

GEOMETRIC CLOUD TOP HEIGHT ASSIGNMENT BY GEOSYNCHRONOUS METEOROLOGICAL SATELLITE IMAGES

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Abstract

In this research, the biases for Geometric Cloud Top Height (CTH) assignment are simulated for the current operational geostationary satellite constellation. The simulation shows that the geometric CTHs are best retrieved when the two satellites are separated by 60 degrees and presents CTHs properties for various satellite configurations.

In addition, several case studies using GOES-10/12 images demonstrate CTH assignments using parallax and shadow techniques. The algorithms have been optimized for searching distance, target box size, shadow tracing, and computer speed. Comparisons with current operational assignment techniques show that the geometric approach could not only improve CTH geospatial resolution, but also the CTH accuracy especially for cirrus and clouds near the tropopause. Validation of the CTH results will also be shown.