## Why is the Cloud Top Temperature Important?

The Baseline Cloud Top Height Temperature estimates the temperature of the cloud top in degrees Celsius; it is generally more accurate than individual channel Brightness Temperatures that can be affected by absorption by gases. The product can be used to monitor cloud-top changes during convection. Temperature thresholds for events can be used with this product.

GOES-16 Cloud Top Temperature, 1802 UTC on 19 February 2018
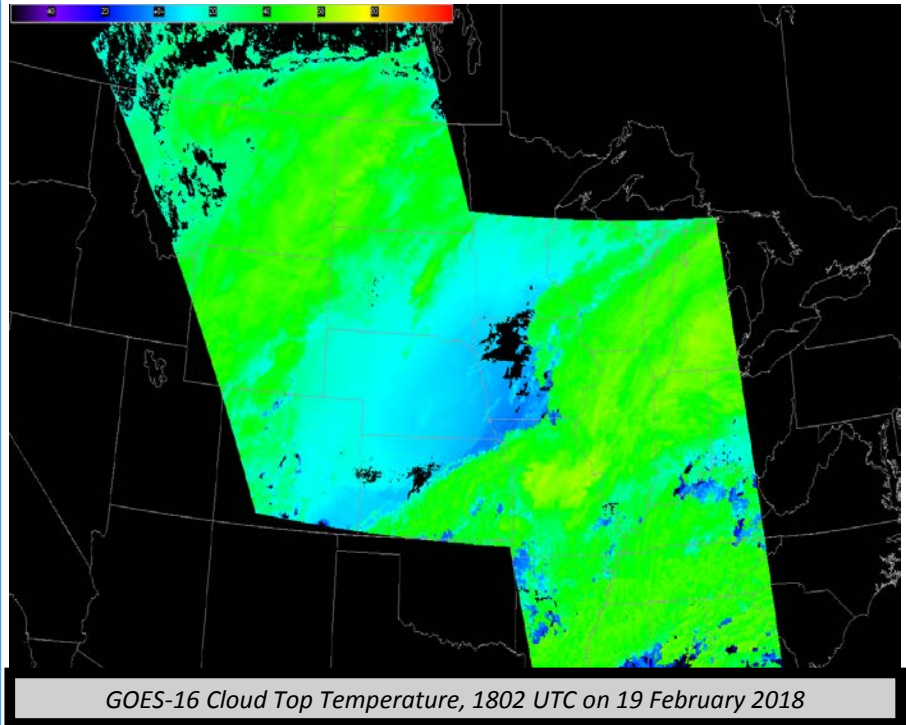
Cloud Top Temperature Temporal Cadence and Band Requirements

Domain	Temporal Refresh	Local Zenith Angle Range	ABI Bands Used
Full Disk	15 minutes	Quantitative from 0° to 65°	11.2 µm, 12.2 µm, 13.3 µm
Mesoscale	1 minutes		

Impact on Operations

Primary Application: A principle application is for monitoring convection. How quickly a cloud-top cools is a proxy for updraft strength.

Limitations

Limitation: Upstream issues with the clear sky mask and cloud phase may cause misclassification; Accuracy is reduced in multi-layer situations.

**Limitation:** The accuracy requirement is 3 K.

Limitation: The product is not computed at CONUS Scales as of February 2018.

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Revision Date: February 2018

Cloud Top Temperature

Image Interpretation

1 Warmest clouds are typically purple and dark blue.

2 Tropical Mid-level Clouds are green. High clouds in mid-latitudes are also green.

3 Strong convection is yellow, and overshooting tops are orange and red.
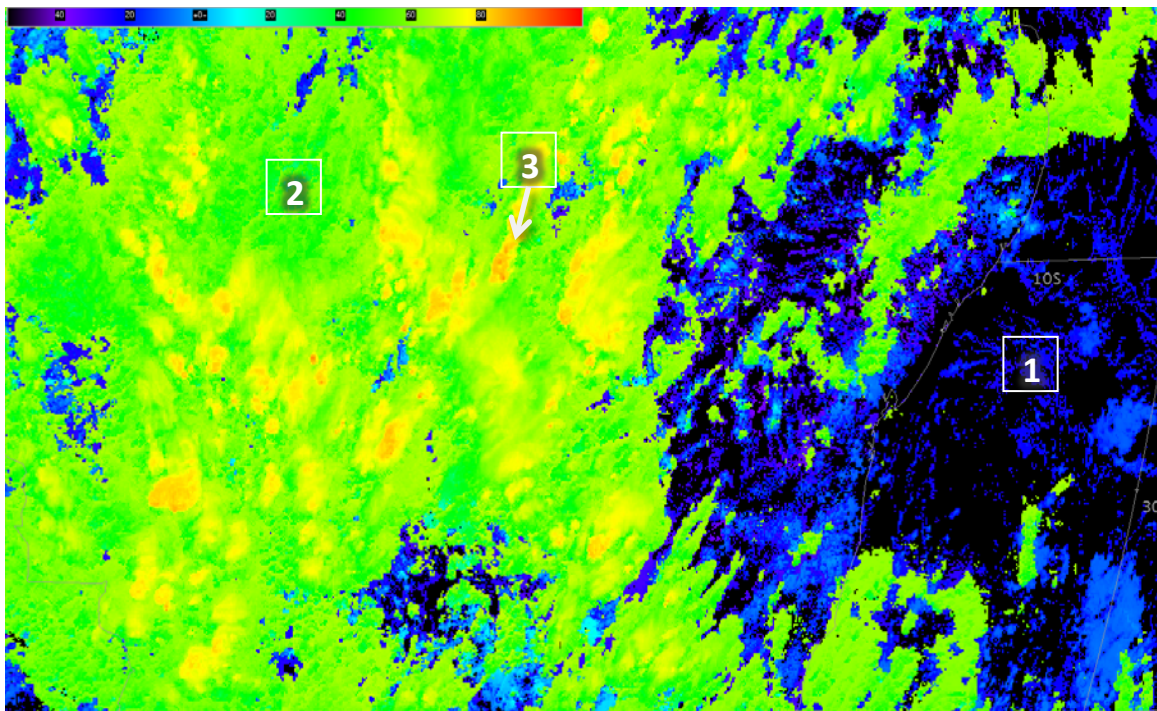
GOES-16 Cloud Top Temperature at 1800 UTC, 19 February 2018

Cloud Top Temperatures in AWIPS

Some products in AWIPS use Cloud-Top Temperature already as a proxy for convective development. For example, the NOAA/CIMSS ProbSevere model characterizes convective growth as weak/moderate/strong based on cloud-top cooling. That cooling is based on a single channel, however, and not on this product.

Resources

ATBD on Cloud Top Temperature

Hyperlinks do not work in AWIPS but they do in VLab