

Cloud Top Temperature

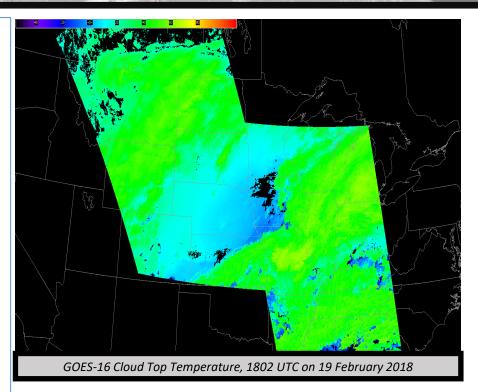
Quick Guide





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.



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

<u>Primary Application</u>: 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.

Contributor: Scott Lindstrom Revision Date: February 2018



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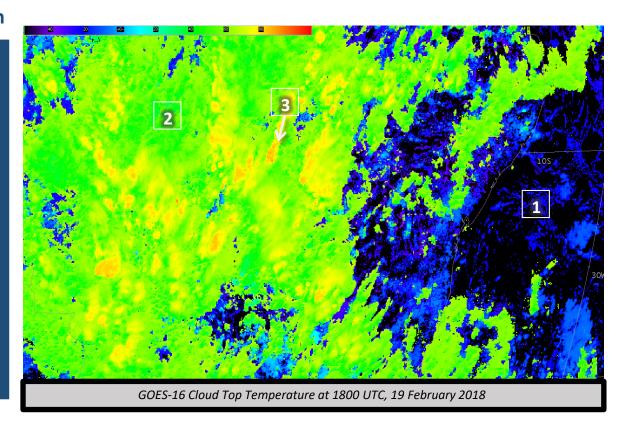
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Image Interpretation

- Warmest clouds are typically purple and dark blue.
- Tropical Mid-level
 Clouds are green.
 High clouds in
 mid-latitudes are
 also green.
- Strong convection is yellow, and overshooting tops are orange and red.



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