

TRMM Available Products

[As of Oct. 3, 2017]

Standard Products

Processing Level	Satellite / Instrument	Product [Product Identifier]	Key Parameters	File coverage	Available Latest Product Version (Caveats)
1	TRMM/PR	PR L1B [PU1]	Received Power	TRMM orbit (Torbit*)	Ver. 05 (See: page 2)
	TRMM/TMI	TMI L1B [TMI]	Brightness Temperature (Tb)	Torbit	Ver. 05 (See: page 3)
	TRMM/TMI	TMI L1C [TMI]	Inter-Calibrated Brightness Temperature (Tb)	Torbit	Ver. 05 (See: page 3)
	TRMM/IRS	VIRS L1B [V1B]	Radiance	Torbit	Ver. 05 (See: page 4)

* Torbit is the TRMM orbit calculated from the southern most point back to the southern most point



Oct 3rd, 2017

Release Notes for the PR Level 1 products

All users of PR Level 1 data should keep in mind the following changes in Version 5 products.

<Major changes in the PR Level 1 products from TRMM Version7 to GPM Version 5 >

1. Changes of the PR's calibration parameters.

JAXA reexamined the PR's calibration parameters in the GPM Version 5 products based on a new knowledge obtained by GPM/DPR's calibration. With the new parameters, the measured radar reflectivity factors increase by about +1.1 dB from the corresponding TRMM Version 7 products, and PR's normalized surface cross section (σ_0) statistics agrees with KuPR's σ_0 .

2. Improvements of beam-mismatch correction.

The boost of the TRMM satellite orbit from 350 km to 402.5 km in August 2001 caused a mismatch of the transmitted and received antenna beam directions (called as "beam-mismatch") by one pulse due to PR's fixed hardware design. Although the beam-mismatch has been partially corrected in TRMM Version7 products by using the method described in Takahashi and Iguchi (2004), a systematic bias has remained near the surface and bright band. JAXA applied a new correction method in GPM Version5 products to mitigate the correction error (Kanemaru et al., in preparation).

3. Improvements of geolocation.

Since the satellite attitude and orbit information was reexamined by NASA/PPS, the geolocation of PR's IFOV (Instantaneous Field of View) was improved.

4. Data format was changed to the same format as GPM/KuPR's format.

PR's Level 1 product format in GPM Version 5 was changed to the same format as KuPR's Level 1 product in GPM Version 5. Users can refer to the following web site.

http://www.eorc.jaxa.jp/TRMM/documents/PR_algorithm_product_information/top_e.html

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 as advanced algorithms used in GPM GMI calibration. Updates include Antenna Pattern 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_b s 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.

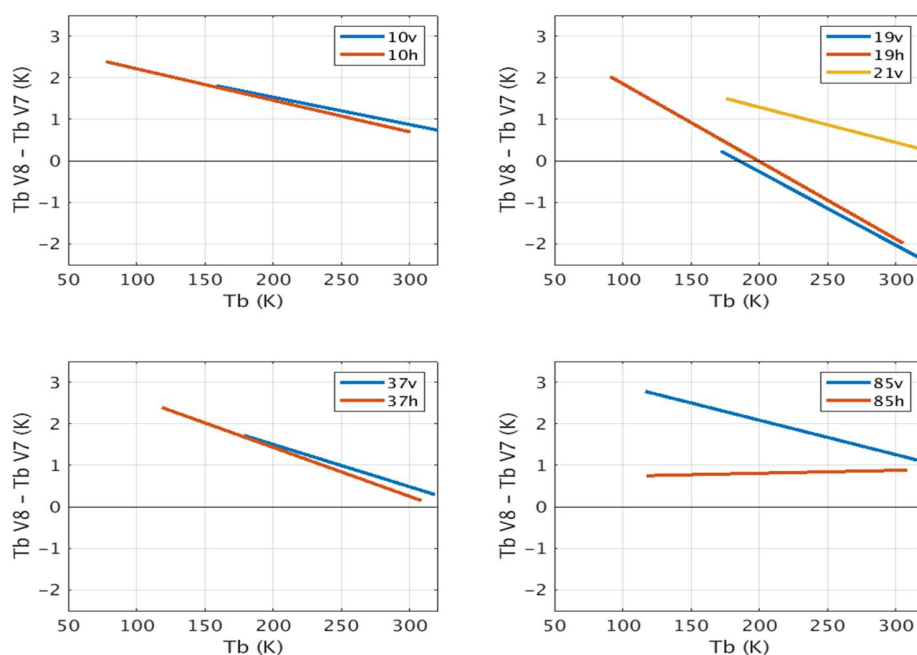


Figure 1. TMI T_b changes from V07 to V08.

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.