ASTER Brightness Temperature at Sensor Product
Version 2.3, December 2000

This is the initial release version of the Brightness Temperature at Sensor product. This product performs the conversion of the radiance observed by the ASTER sensors in each of the five thermal infrared channels into the temperature of a blackbody that would produce the observed amount of radiance for that channel.

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1. Where to get detailed information on this product

There are several sources of information that users will find useful:

ASTER Brightness Temperature Algorithm Theoretical Basis Document (ATBD). This document describes the algorithm used to create the product. It is available at

http://eospso.gsfc.nasa.gov/atbd/astertables.html

ASTER Higher-Level Product User Guide**.** This describes each of the ASTER Higher Level products in detail, including definitions of each metadata attribute and the science data fields. It is available at the ASTER website (see below).

US ASTER Website. This describes the ASTER instrument, how to obtain data, the various data products that are available, the activities of the US ASTER Science Team, etc.

http://asterweb.jpl.nasa.gov/

Level 1 product information. Because the Brightness Temperature at Sensor product is derived from a Level 1 product, understanding the L1 products is useful.

The Level 1 ATBD is available at

http://eospso.gsfc.nasa.gov/atbd/astertables.html

The Level 1 User Guide is available at

http://www.science.aster.ersdac.or.jp/users/defaulte.htm

2. How to report problems

To report a problem with the product, please send mail to edc@eos.nasa.gov or call EDC DAAC User

Services at (605) 594-6116.

3. Description of this version

Brightness Temperature at Sensor V2.3

Changes

Initial Release

Product Quality

The Brightness Temperature at Sensor product appears to be working properly, and producing satisfactory products.

The output product reports temperatures to a precision of 0.01 degree Celsius. Assuming accurate input radiance values and spectral response functions, the algorithm returns values whose accuracy is limited primarily by the output precision.

Problems and limitations

There are no known problems or limitations.

Additional information

The method to convert from pixel value (DN) to physical units (degrees Celsius) is given in the metadata, and also in the ATBD. It is, however, not easy to find in either place. The method is repeated here:

> The output values are reported in units of degrees Celsius, scaled by a factor of 100.0. For example, a value of 2735 implies a brightness temperature value of 27.35 degrees Celsius. A value of -300 implies a brightness temperature of -3.00 degrees Celsius.

The value of -27315 is used where no data is present, including the fill (border) pixels. These pixels have a value of 0 in the Level 1B (input) product, but 0 is a valid output value, so -27315 was chosen instead.

4. Version History

Initial Release