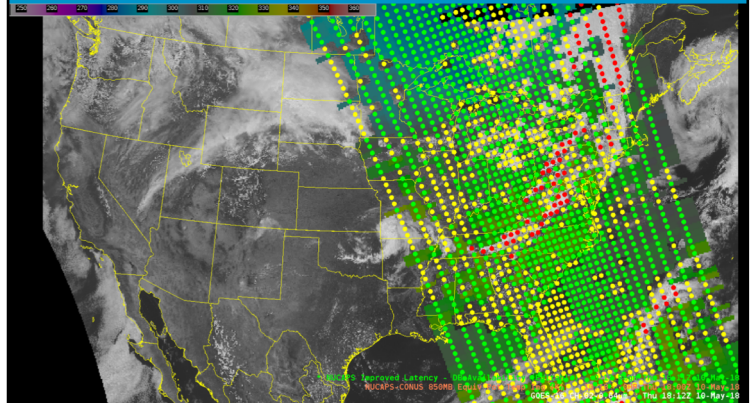


Data Pairings for NUCAPS Sounding Products

Within AWIPS, **procedures** are used to load meaningful data combinations. They save time and enhance product interrogation for better understanding. This quick guide highlights seven useful data combinations for NUCAPS sounding products that you can load as procedures in an active CAVE session.

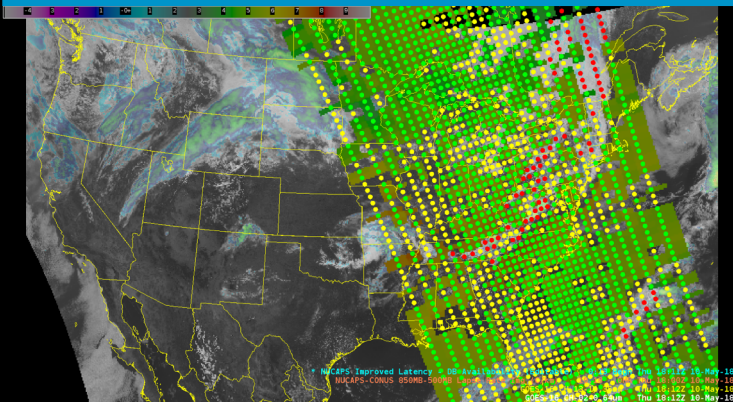
The following are procedure recipes showing useful satellite and model data combinations with **NUCAPS** sounding products. For instance, GOES visible imagery can provide context for NUCAPS data quality and and radar data can show signs of early convection.

NUCAPS Soundings + NUCAPS 850mb Theta-e + GOES-16 0.64µm



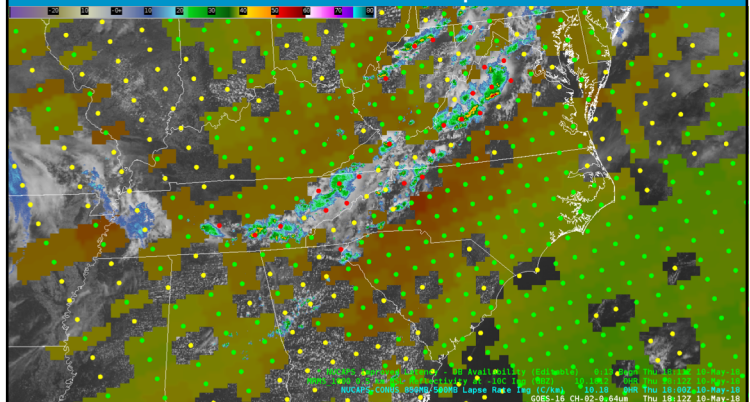
- Pairing NUCAPS and the GOES 0.64µm visible imagery shows uniform cloud locations and provides context on why soundings are coded as yellow or red.
- Theta-e can determine the location of frontal boundaries and/or higher instability in pre-convective environments.

NUCAPS 850-500mb Lapse Rate + GOES-16 0.64µm and 10.3µm



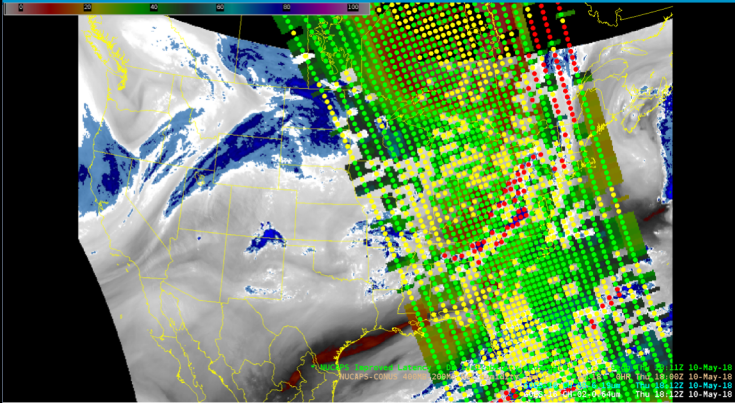
- NUCAPS 850-500mb lapse rate data can show elevated instability or steep lapse rates.
- The GOES-16 0.64µm - 10.3µm "sandwich product" can show cooling cloud tops.

NUCAPS Soundings + NUCAPS 850-500mb Lapse Rate + MRMS Reflectivity at -10°C + GOES-16 0.64µm



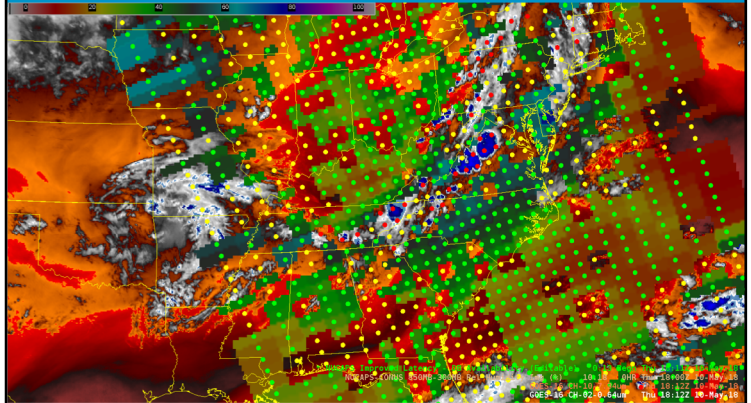
- MRMS reflectivity at -10°C shows the beginning of the mixed phase region, useful for lightning production.
- Can show signs of early convection and falls within the 850-500mb NUCAPS lapse rate.

NUCAPS Soundings + NUCAPS 400-200mb
Relative Humidity + GOES-16 6.2 μ m + GOES-
16 0.64 μ m



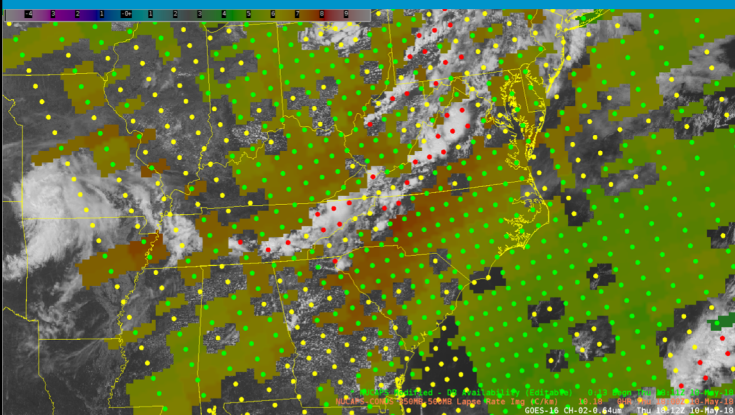
- The NUCAPS 400-200mb relative humidity corresponds well with the weighting function for the GOES-16 6.2 μ m upper level water vapor channel.
- The GOES-16 0.64 μ m visible channel is for sounding quality context.

NUCAPS Soundings + NUCAPS 850-300mb
Relative Humidity + GOES-16 7.3 μ m + GOES-
16 0.64 μ m



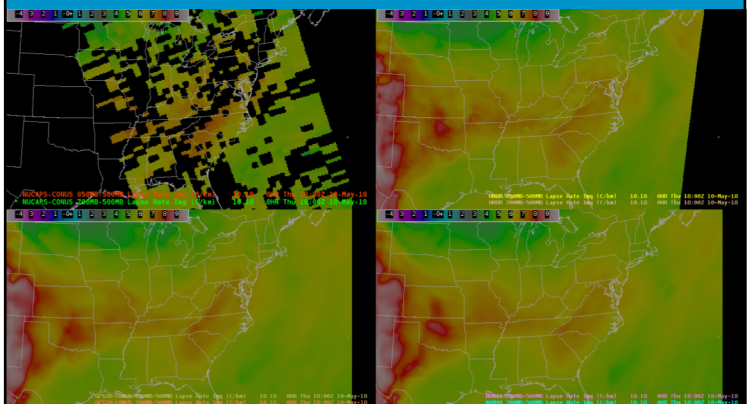
- NUCAPS 850-300mb relative humidity corresponds to the weighting function for GOES-16 7.3 μ m lower-level water vapor channel.
- The GOES-16 0.64 μ m visible channel is for sounding quality context.

NUCAPS Modified Soundings + NUCAPS 850-
500mb Lapse Rate + GOES-16 0.64 μ m



- Modified NUCAPS soundings can improve boundary layer calculations where 850-500mb lapse rates show areas of greater instability.
- The GOES-16 0.64 μ m visible channel is for sounding quality context.

850-500mb + 700-500mb Lapse Rate for
NUCAPS, HRRR, GFS20, and NAM40



- Provides a comparison of NUCAPS gridded data with numerical model data.
- Modeled lapse rates tend to be smoother, whereas NUCAPS observations may show sharp gradients from local instability.