



MEMORANDUM

From : Pauline Cocevar, on behalf of the AATSR Quality Working Group
To : AATSR Users
Document Ref. : IDEAS-VEG-OQC-MEM-1391
Date : 18 November 2015
Issue : 1.2

SUBJECT : AATSR 12 Micron Discrepancy - Recommendations for Users

Users of AATSR data should be aware that there has, for some time, been evidence of a small temperature-dependent discrepancy in AATSR 12 μm BT measurements. A comparison between AATSR and IASI is shown in Figure 1 below.

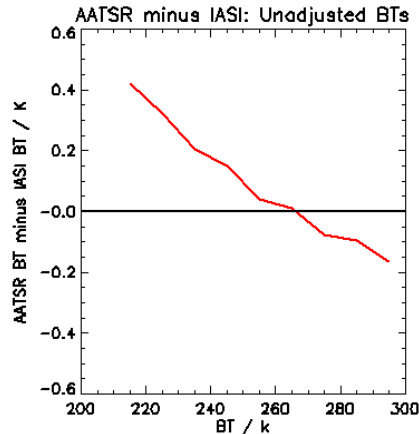


Figure 1 Comparison between AATSR and IASI Brightness Temperatures

The discrepancy has been rigorously investigated by a specially convened Anomaly Review Board (ARB), which has identified the most likely causes and has made specific recommendations for reprocessing to take into account these anomalies.

Users should take this discrepancy into account as follows:

1. If using AATSR Level 1B data (TOA files):

- Adjust the 12 μm brightness temperatures by subtracting the values provided in the Technical Note "Empirical Nonlinearity Correction" (*PO-TN-RAL-AT-0562*)
- For subsequent processing, use the current AATSR 12 μm spectral response function but shifted by 40 nm towards longer wavelengths. This value is refined through additional work (see below) from the original recommendation of 50 nm; the difference in values is indicative of the level of confidence in knowledge of the spectral shift.

2. If using AATSR Level 2 data (NR and AR files): No direct correction is possible; for highest accuracy SST we recommend the use of the L2P products.

- For users of the *SST products* the effect has been minimised for data produced as part of the third reprocessing (v2.1 or later); for earlier versions it is estimated to be between 0.05 K - 0.15 K depending on the exact retrieval used.
- For users of the *LST products* it is estimated to be between 0.02 K - 0.35 K depending on the pixel biome classification and scene temperature.

3. If using the AATSR L2P products (v2.1* or later): An empirical adjustment factor to the 12 μm BT values has already been incorporated into the operational processor (see below); estimates of uncertainty are provided in the L2P products.

* Previous L2P products were a repackaging of the NR SST product; see point 2 above for an indication of the effect of the discrepancy on these products

For further information on the discrepancy, the investigations and the outcomes of the ARB, please consult the AATSR 12 Micron ARB final report (*IDEAS-VEG-OQC-REP-1274*), and its Addendum. The empirical adjustment factor for L2P products is described in "AATSR SST Retrieval: Updated retrieval coefficients based on ARC project findings" (*UL-SST-P04*). Both documents are held in the [ESA Earth Observation Library](#).