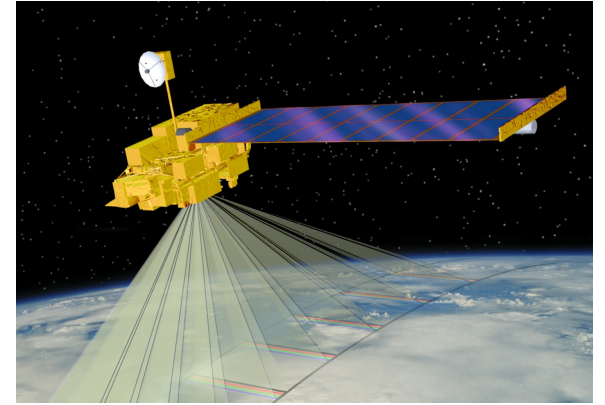


MODIS Direct Broadcast Products and Software

Direct Broadcast
Applications Workshop

Hampton University
June 2017

Kathleen Strabala (Liam Gumley)
Space Science and Engineering Center
University of Wisconsin-Madison

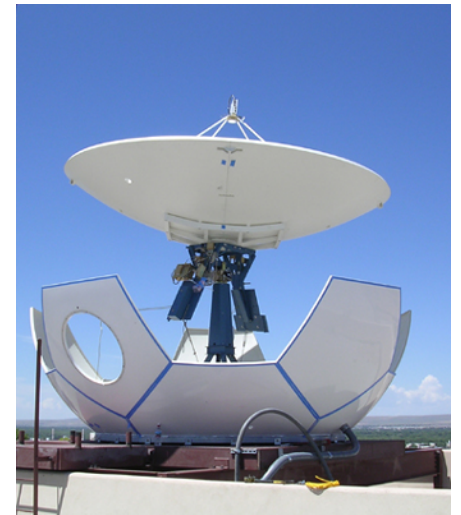


Outline

1. What is MODIS **Direct Broadcast** (DB)?
2. MODIS DB **Image** Products
3. MODIS DB **Atmosphere** Products
4. MODIS DB **Land** products
5. MODIS DB **Ocean** products
6. **Downloading** MODIS data from the Web

What is Direct Broadcast?

- Direct Broadcast is the real-time transmission of earth observation data from the spacecraft to the ground (via X-band on Terra and Aqua)
- On Terra, only MODIS is broadcast
- On Aqua, all data is broadcast
- Data are free and clear with no encryption
- All you need is an antenna and receiver!
- “Terra and Aqua are a great gift to the world” (*Vladimir Gershenzon, ScanEx*)



How do I get Direct Broadcast?

- Direct Broadcast X-band ground stations are available from a number of vendors
- Cost is around \$100-300K USD
- Hampton University operates an X/L-band ground station, and data is freely available
- There are more than 150 of these stations worldwide (on every continent)

There are other ways to get MODIS data...

Shanghai, China



Moscow, Russia

Madison, USA



Benevento, Italy

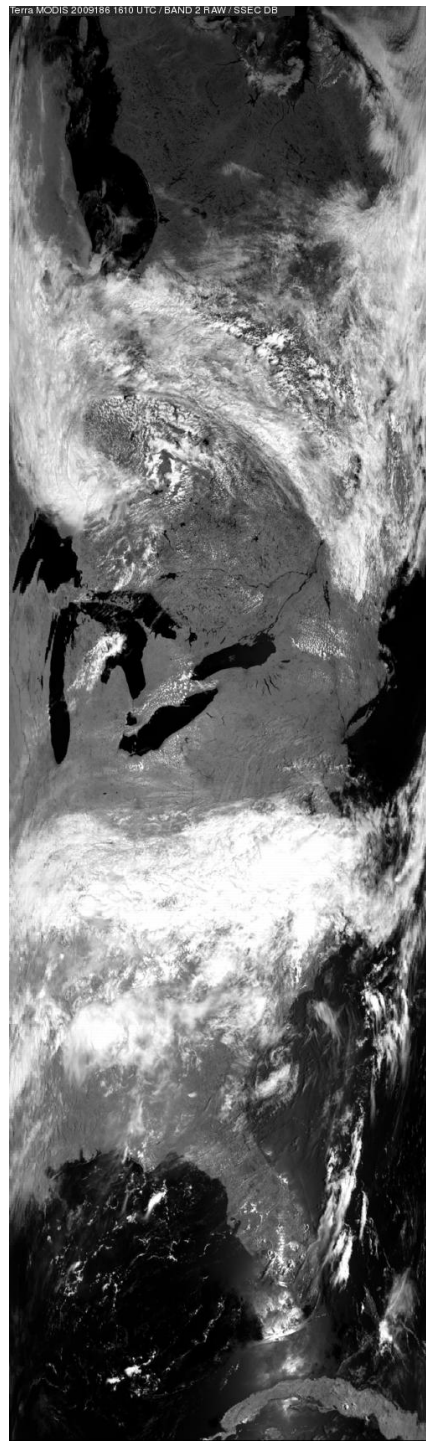
Worldwide X-band Sites



DB Coverage from Madison, WI

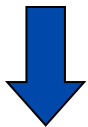
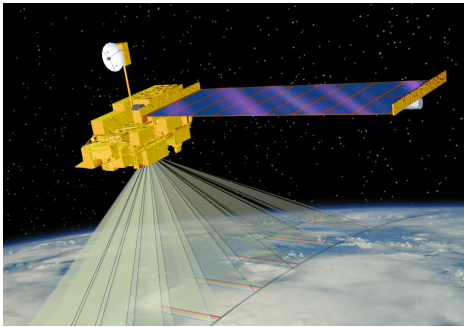


Terra, 2009/07/05

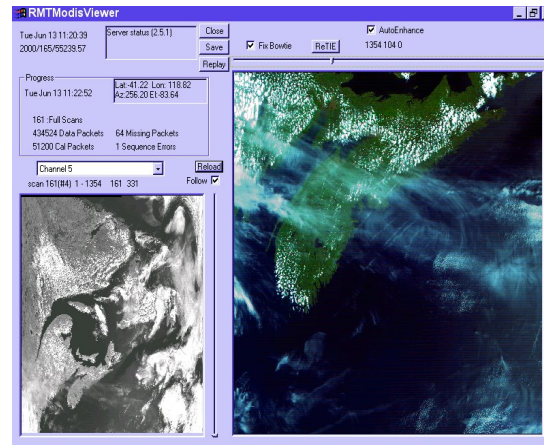
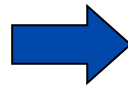


Advantages of DB

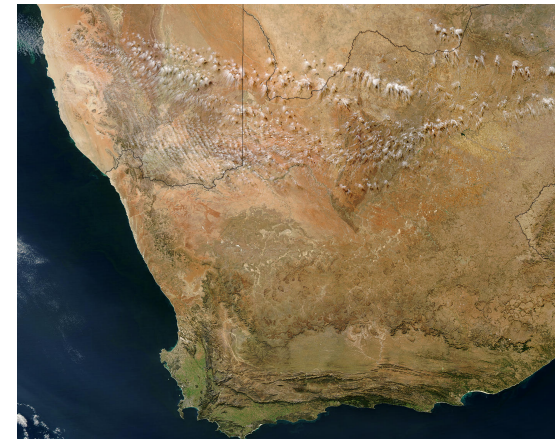
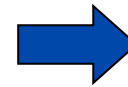
Satellite



Ground Station



Processing Software



Products and Applications

- Local control gives users the freedom to tailor operations to suit local needs
- Timeliness for responding to natural hazards and providing information for decision makers
- Local researchers are free to develop and refine algorithms tuned for local conditions

Terra and Aqua DB Product Suite

MODIS Level 1B Products (MODISL1DB)

Level 0 quicklook images (visible and infrared)
Level 1B 1KM, HKM, and QKM radiances and geolocation
Destriping corrections for Level 1B 1KM infrared radiances

MODIS Atmosphere Level 2 Products (IMAPP)

Cloud Mask
Cloud Top Pressure, Phase, Emissivity, Optical Depth
Aerosol Optical Depth
Temperature and Water Vapor Profiles
Total Column Precipitable Water Vapor
Total Column Ozone
Level 2 browse images for all Atmosphere Products

MODIS Land Products (DRL)

Corrected Reflectance 1KM, HKM, QKM
Fire Detection / Thermal Anomalies
Land Surface Temperature (LST)
Normalized Difference Vegetation Index (NDVI)
Enhanced Vegetation Index (EVI)
Land Surface Reflectance

MODIS Ocean Products (SeaDAS)

Chlorophyll-A Concentration
Sea Surface Temperature (SST)

MODIS Images (HDFLook)

Level 1B browse images (visible, infrared, true color)
Level 2 Land browse images (NDVI, LST)
Level 2 Ocean browse images (Chlorophyll-A, SST)

MODIS Google Earth KML (IMAPP)

MODIS 250 meter resolution true color JPEG images and KML

AIRS Level 1 and Level 2 (IMAPP)

Level 1B data JPL (including AIRS IR, AIRS VIS, and AMSU)
Level 2 JPL 3x3 retrievals of temperature and moisture
Level 2 single FOV dual regression retrievals of temperature, moisture and cloud products

AMSR-E Level 1 and Level 2 (IMAPP)

Geolocated and calibrated antenna temperatures
Rain Rate
Soil Moisture
Snow Water Equivalent

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MODIS DB Level 1 Image Products

Software: **SeaDAS**

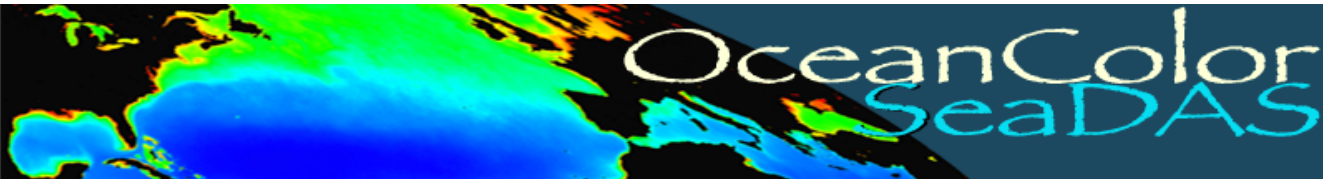
Developers: MODIS Characterization Support Team, MODIS Science Team, NASA Ocean Biology Processing Group

Distributor: NASA Ocean Biology Processing Group

Platforms: Linux, OS X

<https://seadas.gsfc.nasa.gov/>

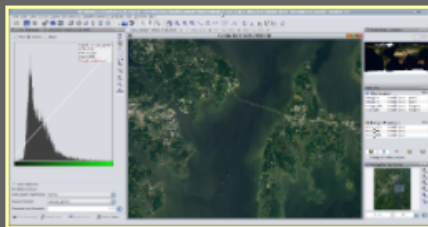
Free Download



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General Description



SeaDAS is a comprehensive image analysis package for the processing, display, analysis, and quality control of ocean color data. While originally developed to support the SeaWiFS mission, it now supports most US and international ocean color missions. The primary focus of SeaDAS is ocean color data, but it is applicable to many satellite-based earth science data analyses.

The latest version (SeaDAS 7.3.1) is the result of a collaboration with the developers of ESA's BEAM software package. The core visualization package for SeaDAS 7 is based on the BEAM framework, with extensions that provide the functionality provided by previous versions of SeaDAS..

[Features](#)
[Requirements](#)
[License](#)
[Download](#)

Supported Missions

- MODIS
- SeaWiFS
- CZCS
- VIIRS
- HICO
- Aquarius
- Landsat8/OLI
- MERIS
- OCTS
- OCM
- OCM-2
- OSMI
- MOS
- GOCI

User Support

- SeaDAS Video Tutorials and Demos
- SeaDAS FAQ
- SeaDAS Help Pages
- Other SeaDAS Tutorial Material
- Ocean Color Web
- Ocean Color Forum
- SeaDAS Mailing List

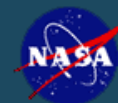
Other

- SeaDAS Visualization Source Code
- Processing Binaries and Source Code
- SeaDAS version 6.4
- MODISL1DB 1.8

Curator: [OceanColor Webmaster](#)
 Authorized by: [gene carl feldman](#)

[Privacy Policy and Important Notices](#)

Updated: 13 October 2016



What does SeaDAS do?

Purpose: Convert raw MODIS telemetry files to calibrated and geolocated Level 1B image products

Input Data: Level 0 CCSDS Packet Files containing APID 64 (MODIS) for Terra and Aqua; and APID 957 (GBAD) for Aqua

Output Data: MODIS Level 1B 1KM, HKM, QKM, and Geolocation (HDF4 format)

MODIS Level 1B Data

- MODIS Level 1B data contains calibrated and geolocated radiance or reflectance values observed by the instrument (top of atmosphere)
- MYD02 is the Aqua product ID (Terra=MOD02)
- MYD021KM = 1000 meter resolution
(1354 pixels across track by 2030 pixels along track for a standard 5-minute granule or scene)
- MYD02HKM = 500 meter resolution (2708 x 4060)
- MYD02QKM = 250 meter resolution (5416 x 8120)

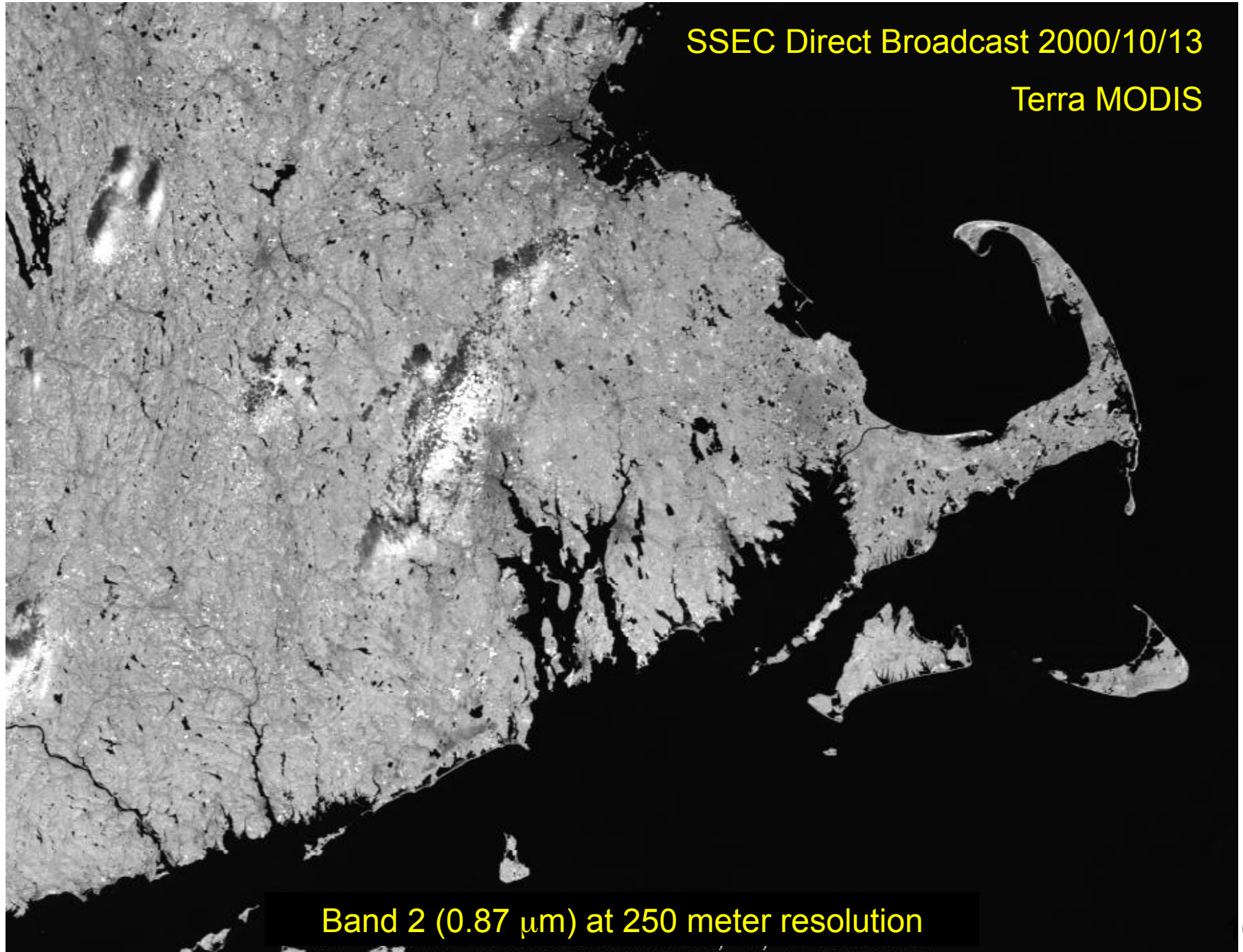
DB granules may be larger (up to 14 minutes long)

MODIS Level 1B Contents

- Format is Hierarchical Data Format v4 (HDF4)
- Image data are stored as scaled integers, with linear slope and intercept to convert to calibrated radiance or reflectance
- Geolocation data at 1000 meter resolution are stored in a separate file (MYD03), along with sensor viewing geometry and solar geometry
- Daytime 1KM granules contain all 36 bands at 1000 meter resolution
- Nighttime 1KM granules contain bands 20-36 only
- HKM and QKM granules are daytime only

SSEC Direct Broadcast 2000/10/13

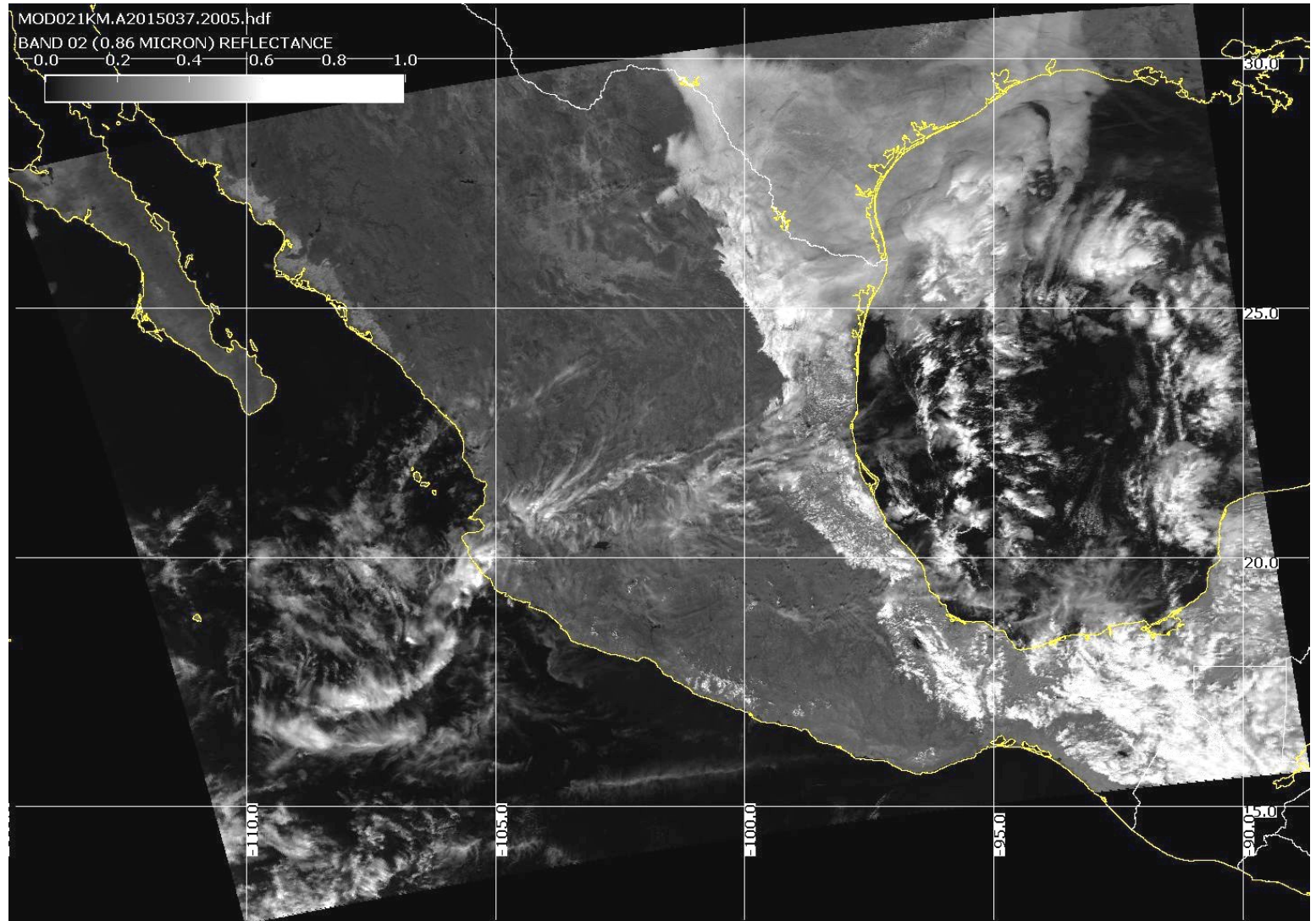
Terra MODIS



Band 2 (0.87 μm) at 250 meter resolution

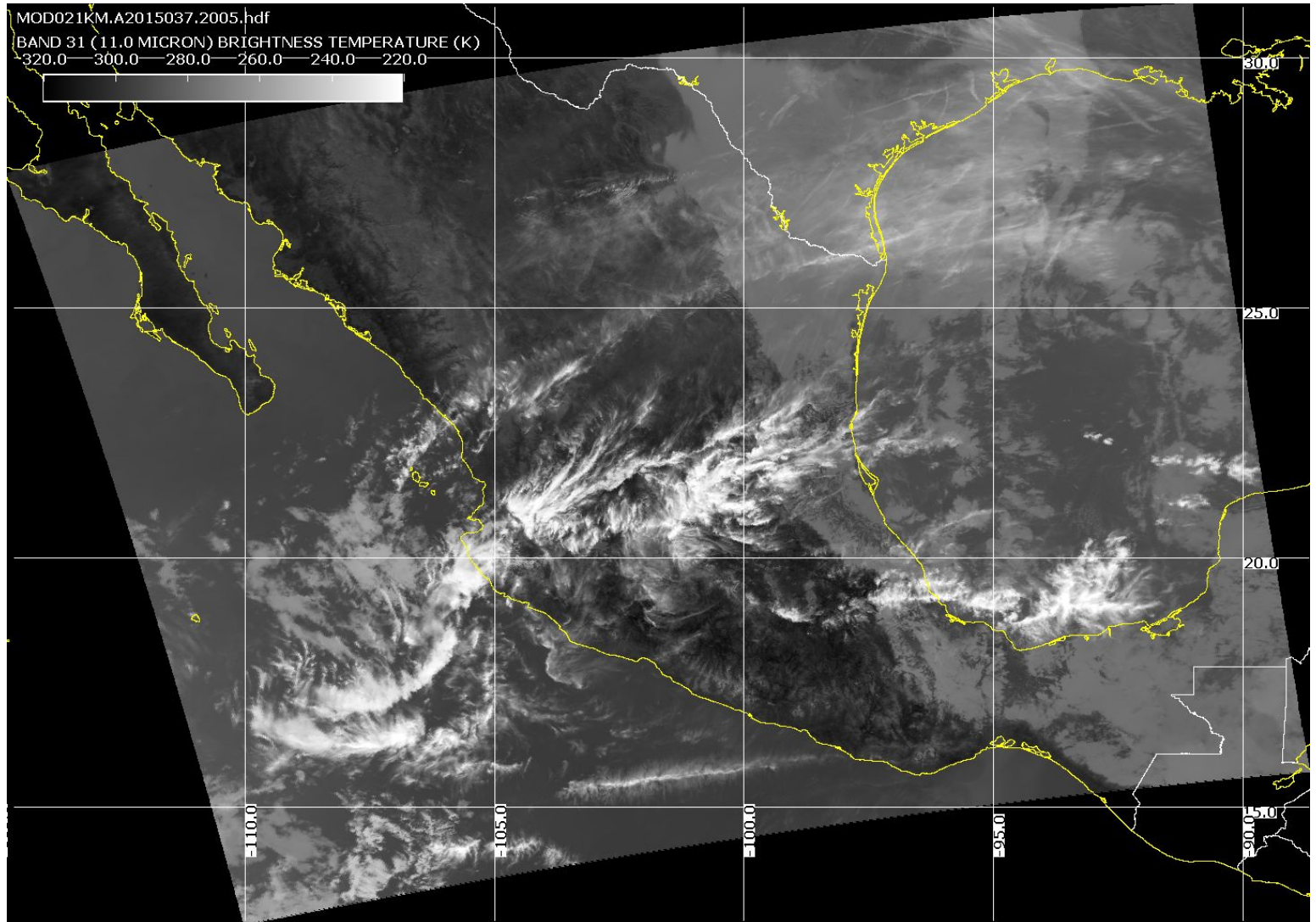
Band 2 (visible)

Aqua MODIS
2015/02/06
20:05 UTC



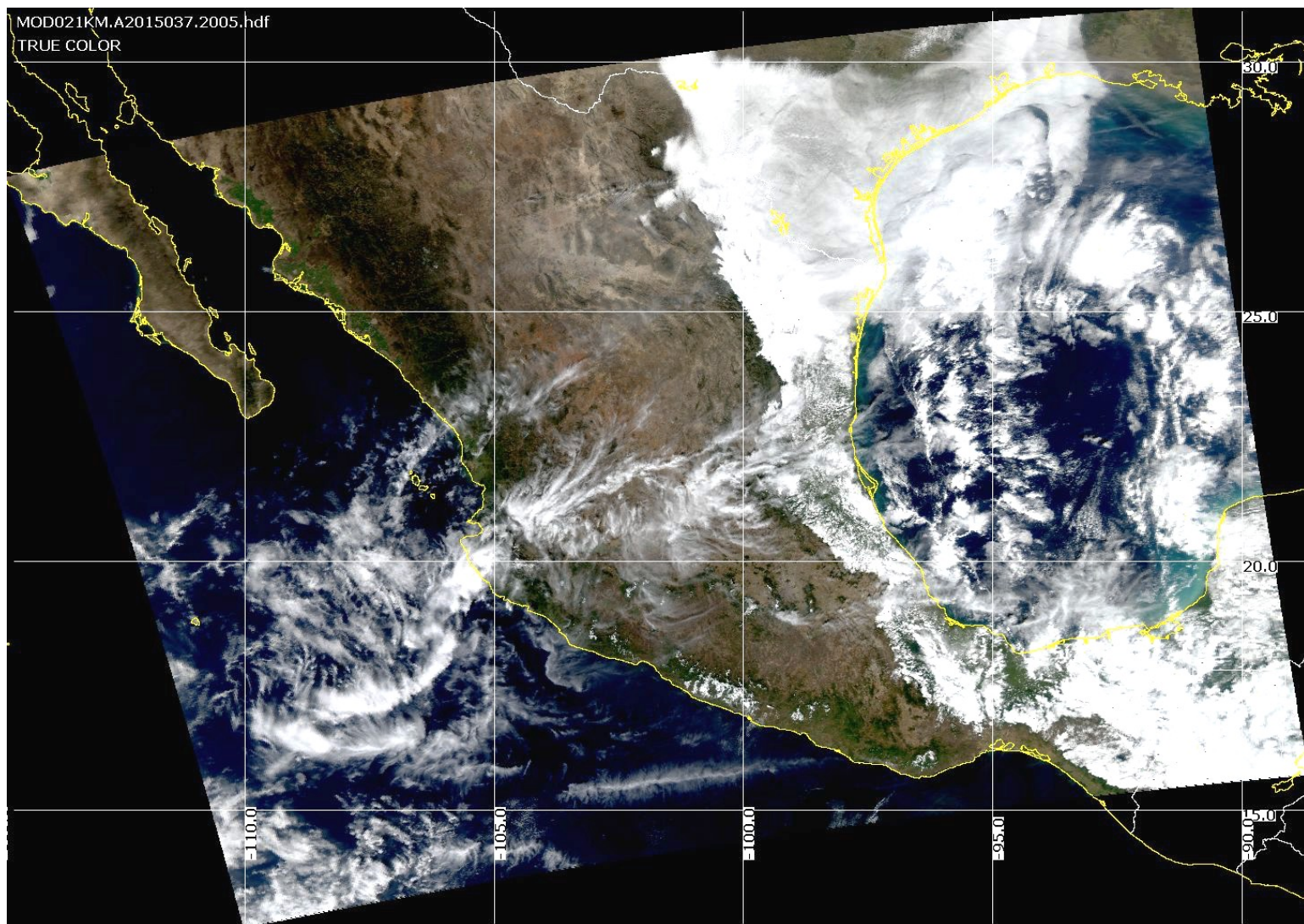
Band 31 (infrared)

Aqua MODIS
2015/02/06
20:05 UTC



True Color

Aqua MODIS
2015/02/06
20:05 UTC



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MODIS DB Atmosphere Products

Software: **International MODIS/AIRS Processing Package (IMAPP)**

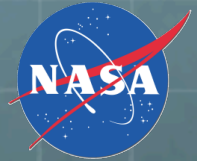
Developers: University of Wisconsin-Madison,
MODIS Science Team, Free University of Berlin

Distributor: University of Wisconsin-Madison

Platforms: Linux, Windows (VM)

Website: <http://cimss.ssec.wisc.edu/imapp/>

Free Download



International MODIS/AIRS Processing Package

[Home](#)[Download](#)[Applications](#)[History](#)[Credits](#)[Forum](#)

The International MODIS/AIRS Processing Package (IMAPP) allows ground stations capable of receiving direct broadcast data from the NASA [Terra](#) and [Aqua](#) spacecraft to create a suite of products from [MODIS](#), [AIRS](#), [AMSU](#), and [AMSR-E](#). The IMAPP software is freely available, and is supported on Intel Linux host platforms.

IMAPP is also available as a Virtual Appliance for Windows, OS X, and Linux, offering a complete processing system for direct broadcast atmosphere, land, and ocean products from Terra and Aqua.

MODIS products (Terra and Aqua)

Atmosphere and Polar Products

- Cloud mask
- Cloud top pressure and temperature
- Temperature and moisture profiles
- Total precipitable water
- Stability indices
- Aerosol optical depth (3km and 10km)
- Ice Surface Temperature
- Snow Mask
- Ice Cover and Ice Concentration
- Inversion Strength and Inversion Depth

[Learn more ...](#)

Land Products

- Land surface reflectance
[Learn more ...](#)
- Nadir BRDF-adjusted reflectance
[Learn more ...](#)

Image Products

- True color GeoTIFF and KML
[Learn more ...](#)
- MODIS L1B and True Color GeoTIFF
[Learn more ...](#)

AIRS and AMSU Products (Aqua)

Sensor Products

- Calibrated and geolocated radiances and reflectances (AIRS)
- Calibrated and geolocated antenna temperatures (AMSU)

[Learn more ...](#)

NWP Products

The Direct Broadcast CIMSS Regional Assimilation System (DBCRAS) is a regional numerical weather prediction model that assimilates MODIS products in real time and creates forecasts up to 72 hours at 48 km and 16 km resolution.

[Learn more ...](#)

GeoTIFF Web Mapping Service (WMS) MODIS Display Tool

This package provides users with the capability to display and share GeoTIFF products through a web browser in a Google Maps interface. It is designed specifically for display of MODIS and VIIRS default GeoTIFF files created by the [Polar2Grid](#) reprojection software package. It is distributed as a virtual machine (VM).

[Learn more ...](#)

Aviation/Severe Weather Forecast Products

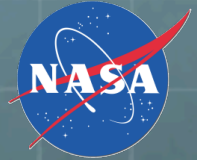
The IMAPP Overshooting Tops (OT) software package identifies regions of MODIS data that contain convective cloud tops that have broken through the tropopause into the lower stratosphere because of a strong updraft. Convective storms with OTs have the potential to produce severe weather at the ground (heavy rain, damaging winds, hail and tornadoes) as well as aviation hazards

What's New

- MODIS Reprojection Software v1.2
- MODIS Level 2 Package v3.0
- AIRS, CrIS and IASI Stratospheric Ozone Intrusion Forecast Package v1.0
- AIRS, CrIS and IASI Hyperspectral Sounder Retrieval Package v1.3
- GeoTIFF Web Mapping Service Display Package v1.0
- EOS HYDRA2 Data Analysis Tool v1.0
- MODIS Air Quality Aerosol Forecast Package (Version 1.1)



IMAPP Software Suite



MODIS Atmosphere and Polar Products

- Cloud mask
- Cloud top pressure and temperature
- Cloud optical depth and effective radius
- Temperature and moisture profiles
- Total precipitable water
- Stability indices
- Aerosol optical depth
- Ice Surface Temperature
- Snow Mask
- Ice Cover and Ice Concentration
- Inversion Strength and Inversion Depth

MODIS Land Products

- Land Surface Reflectance
- BRDF

MODIS Image Software

- MODIS in Google Earth (true color)

AIRS Level 1B

- Calibrated and geolocated radiances and brightness temperatures (AIRS) - JPL
- Calibrated and geolocated antenna temperatures (AMSU) - JPL

AIRS Retrievals

- JPL 3x3 FOV Temperature, Moisture Profiles
- HSRTV Dual Regression Single FOV

AIRS Utilities

- Collocating AIRS/MODIS utility
- AIRS HDF to BUFR utility

AMSR-E Level 1B

- Calibrated and Geolocated Antenna Temperatures

AMSR-E Products

- Rain Rate, Soil Moisture, Snow Water Equivalent

NWP Products

- Globally configurable regional numerical weather prediction model that assimilates MODIS DB products - DBCRAS

Aviation/Severe Weather Products

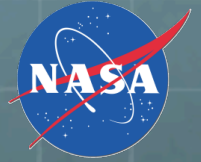
- Overshooting Tops Identification including turbulence and lightning potential
- Fog/Low Stratus Aviation Hazard Software

Complete DB Processing System

- VA for Mac, Windows and Linux



IMAPP Software Suite



Air Quality Forecast Product – IDEA-I

- 48 Hour Aerosol trajectory forecast
- Stratospheric Ozone Intrusions trajectory forecast

Visualization and Analysis Tools

- Polar2Grid MODIS reprojection software including true color images
- HYDRA-2 - a multi-spectral data analysis toolkit

Web Mapping Service (wms)

- Display and share GeoTIFFs through a web browser
- Can readily display Polar2Grid VIIRS/MODIS Imagery

IMAPP Product List

MODIS Products:

- Cloud Mask (MOD35)
- Cloud Top Properties (MOD06CT)
- Atmospheric Profiles (MOD09)
- Aerosol Optical Depth (MOD04)
- Sea Surface Temperature
- Near Infrared Water Vapor
- Level 1B Destriping
- True Color Images for Google Earth
- Nadir BRDF Adjusted Reflectance
- Ice Surface Temperature
- Snow Mask
- Ice Cover and Concentration
- Inversion Strength and Depth

Other Products:

- AIRS/AMSU Level 1B Calibrated And Geolocated Radiances
- AIRS/AMSU JPL Atmospheric Profiles
- AIRS/MODIS Single FOV Atmospheric Profiles (Clear and Cloudy)
- AIRS/IASI/CrIS Single FOV Retrievals
- DBCRAS Numerical Weather Prediction Model
- Aviation & Severe Weather Products
- Air Quality Forecast Products

What does IMAPP do?

Purpose: Creates MODIS atmosphere, utility, and image products (and AIRS, AMSU, AMSR-E)

Input Data: MODIS Level 1B 1KM, HKM, QKM, and Geolocation (HDF4 format)

Output Data: MODIS Level 2 Cloud Mask, Cloud Top Properties, Atmospheric Temperature and Water Vapor Profiles, Total Ozone, Total Precipitable Water Vapor (HDF4 format)

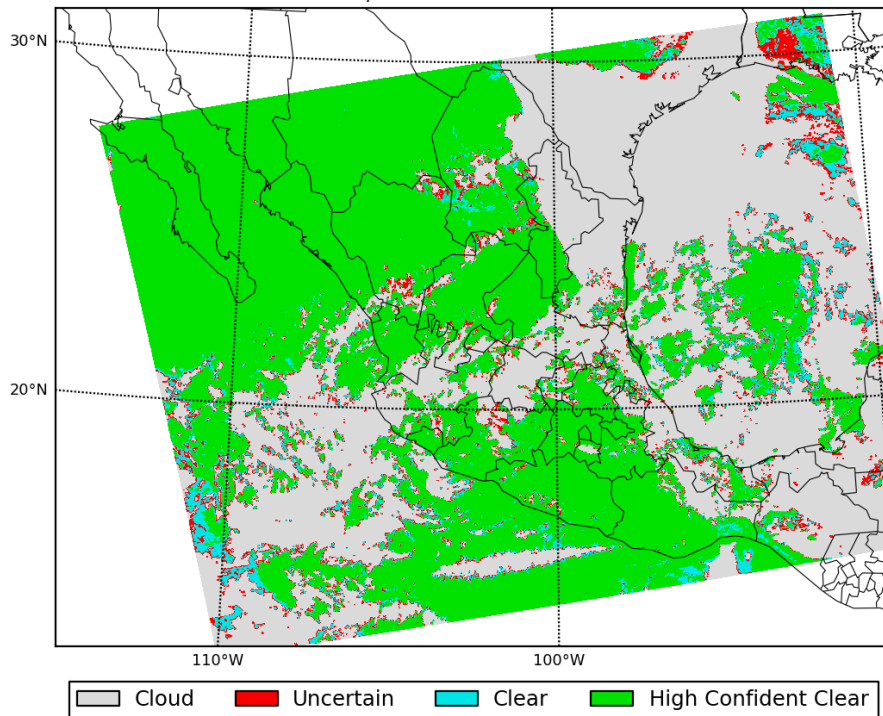
MODIS Atmosphere Products

2010/05/26 04:56

Cloud Mask

MODIS Cloud Mask

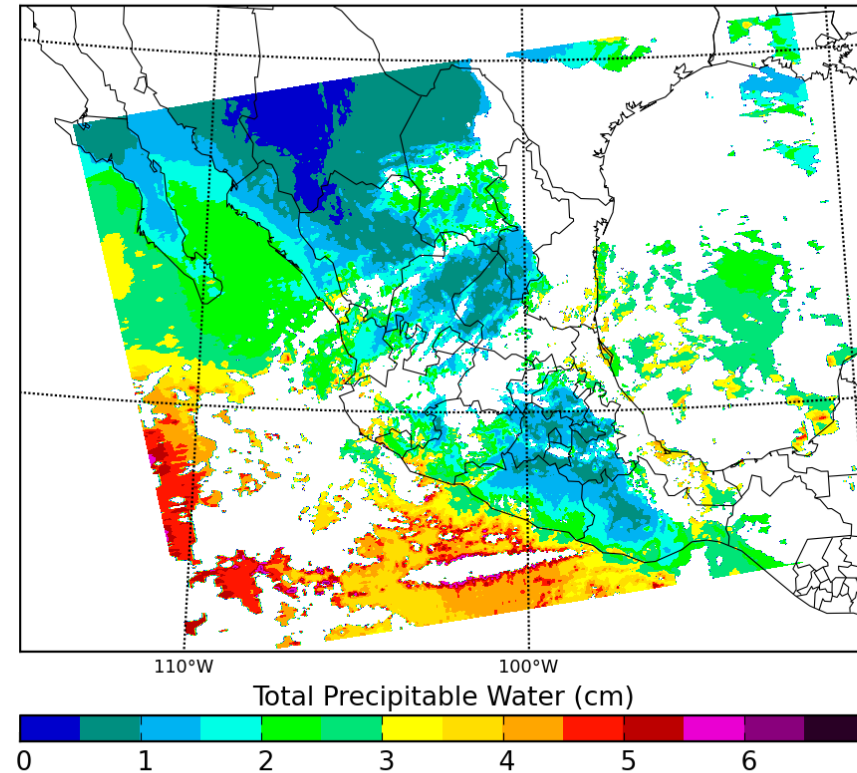
Aqua 20150206 2005 UTC



Water Vapor

MODIS Total Column Precipitable Water

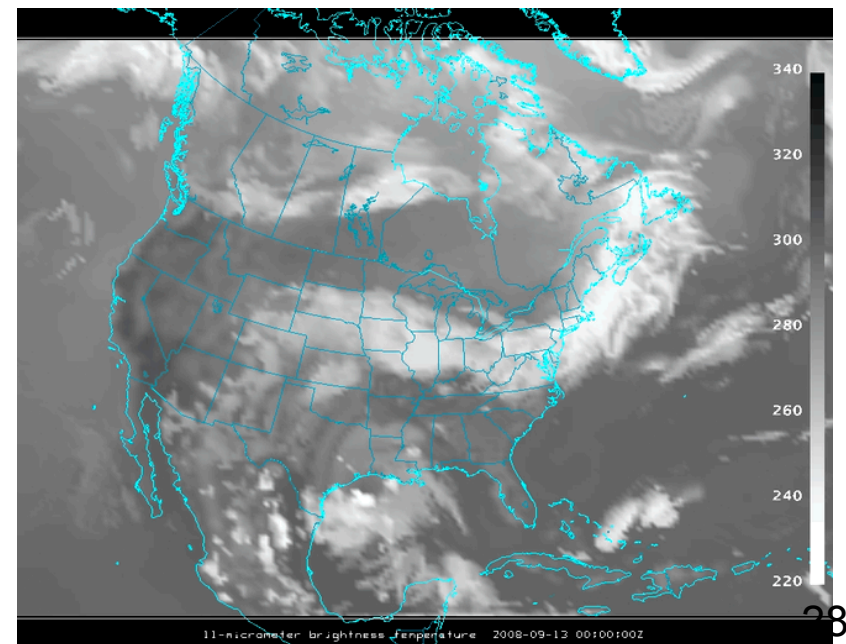
Aqua 20150206 2005 UTC



DBCRRAS NWP Model

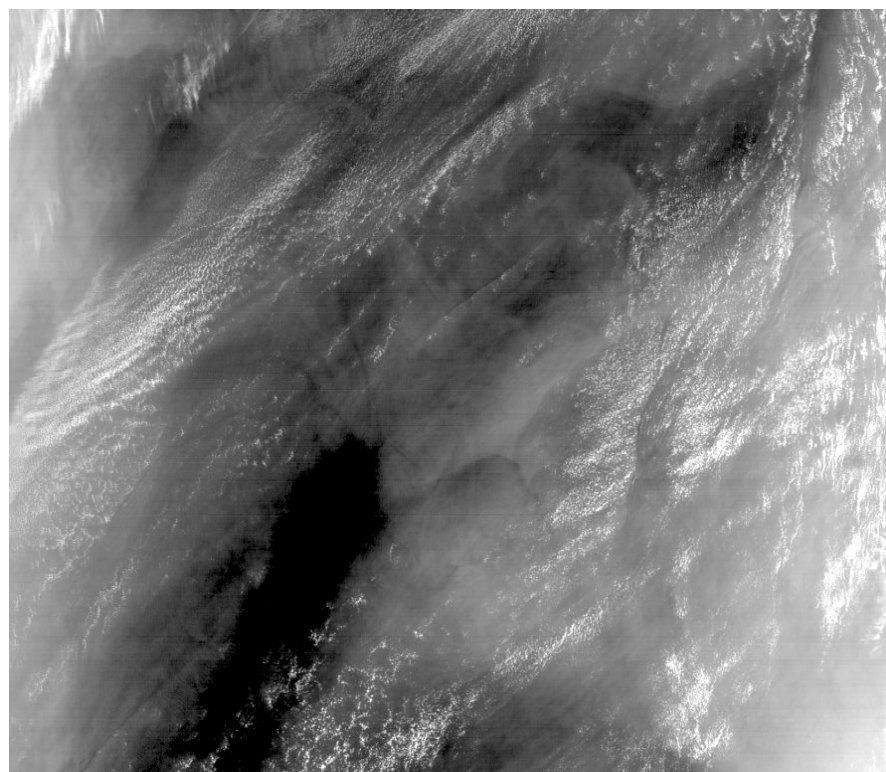
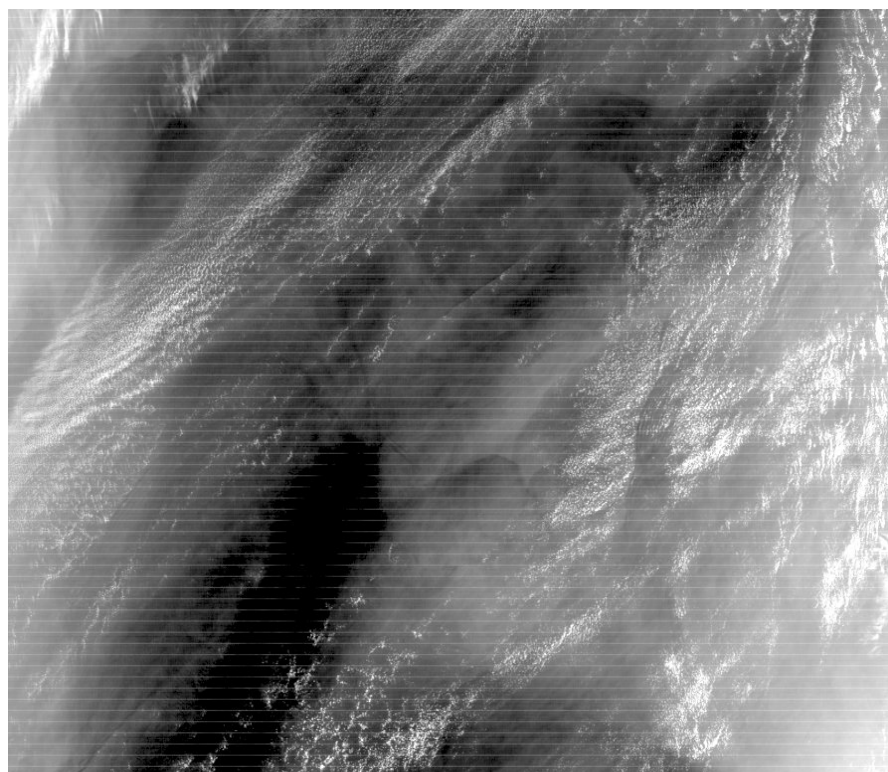
- Easy to install and easy to execute on modest PCs
- NWP domain centered on your DB location
- Assimilates IMAPP MOD07 TPW and MOD06CT Cloud Top Pressure and Cloud Effective Emissivity in order to adjust the cloud and moisture fields in the GFS.
- Output is standard meteorological parameters in GRIB2
- Creates forecast satellite imagery

72 hour forecast of 11 micron
brightness temperature
(3 hour time step)



Level 1B 1KM Destriping

- Removes stripes from 1KM thermal infrared bands
- Each detector is adjusted to match a reference detector
- Destriping is recommended before creating IMAPP Atmosphere Products (e.g., Cloud Mask)



Terra MODIS L1B 1KM, 2003094 06:05, Band 29

True Color Images for Google Earth



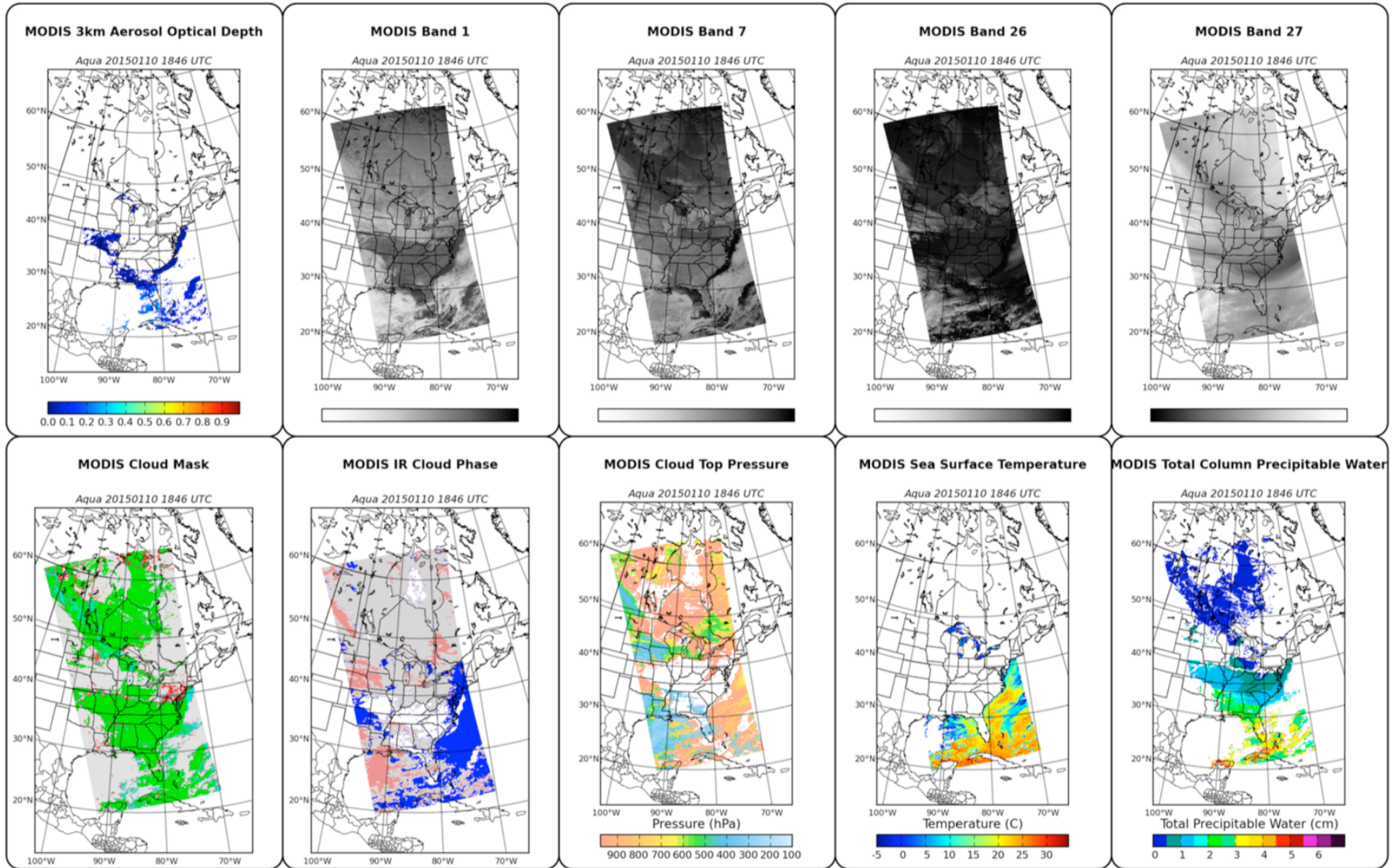
Images can be ready within 30 minutes of acquisition

IMAPP Virtual Appliance

The IMAPP VA makes it simple to install and run a DB processing system to create a range of atmosphere, land, and ocean products from the MODIS sensor onboard Terra and Aqua, and the AIRS, AMSU, and AMSR-E sensors onboard Aqua.

- Supports Windows (XP, Vista, 7), Apple OS X, Linux
- Install and run within 10 minutes
- Easy to configure (e.g., turn on MODIS Land, turn off AIRS)
- Easy to maintain (automated lookup table updates)
- Designed for simplicity (no DBMS, no Java, no COTS; just Bash scripts)
- Allow reliable automated processing
- Use only open source software packages (e.g., IMAPP, SeaDAS, etc.)
- Software package downloads are automated as part of the install process
- Easy to add user-created processing software

MODIS Products from IMAPP VA



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MODIS DB Land Products

Software: **Science Processing Algorithms (SPA)**

Developers: MODIS Science Team

Distributor: NASA Direct Readout Laboratory

Platforms: Linux, Windows (VM)

Website: <http://directreadout.sci.gsfc.nasa.gov/>

Free Download



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DRL Software/Algorithms

DOWNLOADS

- TECHNOLOGY

+ DATA

+ NEW USER

+ DOWNLOAD GUIDELINES

DRL Highlights

- L2GEN_SPA V5.9.7 Released
- H2G_SPA V1.5a Released
- CRECBuilder V1.0 Released
- IMAPP_SPA V2.0
- L2GEN_SPA V5.8.9
- Simulcast V4.1 Released
- MODLST_SPA V4.14
- L2GEN_SPA V5.8.3
- MOD09_SPA V5.3.18
- MODISL1DB_SPA V1.5
- IPOPP Alpha Test Program
- GBAD_SPA V2.6 Released
- RT-STPS V4.1 Released
- CREFL_SPA V1.4.2
- Simulcast V4.0 Released
- IMAPP_SPA V2.0 Released
- RT-STPS V4.0 Released
- MSL12_SPA V5.7.1
- MODISL1DB_SPA V1.4
- MODIS Product Gallery
- NDVIEVI_SPA V2.2
- MOD14_SPA V5.0.1
- MODLST_SPA V4.13
- MODISI 1DR_SPA V1.3

Category	Software Name	Description	Platform	Version
Level 1 (GEO/CAL)	AIRS	AIRS processes downlinked data from the AIRS, AMSU-A and HSB instruments on the Aqua spacecraft from RAW packets in PDS format to Level 1-B calibrated radiances.	Linux, Sun	5.2
Protocol Processing / Level 0	Construction Record Lister	Prints the contents of a PDS/EDS Construction Record.	Linux, Windows	1.01
Utilities	CRECBuilder	The CRECBuilder utility is a Java application that reads a MODIS Level-0 packet file and recreates the corresponding Production Data Set (PDS) (packet file + construction record/metadata file).	Linux	1.0
Level 2	CREFL_SPA	The crefl_SPA processes MODIS Aqua and Terra Level 1B DB data into the MODIS Level 2 Corrected Reflectance product. The algorithm performs atmospheric correction with MODIS visible and near-infrared bands (bands 1 - 7), and it also corrects for molecular scattering and gaseous absorption.	Linux	1.4.2
Protocol Processing / Level 0	GBAD_SPA	The Aqua GBAD Ephemeris and Attitude Data Converter (GBAD) SPA creates ephemeris and attitude files.	Linux	2.6
		The H2G_SPA is specially designed for		

What does SPA do?

Purpose: Creates DB customized Land products

**Input Data: MODIS Level 1B 1KM, HKM, QKM,
and Geolocation (HDF4 format)**

**Output Data: MODIS Level 2 Active Fires,
Corrected Reflectance, NDVI, EVI, Land
Surface Temperature, Land Surface
Reflectance (HDF4 format)**

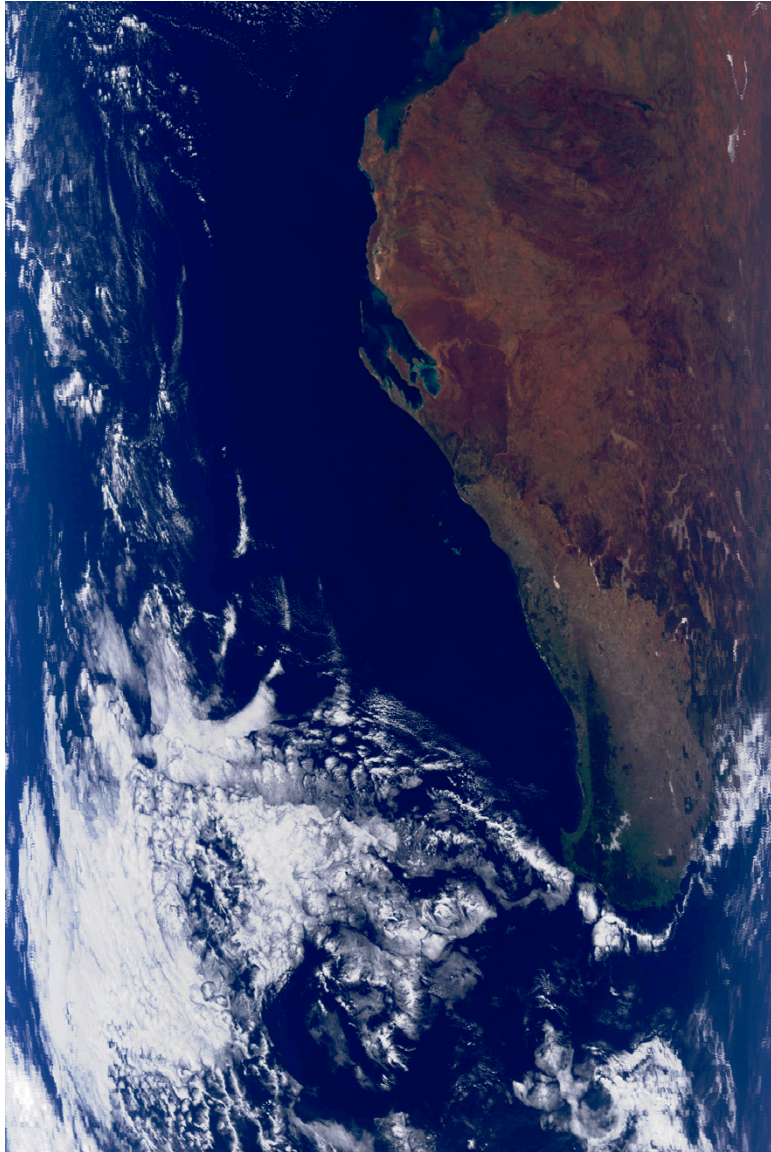
Active Fires



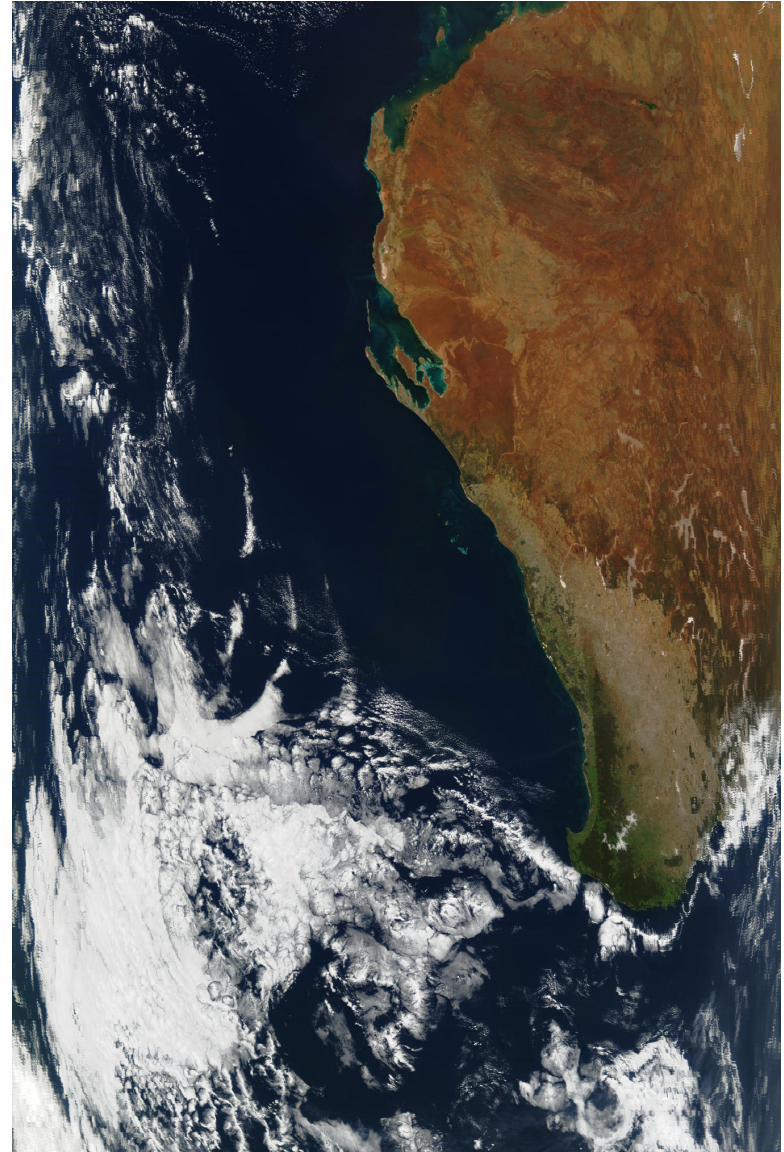
2015/02/07 Aqua MODIS

MODIS Corrected Reflectance

Before



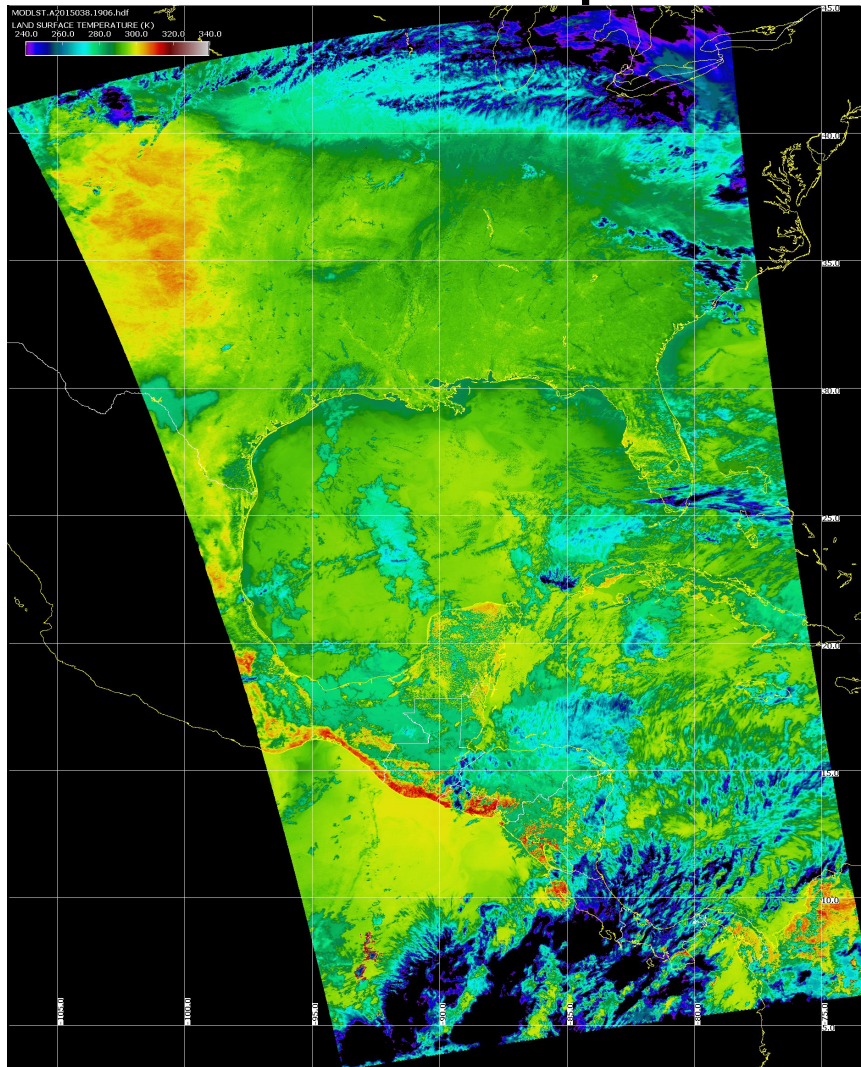
After



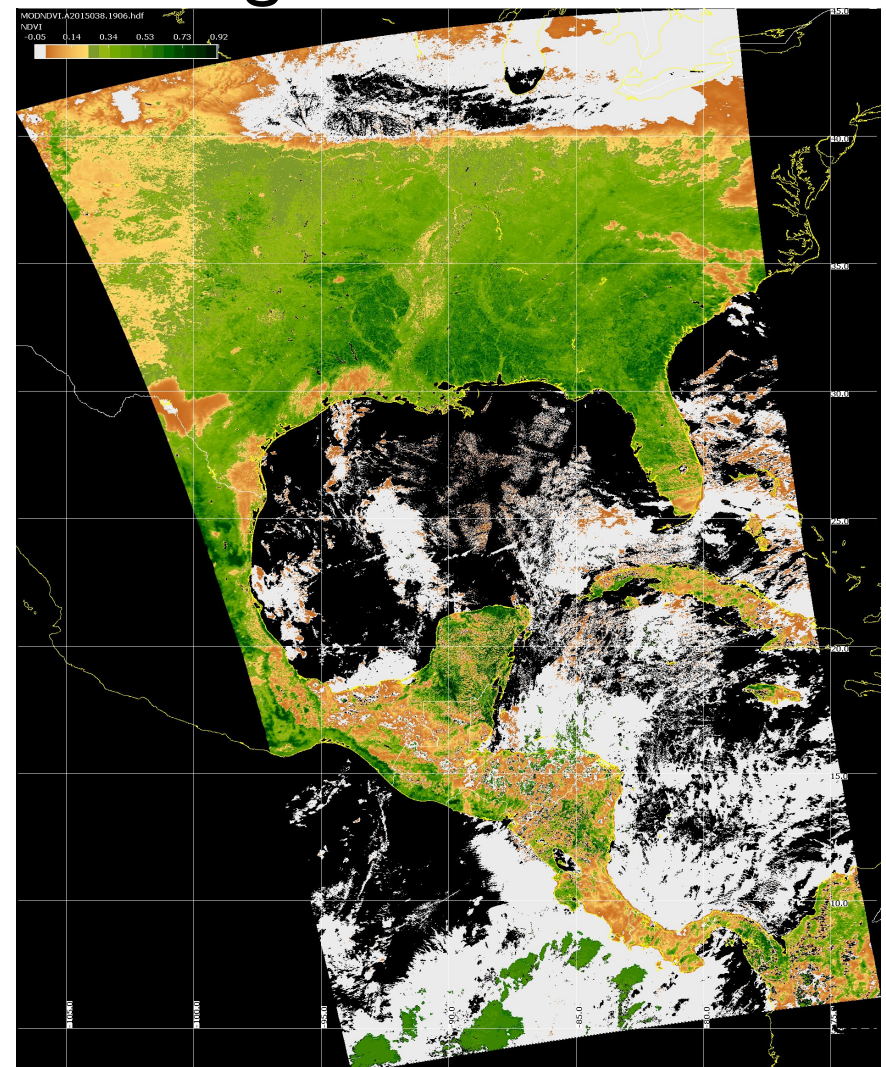
MODIS Land Products

Aqua MODIS 2015/02/07

Land Surface Temperature



Vegetation Index

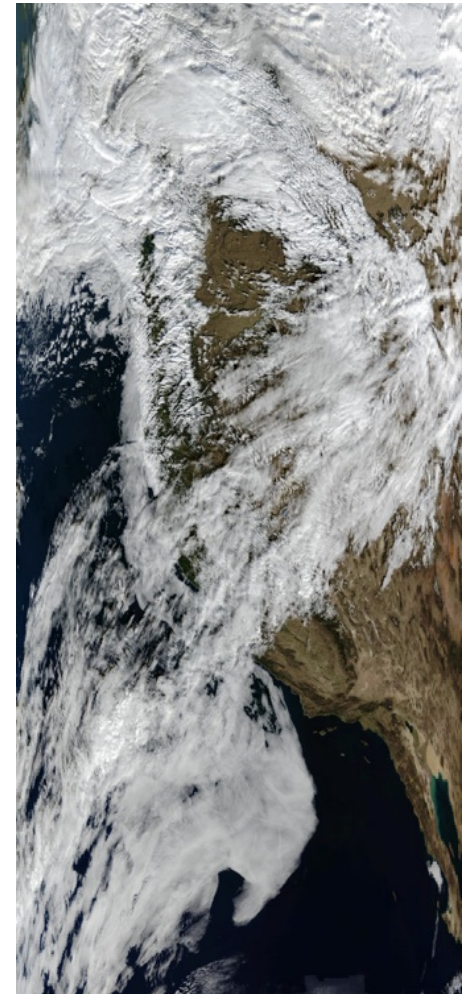


Land Surface Reflectance

MODIS Land Surface Reflectance Algorithm (MOD09) code was adapted for DB by Eric Vermote and Jim Ray. Standard HDF4 format with metadata is created.

Changes for DB included:

- Code pre-compiled for Intel Linux; source code is also available
- Handles arbitrary granule sizes
- Able to use NCEP GFS forecast data instead of NCEP GDAS analysis data
- Automatically discovers and downloads required ancillary data at runtime
- Handles bad geolocation data
- Night granules are handled gracefully in wrapper script

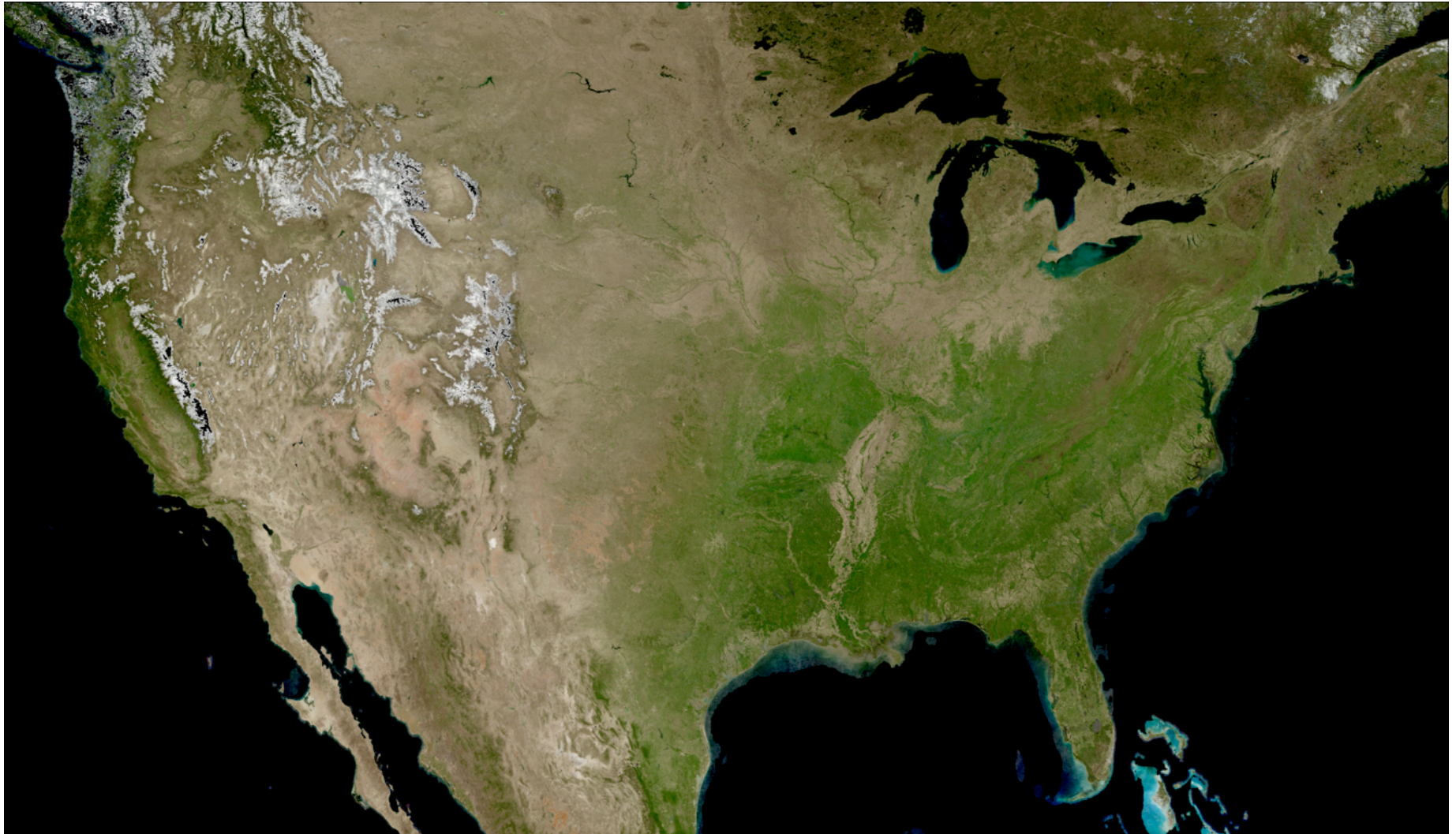


MOD09 True Color
Aqua DB

MODIS NBAR

- MOD43B4 Nadir BRDF-Adjusted Reflectance (NBAR) Product is computed for MODIS spectral bands (1-7) at the mean solar zenith angle of each 16 day period.
- View angle effects are removed from the directional reflectances.
- Applications include vegetation indices, land cover change, and burned area mapping.
- Working with Crystal Schaaf, Boston University

16-day MODIS Composite from DB NBAR Algorithm (True Color) visualized by HDFLook



Outline

1. What is MODIS **Direct Broadcast** (DB)?
2. MODIS DB **Image** Products
3. MODIS DB **Atmosphere** Products
4. MODIS DB **Land** products
5. MODIS DB **Ocean** products
6. **Downloading** MODIS data from the Web

MODIS DB Ocean Products

Software: **SeaDAS**

Developers: NASA Ocean Biology Processing
Group, MODIS Science Team

Distributor: NASA Ocean Biology Processing Group

Platforms: Linux, OS X, Windows (VM)

Website: <http://oceancolor.gsfc.nasa.gov/seadas/>


Free Download

seadas.gsfc.nasa.gov

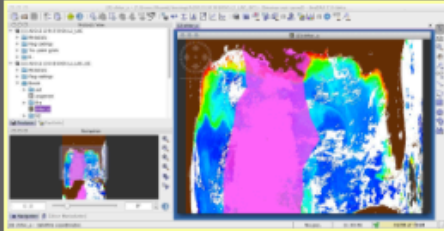
AOML DBPS 7 Min Workout WebEx Concur Travel VIIRS Images ERB Camera IDL Group MODIS Today SSEC DB EOS-FES data >> +

OceanColor SeaDAS

Missions ▾ Data ▾ Documents ▾ Analyses ▾ People Forum ▾ Services ▾ Links



General Description



SeaDAS is a comprehensive image analysis package for the processing, display, analysis, and quality control of ocean color data. While originally developed to support the SeaWiFS mission, it now supports most US and international ocean color missions. The primary focus of SeaDAS is ocean color data, but it is applicable to many satellite-based earth science data analyses

The latest version (SeaDAS 7.1) is the result of a collaboration with the developers of ESA's **BEAM** software package. The core visualization package for SeaDAS 7 is based on the BEAM framework, with extensions that provide the functionality provided by previous versions of SeaDAS..

Features
Requirements
Download

Supported Missions	User Support	Other
<ul style="list-style-type: none"> ◦ MODIS ◦ SeaWiFS ◦ CZCS ◦ VIIRS ◦ HICO 	<ul style="list-style-type: none"> ◦ MERIS ◦ OCTS ◦ OCM ◦ OCM-2 ◦ OSMI 	<ul style="list-style-type: none"> ◦ SeaDAS FAQ ◦ Online Help ◦ Ocean Color Web ◦ Ocean Color Forum ◦ Ocean Mailing Lists ◦ SeaDAS Visualization Source Code ◦ Processing Binaries and Source Code ◦ SeaDAS version 6.4 ◦ MODISL1DB 1.8

What does SeaDAS do?

Purpose: Creates standard ocean color and ocean temperature products. Allows interactive display and analysis of ocean products.

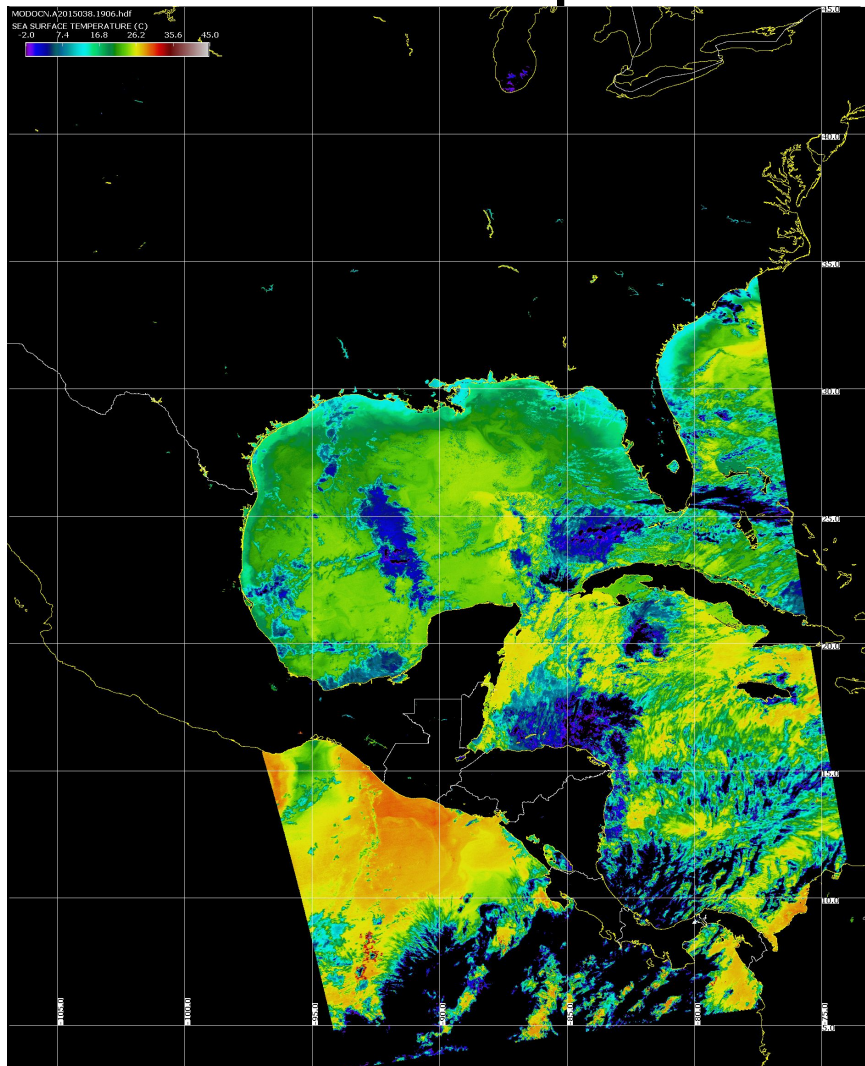
Input Data: MODIS Level 1B 1KM, HKM, QKM, and Geolocation (HDF4 format)

Output Data: MODIS Level 2 Water Leaving Radiance, Chlorophyll concentration, Sea Surface Temperature (HDF4 format)

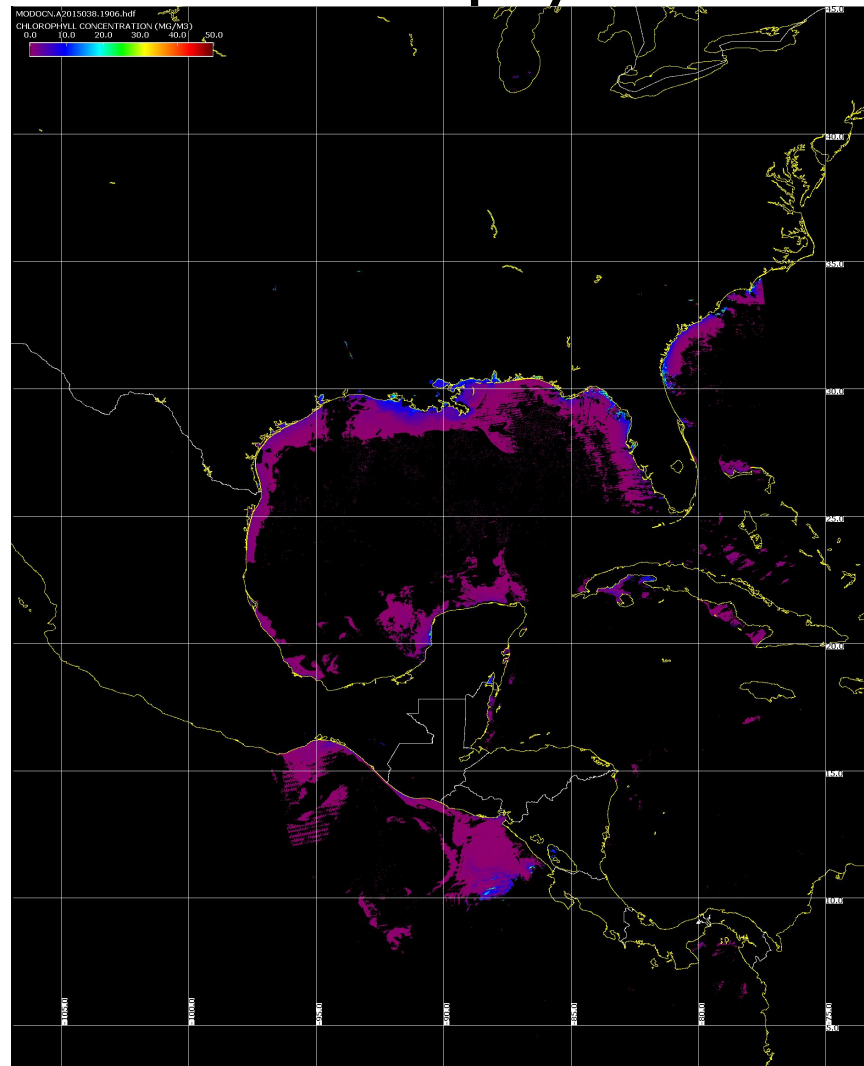
SeaDAS MODIS Products

Aqua MODIS 2015/02/07

Sea Surface Temperature



Chlorophyll-A



Outline

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MODIS Products from NASA

NASA provides MODIS Level 0, Level 1B, Land, Ocean and Atmosphere Products at no cost

Global near real-time products (about 90-120 minutes delay) are available from LANCE

Best for obtaining products in the short term; regional subscriptions are available.

Global long-term archive products (about 24 hours delay) are available from LAADS

Best for obtaining long-term historical data.



LANCE-MODIS

+ ABOUT

- DATA PRODUCTS

+ USER SERVICES

+Home

Data Products

The following tables lists all products produced by LANCE-MODIS. The table provides links to the FTP site for each product and to browse data, if available. The latency figures were measured for data days 2010-11-04 through 2010-11-10 under normal processing conditions. The latency values in parentheses in the Average latency column are the typical values for the standard MODIS production system.

The following links provide additional information about the products.

- [Comparison of Standard and NRT Products](#)
- [Operational PGE Versions](#)

Please note that we have added "NRT" to the file names in order to distinguish the NRT products from our standard products.

Terra / MODIS

Product	FTP (register for access)	Volume (GB/day)	Browse	Known Issues	PGE	Latency (h:mm)		
						Min	Avg	Max
Spacecraft Ephemeris Data	AM1EPHN0	N/A	N/A	N/A	N/A	N/A		
Extrapolated Orbital Data	AM1EPHNE	N/A	N/A	N/A	97	N/A		
L0 PDS Data, Session- Based	MOD00S	N/A	N/A	N/A	N/A	N/A		
L0 PDS Data, 5-Min Swath	MOD00F	N/A	N/A	N/A	95	0:14	1:07	2:51
L1A Raw Radiances, 5-Min Swath	MOD01	N/A	N/A	N/A	01	0:20	1:14	2:58
Geolocation, 5-Min Swath 1km	MOD03	N/A				0:20	1:14	2:58

NASA LAADS DAAC

Find Data About LAADS Data Discovery Quality Help Profile

1 PRODUCTS 2 TIME 3 LOCATION 4 FILES 5 REVIEW & ORDER

No products selected. No date selected. No location selected. No files selected. reset

MODIS:Aqua
Select a Collection

All
Collection (6 - MODIS Collection 6 - L1, Atmos and Land)

keyword

All [57]

Level-0 / Level-1 [7]
MODIS Terra, Aqua [7]

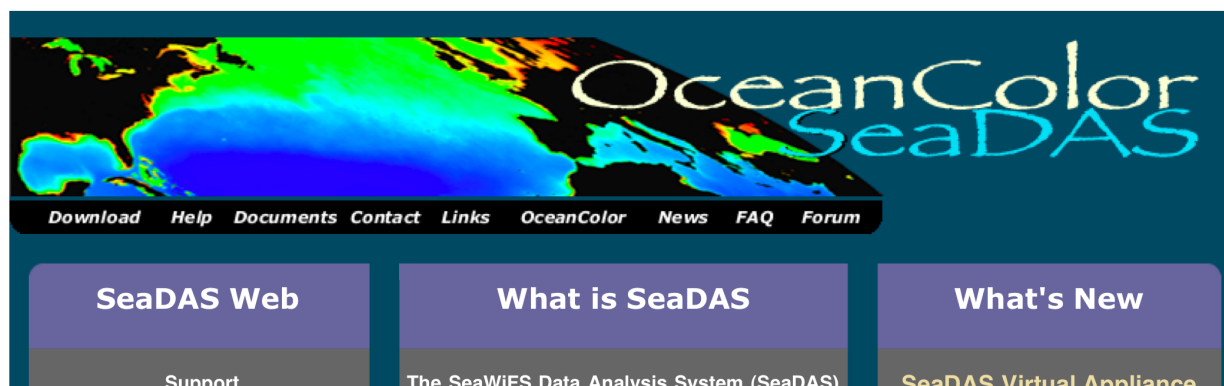
Atmosphere [12]
Aerosol [2]
Water Vapor [1]
Cloud Properties [1]
Atmosphere Profiles [2]
Cloud Mask [2]
Joint L2 Atmosphere Product [1]
L3 Atmosphere Product [3]

MYD00F MODIS TERRA Level 0 Raw Instrument Packets (5 minutes)	i
MYD01 Level 1A Scans of raw radiances in counts	i
MYD021KM Level 1B Calibrated Radiances - 1km	i
MYD02HKM Level 1B Calibrated Radiances - 500m	i
MYD02OBC Level 1B Onboard Calibrator/Engineering Data	i
MYD02QKM Level 1B Calibrated Radiances - 250m	i

Search by Product
Online Archive
Filename Search
Image Viewer
Load/Save Search
Past Orders

<https://ladsweb.modaps.eosdis.nasa.gov/search/>

MODIS Ocean Level 2 Products are available from
<https://oceancolor.gsfc.nasa.gov/>



MODIS Land Level 2/3 Products are available from
<https://lpdaac.usgs.gov/>

