Metadata for MODIS data products

The data products available in this directory are derived from Direct Broadcast Telemetry and are intended for applications which prioritize timeliness of the data over data quality. Signal artifacts and other acquisition issues can cause gaps in the data and some calibration techniques for some products may produce slight variations in reflectance values when compared to standard NASA products.

Directory structure
MODIS/ most recent JPEG and TIFF files generated from MODIS telemetry by MAGIC DBRS
MODIS/Archive/ JPEG and TIFF files generated during previous days beginning May 5, 2010

The MODIS directory is refreshed daily. The MODIS L1b data products are generally available within 30 minutes following satellite overpass. The MODIS crefl JPEG products, which attempt to reduce atmospheric scattering, are typically available about 50 minutes after the satellite overpass. The previous day's data products are transferred to the MODIS/Archive/ subdirectory when the first pass of the current day is posted.

Terra overflights usually occur around 16:30 UTC +/- 45 minutes (MODIS).
Aqua overflights usually occur around 19:00 UTC +/- 45 minutes (MODIS).

Image Extents for All Products in Geographic Coordinates (Latitude x Longitude):

Upper Left Corner: 30.47592 x -98.09755 Upper Right Corner: 30.47592 x -80.60245
Centroid: 24.3 x -89.35
Lower Left Corner: 18.12408 x -98.09755 Lower Right Corner: 18.12408 x -80.60245

Data Product Dimensions
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250 meter Data Products
Lines (Rows): 5500
Samples (Columns): 7100
Coordinate System: Geographic (Decimal Degrees)
Datum: WGS84
Pixel Width (Degrees): 0.0024641
Pixel Height (Degrees): 0.00224579

500 meter Data Products
Lines (Rows): 2750
Samples (Columns): 3550
Coordinate System: Geographic (Decimal Degrees)
Datum: WGS84
Pixel Width (Degrees): 0.0049282
Pixel Height (Degrees): 0.00449158

1 kilometer Data Products
Lines (Rows): 1375

Samples (Columns): 1775
Coordinate System: Geographic (Decimal Degrees)
Datum: WGS84
Pixel Width (Degrees): 0.0098564
Pixel Height (Degrees): 0.00898315

File naming convention
2-character satellite designation:
a1 = NASA Aqua (mid-afternoon)
t1 = NASA Terra (mid-morning)
8-digit date stamp: yyyymmdd, where y = year, m = month, d = day
4-digit time stamp: hhmm, where h = hour, m = minute in Coordinated Universal Time (UTC). To convert to local time in Central Daylight, subtract 5 hours. Measured from the start of the pass acquisition from which the Gulf region scene was extracted.
multi-character data product tag:
l1b : 250m pan sharpened GeoJPEG generated from Level 1B bands 1,4,3 with jgw world file
crefl: pan sharpened GeoJPEG generated from pseudo-surface corrected reflectances for bands 1,4,3 with jgw world file
Q16: Quarter-kilometer (250 m) 16-bit tiff file with tfw world file
H16: Half-kilometer (500 m) 16-bit tiff file with tfw world file
O16: One-kilometer (1000 m) 16-bit TIFF file with tfw world file
location designator: gulf-geo, the entire Gulf of Mexico basin
nominal ground sample distance designator at center of scene:
1km = 1 kilometer nominal pixel size
500m = 500 meter nominal pixel size
250m = 250 meter nominal pixel size
3-character file suffix:
.tif = TIFF (not GeoTIFF)
.tfw = ESRI world file
.jpg = JPEG
.jgw = ESRI world file

Data Product Information:
Each data product contains a single swath or pass. If a pass does not fully intersect the image extent, the resulting image will contain no data values for areas not imaged. The no data value for the MODIS 16-bit TIFF files is 65535. The no data value for the MODIS 8-bit JPEG files is 254.

The accuracy of the MODIS product registration is typically about 250m.

l1b : 250m pan sharpened Geo-JPEG generated from Level 1B bands 1,4,3
'Bow-tie' scan geometry issue corrected in registration process.
Geographic WGS 84 coordinate system, nominal 250m resolution
8-bits per channel
Consistent, scene independent piecewise linear scaling applied to each rendered band to support multi-day scene comparisons.

Example file name: t1.20100510.1631.l1b.gulf-geo.250m.jpg

crefl: 250m pan sharpened Geo-JPEG generated from pseudo-surface corrected reflectances for bands 1,4,3

'Bow-tie' scan geometry issue corrected in registration process.
Geographic WGS 84 coordinate system, nominal 250m resolution
8-bits per channel
Consistent, scene independent piecewise linear scaling applied to each rendered band to support multi-day scene comparisons.
Example file name: t1.20100510.1631.crefl.gulf-geo.250m.jpg

Q16: Quarter-kilometer, 16-bit TIFF file with tfw world file (not a GeoTIFF)

'Bow-tie' scan geometry issue corrected in data projection process.
Geographic WGS 84 coordinate system, nominal 250m resolution
Level 1B bands 1 and 2
16-bits per channel unscaled signed integer values
Example file name: t1.20100510.1631.Q16. gulf-geo.250m.tif
Band 1 = MODIS Band 1, visible red
Band 2 = MODIS Band 2, near infrared

H16: Half-kilometer, 16-bit TIFF file with tfw world file (not a GeoTIFF)

'Bow-tie' scan geometry issue corrected in data projection process.
Geographic WGS 84 coordinate system, nominal 500m resolution
Level 1B bands 3,4,5,6 and 7
16-bits per channel unscaled signed integer values
Example file name: t1.20100510.1631.H16. gulf-geo.500m.tif
Band 1 = MODIS Band 3, visible blue
Band 2 = MODIS Band 4, visible green
Band 3 = MODIS Band 5, near infrared
Band 4 = MODIS Band 6, middle infrared
Band 5 = MODIS Band 7, middle infrared

O16: One-kilometer, 16-bit TIFF file with tfw world file (not a GeoTIFF)

'Bow-tie' scan geometry issue corrected in data projection process.
Geographic WGS 84 coordinate system, nominal 1km resolution
Level 1B bands 8,9,10,11,12,13,14,15 and 16
16-bits per channel unscaled signed integer values
Example file name: t1.20100510.1631.O16. gulf-geo.1km.tif
Band 1 = MODIS Band 8, visible blue, near violet
Band 2 = MODIS Band 9, visible blue, indigo
Band 3 = MODIS Band 10, visible blue
Band 4 = MODIS Band 11, visible green
Band 5 = MODIS Band 12, visible green
Band 6 = MODIS Band 13, visible red
Band 7 = MODIS Band 14, visible red

Band 8 = MODIS Band 15, near infrared
Band 9 = MODIS Band 16, near infrared

The Bow-Tie scan effect appears at the edges of uncorrected MODIS Level 1B data. It is an instrument scanner artifact. For a schematic illustration of the bow-tie, see http://eoweb.dlr.de:8080/short_guide/D-MODIS.html.

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