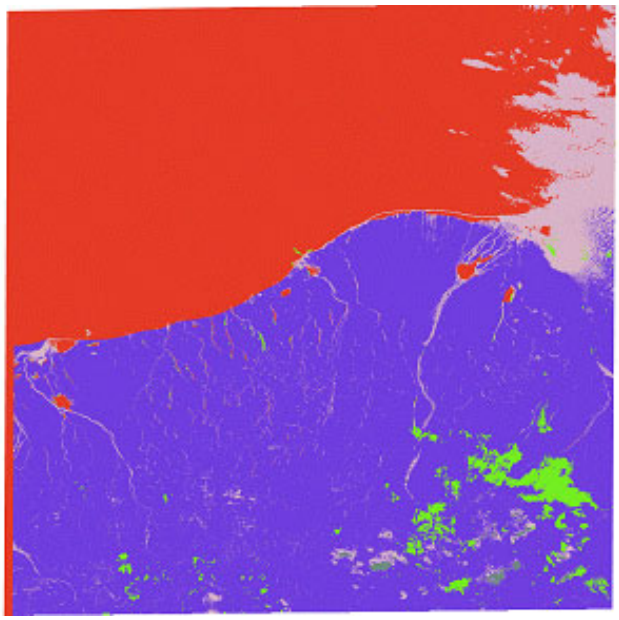

EDG Data Set Name
ASTER On-Demand L2 Polar Surface and Cloud Classification

Granule Shortname
AST13POL

Data Set Characteristics

Area:	~60 km x 60 km
Image Dimensions:	4200 rows x 4980 columns
File Size:	~42 MB
Units:	Thematic
Projection:	Universal Transverse Mercator (UTM)
Data Format:	HDF-EOS
Vgroup Data Fields:	1

Product Description
The ASTER On-Demand L2 Polar Surface and Cloud Classification is an on-demand product that provides a classification map discriminating between different surface and cloud features over polar areas. The primary aim of this product is to classify the cloud and snow-ice spectral signatures in both the visible and infra-red wavelengths. Presently this algorithm is designed to work with data acquired during the daytime, and there subsequently will be a version that works with the night-time data.

This product will be especially useful for those studying greenhouse forcings in the polar regions where cloud cover exerts its effects on sea ice conditions, the regional ice-albedo feedbacks, the polar heat balance, and surface melting. This product is also expected to be used in cross-validating the MODIS cloud optical thickness and effective particle sizes, both of which impact the Earth's radiative budget.

The algorithm is hierarchical and is executed in four stages: In the first stage, the VNIR data are sub-sampled by half (15 m to 30 m) while the TIR data are sampled three times (90 m to 30 m). The SWIR data at 30 m are retained in their original resolution. The VNIR and SWIR DNs are normalized for solar irradiance, solar zenith angle, observation angle, and calibration coefficients. The TIR DNs are converted to temperature. In the second stage, the data are pre-classified to reduce the class ambiguity of a pixel's feature vector by using key features like coastline data, land-water mask etc. The third stage involves the use of a back-propagation neural network to aid in the resolution of feature vectors to one of nine possible classes. In the fourth stage, a spatial consistency test is performed on the classification mask and pixels deemed to be spatially inconsistent with their neighbors are re-classified.

The final product is a coded pixel map containing the following thematic classes:

[1] water
[2] snow/ice
[3] ice cloud
[4] land
[5] thin water cloud
[6] water cloud over water

[8] sea ice
[12] water cloud over land
[30] bare ground/tundra

Vgroup Data Fields	Units	Data Type
Single band	1 through 9 Code Classes	8-bit signed integer

Ordering ASTER On-Demand L2 Polar Surface and Cloud Classification Product
The process, procedures and instructions for ordering this product are described on the ASTER On-Demand Data Gateway (http://edcdaac.usgs.gov/asterondemand/index.html). As part of that process, it is necessary to first select an ASTER Level 1B granule from the EOS Data Gateway (http://edcimswww.cr.usgs.gov/pub/imswelcome/).

Product Information

Release Notes
(http://asterweb.jpl.nasa.gov/products/release_Polar_Cloud_Class.htm)

Algorithm Theoretical Basis Document (ATBD)
(http://eospso.gsfc.nasa.gov/eos_homepage/for_scientists/atbd/viewInstrument.php?instrument=ASTER)

ASTER Standard Data Products Catalog - Download Adobe Acrobat Reader
(http://asterweb.jpl.nasa.gov/documents/ASTERHigherLevelUserGuideVer2May01.pdf)

ASTER JPL Web Page
(http://asterweb.jpl.nasa.gov)

EOS Data Products Handbook Volume 1 (2000)
(ftp://asterweb.jpl.nasa.gov/outgoing/handbook/aster_user_guide_v2.pdf)

Contact Information

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