RELEASE NOTES OF GPM VERSION 05/TRMM VERSION 08 TMI CALIBRATION

This release of TRMM V8 data will become part of the GPM data suite. The TRMM V08 TMI calibration and correction are updated based on deep space and special maneuver data, as well advanced algorithms used in GPM GMI calibration. Updates include Antenna Patten Correction (APC) and antenna emissivity correction (these have major impacts on T_b) and a number of other updates described below. The magnitudes of T_b changes can be seen in Figure 1. The T_bs are increased around 2-3 K at low end of T_b for most channels, reflecting an over warm-correction of V7 for cold T_b. Corrections at warm end are small except for 19 GHz channels.
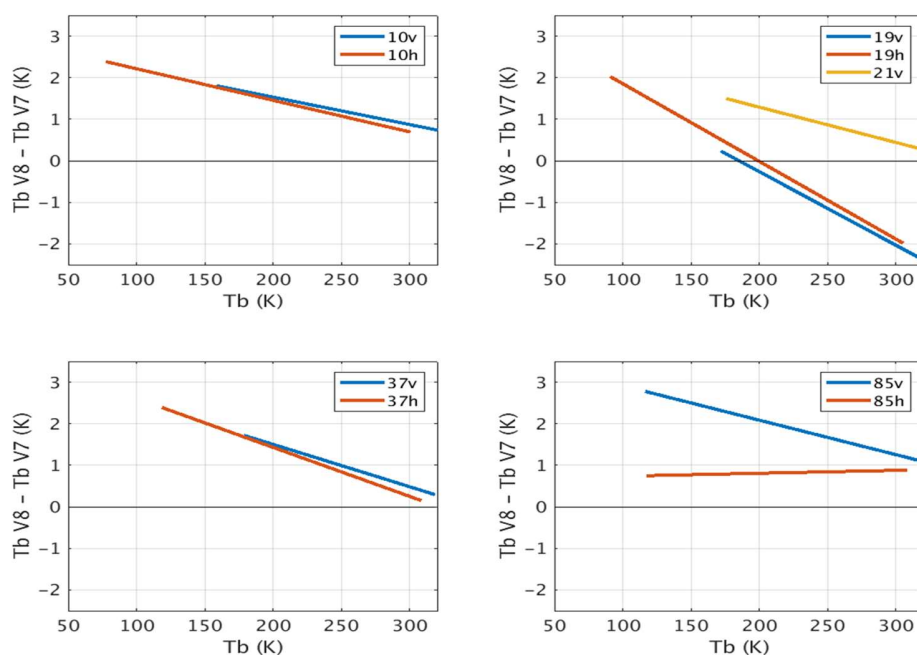

Figure 1. TMI T_b changes from V07 to V08.

1. Adjusted TMI APC. This adjustment is the major improvement from V07 to V08 in TMI antenna pattern correction. The adjustment is based on the data from TMI deep space and other special maneuvers, and refinements of the analysis from the GPM Inter-calibration Working Group (X-CAL). T_b changes vary from channel to channel and are functions of brightness temperatures.

2. Added TMI emissive antenna correction to replace the V7 empirical warm correction. The adjustment is based on the data from TMI deep space and other special maneuvers, and refinements of the analysis from the GPM Inter-calibration Working Group (X-CAL). T_b changes vary from channel to channel and are functions of brightness temperatures.

3. Used multiple scan calibration to replace the V7 single scan calibration. This reduced the along-track noise ±0.5 K but have no impact on long-term average.

4. Added correction on warm intrusions (moon and RFI) onto cold load and sun intrusions onto the hot load. These events typically last less than a few hundred scans for some orbits.

RELEASE NOTES OF GPM VERSION 05/TRMM VERSION 08 VIRS CALIBRATION

This release of TRMM V8 data will become part of the GPM data suite.

1. No change of radiometric calibration from V7 to V8. Radiances for all VIRS channels are identical between V7 and V8.

2. V8 added computation of surface reflectance for visible channels and brightness temperatures (Tb) for infrared channels. The V8 VIRS L1B products contain Radiance for all channels, as well as surface reflectance for channels 1 and 2 and Tb for channels 3, 4, and 5. V7 products do not have surface reflectance and Tb.