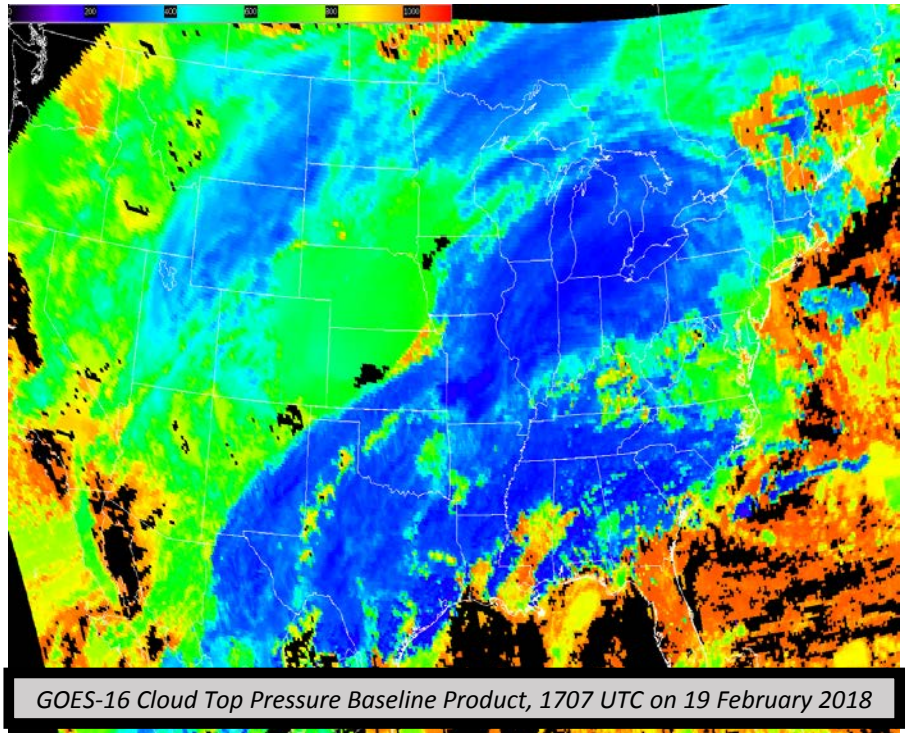
Cloud Top Pressure Quick Guide

Why is the Cloud Top Pressure Important?

Baseline Cloud Top Pressure estimates the cloud top pressure (in hPa). Values are not assigned in clear skies. Cloud Top Pressure is used in RAP and HRRR model assimilation and also with Derived Motion Winds. At right is an example from a particularly cloudy day. Cloud Top Pressure is derived simultaneously with Cloud Top Height and Temperature with the **A**BI **C**loud **H**eight **A**lgorithm -- ACHA. GFS Numerical Model output is used in ACHA.



GOES-16 Cloud Top Pressure Baseline Product, 1707 UTC on 19 February 2018

Cloud Top Pressure Temporal Cadence and Band Requirements

Domain	Temporal Refresh	Local Zenith Angle Range	ABI Bands Used
Full Disk	15 minutes	Quantitative from 0° to 62°	11.2 μm, 12.2 μm, 13.3 μm
CONUS	5 minutes		

Impact on Operations

Primary Application: Cloud Top Pressure is assimilated into numerical models such as the HRRR and RAP, but not the GFS.

Application: Derived Motion Wind Vectors rely on Cloud Top Pressure for height assignments.

Limitations

Limitations: Upstream issues with the clear sky mask and cloud phase may cause misclassification; Regions with undetected inversions maybe produce erroneous values; Accuracy is reduced in multi-layer situations.

Limitation: The accuracy requirement is 50 hPa for clouds with emissivity > 0.8.

Resources

ATBD on Cloud Top Pressure

Hyperlinks do not work in AWIPS but they do in VLab

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