Script for the Earth Explorer Cast

Welcome to EE, the USGS Earth Explorer.

This cast will provide you with a brief overview of how to search and download LP DAAC ASTER Level 1B over the US and US Territories, and MODIS products particularly the MODIS Land Surface Reflectance (MODIS MOD09A1) product via the EE interface. Both NASA LP DAAC ASTER and MODIS Collections are immediately downloadable from the Earth Explorer interface and are accessed the same way with slight variations in coverage and additional attributes which we will review later on in this cast.

First, we will identify an available ASTER Level 1B granule and a MODIS Land Surface Reflectance MOD09A1 tile acquired near Lake Mead, Arizona. Then, we will select a granule/tile from the candidates displayed and download the data.

To begin, click on the Get Data tab of the LP DAAC Web site, locate the USGS Earth Explorer (EE) section, and click on the More Information link.

This page provides a brief overview of EE with links to the general tutorial and to bring up the interface. For this cast, we will click on the **Launch EE** link.

It is necessary to login for access to data download capability, although you may search and browse anonymously. So, please **Login**, or select **Register** if you do not already have an account and follow the instructions provided. Once logged in you will be presented with...

Step 1. Enter Search Criteria

This tab provides a couple of methods for identifying your area of interest. Choose a method of preference from Address/Place or Area Selected, then enter parameters for your area of interest and select a date range using the calendar functions available in the Dates Selected section.

When choosing an area of interest and date range for a search that includes ASTER products, please keep in mind that ASTER Level 1B coverage includes the United States (U.S.) and U.S. Territories only, and that data is not acquired continuously. This sensor is tasked by approved individual data acquisition requests (DARs) so some areas may have greater or more consistent coverage than others. If you are interested in more information on ASTER Tasking, please contact LP DAAC User Services at lpdaac@usgs.gov.

Under the Dates Selected box is a dropdown selection allowing you to choose the maximum granules/tiles returned in your search. This option ranges from 10 to 10,000.

Next, click on the button labeled **Data Sets** at the bottom of the page or select the Data Sets tab toward the top of the page to advance to…

Step 2. Select Your Data Set(s). This step can be completed either before, or after the search criterion in Step 1 has been entered.

- Click the **+** to the left of the **NASA LPDAAC Collection** to expand the list.
- Click the **+** to the left of the of the **ASTER** collection and select the ASTER L1B product

When selecting the ASTER Level 1B data set, you will receive a pop-up message containing information about the SWIR sensor advisory. More information on this anomaly can be accessed by clicking on the blue information icon to the left of the ASTER Level 1B data product, then on the ASTER SWIR User Advisory Document link, or by contacting a LP DAAC User Services Representative.

- Click the **+** to the left of a **MODIS collection of interest** to view the associated products.
  - In this example, we will select the MODIS Land Surface Reflectance (MODIS MOD09A1) Product.

Now, click the **Additional Criteria>>** button to advance to…

Step 3. Additional Criteria which is an **(Optional)** step providing a means to select/search for a known granuleID/Entity ID or other data product specific criteria options. This step is not required so you may skip all or part of the selections available.

In the **Criteria Forms** drop down box select from the list of data sets previously selected in Step 2 and make your additional parameter entries for each data set individually.

For this example, we select the **ASTER Level 1B** product from the Data Set list box, then select **Less than 20%** in the Cloud Cover list box option, and leave the remainder of the options at their default values. Next, we select **MODIS MOD09A1** from the Data Set list and review the available options but decide to leave the default values and advance to the next section… **Step 4. Search Results.** Results may be viewed anytime after Data Set(s) are selected to see available data matching the current criteria selected.

Once the return button or tab is selected, multiple pop-up boxes display in the lower right corner of the Earth Explorer window notifying you that your search criteria has been saved, the tool is searching a data set, or to wait while results are gathered.

Results are displayed by Data Set. When more than one data set is selected in Step 2, you may use the Data Set list box to choose which data set to display in the results, then return and select another data set (such as the ASTER Level 1B used in this example) when you are ready to review the results for that data set.

The button labeled **Export Metadata**, provides four options for saving or viewing metadata for multiple granules:

- Display metadata in Notepad using either commas or Pipes
- Download the metadata as a KML to use on Google Earth
- Shows the metadata results for all the results on your screen, and

- Exports the metadata to a shape file

Above the Export Metadata button is a "Show Result Controls" drop-down option box which allows you to overlay all the footprints and/or browse images for the current results in the map window.

For this example we will review the individual returned results displayed in the left-hand column with page viewing options located at the top of the list. Each granule or tile has a browse image or placeholder for an image when a browse image is not currently available. To the right of the browse image are four rows of associated information including the **EntityID**, **Coordinates** for the center point, **Acquisition date**, and lastly, a box of icons that provide additional information for each granule/tile. From left to right these icons represent:

- *Show Footprint*, which outlines the footprint of the specific scene on the global viewer to the right
- *Show Browse Overlay,* which displays the browse image overlaying the footprint on the global viewer
- *Show Metadata and Browse,* which displays both the metadata and the browse image (if available)
- *Download Options*, which displays option to download the metadata xml file or the data file, and
- *Exclude*, which excludes the specific result from the list

Note that there is also a button option at the bottom of the Results tab, labeled **Submit Standing Request**, which allows a registered user to store and reuse a standing request during any of their sessions.

We have chosen to download the first MODIS MOD09A1 granule/tile in the results list. In order to download data from the LP DAAC, users must be logged in, so users will receive a popup box if they are not currently logged in when they attempt to download data. Select the Login button from within the popup box. If you do not already have an Earth Explorer account, you will still click on the Login button, then the Register link in the menu bar to create a new account. After you have signed in, return to the Results tab to continue download options.

The download screen gives you the option to download the xml metadata file, or the data file. You may download both individually, to your computer.

Now we will go back to the Data Set list box and select ASTER Level 1B to display the ASTER results. Once a suitable ASTER Level 1B scene/granule is identified, select the download button. When selecting to download an ASTER scene/granule, you will receive an additional pop-up, not displayed for other products. Please review the pop-up message about the SWIR detector issue and where to access additional information before clicking the **Download** button.

More information about Earth Explorer is available in the "get data" section of our website. Detailed information about ASTER and MODIS products are available from the "products" section of our web site. If you have further questions about these products and services, please don't hesitate to contact a customer service representative.