Outline

• Part I
  – ASTER mission
    • Terra spacecraft
  – ASTER sensor
    • Instrument details
    • Sensor specifications
  – Data acquisition
    • Global coverage and on-demand
  – Data products
  – Monitoring of active volcanoes

• Part II
  – Accessing data products
    • GLOVIS
    • EOS Data Gateway
    • SERVIR/Mesostor
    • TerraLook
    • DataPool
ASTER mission

**Advanced Spaceborne Thermal Emission and Reflection Radiometer**
- Part of NASA’s Earth Observing System (EOS)
- Joint cooperative mission between Japan (METI and ERSDAC) and US (NASA)

**Terra satellite**
- Flies aboard Terra platform along with 5 other instruments, including MODIS
- Terra launched in sun-synchronous Earth orbit in Dec. 1999
- ASTER data available since February 2000 to present
- 16 day repeat cycle
- Images same point on Earth at same time every day
- Follows Landsat orbit and has similar spectral resolutions

Images courtesy of NASA
http://www-misr.jpl.nasa.gov/mission/images/am1_01.jpg
Landsat orbital tracks

Jensen, 2004
ASTER orbital tracks

Daytime pass  Night time pass
ASTER global coverage

1.1 million ASTER scenes collected as of March, 2006

Courtesy of Mike Ramsey
ASTER sensor

- Global multispectral imaging data
  - 14 bands in visible to thermal infrared portions of the electromagnetic spectrum
  - VNIR, SWIR, TIR telescopes
  - High spatial resolution imagery
    - Off-nadir pointing capability
    - Stereo viewing capability to create Digital Elevation Models (DEMs)

- High spatial resolution thermal infrared imager
  - compare to MODIS, AVHRR (1km/pixel) or GOES (4km/pixel)
## ASTER sensor specifications

<table>
<thead>
<tr>
<th></th>
<th>VNIR</th>
<th>SWIR</th>
<th>TIR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spectral Resolution</strong></td>
<td>3 Bands</td>
<td>6 Bands</td>
<td>5 Bands</td>
</tr>
<tr>
<td></td>
<td>0.52-0.86 μm</td>
<td>1.60-2.43 μm</td>
<td>8.125-11.65 μm</td>
</tr>
<tr>
<td><strong>Spatial Resolution</strong></td>
<td>15m</td>
<td>30m</td>
<td>90m</td>
</tr>
<tr>
<td><strong>Radiometric Resolution</strong></td>
<td>NE Δ ρ</td>
<td>NE Δ ρ</td>
<td>NE Δ T</td>
</tr>
<tr>
<td></td>
<td>≤ 0.5%</td>
<td>≤ 0.5%-1.5%</td>
<td>≤ 0.3K</td>
</tr>
<tr>
<td><strong>Temporal Resolution</strong></td>
<td>On demand</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Swath Width</strong></td>
<td>60km</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pointing Angle</strong></td>
<td>VNIR/SWIR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>± 8.55°</td>
<td>± 24°</td>
<td></td>
</tr>
<tr>
<td><strong>Quantization Level</strong></td>
<td>8 bit (DN: 0-255)</td>
<td>8 bit (DN: 0-255)</td>
<td>12 bit (DN:0-4095)</td>
</tr>
<tr>
<td><strong>Scanning System</strong></td>
<td>VNIR/SWIR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Along-track (pushbroom)</td>
<td>Across-track (whiskbroom)</td>
<td></td>
</tr>
</tbody>
</table>
ASTER and Landsat Spectral Resolutions

VNIR
Visible to near-infrared

SWIR
Mid-infrared

TIR
Thermal-infrared

ASTER Terra

Landsat 5, 7 TM, ETM+

Wavelength (micrometer)

0.4 0.5 0.6 0.7 0.8 0.9 1.0

1.5 1.6 1.7 1.8 2.0 2.1 2.2 2.3 2.4 2.5

8.0 9.0 10.0 11.0 12.0 13.0

15 m 30 m 90 m
<table>
<thead>
<tr>
<th>VNIR</th>
<th>SWIR</th>
<th>TIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bands 3,2,1</td>
<td>Bands 7,4,5</td>
<td>Band 13</td>
</tr>
</tbody>
</table>

ASTL1B: Arenal volcano, 25 March 2003

- **VNIR**: Bands 3, 2, 1
- **SWIR**: Bands 7, 4, 5
- **TIR**: Band 13

Pixel resolution:

- 15 m/pixel
- 30 m/pixel
- 90 m/pixel
Data Acquisition

ASTER is scheduled (unlike other sensors)

- **Global mapping**: 25% resources
  - Entire Earth land surface
- **Regional Monitoring** (STAR): 50% resources
- **Local Observations** (DAR): 25% resources

- Prioritization of targets and detailed scheduling required to increase the lifetime of the instrument

- **STAR** (Science Team Acquisition Request)
  - Submitted by ASTER Joint Science Team Members only
    - long-term global research e.g. mountain glaciers, active volcanoes, ecological research
- **DAR** (Data Acquisition Request)
  - Submitted by authorized individual ASTER users
  - Up to 10 scenes per DAR
  - URGENT request option
    - Individual science research e.g. land use, geological features, volcanoes, floods, fires
Data Products

L1A
- Routine image data \textit{without} radiometric or geometric corrections
- SWIR bands are unregistered
- Requires significant pre-processing

L1B
- Routine image data \textit{with} radiometric and geometric corrections
- All bands are registered
- Swath-oriented projection
- Resampling with cubic convolution (daytime images) and nearest neighbor (nighttime images)
- Universal Transverse Mercator (UTM) map projection

Level 2
- Higher-level products created from L1B data
- Products are created on-demand

Level 3
- ASTER DEM’s created from L1A data
## Data Products: Level 2

<table>
<thead>
<tr>
<th>Prod. ID</th>
<th>Name</th>
<th>Units</th>
<th>Accur. (abs)</th>
<th>Accur. (rel)</th>
<th>Res. (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AST_04</td>
<td>Brightness temp.</td>
<td>°C</td>
<td>1-2 C</td>
<td>0.3 C</td>
<td>90</td>
</tr>
<tr>
<td>AST_05</td>
<td>Surface emissivity</td>
<td>none</td>
<td>0.05-0.1</td>
<td>0.005</td>
<td>90</td>
</tr>
<tr>
<td>AST_06</td>
<td>Decorrelation stretch</td>
<td>none</td>
<td>N/A</td>
<td>N/A</td>
<td>15, 30, 90</td>
</tr>
<tr>
<td>AST_07</td>
<td>Surface reflectance</td>
<td>none</td>
<td>4%</td>
<td>1%</td>
<td>15, 30</td>
</tr>
<tr>
<td>AST_08</td>
<td>Surface kinetic temp.</td>
<td>°K</td>
<td>1-4 K</td>
<td>0.3 K</td>
<td>90</td>
</tr>
<tr>
<td>AST_09</td>
<td>Surface radiance (VNIR, SWIR)</td>
<td>W/m² sr μm</td>
<td>2%</td>
<td>1%</td>
<td>15, 30</td>
</tr>
<tr>
<td>AST_09T</td>
<td>Surface radiance (TIR)</td>
<td>W/m² sr μm</td>
<td>2%</td>
<td>1%</td>
<td>90</td>
</tr>
<tr>
<td>AST_13</td>
<td>Polar cloud classification</td>
<td>none</td>
<td>3%</td>
<td>3%</td>
<td>15, 30, 90</td>
</tr>
<tr>
<td>AST_14</td>
<td>Digital elevation model (DEM)</td>
<td>m</td>
<td>7m</td>
<td>10m</td>
<td>15, 30</td>
</tr>
</tbody>
</table>

Courtesy of Mike Ramsey
Monitoring of active volcanoes

Unique ASTER capabilities and data products allow for spatial and temporal monitoring of active volcanoes:

1. Routine nighttime observations
   – much more data in TIR and SWIR (active sources) than Landsat ETM+ for thermal radiance detection

2. Off-nadir pointing
   – ability to have 1-2 scenes/day temporal frequency

3. Multiple dynamic ranges
   – minimizes data saturation (loss)

4. Many multi-spectral bands
   – Spectral libraries for mineral identification

5. Multi-spectral thermal IR
   – Critical for better temperature, chemical & textural measurements

6. Digital elevation models (DEM)
   – Volume change detection and effusion rates
Routine nighttime observations

Klyuchevskoy Volcano

Courtesy of Mike Ramsey

Soufrière Hills Volcano
Dynamic Range

19 Feb 2004, 23:10UTC AQUA MODIS daytime visible 250m

24 Feb 2004, 08:16 UTC ASTER Night time TIR temperature on VNIR

Courtesy of Mike Ramsey
Digital elevation models (DEMs)
Pacaya
Band 3N
Band 3B
Courtesy of Mike Ramsey
DEM eruption rates

Volume Change of 0.814 km³
1954-2001 Santiaguito, Guatemala

Courtesy of Kelly Durst, MTU
Accessing Data Products

Level 1 data are processed by Japanese Ground Data System (GDS) and archived in EOS-HDF format at Land Processes Distribution Active Archive Center (LPDAAC) at the USGS EROS Data Center (EDC).

Browse images online:
  – User friendly interface, but does not always have a complete record
- University of Pittsburgh’s ASTER Scene Locator: http://aster.eps.pitt.edu/

Order products:
EOS-Data Gateway: http://elpdl03.cr.usgs.gov/pub/imswelcome/
  – Previewing images possible but slow

All L1A, L1B and higher-level products are US$80 for ASTER users and free of charge for Science Team Members and other approved investigators, e.g. government agencies, educational institutions, private commercial sector.
Accessing Data Products

Free ASTER data:

• **SERVIR**: [http://servir.nsstc.nasa.gov/index.html](http://servir.nsstc.nasa.gov/index.html)
  – Select L1A data
  – Central American coverage
  – Spanish or English options

  – Natural color JPEGs of select L1B data
  – Global coverage

  – Rolling archive of L1B data from the last 2 years
  – US coverage
GLOVIS (Global Visualization Viewer)

USGS Global Visualization Viewer
Select a collection, then click on the Global Locator Map to view satellite browse images in that area.
Select Collection: ASTER  VNIR
Latitude
Longitude
Earth Observing System Data Gateway

Enter the Data Gateway
- Enter as guest
- Enter as a registered user
- Other Data Gateway Sites

My Account
- Become a registered user
- Forgot my password

What's New
- NASA Warehouse Inventory Search Tool (beta):
  - Give us feedback
  - New Data Sets
  - Data Gateway News
  - EOS Program News

How-to
- User Support

Data Center Status

GSFC:
UPDATE: 01-05-07 TRANSITION OF MODIS SERVICES AT THE GES DISC TO MODAPS
The GES DAAC will discontinue distribution of MODIS Collection 004 Terra and Aqua atmosphere data products on January 15, 2007. MODAPS will be the sole source for all MODIS atmosphere data products both collection 004 and 005.

MODAPS uses the L1 and Atmospheres Archive and Distribution System (LAADS) to provide users with access to the MODIS products. LAADS can be found at http://ladsweb.nascom.nasa.gov. This system maintains some L1B and all atmosphere products on disk (the remaining L1B are available through processing-on-demand) and provides access through search/order and ftp. A full description of the MODAPS services is given at...
Search Creation:

Primary Data Search

Have a question, a problem, or a comment?* | Help for this page

Save/Restore search | Clear search

Choose Data Sets

Pick a discipline/topic (for example: Atmosphere:MISR), then choose from the list of data sets. For multiple topics: choose one topic & data sets, then the next topic & data sets.
To select/deselect* more than one data set, use Ctrl-click for PCs; Apple-click for Macintosh.

ASTER EXPEDITED L1A RECONSTRUCTED UNPROCESSED INSTRUMENT DATA V003
ASTER EXPEDITED L1B REGISTERED RADIANCE AT THE SENSOR V003
ASTER L1A RECONSTRUCTED UNPROCESSED INSTRUMENT DATA V003
SAFARI 2000 ASTER AND MODIS FIRE DATA COMPARISON, DRY SEASON 2001

View Data Set Definition | Choose Data Set Keywords

Search and Order

User Preferences
Search Status
Results: Data Set
Results: Granule
My Folder
Shopping Cart
Exit to Home

Search types

Data Search
Detailed Document
Summary Document
AIRS Browse

User Name

guest

ASTER
Choose Search Area

Enter the latitude and longitude of a point to specify your search region.

Formats:
- degree
- degree:minute
- degree:minute:second

Latitude 13.8530 Longitude -89.6300

Display Lat/Lon Point on Map

- Orthographic (Java)
- Equatorial
- Global Search
- Stereographic S-pole
- Stereographic N-pole
- Global granules only

Choose a Date/Time Range (not required)

Date format: YYYY-MM-DD (1967-05-25) or MM/DD/YYYY (05/25/1967)
Time format: HH:MM (14:30) or HH:MM:SS (14:30:01)

You may also enter a date without a time, a start date only, or an end date only.
Use the help link for information on default values.
Choose a Date/Time Range (not required)

Date format: YYYY-MM-DD (1967-05-25) or MM/DD/YYYY (05/25/1967)
Time format: HH:MM (14:30) or HH:MM:SS (14:30:01)

You may also enter a date without a time, a start date only, or an end date only. Use the help link for information on default values.

Start Date: 2006-01-01 Time (UTC): 00:00:00
End Date: 2007-06-05 Time (UTC): 23:59:59

Choose Additional Options (not required)

- Return a maximum of 500 data granules per data set (Range: 1 - 1000).
- Only return data granules which have browse products.
- Allow searches to run for a maximum of 90 minute(s).
- Return DEFAULT metadata in search results
- Only return data granules which were retrieved during the
- Name this query: (will be used in creating a file name when saving the query)

Start Search
acquisition date: mmddyyyyhhmmss  
processing date: mmddyyyyhhmmss

<table>
<thead>
<tr>
<th>Data Granule ID (Local Granule ID)</th>
<th>Granule Information</th>
<th>On-line Access</th>
<th>Image Quicklook</th>
<th>Request Sample</th>
<th>Special Processing Links</th>
<th>Start Date</th>
<th>Stop Date</th>
<th>Cloud Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC:AST_L1A.003:2032694108</td>
<td>Attributes Pricing</td>
<td>Access Unavailable</td>
<td>Image</td>
<td>Sample</td>
<td>Documents page for LP DAAC ASTER Products.</td>
<td>16 Jan 2006, 04:20:05.0</td>
<td>16 Jan 2006, 04:20:05.0</td>
<td>2</td>
</tr>
<tr>
<td>SC:AST_L1A.003:2033237237</td>
<td>Attributes Pricing</td>
<td>Access Unavailable</td>
<td>Image</td>
<td>Sample</td>
<td>Documents page for LP DAAC ASTER Products.</td>
<td>24 Feb 2006, 16:40:44.0</td>
<td>24 Feb 2006, 16:40:44.0</td>
<td>2</td>
</tr>
<tr>
<td>SC:AST_L1A.003:2034161497</td>
<td>Attributes Pricing</td>
<td>Access Unavailable</td>
<td>Image</td>
<td>Sample</td>
<td>Documents page for LP DAAC ASTER Products.</td>
<td>08 May 2006, 16:34:36.0</td>
<td>08 May 2006, 16:34:36.0</td>
<td>50</td>
</tr>
</tbody>
</table>
Daytime image: VNIR, SWIR, TIR
Results: Granule: Listing

You are automatically being shown the Granule list since there was only one data set returned.

<table>
<thead>
<tr>
<th>Select</th>
<th>Data Granule ID (Local Granule ID)</th>
<th>Granule Information</th>
<th>On-line Access</th>
<th>Image Quicklook</th>
<th>Request Sample</th>
<th>Special Processing Links</th>
<th>Start</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td>SC:AST_L1A.003:2032588018</td>
<td>Attributes Pricing</td>
<td>Access</td>
<td>Unavailable</td>
<td>Sample</td>
<td>Documents page for LP DAAC ASTER Products</td>
<td>07 Jan 2006, 16:40</td>
</tr>
<tr>
<td></td>
<td>SC:AST_L1A.003:2032694108</td>
<td>Attributes Pricing</td>
<td>Access</td>
<td>Unavailable</td>
<td>Sample</td>
<td>Documents page for LP DAAC ASTER Products</td>
<td>16 Jan 2006, 04:20</td>
</tr>
<tr>
<td></td>
<td>SC:AST_L1A.003:2033237237</td>
<td>Attributes Pricing</td>
<td>Access</td>
<td>Unavailable</td>
<td>Sample</td>
<td>Documents page for LP DAAC ASTER Products</td>
<td>24 Feb 2006, 16:40</td>
</tr>
<tr>
<td></td>
<td>SC:AST_L1A.003:2033452771</td>
<td>Attributes Pricing</td>
<td>Access</td>
<td>Unavailable</td>
<td>Sample</td>
<td>Documents page for LP DAAC ASTER Products</td>
<td>12 Mar 2006, 16:40</td>
</tr>
<tr>
<td></td>
<td>SC:AST_L1A.003:2034161497</td>
<td>Attributes Pricing</td>
<td>Access</td>
<td>Unavailable</td>
<td>Sample</td>
<td>Documents page for LP DAAC ASTER Products</td>
<td>08 May 2006, 16:20</td>
</tr>
</tbody>
</table>
Shopping Cart:

Step 1: Choose Ordering Options

Have a question, a problem, or a comment? | Help for this page

1 item in your shopping cart, 0 items ready to be ordered.

Before you can go to Step 2: Order Form you must choose ordering options using the Choose Options link next to each item that needs it.

<table>
<thead>
<tr>
<th>Order Options</th>
<th>Subsetting</th>
<th>Data Granule ID (Local Granule ID)</th>
<th>Size (MB)</th>
<th>Start Date</th>
<th>Stop Date</th>
</tr>
</thead>
</table>

Also, please read the NASA Privacy, Security, Notices and the EOS Data Gateway accessibility policy.

Comments, Questions, or Problems? Email us*
Created by EOS Data Gateway version 3.6.5
Webmaster: Chao-Hsi Chang (chao-hsi.chang@esda.com)
Responsible NASA Official: Medora Macie (Mail Code 413, NASA/GSFC, Greenbelt, MD 20771)
**ASTER L1A RECONSTRUCTED UNPROCESSED INSTRUMENT DATA V003**

*Data Granule ID:* SC:AST_L1A.003:2032588018  
Geographic Center: 13.76° Lat, -89.91° Lon  
Geographic Coordinates:  
- 14.08° Lat, -90.14° Lon  
- 13.99° Lat, -89.56° Lon  
- 13.44° Lat, -89.68° Lon  
- 13.52° Lat, -90.26° Lon

### Ordering Option 2:

**AST_L1B (ASTER L1B Registered Radiance at the Sensor) V003.**

*Media Types:* FtpPull, DVD

<table>
<thead>
<tr>
<th>Select One</th>
<th>Data Format</th>
<th>Media Type</th>
<th>Media Format</th>
<th>Package Size</th>
<th>Cost (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Native Granule</td>
<td>FtpPull</td>
<td>FILEFORMAT</td>
<td>Unknown</td>
<td>$80.00</td>
</tr>
<tr>
<td></td>
<td>Native Granule</td>
<td>DVD</td>
<td>RockRidge</td>
<td>Unknown</td>
<td>$91.00</td>
</tr>
</tbody>
</table>

*I want no items from this option.*

---

*Mandatory:* If you selected any of the items in ordering options 2 (above), you must give values for any required Options below. You can also give values...
Shopping Cart:

Step 1: Choose Ordering Options

Have a question, a problem, or a comment? | Help for this page

1 item in your shopping cart, 1 item is ready to be ordered.

Customize Order Options to set order options automatically for future orders from this guest session or your registered user account.

Go to Step 2: Order Form

Empty Entire Shopping Cart

Subtotal of per item cost:

Total cost (US):

Please do not enter credit card or other payment information on this web site. If there are charges associated with your order, an email will be applicable.

<table>
<thead>
<tr>
<th>Order Options</th>
<th>Subsetting</th>
<th>Data Granule ID (Local Granule ID)</th>
<th>On-Demand</th>
<th>Size (MB)</th>
<th>Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>FtpPull</td>
<td>Available</td>
<td>SC:AST_L1A.003:2032588018 (AST_L1A#00301072006164020_01142006120443.hdf)</td>
<td>AST_L1B</td>
<td>116.311700</td>
<td>07 Jan 2006, 16:40:21</td>
</tr>
</tbody>
</table>

Also, please read the NASA Privacy, Security, Notices and the EOS Data Gateway accessibility policy.

Comments, Questions, or Problems? Email us*
Created by EOS Data Gateway version 3.6.5
Webmaster: Chao-Hsi Chang (chao-hsi.chang@sesda.com)
Responsible NASA Official: Medora Macie (Mail Code 423, NASA/GSFC, Greenbelt, MD 20771)
Shopping Cart:

Step 2: Order Form

Have a question, a problem, or a comment?* | Help for this page

Please fill out your Contact, Shipping, and Billing information below. You can then review your entire order or immediately submit your order.

Your Contact Address:

<table>
<thead>
<tr>
<th>Title:</th>
<th>First Name: (required)</th>
<th>Initial:</th>
<th>Last Name: (required)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(none)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organization:</th>
<th>Internet E-Mail Address: (required)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Street Address: (required)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>City: (required)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Select State (US only): (required)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-- None --</td>
</tr>
<tr>
<td>ALABAMA</td>
</tr>
<tr>
<td>ALASKA</td>
</tr>
<tr>
<td>AMERICAN SAMOA</td>
</tr>
<tr>
<td>ARIZONA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Or Enter State/Province:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

To enter a state/province, select None from the selection menu and enter state/province above.

<table>
<thead>
<tr>
<th>Zip/Postal Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Select Country: (required)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-- None --</td>
</tr>
<tr>
<td>UNITED STATES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Or Enter Country:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
Done!

OR

Submit Order Now!

Optional: Retrieve or Update User Profile...

You may want to retrieve your profile to restore it to its original state after you have made changes. You may want to update this page permanent.

User Name: Password:

Retrieve User Profile

Update User Profile

Press this button to retrieve your user profile. You must enter your User Name and Password to access.

Press this button to update your user profile. You must enter your User Name and Password to access.
MesoStor

General Product Description

MesoStor is Mesoamerica’s first free on-line data delivery system that allows anybody with an Internet connection to seamlessly access digital map data of the region (satellite imagery, roads and river coverages, etc.). MesoStor is part of the SERVIR “One Stop Shop” for regional data, dynamic maps, decision support, and interactive visualizations.

Please be patient while the MesoStor client is downloaded and installed on your PC. It will take a few minutes. Once the client is installed you will be able to quickly connect to the MesoStor server.

Click Here to begin using MesoStor

How to Use MesoStor

- Español
- English (coming soon)

FAQs

Download Notes
Many data sets available!
VECTOR DE CARRETERAS Y VIAS DE MESOAMERICA
Vector Data
May 30, 2003

Mapa de la red vial (carreteras) de la región Mesoamericana. Cubre geográficamente desde el Estado de Puebla, en México, hasta Panamá.

1. Carretera Pavimentada: comprende las carreteras pavimentadas con o sin separados, una o más vías.
2. Carretera sin Pavimentar, transitable todo el año: formada por carreteras sin pavimentar una o más vías, y transitable todo el año.
3. Carretera sin Pavimentar, transitable en tiempo seco

Unificar un mapa de la red vial (carreteras) a nivel regional, de carácter oficial. Actividad en la que han participado los Institutos Geográficos Nacionales y las Autoridades de Ambiente de México, Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica y Panamá.
Los datos de ASTER son del 2004 en Mesoamerica.

ASTER level 1 data are processed by the Japanese Ground Data System (GDS) and archived by the Land Processes Distributed Active Archive Center (LP DAAC), at the USGS EROS Data Center (EDC). The data contains Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) data files in the Hierarchical Data Format for Earth Observing System (HDF-EOS). ASTER is one of the five state-of-the-art instrument systems on-board Terra, a satellite launched in December 1999 as part of NASA’s Earth Observing System. The data have a unique combination of wide spectral coverage and high spatial resolution in the visible near-infrared, shortwave infrared, and the thermal infrared regions. It is a cooperative effort between NASA and Japan’s Ministry of Economy, Trade and Industry (METI) and the Earth Remote Sensing Data Analysis Center (ERSDAC). ASTER data contributes to a wide array of global change-related application areas including vegetation and ecosystem dynamics, hazard monitoring, geology and soils, land surface climatology, hydrology, and land cover change. Additional information may be found on the following web pages:

ASTER homepage:
IMAGENES ASTER 2004

Geographic Filter

Limites_Pais_TNC from The Nature Conservancy
Country=Guatemala

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ASTER homepage:

1. Create Metadata Filter...
2. Create Geographic Filter...

3. Download Data Layer...
Conclusions

• **ASTER sensor**
  – Unique sensor for observing volcanoes
  – High spatial and spectral resolution imagery
  – Post-eruption imaging

• **Data products**
  – Excellent documentation available on ASTER website:
    • ASTER User Handbook
    • Level 1 User's Guide
    • ASTER Higher-Level Product User Guide

• **Data acquisition**
  – User-friendly interfaces
  – Free data sources