

Level 1C Version 05 (V05) Release Notes

This Level 1C V05 release involves the following changes from the previous release in the calibration of the GPM radiometer constellation.

1. Level 1C GMI V05 brightness temperature (T_c) differs from V04 by as much as -1.4 K for some channels (Figure 1) due to the following calibration adjustments implemented in V05 GMI L1B/Base:
 - Adjusted spillover coefficients. This adjustment is based on the data from GMI deep space maneuver, inertial hold, and refinements of the analysis performed by the GMI manufacturer and the GPM Inter-calibration Working Group (X-CAL). T_c changes vary from channel to channel and are functions of brightness temperatures. For channels 1-5, the maximum change is around -1.0 K. for other channels, T_c changes are minor.
 - Adjusted cold load temperature for 10 GHz channels. This is a minor adjustment and the maximum impact is less than 0.2 K for 10 GHz channels.
 - Added a count (earth and cold) adjustment in the magnetism correction equation. This is a minor adjustment and the maximum impact is less than 0.2 K.
 - Adjusted magnetic correction coefficients. This is also a minor adjustment and the maximum impact is less than 0.2 K.
 - Added Earth-view antenna-induced along-scan corrections. The correction is less than 0.1 K for most pixels along a scan but can be as large as 0.5 K near the edge of scans.
2. For the constellation radiometers, the Level 1C brightness temperature (T_c) data has been intercalibrated to be consistent with the V05 GMI brightness temperature. As a result, V05 AMSR2 T_c decreased 0 to 1.2 K depending on the channel and brightness temperature, ATMS decreased 0 to 0.77 K, MHS decreased 0 to 0.2 K, SSMI/S decreased 0 to 1.05 K, and SAPHIR decreased 0.07 to 0.08 K.
3. Due to sensor issues, SSMI/S F17 37V channel T_c data has been flagged and set to missing during 2016-04-05 to 2016-05-18 (orbits 48595 to 49202) and 2016-08-03 to present (orbits 50286 onward) periods. During these 37V data missing periods, 37H channel T_c was affected and daily means reduced by 2 – 4 K due to lack of cross-pol correction. This issue has been corrected in V05.
4. Noise in the SSMIS F16 91 GHz channels begins to increase significantly in early July of 2015. The noise in the 91V channel starts to get worse in early July and then recovers at the end of August. The 91H channel starts to show issues in July as well, but it doesn't appear to recover until December of 2016. Users should be cautious when using the SSMIS F16 Level 1C data during this period.

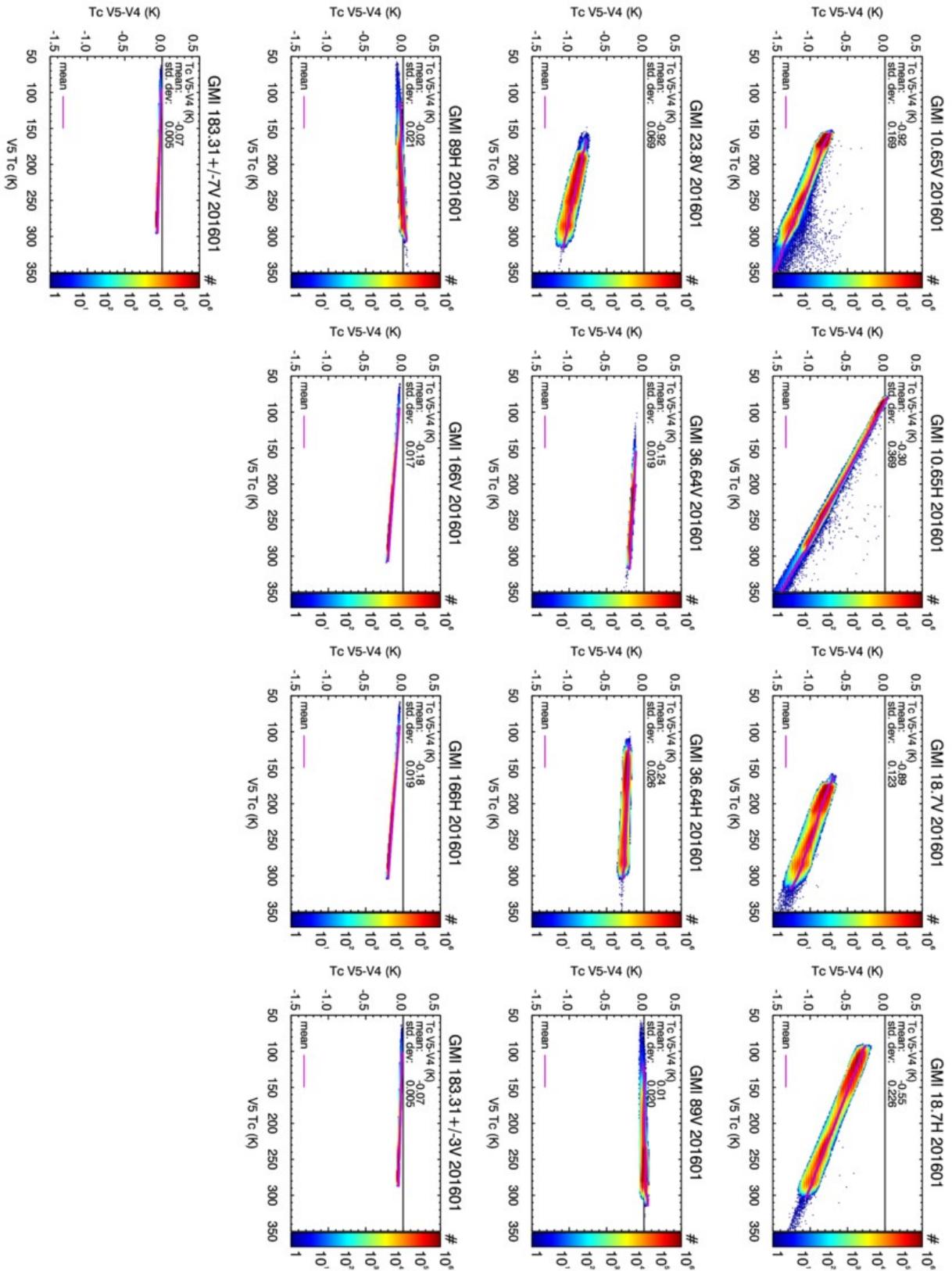


Figure 1: Monthly density plot of L1C GMI Tc difference between V05 and V04.