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# Copernicus Open Access Hub & Earth Explorer: Տվյալների հասանելիությունը տվյալ հարթակներում

Արտակ Փիլոյան

Հայաստանի Ամերիկյան Համալսարան

Հունիսի 14, 2021



**CERTH**  
CENTRE FOR  
RESEARCH & TECHNOLOGY  
HELLAS





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## Բովանդակություն

- Հեռազննման ազատ տվյալների հարթակներ
- Copernicus Open Access Hub
- USGS Earth Explorer
- Տվյալների հայթայթում տվյալ հարթակներից



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# Որտեղից հայթայթել EO տվյալները?

## Free open source platforms

- Copernicus Open Access Hub
- Earth System Lab
- ESA Thematic Exploitation Platforms
- Alaska Satellite Facility
- Copernicus Global Land Service
- Sentinel Data Access Service
- USGS Earth Explorer
- Sentinel Application Platform software
- Open Data Cube





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# Copernicus Open Access Hub

- Copernicus Open Access Hub-ը (Նախկինում հայտնի որպես Sentinels Scientific Data Hub) օգտագործողների համար ապահովում է ամբողջական, անվճար և ազատ հասանելիությունը Sentinel-1, Sentinel-2, Sentinel-3 and Sentinel-5P տվյալներ
- Sentinel-ի տվյալները հասանելի են նաև Copernicus Data and Information Access Services (DIAS) հարթակի, ինչպես նաև մի շարք այլ հարթակների միջոցով



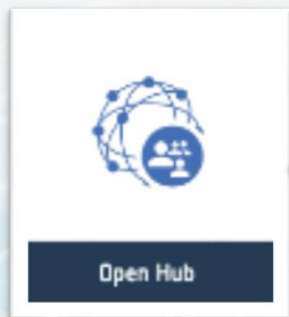
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# Copernicus Open Access Hub

<https://scihub.copernicus.eu/>



The screenshot shows the Copernicus Open Access Hub website. The main content area includes a welcome message, a description of the hub's services, and a list of links for user guides and support. The right sidebar features a 'Reports & Stats' section with the following data:

Category	Value	Time Period
prod. published	38,892	in the last 24h
downloads	338,550	in the last 24h

The bottom of the page has four navigation buttons: 'Open Hub', 'API Hub', 'S-5P Pre-Ops', and 'POD Hub'. The 'Open Hub' button is highlighted with a blue arrow pointing from the icon on the left.





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# Copernicus Open Access Hub

<https://scihub.copernicus.eu/>

The screenshot shows the Copernicus Open Access Hub website interface. At the top, there is a navigation bar with the ESA and Copernicus logos, a search bar, and a home button. Below the navigation bar is a map of Europe. Four red annotations are present: '1' points to the home button, '2' points to the search bar, '3' points to the map, and '4' points to the search bar. The map shows various countries and cities, with a coordinate display at the bottom left indicating 'Lat Lon: 42.03, -25.75'.



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# Copernicus Open Access Hub

Նկարների  
փնտրում

esa copernicus Copernicus Open Access Hub

Insert search criteria...

Polarisation Sensor Mode

Relative Orbit Number (from 1 to 175)

Mission: Sentinel-2

Satellite Platform Product Type

Relative Orbit Number (from 1 to 143) Cloud Cover % (e.g. [0 TO 9.4])

Mission: Sentinel-3

Satellite Platform Product Type

Timeliness Instrument

Product Level Relative Orbit Start [1-385]



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# Copernicus Open Access Hub

Արդյունքներ

The screenshot displays the Copernicus Open Access Hub interface. At the top, there is a search bar with the text "Insert search criteria...". Below the search bar, it indicates "Display 1 to 24 of 24 products." and "Order By: Ingestion Date". A summary shows "1 product selected". The main content area lists several Sentinel-2 MSI products, including their IDs (e.g., S2A\_MSIL2A\_20210630T074611\_N0300\_R136\_T38TMK\_20210630T103...), download URLs, missions (Sentinel-2), instruments (MSI), and sensing dates. A map on the right side shows a geographical area with a yellow rectangular overlay indicating the location of the selected product. The interface also includes a shopping cart icon and a "Products per page" dropdown set to 25.





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# Copernicus Open Access Hub

Արդյունքների  
դիտում

The screenshot displays the Copernicus Open Access Hub interface. At the top, the URL <https://scihub.copernicus.eu/dhu> is visible. The main content area shows a satellite image footprint over a map of the Tbilisi region. Below the map, the 'Attributes' section is expanded, showing the following metadata:

- Summary**
- Date:** 2021-06-30T07:46:11.024Z
- Filename:**

A red box highlights the 'Attributes' section, and a red arrow points from the 'Attributes' section to the 'Inspector' panel on the right, which displays additional metadata such as 'Request Done', 'Filename', 'Identifier', 'Instrument', 'Satellite', 'Size', 'Product', 'Acq retrieval accuracy', 'Cloud cover percentage', 'Cloud shadow percentage', and 'Dark features percentage'.



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# USGS Earth Explorer

<https://earthexplorer.usgs.gov/>

The screenshot displays the Earth Explorer web application interface. At the top, there is a navigation bar with 'EarthExplorer', 'Manage Criteria', 'Item Basket (0)', 'Help', 'Feedback', and 'Logout [artakpilyan]'. Below this is a 'Search Criteria' panel with tabs for 'Search Criteria', 'Data Sets', 'Additional Criteria', and 'Results'. The 'Search Criteria' tab is active, showing a section titled '1. Enter Search Criteria'. This section includes a 'Geocoder' section with a 'KML/Shapfile Upload' button and a 'Select a Geocoding Method' dropdown menu set to 'Feature (GNIS)'. Below this is a 'Search Limits' section with a note: 'The search result limit is 100 records; select a Country, Feature Class, and/or Feature Type to reduce your chances of exceeding this limit.' There are tabs for 'US Features' and 'World Features'. The 'Feature Name' field contains '(use % as wildcard)'. The 'State' dropdown is set to 'All'. The 'Feature Type' dropdown is also set to 'All'. There are 'Show' and 'Clear' buttons. Below the search criteria is a 'Polygon' section with tabs for 'Polygon', 'Circle', and 'Predefined Area'. The 'Degree/Minute/Second' and 'Decimal' tabs are visible. At the bottom of this section, it says 'No coordinates selected.' and there are 'Use Map', 'Add Coordinate', and 'Clear Coordinates' buttons. To the right of the search criteria is a 'Search Criteria Summary (Show)' section. The main part of the interface is a satellite map of the central United States, showing states like South Dakota, Nebraska, Iowa, and Missouri. A coordinate box in the top right of the map shows '(43° 36' 43" N, 097° 28' 17" W)'. The map includes various city labels and a scale bar.



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# USGS Earth Explorer

<https://earthexplorer.usgs.gov/>

Հետաքրքրողյան տարածքի  
փնտրում ըստ  
Հասցեի/Անվանման

The screenshot displays the USGS Earth Explorer website interface. At the top, the USGS logo and tagline "science for a changing world" are visible. Below the logo, the page title "EarthExplorer - Home" is shown, along with navigation links for Home, Save Criteria, Load Favorite, and Manage Criteria. A search bar is present with the text "Search Criteria". The main content area is divided into sections for "1. Enter Search Criteria", "Coordinates", and "Date Range". The "1. Enter Search Criteria" section includes a text input field for "Address/Place" and buttons for "Show" and "Clear". The "Coordinates" section has a "Predefined Area" dropdown, a "Shapefile" button, and a "KML" button. The "Date Range" section includes a "Search from:" field, a "to:" field, and a "Search months:" dropdown. On the right side, there is a "Search Criteria Summary (Show)" section with a "Map" and "Satellite" view selector. The map view is currently set to "Satellite" and shows a view of North America. The map includes a coordinate display showing "55° 44' 57\"/>





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# USGS Earth Explorer

<https://earthexplorer.usgs.gov/>

Անվանումով  
փնտրում

The screenshot displays the USGS Earth Explorer web application. At the top, the USGS logo and tagline "science for a changing world" are visible. Below the navigation bar, the "Search Criteria" section is active, showing the "1. Enter Search Criteria" step. The search area is currently empty. The "Coordinates" section shows a predefined area with the coordinates 17° 41' 12" N, 083° 13' 06" E. The "Date Range" section is also visible, with search from and to fields. On the right, a "Search Criteria Summary" section shows a map of the Black Sea region with a red pin indicating the search location. The map is labeled "Map" and "Satellite".





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# USGS Earth Explorer

<https://earthexplorer.usgs.gov/>

Ժամանակահատվածի  
ընտրություն

Home Save Criteria Load Favorite Manage Criteria Item Basket (0) Feedback Help

Search Criteria Data Sets Additional Criteria Results

1. Enter Search Criteria

To narrow your search area: type in an address or place name, enter coordinates or click the map to define your search area (for advanced map tools, view the [help documentation](#)), and/or choose a date range.

Address/Place Path/Row Feature Circle

Show Clear

Coordinates Predefined Area Shapefile KML

Degree/Minute/Second Decimal

1. Lat: 17° 41' 12" N, Lon: 083° 13' 06" E

Use Map Add Coordinate Clear Coordinates

Date Range Result Options

Search from: 01/01/2019 to: 01/31/2019

Search months: (all)

Data Sets Additional Criteria Results

Search Criteria Summary (Show) Clear Criteria

Map Satellite (15° 04' 22" N, 007° 48' 29" E) Options Overlays



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# USGS Earth Explorer

<https://earthexplorer.usgs.gov/>

Հասանելի  
տվյալներ /  
անհրաժեշտ  
տվյալների  
ընտրություն

2. Select your Data Set(s)  
Check the boxes for the data set(s) you want to search.  
When done selecting data set(s), click the *Additional Criteria* or *Results* buttons below. Click the plus sign next to the category name to show a list of data sets.

Use Data Set Prefilter ([What's This?](#))

Data Set Search:

- Declassified Data
- Digital Elevation
- Digital Line Graphs
- Digital Maps
- EO-1
- Global Fiducials
- HCMM
- ISERV
- Land Cover
- Landsat
- Landsat Analysis Ready Data (ARD)
- Landsat Collection 1 Level-2 (On-Demand)
- Landsat Collection 1 Level-1
  - Landsat 8 OLI/TIRS C1 Level-1
  - Landsat 7 ETM+ C1 Level-1
  - Landsat 4-5 TM C1 Level-1
  - Landsat 1-5 MSS C1 Level-1
- Landsat Legacy
- NASA LPDAAC Collections

Clear All Selected Additional Criteria Results

Google  
Map data ©2019 INEGI Imagery ©2019 NASA, TerraMetrics | 1000 km  
The up-to-date Google map is not for purchase or for download; it is to be used as a guide for reference and search purposes only.

DOI Privacy Policy | Legal | Accessibility | Site Map | Contact USGS



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# USGS Earth Explorer

<https://earthexplorer.usgs.gov/>

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The screenshot displays the USGS Earth Explorer interface. On the left, the 'Data Set' dropdown is set to 'Landsat 8 OLI/TIRS C2 L2'. A yellow notification box states: 'New download functionality for Collection 2 datasets. See Landsat Collection 2 Download for assistance. NOTE: Landsat 8 C2 L2 products become available for download 16 to 17 days after data are acquired. View this Landsat Collection 2 Generation Timing to see how this timeframe is determined.' Below this, there are navigation controls and a list of search results. The first result is highlighted with a red box around its action icons. The map on the right shows a satellite view of Armenia with a red polygon indicating the search area over Yerevan. The map includes labels for cities like Gyumri, Vanadzor, Yerevan, and Lake Sevan.





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# USGS Earth Explorer

<https://earthexplorer.usgs.gov/>

Արդյունքներ

The screenshot shows the USGS Earth Explorer interface. On the left, there are search results for 'Landsat 8 OLI/TIRS C2 L2'. The first result is highlighted, showing metadata: ID: LC08\_L2SP\_170032\_20210620\_20210707\_02\_T1, Date Acquired: 2021/09/26, Path: 170, Row: 032. Below this, there are icons for download, print, and other actions. A red box highlights the download icon for the second result. The main map area shows a satellite image of a region with a green overlay indicating the search area. The interface includes a top navigation bar with various tools and a bottom footer with a disclaimer: 'The provided maps are not for purchase or for download; it is to be used as a guide for reference and search purposes only.'





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## Պրակտիկ դիտարկում

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# Հնորհակալութիւն

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July 14, 2021