

## Talking points for Introduction to mesoscale / convection section

1. Title
2. The objective of this lesson is to understand the structure of the mesoscale/convection and synoptic sections of this course. We'll also compare temporal resolution between GOES-R era and pre-GOES-R era imagery.
3. The mesoscale / convection section of this course is structured in the following way. First, a series of short mini-modules will introduce each topic. The mini-modules will make use of imagery from the GOES-R series (that is, GOES-16 or GOES-17). Each mini-module will discuss how GOES-R aids in the identification, analysis and tracking for each topic. The mini-module will include a brief interactive exercise to identify the features for the specific topic.
4. The duration of the mini-modules in terms of the length of the video is 10 minutes for 7 of the mini-modules while the pre-convective environment and discrete storms modules are about 20 minutes. Typically, a student takes more time than the length of the video to complete each mini-module and take the corresponding quiz, generally a little longer than double the length of the video. For this reason we estimate a total expected completion time for this section to be about 280 minutes, despite the total length of the mini-modules being around 120 minutes. The modules include
5. The synoptic section will be structured similar to the mesoscale/convective section. It will start out with 3 modules that pertain to cyclogenesis that will combine for 40 minutes in length. At the end of each module, there will be interactive exercises. This will be followed by additional modules including other jet features, general circulation patterns, atmospheric rivers, and tropical to extratropical transition. The total length of the videos for this section is about 80 minutes, while the total expected completion time, which includes taking the quiz for each module, comes to about 190 minutes.
6. Utilizing 1-minute imagery in the GOES-R era is particularly important and highlighted in the the mesoscale/convection section. To help understand the importance of 1-minute imagery we compare pre-GOES-R era with GOES-R era temporal resolution and availability for display on AWIPS which is referred to as latency. In the pre-GOES-R era, standard scanning strategies were at 15 minutes and in Rapid Scan Operations (or RSO) it was roughly 5 minutes. In terms of latency of AWIPS, it was 20 minutes for the standard 15 minute scan mode, and improved to about 8 minutes during RSO. Compare that with the GOES-R era, I won't discuss the full disk scan other than listing that it is 15 minutes since the spatial resolution is degraded, but the CONUS sector is at 5 minutes. Mesoscale sectors make 1 minute imagery available, or even 30 seconds if two meso sectors overlap. The most important aspect is the latency in AWIPS, it's about 1.5 minutes in the GOES-R era, a dramatic increase from the pre-GOES-R era. This fact is the real game changer for how one would utilize satellite imagery for particular events. You can now make use of satellite imagery in ways that would not have been possible in the past, for example, in the warning decision making process. The time that you see the data on AWIPS is now comparable to (or even faster) than radar and lightning data. As you can gain experience with utilizing 1-minute imagery in the GOES-R era you will learn optimal ways of working with this data and integrating it with other datasets such as radar and lightning.

7. In summary, the mesoscale and synoptic sections of this course will consist of a series of mini-modules. All but 4 of the mini-modules from the synoptic section will include interactive exercises. Finally, there will be a quiz at the end of the mesoscale and synoptic sections.