

The Use of GOES Rapid Scan during Severe Weather Events

High resolution satellite imagery allows one to monitor the evolution of many features, such as frontal boundaries, stationary boundaries, sea breezes, outflow boundaries, areas of enhanced differential heating, areas of mid level dry air intrusion and areas of strong vertical updrafts. In short, such imagery provides information that enables forecasters to complete the picture of the evolving near storm environment, which might not be possible using just surface observations and radar data. There may be times when such features evolve so rapidly that the typical four-image-per-hour frequency is inadequate.

GOES Rapid Scan doubles the frequency of images for particular sectors of high interest such as those associated with severe weather outbreaks and land-falling hurricanes. The rapid scan imagery frequency is on the order of 7 minutes compared to 15 minutes for a regular CONUS scan. National centers can also request super rapid scan imagery, which is on the order of one image per minute and is typically employed for hurricanes. In addition, the high frequency of images allows the user to track development of active convection along various surface boundaries by using the 1 km visible channel. The boundaries that become areas of focus for convection initiation can be identified by looking for areas of cumulus growth along those boundaries. Furthermore, using the water vapor channel, one can follow vorticity maximums, or shortwaves, which may enhance lift within an area and initiate convection especially near surface boundaries (which would be identified using the visible channel) where a capping inversion exists.

GOES Rapid Scan is automatically requested whenever the Storm Prediction Center issues a Moderate Risk of severe weather for Day One, or whenever the National Hurricane Center issues a Hurricane Warning. Furthermore, NWS field forecasters can request a GOES Rapid Scan using regionally established procedures to address local severe weather concerns. This request is coordinated through NCEP's (National Centers for Environmental Prediction) Senior Duty Meteorologist who submits the request to the satellite operations center. NWS forecasters not familiar with the procedure to request GOES Rapid Scan should consult their Science and Operations Officer or their regional headquarters.

Once GOES is put into Rapid Scan mode, images can also be obtained through the various private weather vendors as well on the Internet. Please consult your weather data provider for additional details.

Some examples of GOES Rapid Scan can be found at <http://cimss.ssec.wisc.edu/goes/misc/>, while real-time GOES Rapid Scan data can be found at www1.cira.colostate.edu/RAMM/Rmsdsol/RSOMAIN.HTML.

- Wayne MacKenzie, NWA Remote Sensing Committee