



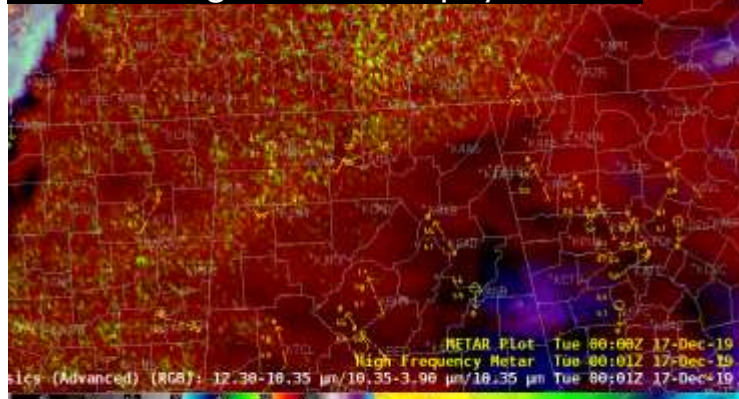
Operational Displays to Maximize GLM Utility in Warning Operations

**A series of case studies and analyses submitted
by WFO Huntsville's operational staff**

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Mesoanalysis and Situational Awareness

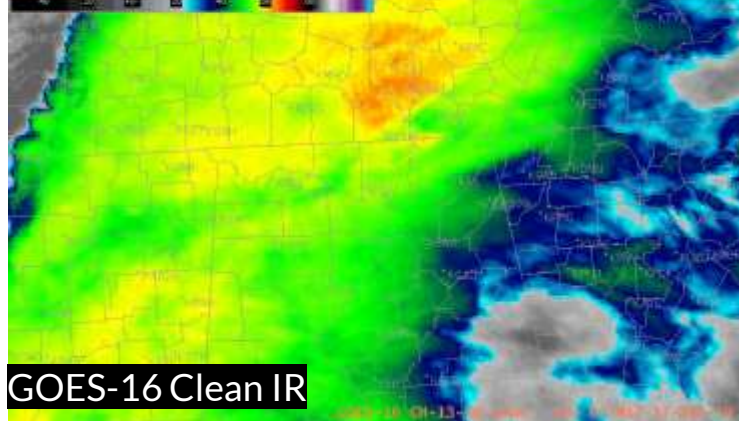
GOES-16 Nighttime Microphysics RGB



MRMS Reflectivity at Lowest Altitude



GOES-16 Clean IR

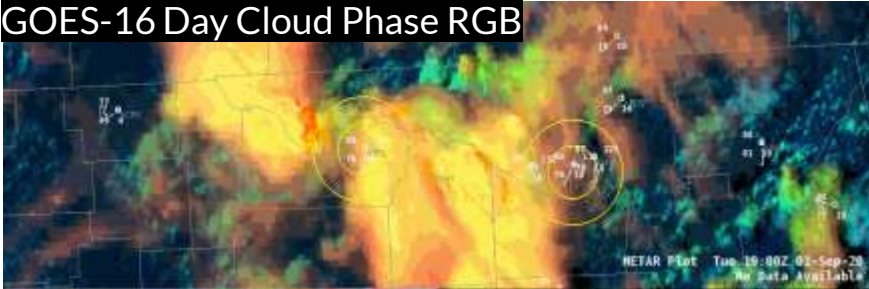


GLM Flash Extent Density

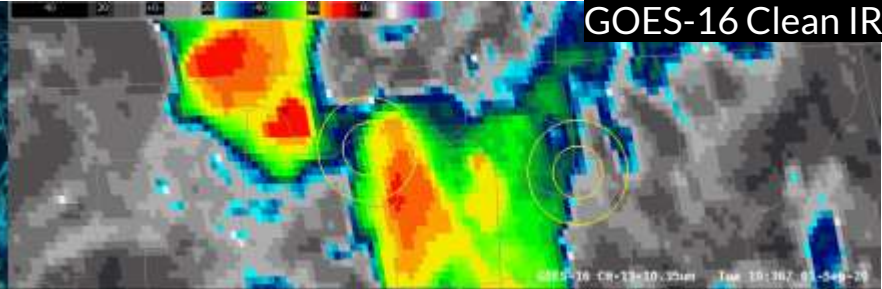


Mesoanalysis and Situational Awareness

GOES-16 Day Cloud Phase RGB



GOES-16 Clean IR



Composite Reflectivity



ENTLN Pulse, Cloud Flash, and Cloud to Ground



GLM Flash Extent Density

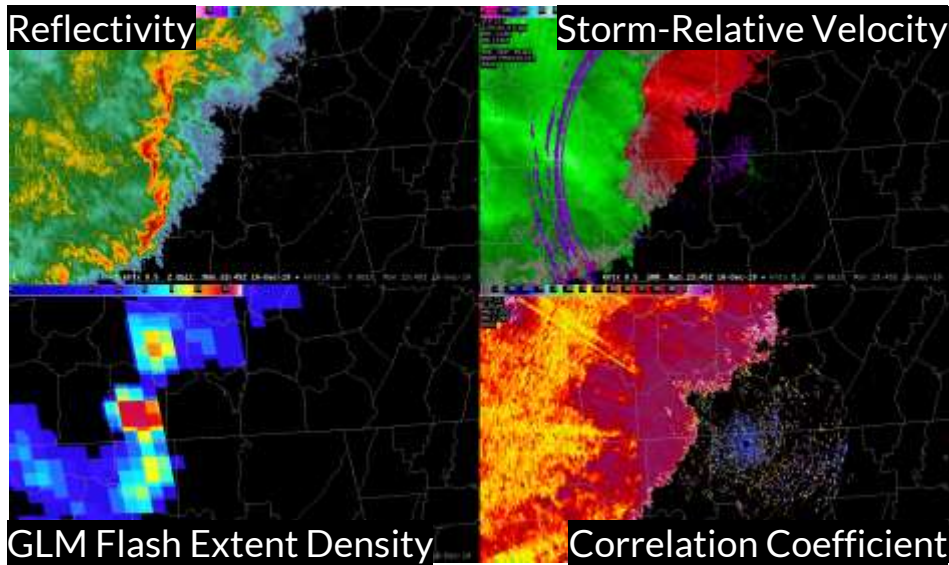


ENTLN 8-km Pulse Grid

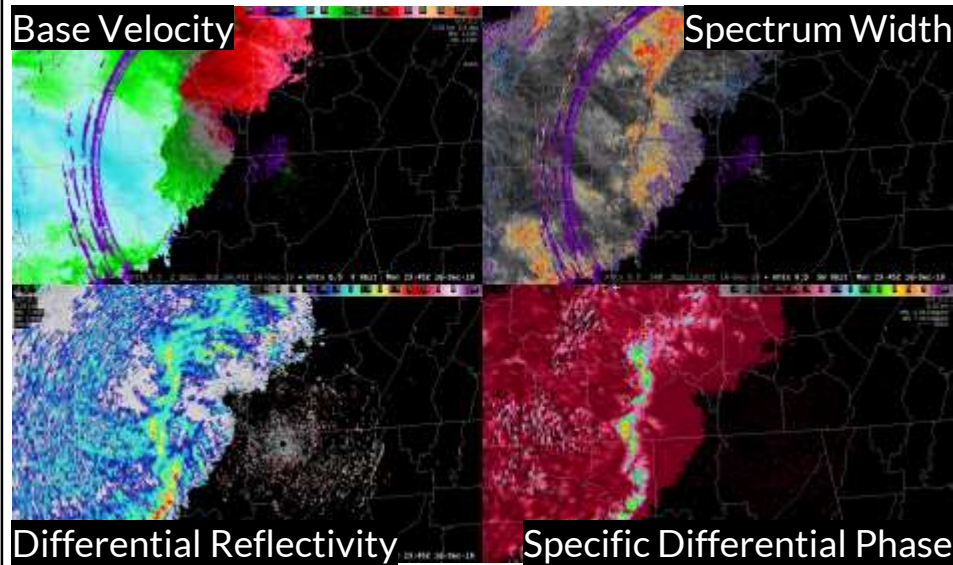


Severe Storm Interrogation

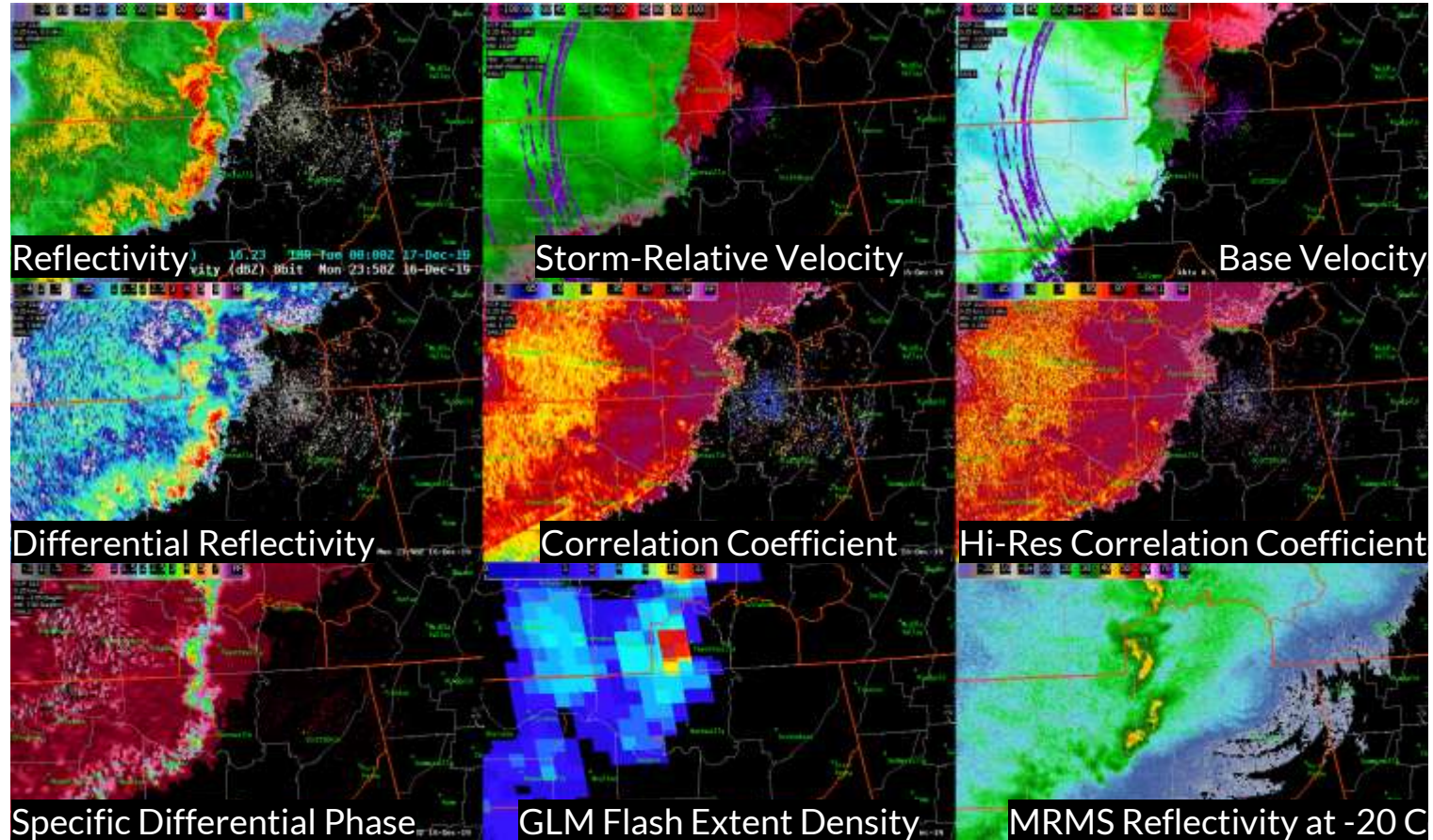
Primary Display



Secondary Display



Severe Storm Interrogation



Operational Complexities/Complications

- Parallax difficulties in widespread convection
 - In linear convection, may cause focus to be on wrong segment
- Forecasters need to recalibrate from LMA usage
 - FED values appear lower in GLM than LMA
 - Lower spatial resolution of GLM than LMA
- Uncertainty with how to integrate other parameters into operations: total optical energy and flash area

Final Feedback from Forecasters

- *“This is a **valuable tool** that helps to diagnose updraft characteristics specifically within the mixed phase region...the only one of its kind, and I hope it **stays on future satellites.**”*
- *“It is awesome and **should be used by everyone** in our office during convective warning situations!!”*
- *“This is an **incredibly useful product** that I routinely **use every day**, even in a more benign weather pattern.”*
- *“Flash extent density is a practical tool that provides **much more operational use than NLDN/ENTLN** (even gridded), as it helps better spatially convey updraft intensification via lightning production in a way that catches the radar operators eye.”*