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AST_08: ASTER Surface Kinetic Temperature V003

AST_08. Acquired May 21, 2017. Mt. Diablo, California.

DOI 10.5067/ASTER/AST_08.003

Product	Temperature
Dataset	Terra ASTER
Dataset Version	3
Pixel Size	90
Temporal Granularity	Other
Spatial Extent	Global
Data Access	Reverb, NASA Earthdata Search

Description

The ASTER Surface Kinetic Temperature (AST_08) is an on-demand product generated using the five Thermal Infrared (TIR) bands (acquired either during the day or night time) between 8 and 12 µm spectral range. It contains surface temperatures at 90 m spatial resolution for the land areas only. Surface kinetic temperature provides a vital input to studies of volcanism, thermal inertia, surface energy, and high-resolution mapping of fires.
This product is derived using the same algorithm as the ASTER Surface Emissivity AST_05 Product.

Surface kinetic temperature is determined by applying Planck's Law using the emissivity values from the Temperature-Emissivity Separation (TES) algorithm, which uses atmospherically corrected ASTER Surface Radiance (TIR) data. The TES algorithm first estimates emissivity in the TIR channels using the Normalized Emissivity Method (NEM). These estimates are used along with Kirchoff's Law to account for the land-leaving TIR radiance that is due to sky irradiance. That figure is subtracted from TIR radiance iteratively to estimate the emitted radiance from which temperature is calculated using the NEM module.

Citation

PI Name: U.S./Japan ASTER Science Team

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Citing Our Data

Citation Generator

Under construction...

Characteristics

Data Layer Characteristics

SDS Name	Description	Units	Data Type	Fill Value	Valid Range	Scale Factor
KineticTemperature	One composite temperature image	K	16-bit unsigned integer	N/A	200 to 3200	0.1

MULTIPLY Temperature seen for each pixel by 0.1 to determine surface temperature in degrees °K (Kelvin).

SUBTRACT 2730 from each pixel's value and multiply by 0.1 to determine Centigrade °C Temperature

Resources

E-Learning

Search:

Title	Author	Links
Choosing a Data Access Tool: LP DAAC Data Pool and DAAC2Disk	LP DAAC	Video Tip
Diving into the NASA Data Pools with DAAC2Disk	LP DAAC	Webinar, Presentation
Earth Observations: Monitoring Volcanoes Using ASTER Satellite Imagery	LP DAAC	Video
EarthExplorer Introduction from the Land Remote Sensing Data Access Workshop	LP DAAC and EROS	Presentation
EarthExplorer Use Cases from the Land Remote Sensing	LP DAAC and	Tutorial

Title	Author	Links
Data Access Workshop	EROS	
LP DAAC Introduction to ASTER Data	LP DAAC	Tutorial, Narrative
NASA LP DAAC ASTER data from the Land Remote Sensing Data Access Workshop	LP DAAC and EROS	Presentation