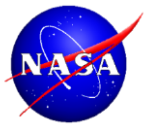

Land Remote Sensing Data Access Workshop (DAW)

MODIS Reprojection Tool on the Web (MRTWeb)

Use Cases

March 13-14, 2012

USGS National Training Center, Building 53, Denver Federal Center, Denver, CO

U.S. Department of the Interior

U.S. Geological Survey

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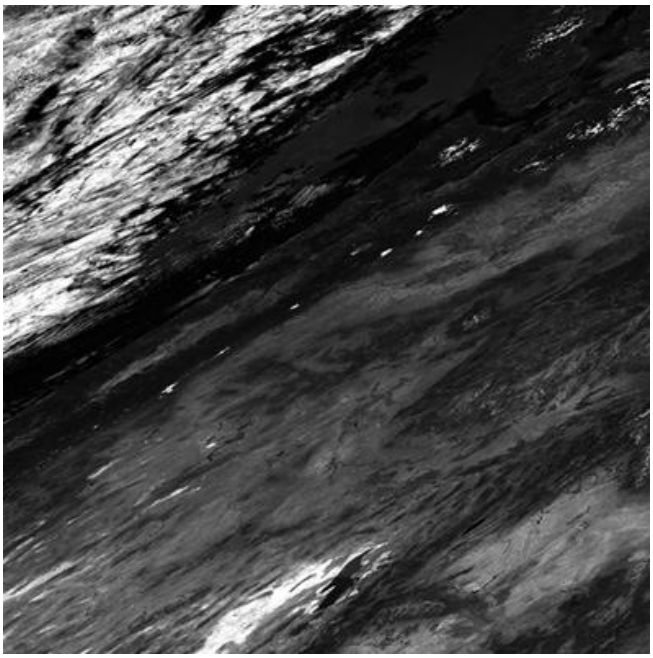
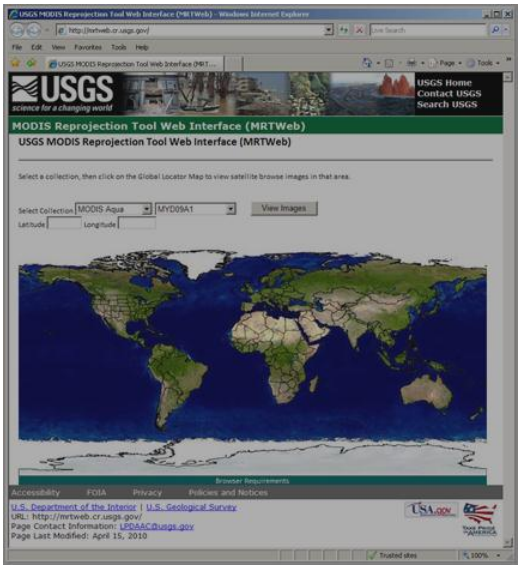
MRTWeb Use Case 1: Select a Cloud-free Tile and Change its Format



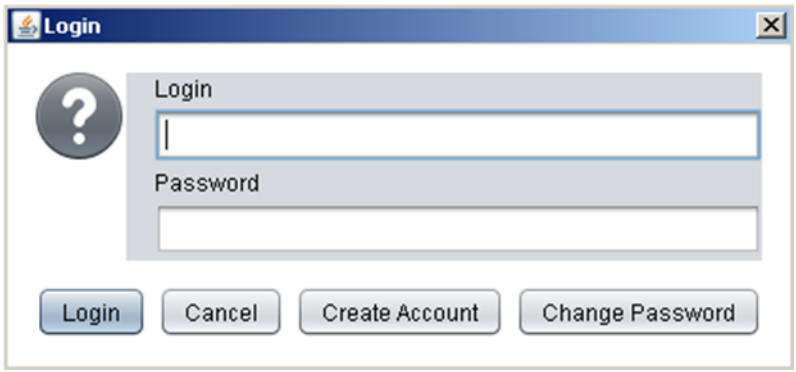
A grey scale image of tile MOD09A1.MRTWEB.A2010193.005.sur_refl_b01.tif, used as an example in this use case.

1.1. Open a browser and navigate to the MRTWeb site: mrtweb.cr.usgs.gov.

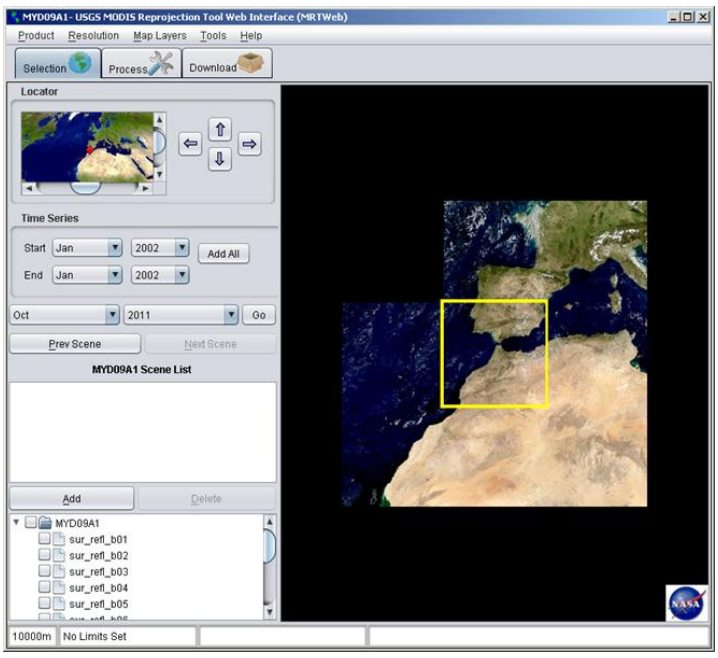


1.2. Click on a location on the world locator map.

1.3. Login by creating an account. Write down your login name and password for future reference.



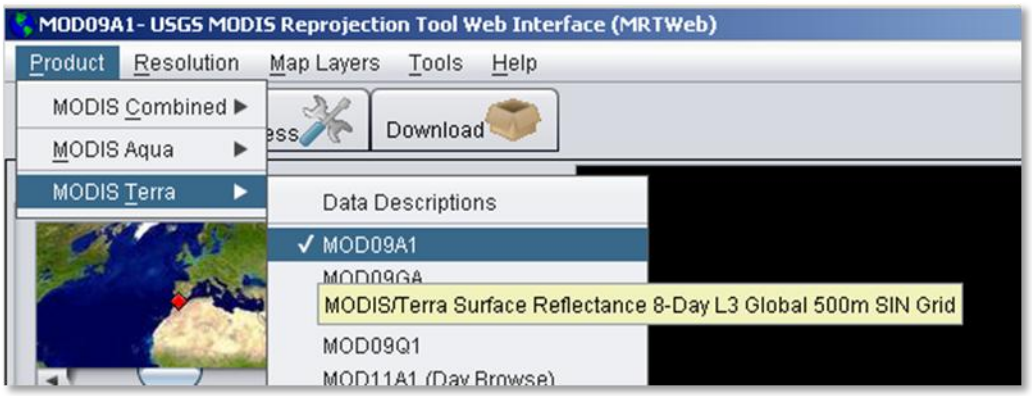
MRTWeb will cut over to NASA ECHO username and password authentication during Spring, 2011. The MRTWeb interface will display in a new window. You can minimize, but do not close the original launch window.



Problems? Verify that the browser window is not set to block pop-ups.

Help and troubleshooting tips are available from the MRTWeb User Guide which is accessible from both the LP DAAC Get Data page, and the Help menu within MRTWeb.

1.4. Choose a MODIS Product. Click the "Product" drop-down from the main menu bar and select MODIS Terra, then MOD09A1.



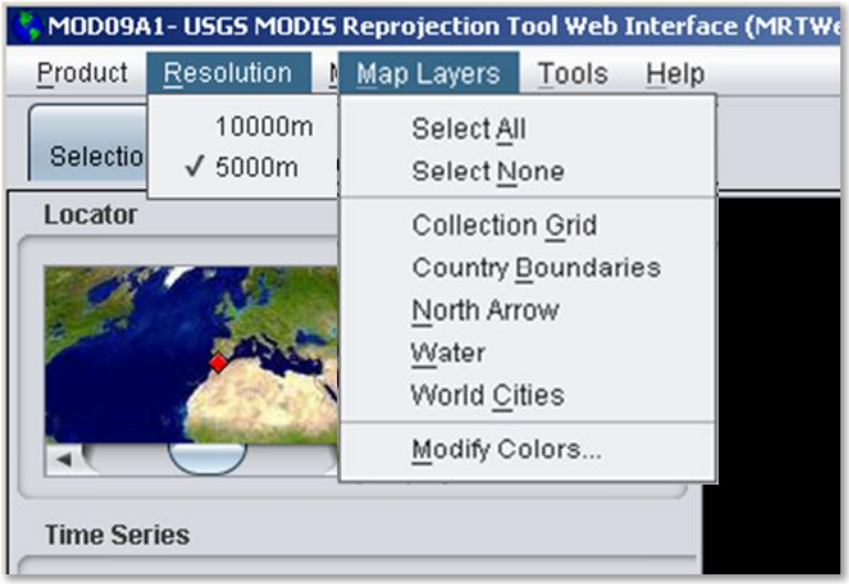
To discover more information about a particular product, select "Data Descriptions" to bring up the MODIS Products Page in a new window.

1.5. Zoom in or out. Click “Resolution” in the menu bar for optional resolutions of :

- 5,000 Meters displays the single/current tile selected.
- 10,000 Meters displays approximately nine tiles with the current tile outlined in a yellow box.

1.6. Add reference map layers. Click “Map Layers” in the menu bar to overlay optional layers :

- Collection Grid
- Country Boundaries
- North Arrow
- Water
- World Cities



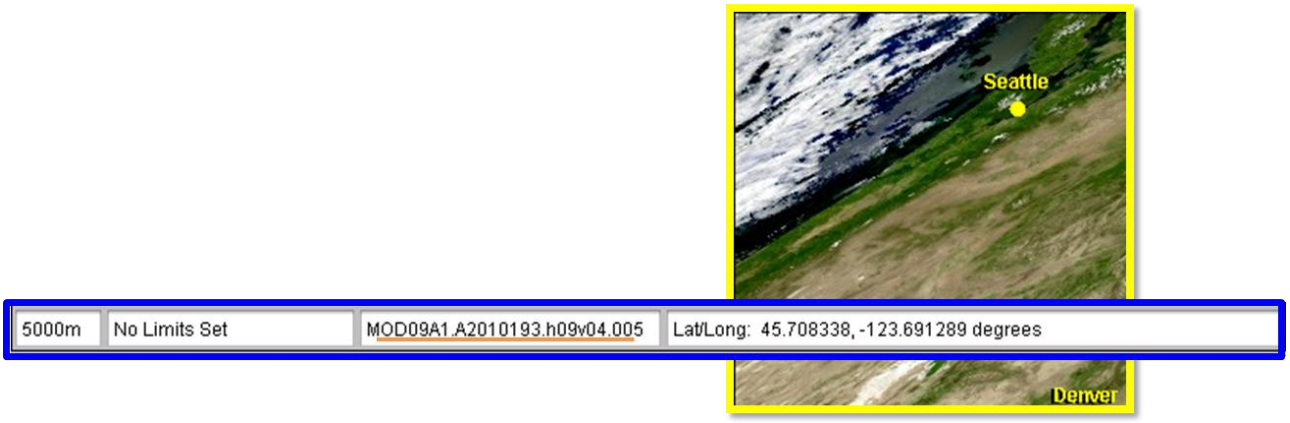
1.7. Use directional arrows to navigate and select an area of interest.

1.8. Choose a date range or month/year.

1.8.1. Use “Prev Scene” and “Next Scene” buttons to browse through scenes forward and backward in time.

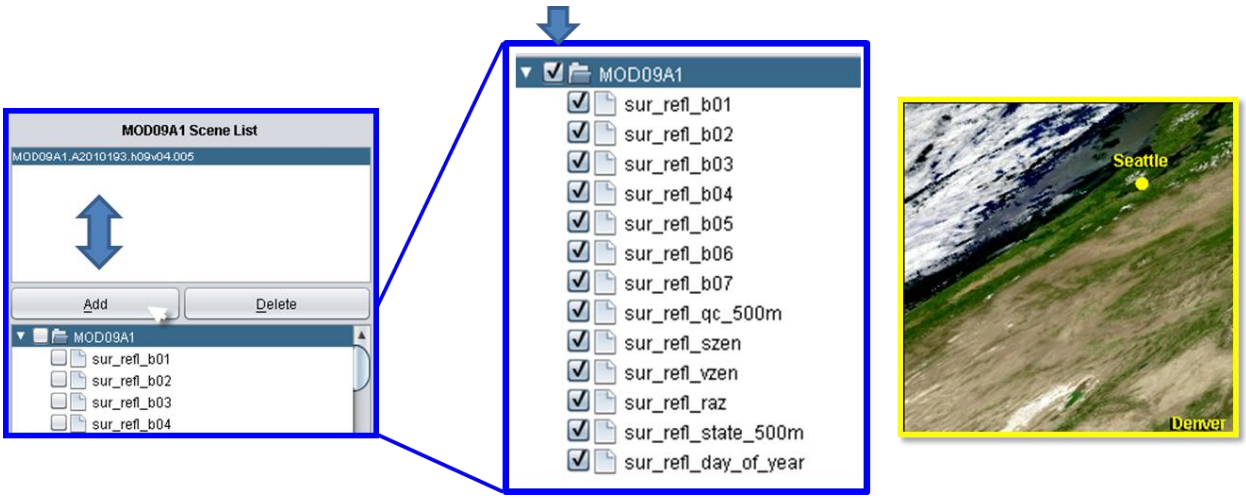
Note that the status bar at the bottom of the interface provides the granuleID (underlined in orange below) of the current browse image being viewed (inside yellow box). In our example we have:

- Product Shortname: MOD09A1
- Year (2010)
- Julian day (193)
- Horizontal Tile Number (09)
- Vertical Tile Number (04)
- Product Version (005)



1.9. Select a scene. Once a scene of interest is identified, click the “Add” button and the granuleID will appear in the “Scene List” box’

1.9.1. Click the “MOD09A1” check box to select all available layers.



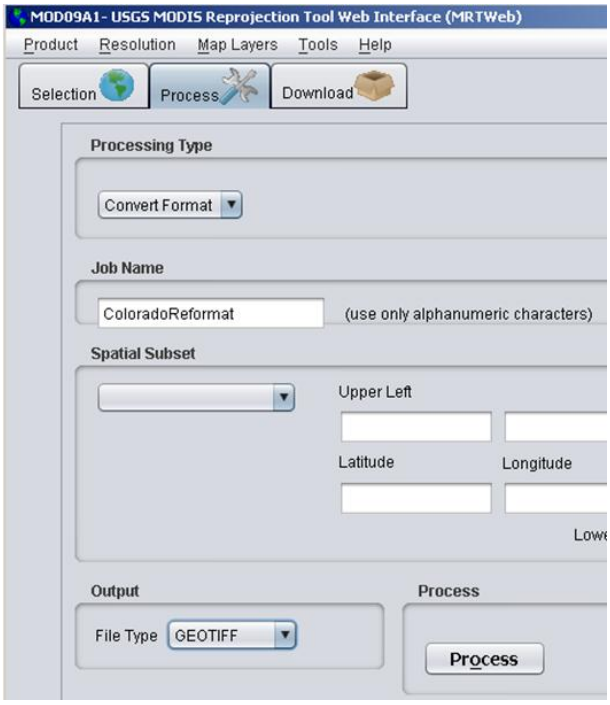
1.10 Click on the “Process” tab to select processing options.

1.10.1 Select “Convert Format” from the Processing Type menu.

1.10.2 Enter a Job Name in the text box provided.

1.10.3 Select Output GeoTIFF.

1.10.4 Click “Process” button.



1.11 Click “OK” on the pop-up box confirming the job has been submitted for processing.

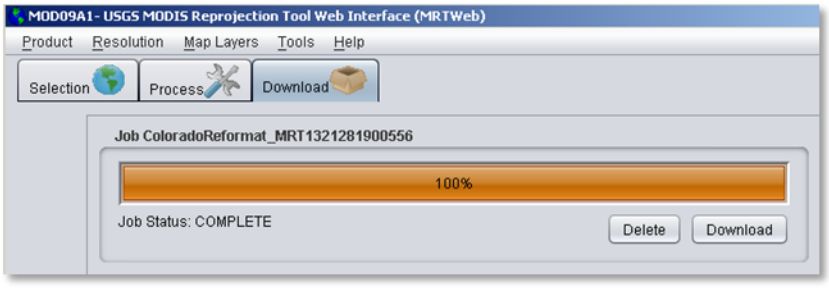
1.12 Click on the “Download” tab to review the status of your submitted job(s) and download the data requested.

Optional downloads:

- Input tile(s) used to generate the data requested
- MRT 4.0 log and parameter files

Status messages:

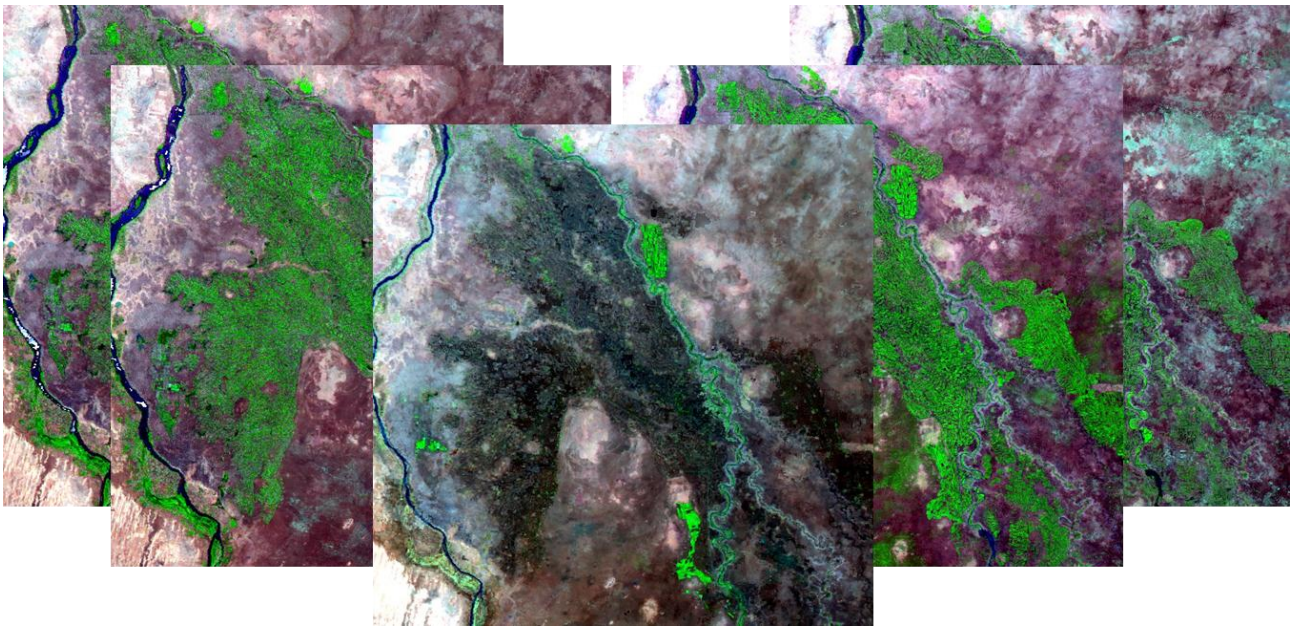
- “Transferring from Datapool…”
- Percent complete begins to display once the tile is staged from Datapool and the reforming process begins.



1.13 Click on the “Download” button to access the data requested. The ftp directory will open in a new window/tab of your browser.

This concludes MRTWeb Use Case 1.

MRTWeb Use Case 2: Extract a One-year Time Series



Some images from this time series example of an area over Sudan, Africa. This is a two degree by two degree subset area reprojected to geographic.

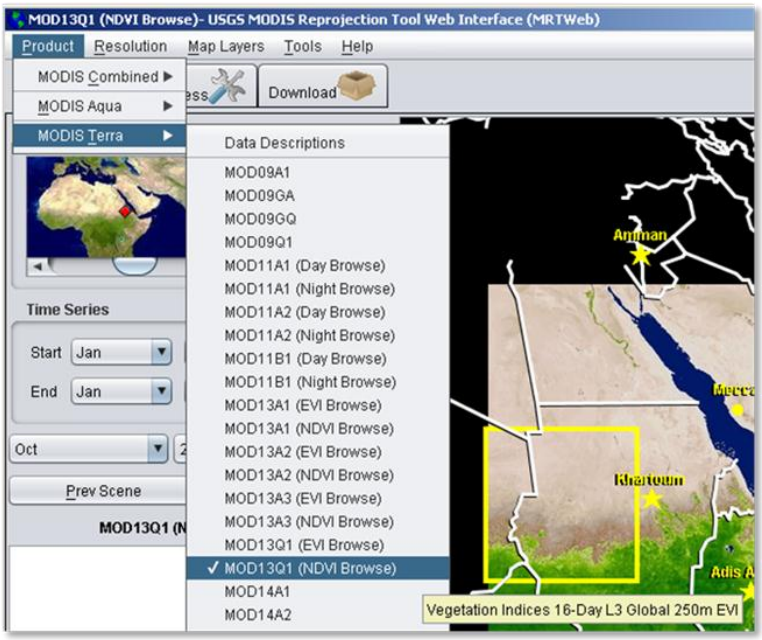
2.1 Choose a MODIS Product. To begin, click the "Selection" tab, then click "Product" in the menu bar to select an available product.

2.1.1 MODIS Combined

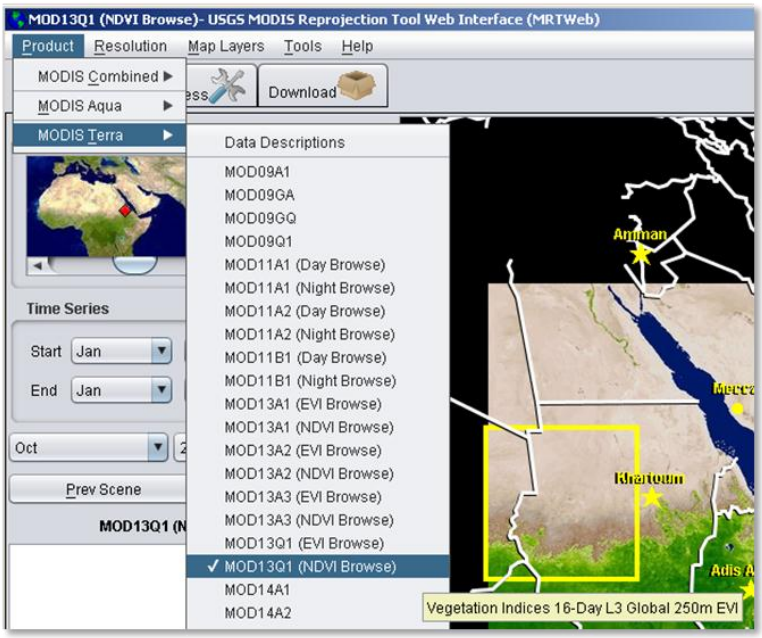
2.1.2 MODIS Aqua

2.1.3 MODIS Terra (MOD13Q1, NDVI Browse)

This will result in a pop-up box requesting confirmation of removing items selected from the previous example.



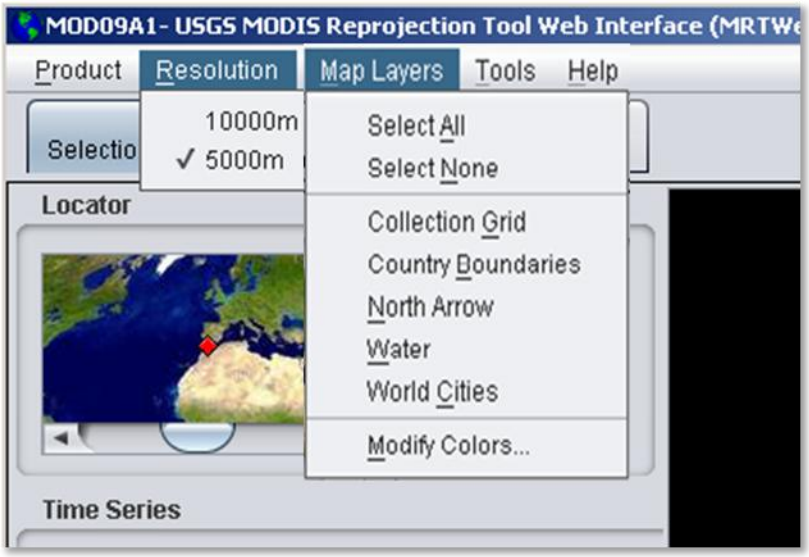
2.2 To discover more information about a particular product, select “Data Descriptions” within any of product sets to bring up the MODIS Products Page in a new window.



2.3 Add optional dimensions to the map. Click “Resolution” in the menu bar for optional resolutions of :

2.3.1 5,000 Meters displays the single/current tile selected.

2.3.2 10,000 Meters displays approximately nine tiles with the current tile outlined in a yellow box.



2.4 Click “Map Layers” in the menu bar to overlay optional layers :

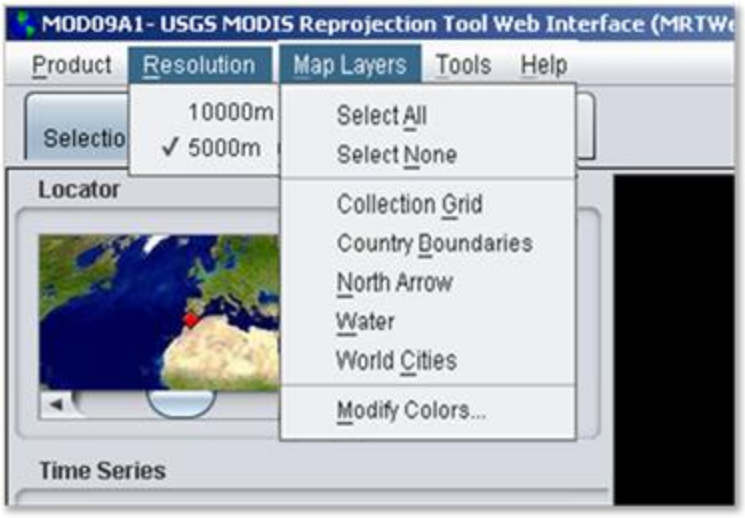
2.4.1 Collection Grid

2.4.2 Country Boundaries

2.4.3 North Arrow

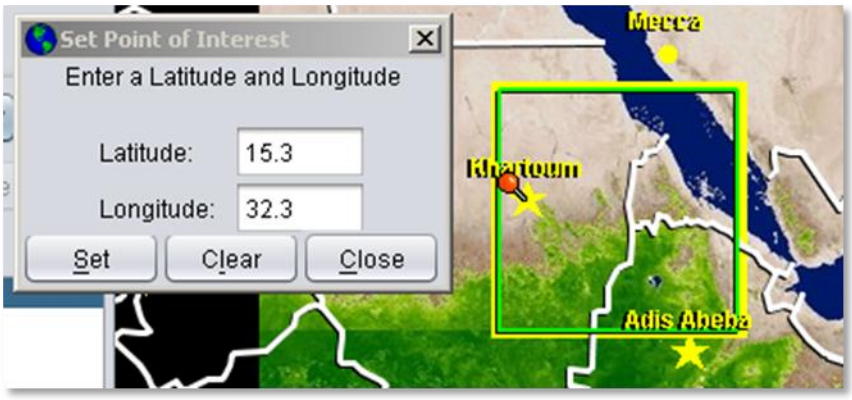
2.4.4 Water

2.4.5 World Cities



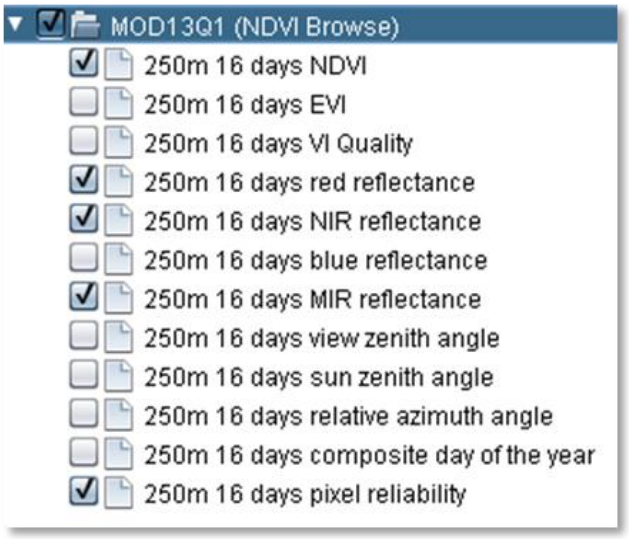
2.5 Enter search criteria by setting a Point of Interest. From the menu bar, select "Tools>Set Point of Interest…"

We chose Khartoum, Sudan at (15.3, 32.3) for this example, then clicked "Set" before closing the window.



2.6 Select scenes. In the "Time Series" control box, choose a date range January, 2010 through December, 2010. Click "Add All" to add all 2010 tiles for this area to the selected scenes list.

2.7 In the layers box, select desired layers by clicking the associated check box. We selected the MIR, NIR, red, NDVI, and pixel reliability layers for this example.



2.8 Enter Processing Options. Select “Reproject” for the Processing Type.

2.8.1 Enter a Job Name.

2.8.2 Select “Input Lat/Lon” from the Spatial Subset box.

2.8.3 Enter the Upper Left (15.4, 32.2) and Lower Right coordinates (13.4, 34.2) for a two degree by two degree area.

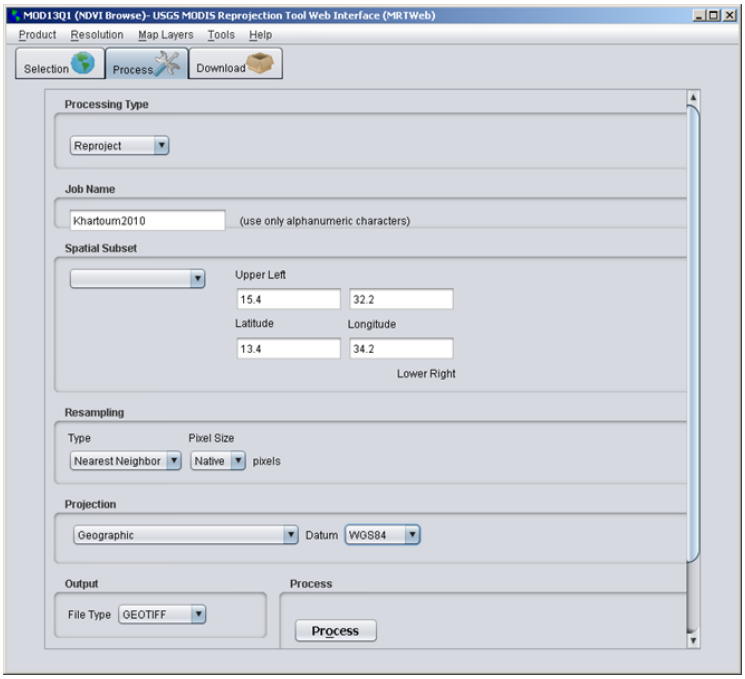


Image displays the options selected.

2.9 Leave the default Resampling options “Nearest Neighbor” and “Native”. Select “Geographic” projection with “WGS84” datum. Leave output format as “GEOTIFF”

2.9.1 Click “Process”

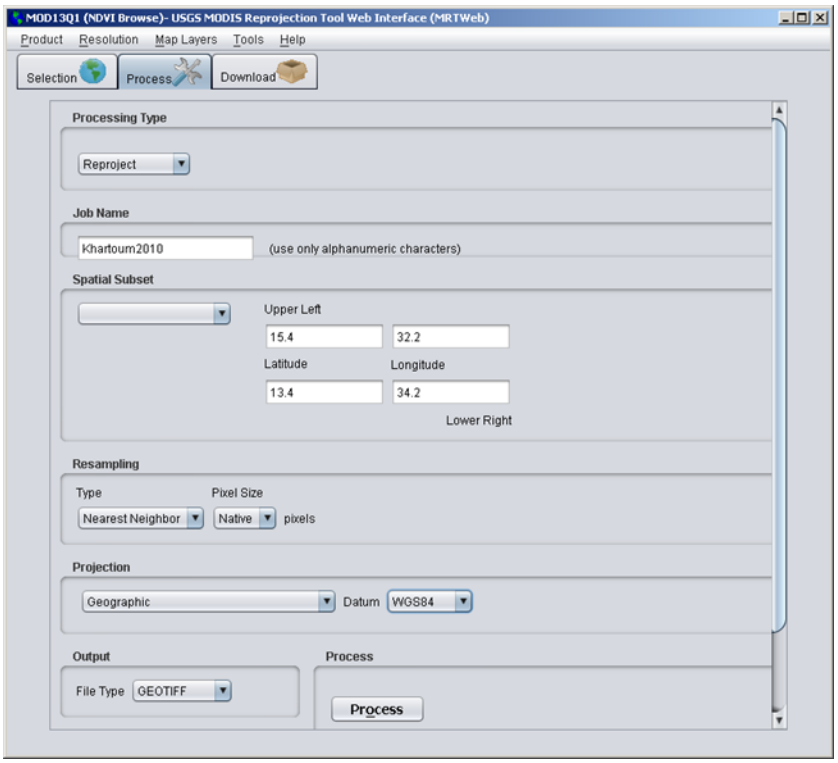
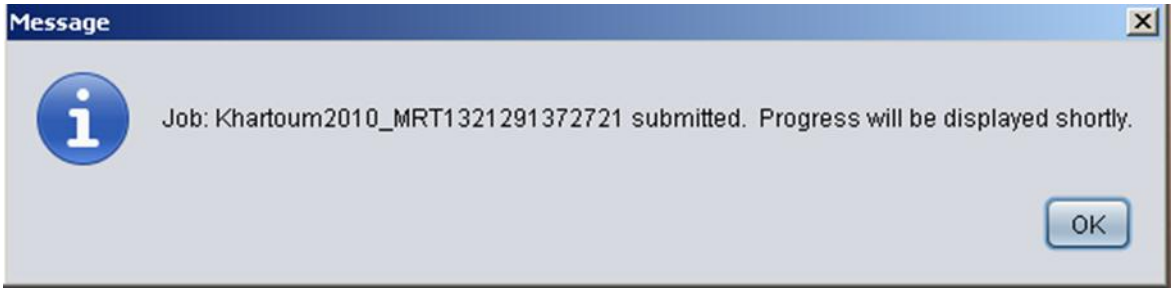
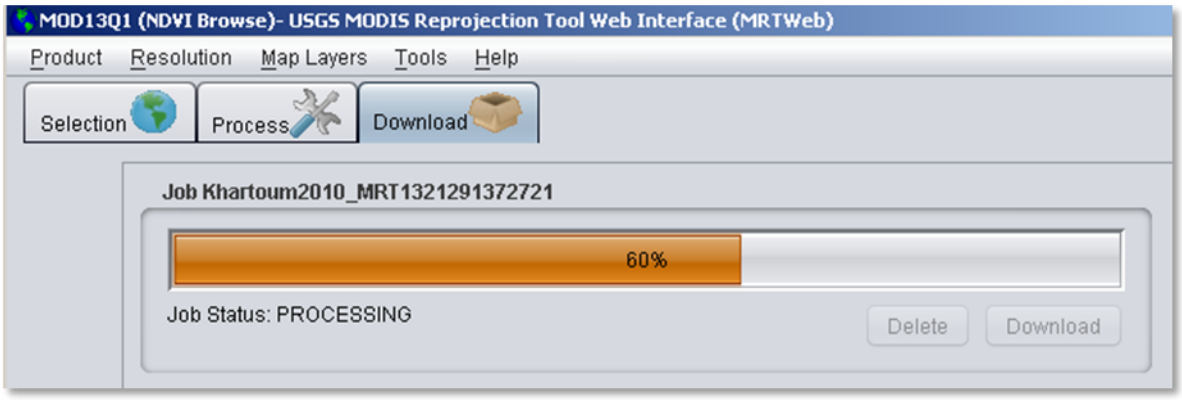


Image displays the options selected.

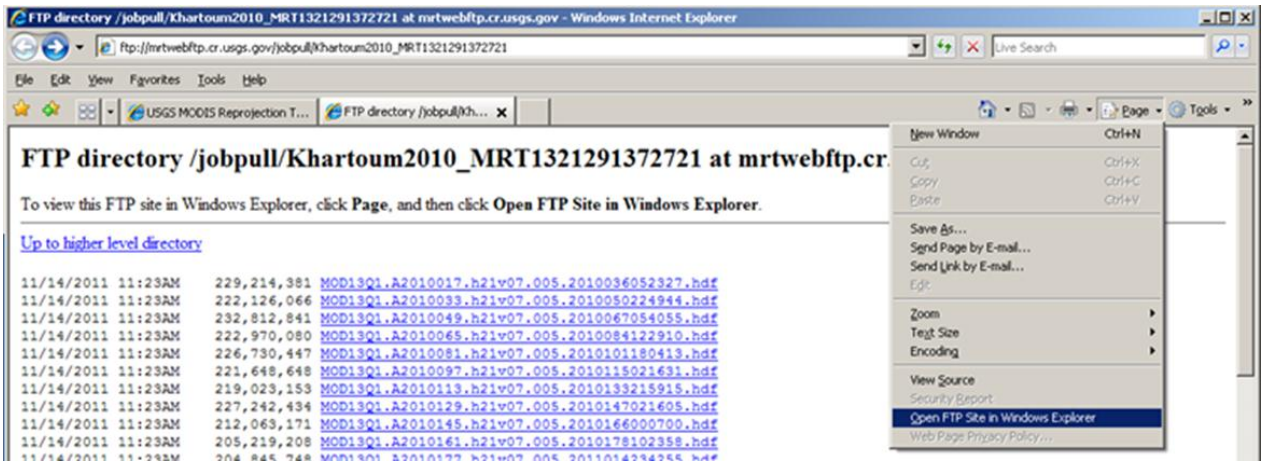
2.10 Confirm Job was submitted and click the Download tab.



2.11 Review the job status.

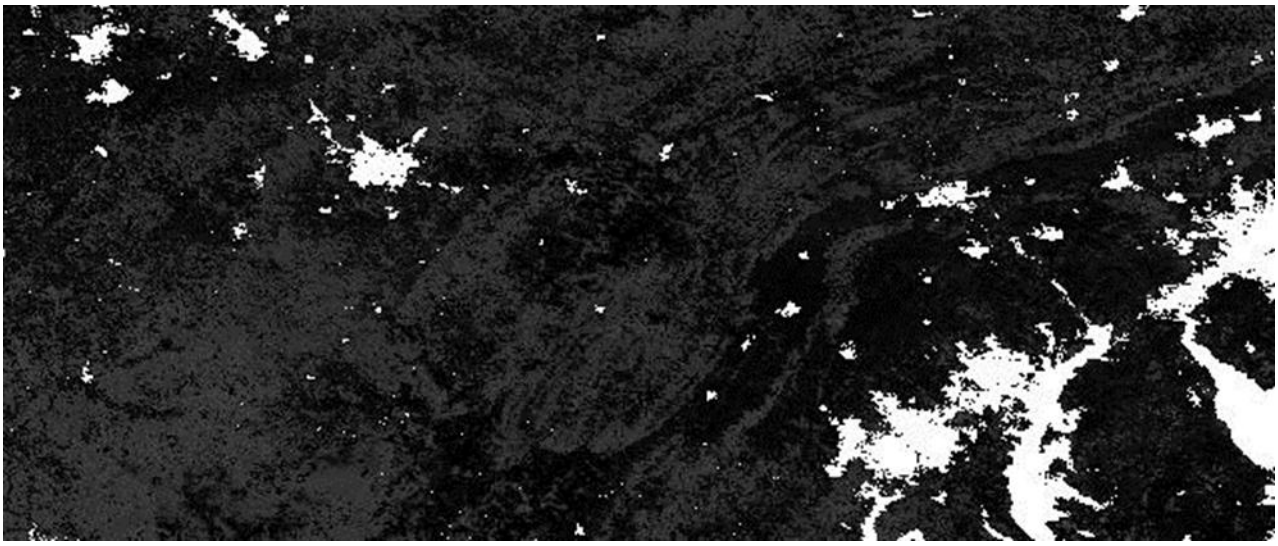


2.12 Click the “Download” button to download each band individually, or click on the browser window option “Page>Open FTP Site in Windows Explorer” to open the file listing in a new window that enables you to select multiple files for copying to your computer.



This concludes MRTWeb Use Case 2.

MRTWeb Use Case 3: Create a Multi-tile Mosaic



Grey scale image of Washington D.C. area LAI, 2010 used as an example in this use case.

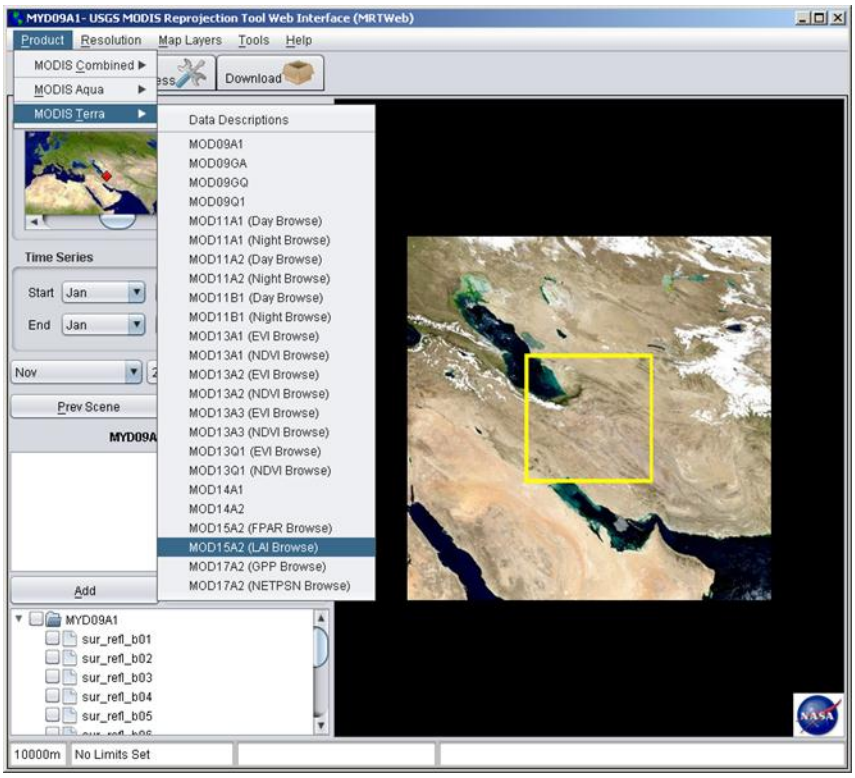
3.1 Choose a MODIS Product. To begin, click the "Selection" tab, and then click "Product" in the menu bar to select an available product.

3.1.1 MODIS Combined

3.1.2 MODIS Aqua

3.1.3 MODIS Terra (MOD15A2, LAI Browse)

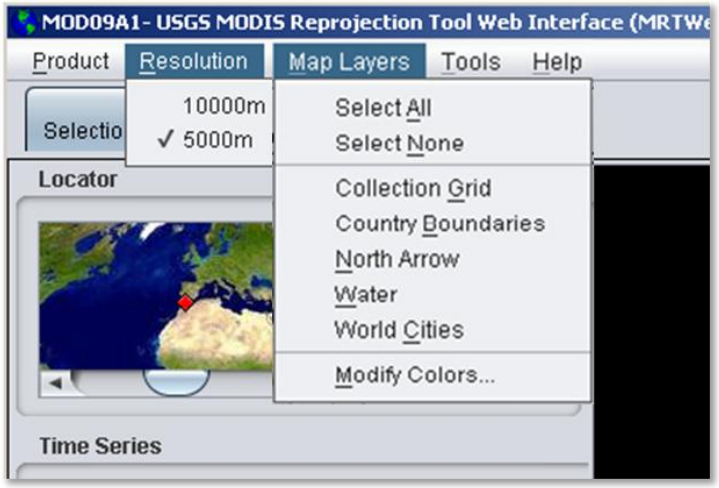
This will result in a pop-up box requesting confirmation of removing items selected from the previous example.



3.2 Add optional dimensions to the map. Click "Resolution" in the menu bar for optional resolutions of :

3.2.1 5,000 Meters displays the single/current tile selected.

3.2.2 10,000 Meters displays approximately nine tiles with the current tile outlined in a yellow box.



3.3 Click “Map Layers” in the menu bar to overlay optional layers:

3.3.1 Collection Grid (on)

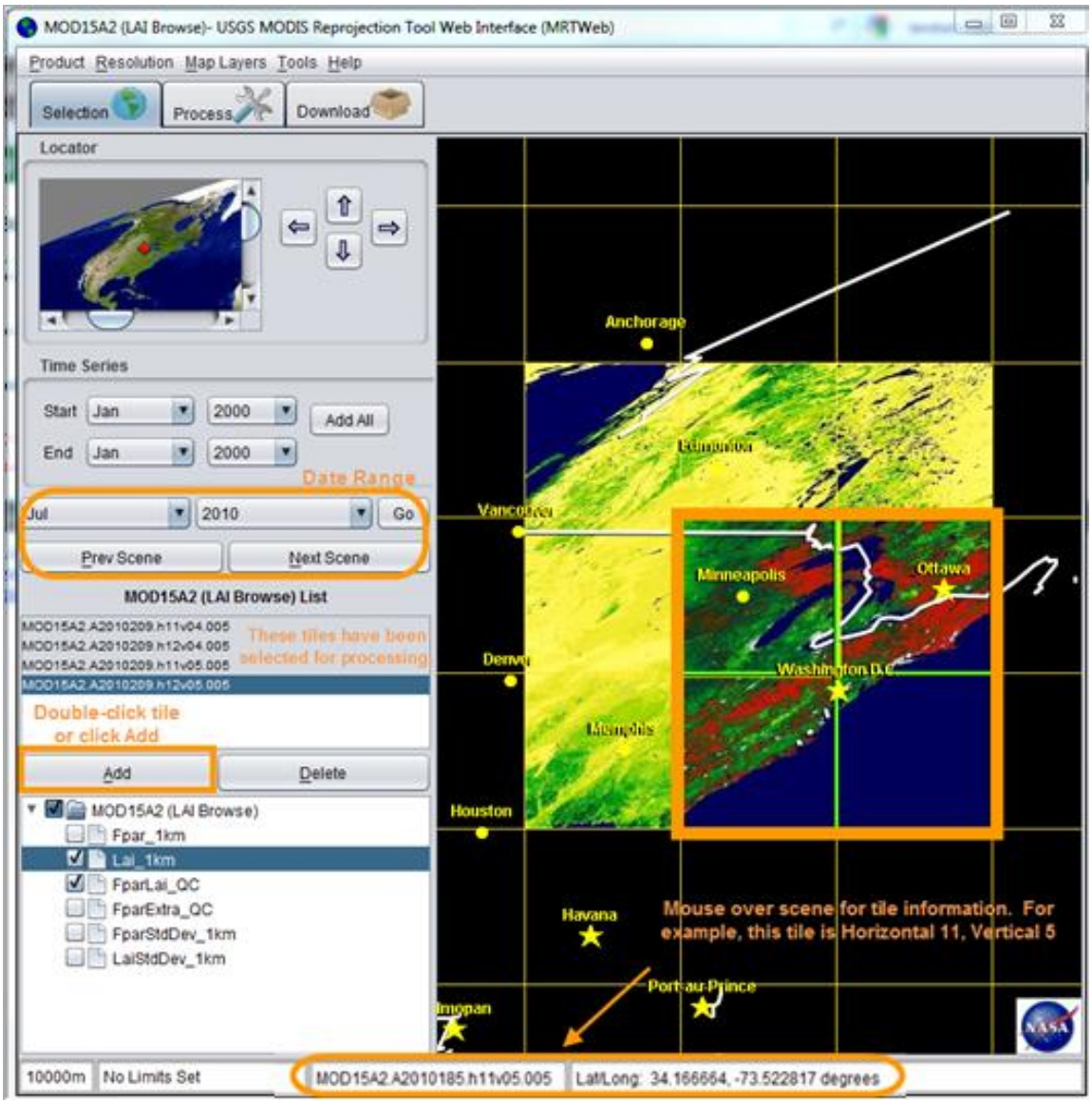
3.3.2 Country Boundaries (on)

3.3.3 North Arrow

3.3.4 Water

3.3.5 World Cities (on)

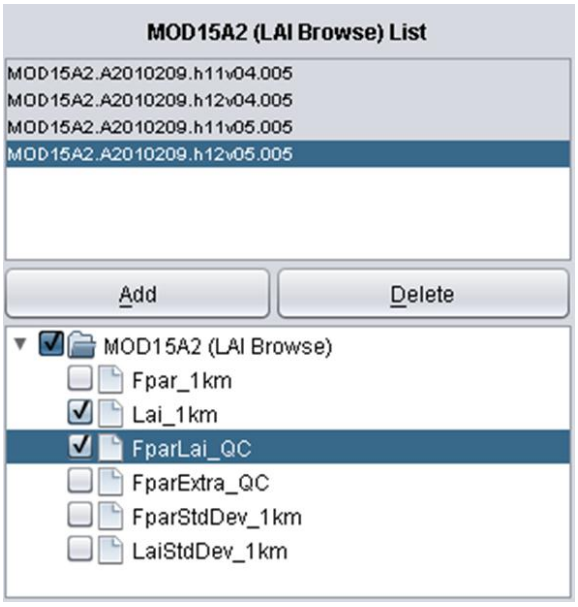
3.4 Choose a one year date range, and click Go.



3.5 Select Tiles. Use directional arrows to navigate and select a tile of interest, and the "Prev Scene" and "Next Scene" buttons to go forward and backwards through time.

3.5.1 Select four tiles over the northeastern United States (h11, v4/5) and (h12, v4/5) as displayed in the previous image inside the orange box.

3.5.2 Double-click on each tile or click the Add button, to add it to your Scene List and confirm that they are all from the same date.



3.6 From the layers box, select the Lai_1km and FparLai_QC layers of the MOD15A2 (LAI Browse product).

3.7 Click the Process tab to enter processing options.

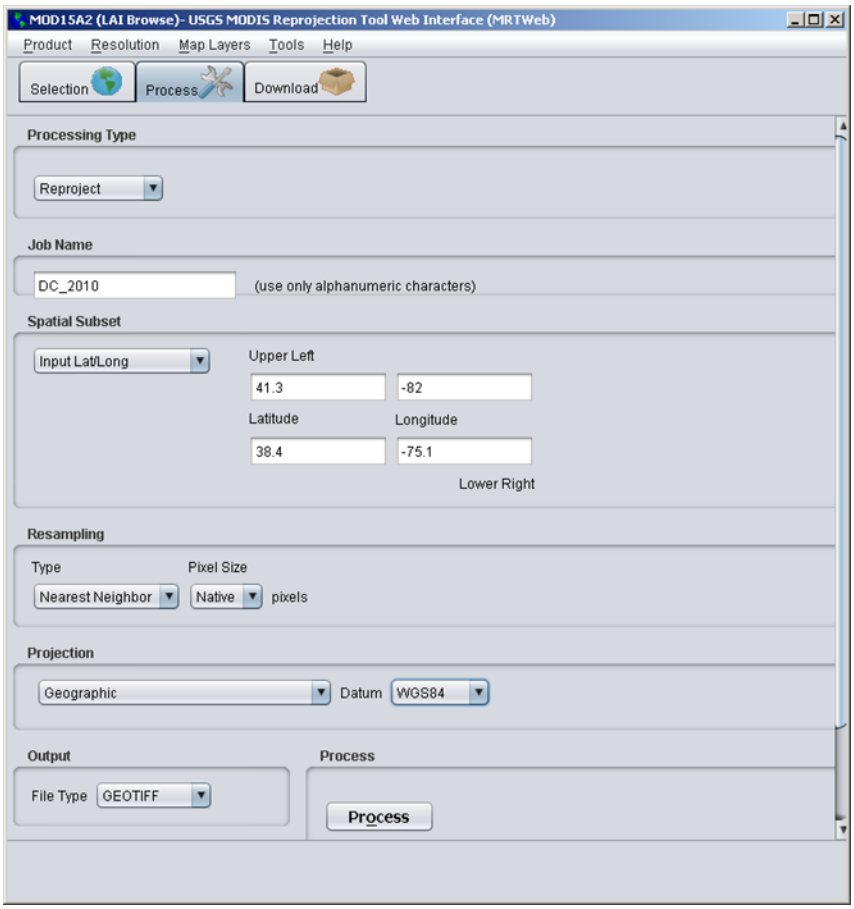
3.7.1 Processing Type: Reproject

3.7.2 Job Name: DC_2010

3.7.3 Spatial Subset: Input Lat/Long

3.7.3.1 UL: (41.3, -82)

3.7.3.2 LR: (38.4, -75.1)



3.8 Resampling:

3.8.1 Type: Nearest Neighbor

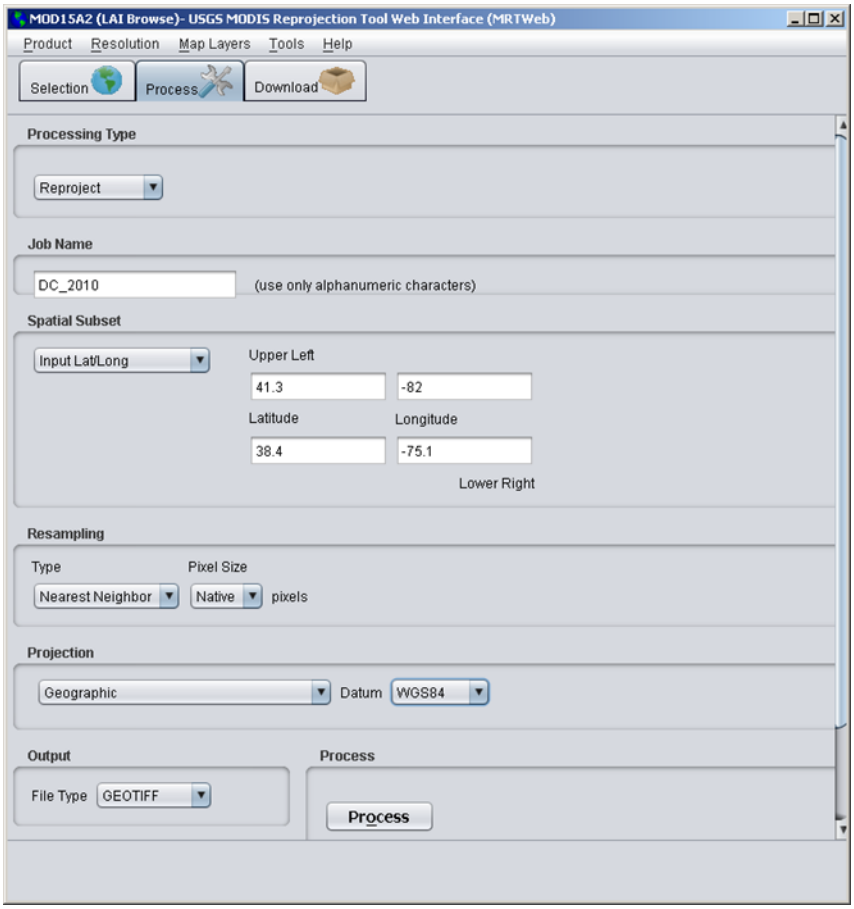
3.8.2 Pixel Size: Native

3.9 Projection: Geographic

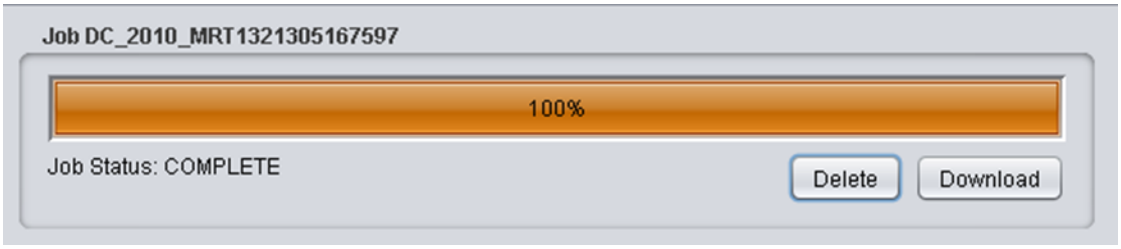
3.10 Datum: WGS84

3.11 Output: GEOTIFF

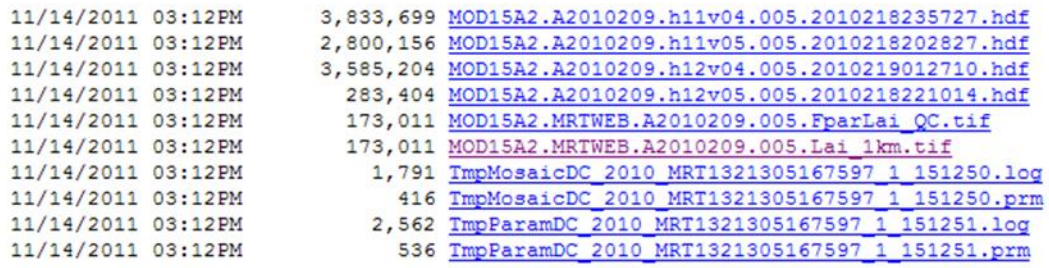
3.12 Click “Process” and then “OK” on the confirmation pop-up box.



3.13 Click the Download tab to review job status and then click on the “Download” button to access the data requested.



3.14 From the FTP Directory, in the browser window, you can download the files needed. In this example, we will download the Lai_1km file.



This concludes MRTWeb Use Case 3.