

Project: Biases in CloudSat Falling Snow Estimates Resulting from Daylight-Only Operations by Lisa Milani (ESSIC-UMD and NASA-GSFC) and Norman B. Wood (SSEC UW-Madison)
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The DOOp_mask_v1.0.0.csv and DOOp_mask_v1.0.0.h5 files contains latitude limits imposed by Daylight-Only Operations (DO-Op) on the acquisition of CloudSat Cloud Profiling Radar (CPR) observations. These limits were composited as functions of the day of year using multiple years (2012-2016) of DO-Op observations. The files contain the same data in different formats.

These limits were applied to CPR observations during the Full Operations (Full-Op) period (2006-2010) to create a dataset that mimics the sampling of the DO-Op period. This Full-Op-Resampled (Full-Op-R) dataset was used in Milani and Wood (2021) to examine the impacts of DO-Op sampling on snowfall characteristics derived from the CloudSat snowfall product 2C-SNOW-PROFILE (Wood and L'Ecuyer, 2018).

The columns in DOOp_mask_v1.0.0.csv contain ("NH" = Northern Hemisphere, "SH" = Southern Hemisphere):

1. Day of year
2. NH ascending track, minimum latitude
3. NH ascending track, maximum latitude
4. SH ascending track, minimum latitude
5. SH ascending track, maximum latitude
6. NH descending track, minimum latitude
7. NH descending track, maximum latitude
8. SH descending track, minimum latitude
9. SH descending track, maximum latitude

In DOOp_mask_v1.0.0.h5, see the metadata for the variables 'day_of_year' and 'latitude_bounds' for a description of the contents.

Note that NaN values in the files indicate days for which DO-Op causes no valid observations to be taken for the Southern Hemisphere descending track.

For each pair of minimum and maximum latitudes associated with a particular hemisphere and ascending or descending track, the latitude pair provides the latitudes between which CloudSat profiles should be retained to mimic DO-Op sampling.

References

Milani, L. and N. B. Wood, 2021: Biases in CloudSat falling snow estimates resulting from Daylight-Only operations. Remote Sens., 13, x. doi:10.3390/yyyyy.

Wood, N. B., and T. S. L'Ecuyer, 2018: Level 2C Snow Profile process description and interface control document, product version P1_R05. NASA JPL CloudSat project document revision 0., 26 pp. Available from http://www.cloudsat.cira.colostate.edu/sites/default/files/products/files/2C-SNOW-PROFILE_PDICD.P1_R05.rev0_.pdf.