



## **Development of a cloud top height retrieval algorithm from two geostationary satellites, Himawari-8 and FY-2E**

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This study develops a stereoscopy-based cloud top height (CTH) retrieval algorithm using visible images acquired almost simultaneously from two geostationary satellites: the Japanese Himawari-8 (140.7 °E) and the Chinese Feng-Yun-2E (FY-2E; 86.5 °E). This algorithm is based on the parallax in cloud structure caused by the different viewing geometries of two geostationary satellites. The algorithm starts with reading observed digital numbers (DNs) and converting DN to reflectance. The Himawari-8 data is projected into the FY-2E footprints (remapping) so that cloud structures can be comparable on the same location and the distortion of cloud structures from the different viewing geometries can be removed. Then, the parallax of cloud structure is measured by a normalized cross-correlation technique. The CTH is finally retrieved by a trigonometric calculation using the measured parallax and the satellite geometry information including satellite zenith angle and satellite azimuth angle. Retrieved CTH products are compared to other satellite products such as the Moderate Resolution Imaging Spectroradiometer (MODIS) cloud product (MOD 06), which is the infrared brightness temperature-based product. The comparison results will be discussed.