

Collection 005 Change Summary for MODIS Cirrus Detection (06_CD) Algorithms

A number of changes were implemented in the Collection 005 version of the Cirrus Detection algorithm:

1. The Cirrus Detection code was modified to run off de-striped L1B radiances. This is done by staging the original, unmodified L1B 1KM file (MOD021KM) to PGE06. A copy of this file is made by the processing script (referenced as MOD1KMDS) and serves as input and output to the University of Wisconsin L1B Destriping Algorithm (MOD_PRDS). After processing, the MODIS IR bands and band 26 are destriped and available to the Cirrus Detection code.
2. The Cirrus Detection code uses the destriped MOD1KMDS band 26 radiances for science data processing, but references the MOD021KM file as the original L1B data source in the product metadata. Upon successful termination of PGE06, the MOD1KMDS product is deleted.
3. Previously separate Terra and Aqua MOD_PR06CD code repositories are remerged into a single volume. In other words, a single program executable (PGE) is used to process both Terra and Aqua data.
4. Changes to FUNCTION GetGeo_MOD06CD are made so that a correct scaling factor of 0.01 is used during reading of solar zenith angle, solar azimuth angle, view zenith angle, and view azimuth angle, instead of the incorrect scaling factor of $0.018/\pi$.
5. Changes are made to several subroutines and functions so that the algorithm can now properly deal with bad and partially missing L1B and Cloud Mask scan lines. Relevant QA flags are now properly set, and improved L3 cirrus reflectance data products will be produced.
6. A processing threshold for solar zenith angle is now set at 85 degrees. Pixels with solar zenith angles less than the new threshold value are processed. In Collection 004 and previous this was set to 80 degrees. This change will allow more low sun angle pixels to be processed.
7. The parameter `cirrus_refl_min` in `COMMONS_cirrus.inc` is changed back to 0.005 in view of the improved MODIS L1B calibrations with corrections to the cross-talking problem.