

USGS Earth Explorer: Download Free Landsat Imagery



How to download free Landsat imagery with USGS Earth Explorer?

The USGS Earth Explorer gives some extra capabilities:

- Downloading data over chronological timelines.
- Specifying a wide range of criteria for searches.
- Choosing from a long list of satellite and aerial imagery.

how to download free Landsat imagery from the USGS Earth Explorer.

User Interface



USGS Earth Explorer UI

The **USGS Earth Explorer** interface uses Google Maps. You can zoom in and out with the mouse wheel as if you are in Google Maps. Google street view is also enabled, where you can drop a marker and get a real view of the location.

First, you'll have to create an account with USGS. In the top-right corner, click the **Register** button. As it's a pretty painless process, you'll receive instructions to activate your account.

In order to download data from USGS Earth Explorer, here are the four steps you'll need to follow:

1. Set your search criteria
2. Select your data to download
3. Filter out your data
4. Check your results and download

Step 1. Set your area of interest in the “Search Criteria” tab

Users can double-click the browser to create regions of interest. The region of interest (ROI) is the **geographic boundary that limits the search to acquire data**.

Pro Tip: The easiest thing to do is just to zoom into your area of interest. If you want to download free Landsat imagery for Hawaii, zoom into that area. Now, select the **Use Map** button. Immediately after, zoom out a bit and you can see that you now have an area of interest on your map.

Alternatively, you can use one of these options to create a region of interest:

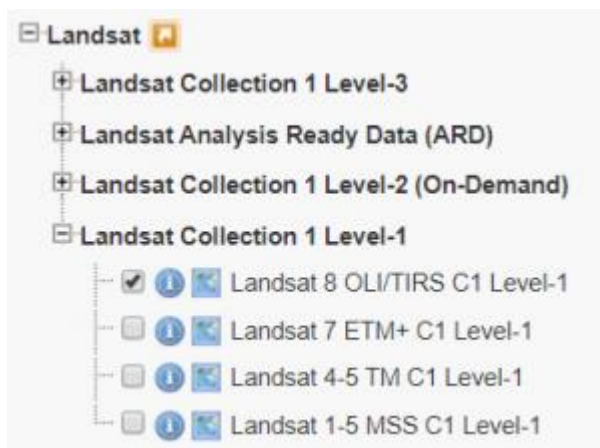


- Using an address to search
- Importing a shapefile (in a zip file) or KML
- Or you can just double-click the map to make your ROI

You can also set a timeline for satellite imagery downloads in USGS Earth Explorer. You no longer need to search through a long list of acquisitions to find the correct date. This is a **powerful tool** that narrows down your search and saves you time.

Step 2. Select your data to download in the “Data Sets” tab

The Datasets tab answers the question: **What satellite imagery are you looking for?** The USGS Earth Explorer remote sensing datasets are plentiful: aerial imagery, **AVHRR**, commercial imagery, **digital elevation models**, **Landsat**, **LiDAR**, **MODIS**, **Radar** and more.



It depends on the date and time for which Landsat scene you can download. In the **Landsat > Landsat Collection 1 – Level 1** group, the most recent Landsat imagery is L8 OLI/TIRS and L7 ETM+.

The differences between the collections are based on data quality and level of processing. USGS has **classified images into tiers** based on quality and processing level.

Now that we've identified our area of interest in Hawaii in step 1, you can select a checkbox in the Landsat Archive category. On-demand means that you will be notified by email where you can download surface reflectance products from a separate interface for processing and data delivery.

Step 3. Filter your data in the “Additional Criteria” tab

90% of people go into the “Additional Criteria” tab to easily **filter out scenes with too much cloud cover**. Now, you won’t be able to filter to get the perfect cloudless image everyone wants. But you can set the cloud level to less than 10%, and this is what most people want... unless you’re into meteorological studies.

Here’s a brief explanation of what each set of criteria does:

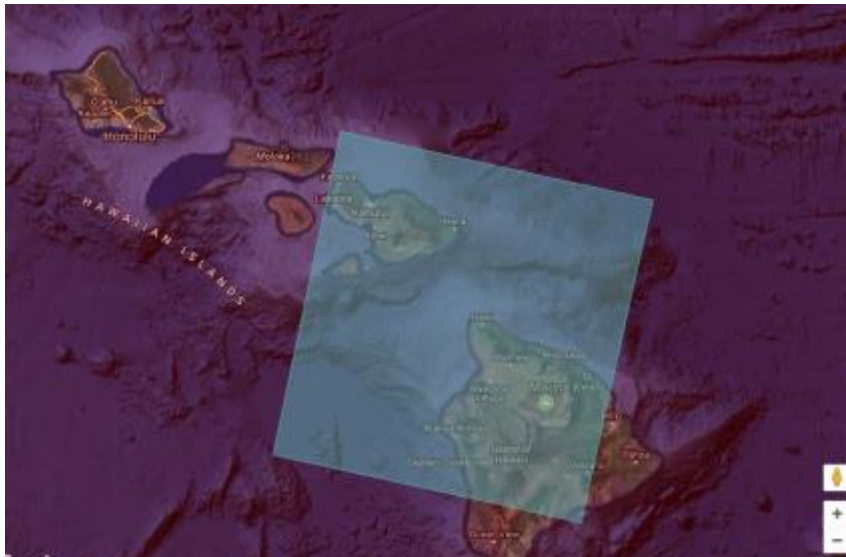
- Set the **Landsat scene identifiers** which is a unique way for naming convention and includes WRS path and row within it
- Filter the temporal condition of the scene as a day/night acquisition or nadir/off-nadir
- Specific the quality of the scene with Level-1 (L1) data products being the best available processing level. The Processing Software Version is what was used to generate that L1 product.

For the average user, you won’t need to set a lot of criteria. Other than cloud cover, you can move on to downloading your satellite imagery.

Step 4. Download free Landsat imagery in the “Results” tab

Now that you’ve defined the date range, type of data, and additional criteria, the search results tab will populate with data sets that match your query.

In the “Results” tab, you select the specific imagery you want to download. But it’s good to check the footprint for exactly where that scene is located. You can also preview the data, which can be good to see exactly where clouds are in the image.



Download the data by clicking the “Download” button. If you are going to perform an analysis on the Landsat data, the Level 1 GeoTIFF data product is probably the one you’re after, which will be the largest file size.

Let’s Recap:

The USGS Earth Explorer gives a **quick and intuitive way to download free aerial and satellite imagery**. This tool gives a wide range of options. You can define the time period, geographic extent, and imagery type. Test it out for free downloads of remote sensing imagery and more.

Steps to Download USGS Earth Explorer Data:

- Set region of interest and time period
- Specify the type of data you want
- Filter out the data that you don’t want
- Search data sets and download.

A big part of the USGS Earth Explorer is the data available from the Landsat mission. We tell you exactly what are the spectral bands, spatial resolution, and temporal information for its incredible +45-year history.