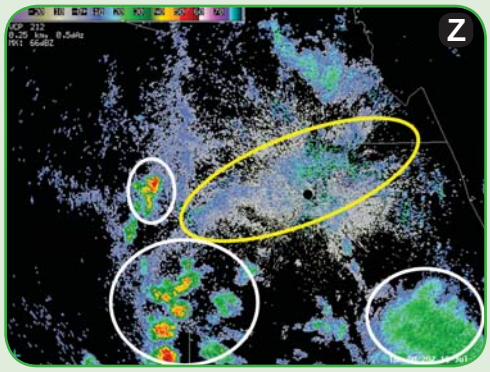
HC Recommendations

- The HC product can provide a first guess in specific areas of interest
- You should always compare the HC product with environmental and radar base data
- When you are convinced it is accurate, the HC product provides an easily understood image for your audience
- Hard boundary at the melting layer may convey the wrong message to viewers (especially in Summer)
- Beware below beam effects!

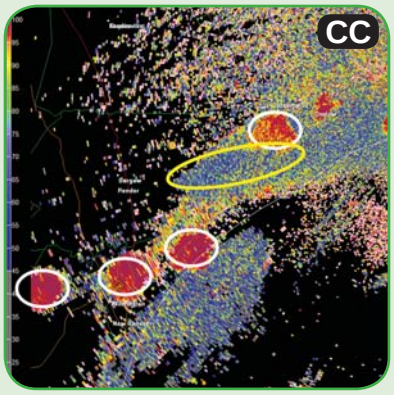
Identifying Meteorological Echo vs. Non-Meteorological

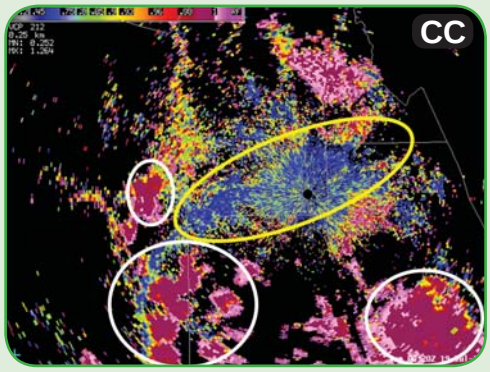
Meteorological
White Ovals:
Z: > 15 dBZ
CC: usually > 0.80





Non-Meteorological
Yellow Ovals:
Z: usually < 20 dBZ
CC: usually < 0.80



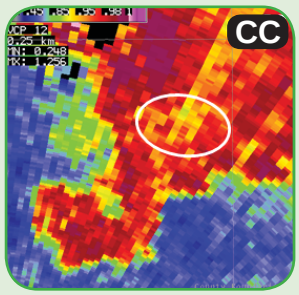


Hail Detection

What to look for:

- Z: local maximum (> 50 dBZ)
- ZDR: local minimum (< 2 dB)
- CC: local minimum (0.7-0.95)

*Specific hail size unknown
*Hail may not reach the ground



Heavy Rain Detection

What to look for:

- KDP: local maximum (> 1°/km) & evidence of melting hail (> 5°/km)

*Amount of rain reaching ground dependent on below beam conditions