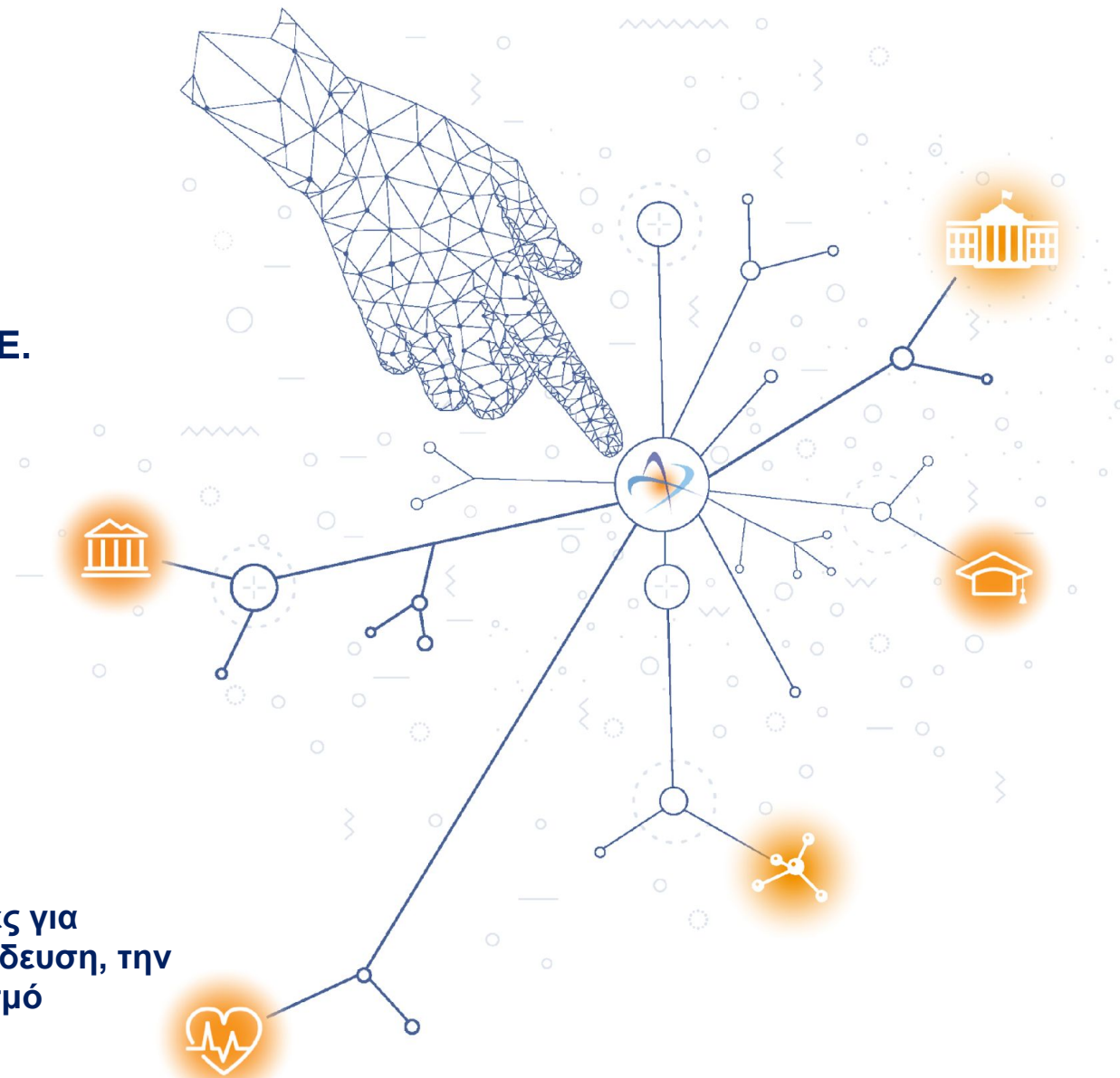




**Εθνικό Δίκτυο Υποδομών
Τεχνολογίας και Έρευνας Α.Ε.
ΕΔΥΤΕ - GRNET**



**Σύγχρονες Ψηφιακές Τεχνολογίες για
τη Δημόσια Διοίκηση, την Εκπαίδευση, την
Έρευνα, την Υγεία & τον Πολιτισμό**

Tech Day: Earth Observation

Γνωριμία με την Τηλεπισκόπηση και
την Παρατήρηση της Γης

Χρήστος Ιωσηφίδης

Διπλ. Α.Τ.Μ. - Ε.Μ.Π.

Ε.ΔΙ.Π. Α' - Ε.Μ.Π.

Ε.Δ.Υ.Τ.Ε. Α.Ε.



Πρόγραμμα

- Γνωριμία
 - Σκοπός του εργαστηρίου
 - Περιεχόμενα και δομή του
- Τηλεπισκόπηση και Παρατήρηση της Γης
- Δέκτες και δεδομένα
- Επεξεργασίες και δείκτες

Γνωριμία - Σκοπός

- Το σεμινάριο αυτό απευθύνεται κυρίως σε λειτουργούς του δημόσιου τομέα
- Περιλαμβάνει μια εισαγωγή στην Τηλεπισκόπηση και εστιάζει στην Παρατήρηση της Γης
- Εξοικειώνει με τους δέκτες, τα δεδομένα και τα χαρακτηριστικά τους
- Πρακτική άσκηση επισκόπησης και πρώτων επεξεργασιών σε ένα ΣΓΠ (GIS)

Γνωριμία - Δομή

- Τηλεπισκόπηση - Παρατήρηση της Γης
 - Ορισμοί

- Δέκτες και δεδομένα:
 - Είδη, κατηγορίες, χαρακτηριστικά και τεχνολογίες

- QGIS:
 - Απεικόνιση και επεξεργασίες
 - Πρακτική άσκηση

Συστήματα Γεωγραφικών Πληροφοριών (GIS)



«Τα Συστήματα Γεωγραφικών Πληροφοριών (Σ.Γ.Π.), γνωστά ευρέως και ως G.I.S. Geographic Information Systems, είναι ολοκληρωμένα συστήματα συλλογής, αποθήκευσης, διαχείρισης, ανάλυσης και απόδοσης πληροφορίας, σχετικής με φαινόμενα που εξελίσσονται στο χώρο (Goodchild, 1985).»

Πηγή: [Βικιπαίδεια 03/07/2021](#)

Σύστημα Γεωγραφικών Πληροφοριών

- Ολοκληρωμένο σύστημα διαχείρισης χωρικών δεδομένων και συσχετισμένων ιδιοτήτων
- «έχει» = ενσωματώνει, αποθηκεύει, προσαρμόζει, αναλύει και παρουσιάζει γεωγραφικά συσχετισμένες πληροφορίες
- ΣΓΠ = «έξυπνος χάρτης»

Σύστημα Γεωγραφικών Πληροφοριών

- Η αναπαράσταση των δεδομένων ενός ΣΓΠ γίνεται σε επίπεδα πληροφοριών
- Κάθε επίπεδο περιέχει ένα είδος χαρτογραφικών δεδομένων, τα χαρακτηριστικά τους καθώς και την χαρτογραφική απεικόνισή τους
- Τα επίπεδα αυτά μπορούν να είναι:
 - Διανυσματικά: σημεία, γραμμές ή πολύγωνα
 - Πινακοποιημένα: χάρτες, φωτογραφίες

Τηλεπισκόπηση

«Τηλεπισκόπηση (Remote Sensing), είναι η επιστήμη και τεχνική, που ασχολείται με τις αρχές, τις αναλογικές και ψηφιακές μεθόδους και τα όργανα, με τα οποία επιτυγχάνεται από μακριά, η συλλογή, επεξεργασία και ανάλυση, πλήθους ποιοτικών και μετρητικών πληροφοριών, για τη γη, τους ωκεανούς, την ατμόσφαιρα και το φυσικό και το κοινωνικοοικονομικό περιβάλλον γενικότερα, (αλλά και για τις σχέσεις, τις αλληλεξαρτήσεις και τις αλληλεπιδράσεις τους και τις τάσεις μεταβολής τους δια μέσου του χρόνου), καθώς επίσης και για οποιοδήποτε αντικείμενο, φαινόμενο, γεγονός και συμβάν, ή και για οποιαδήποτε διαδικασία μεταβολής τους.»

Πηγή: [Ρόκος Δ., Φωτοερμηνεία-Τηλεπισκόπηση, Ε.Μ.Π, 1987, Αθήνα.](#)

Παρατήρηση της Γης

«Η Παρατήρηση της Γης είναι η συλλογή πληροφοριών σχετικά με τα φυσικά, χημικά και βιολογικά συστήματα του πλανήτη Γη μέσω τεχνολογιών τηλεπισκόπησης, που συνήθως περιλαμβάνουν δορυφόρους οι οποίοι μεταφέρουν συσκευές καταγραφής.»

Η Παρατήρηση της Γης χρησιμοποιείται για την παρακολούθηση και αξιολόγηση της κατάστασης και των αλλαγών στο φυσικό και ανθρωπογενές περιβάλλον.»

(συνεχίζεται)

Παρατήρηση της Γης

«Οι τηλεπισκοπικές διαστημικές τεχνολογίες παρέχουν αξιόπιστα σύνολα δεδομένων επαναλαμβανόμενης κάλυψης, τα οποία σε συνδυασμό με την έρευνα και την ανάπτυξη κατάλληλων μεθόδων, παρέχουν ένα μοναδικό μέσο για τη συλλογή πληροφοριών σχετικά με τον πλανήτη.»

Παραδείγματα περιλαμβάνουν την παρακολούθηση της κατάστασης και της εξέλιξης του περιβάλλοντος μας, είτε πρόκειται για ξηρά, θάλασσα ή αέρα, και την ικανότητα γρήγορης εκτίμησης καταστάσεων κατά τη διάρκεια κρίσεων όπως ακραία καιρικά φαινόμενα ή σε περιόδους ανθρώπινης σύγκρουσης.»

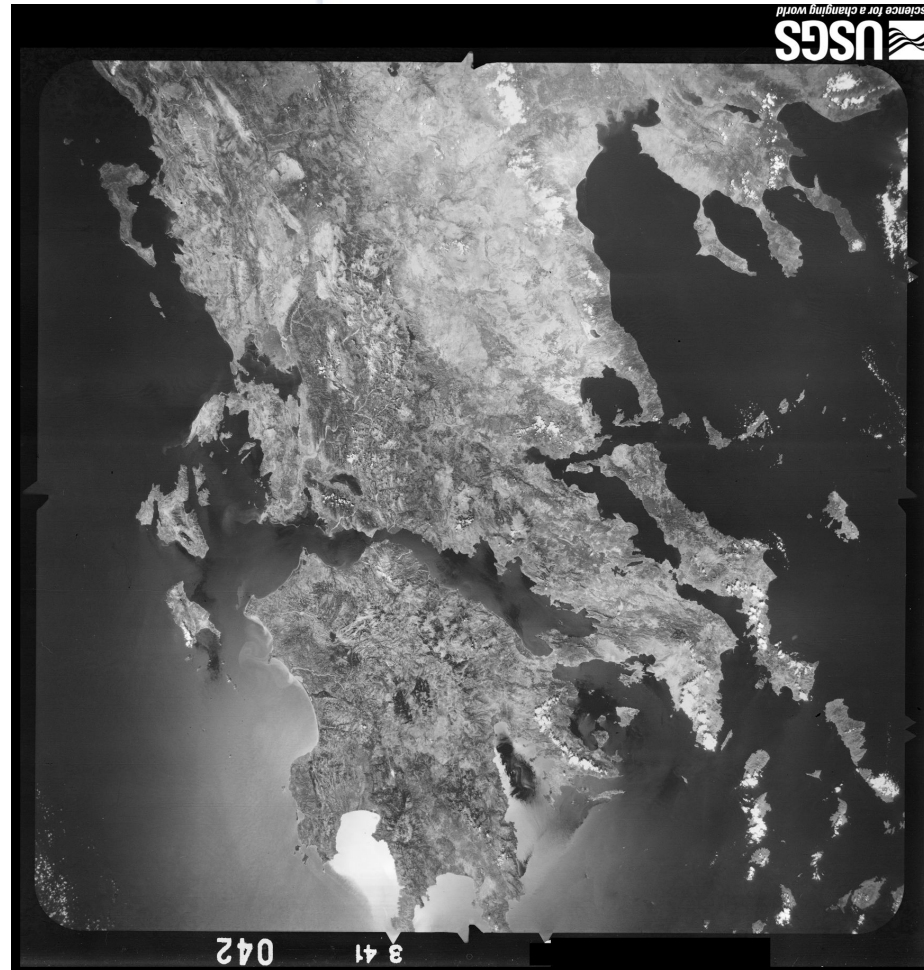
Πηγή: [European Commission > EU Science Hub > Research topic > Earth observation](#)

3/7/2021

CORONA Satellite Photography



29/08/1963, KH-5 Argon, 5in Panchromatic film



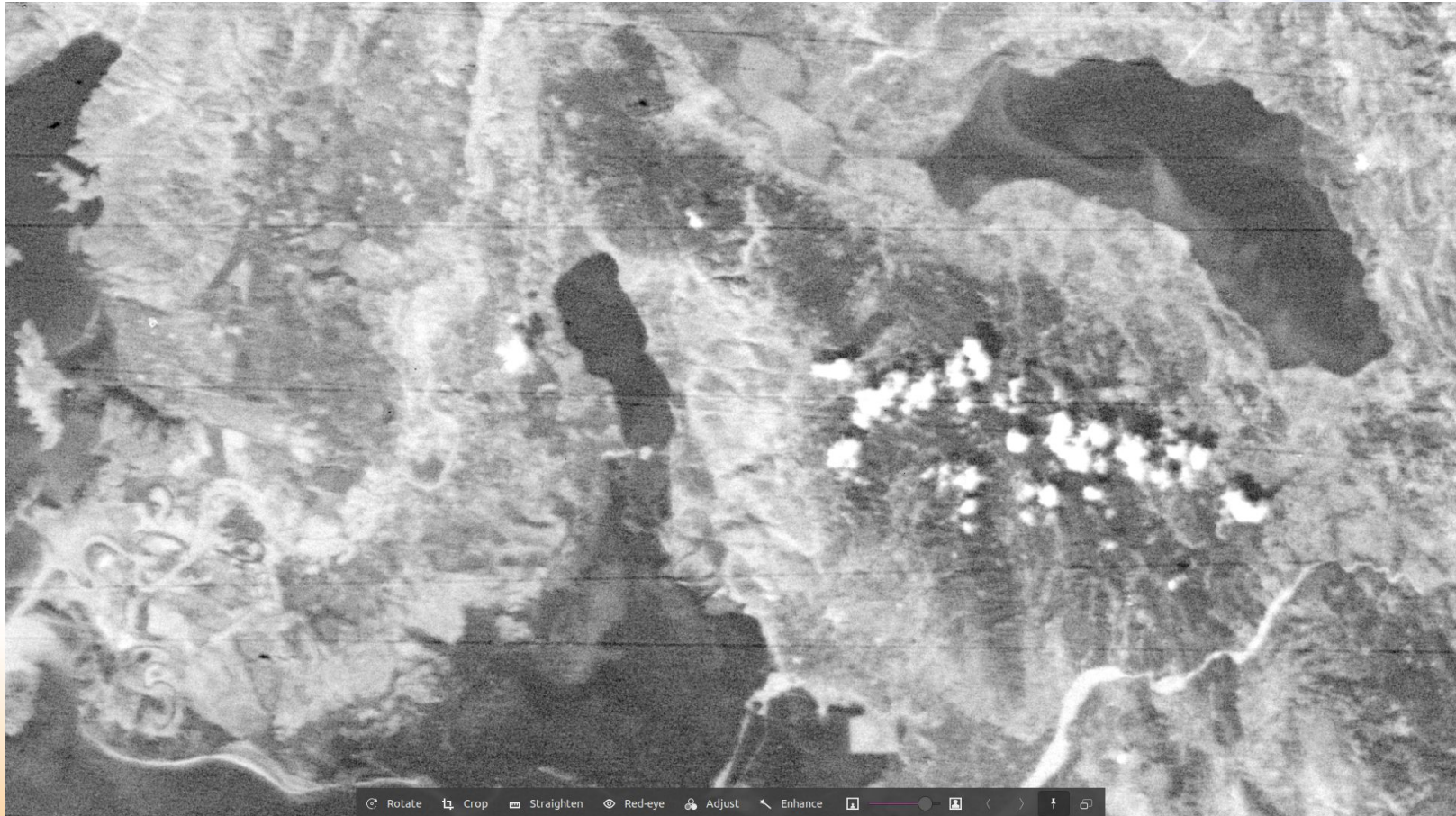
22 Ιουλ. 2021

Τηλεπισκόπηση και Παρατήρηση της Γης

CORONA Satellite Photography

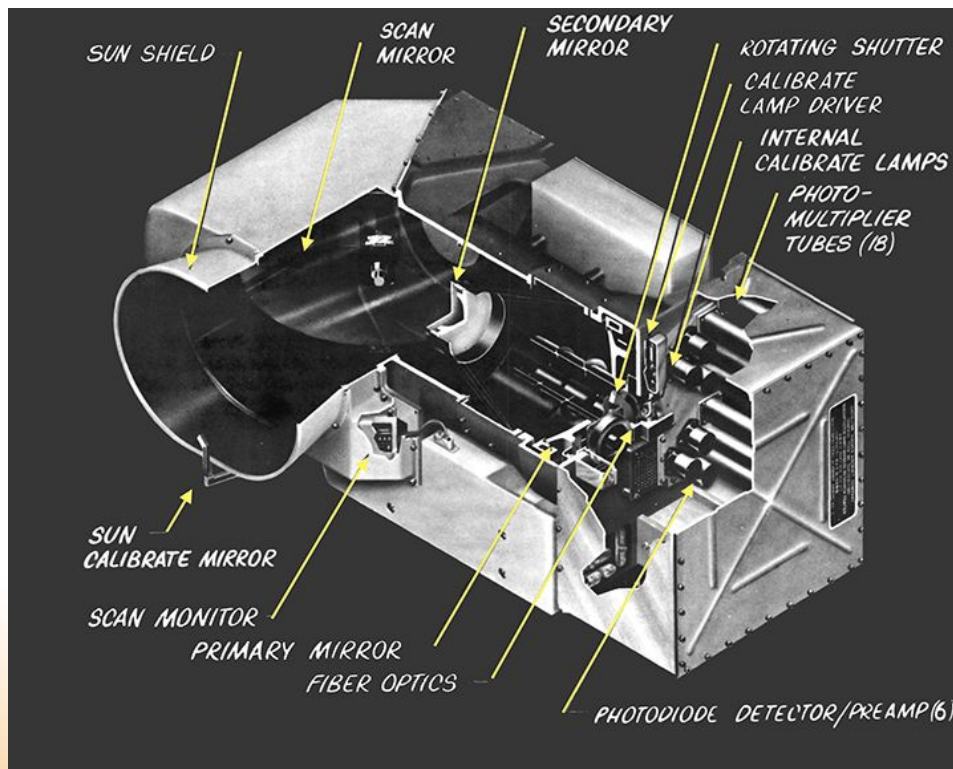


29/08/1963, KH-5 Argon, 5in Panchromatic film



Τηλεπισκοπικός Δέκτης

Virginia T. Norwood: [The Mother of Landsat](#)



[Landsat 1](#)

23/07/1972 - 06/01/1978

[Multispectral
Scanner
System](#)



Landsat MSS

08/09/1972, 08:43:03.11-08:43:31.74 UTC, Natural Colour



ESA's ERS-1

27/07/1991, Flevoland polder and IJsselmeer, The Netherlands, SAR

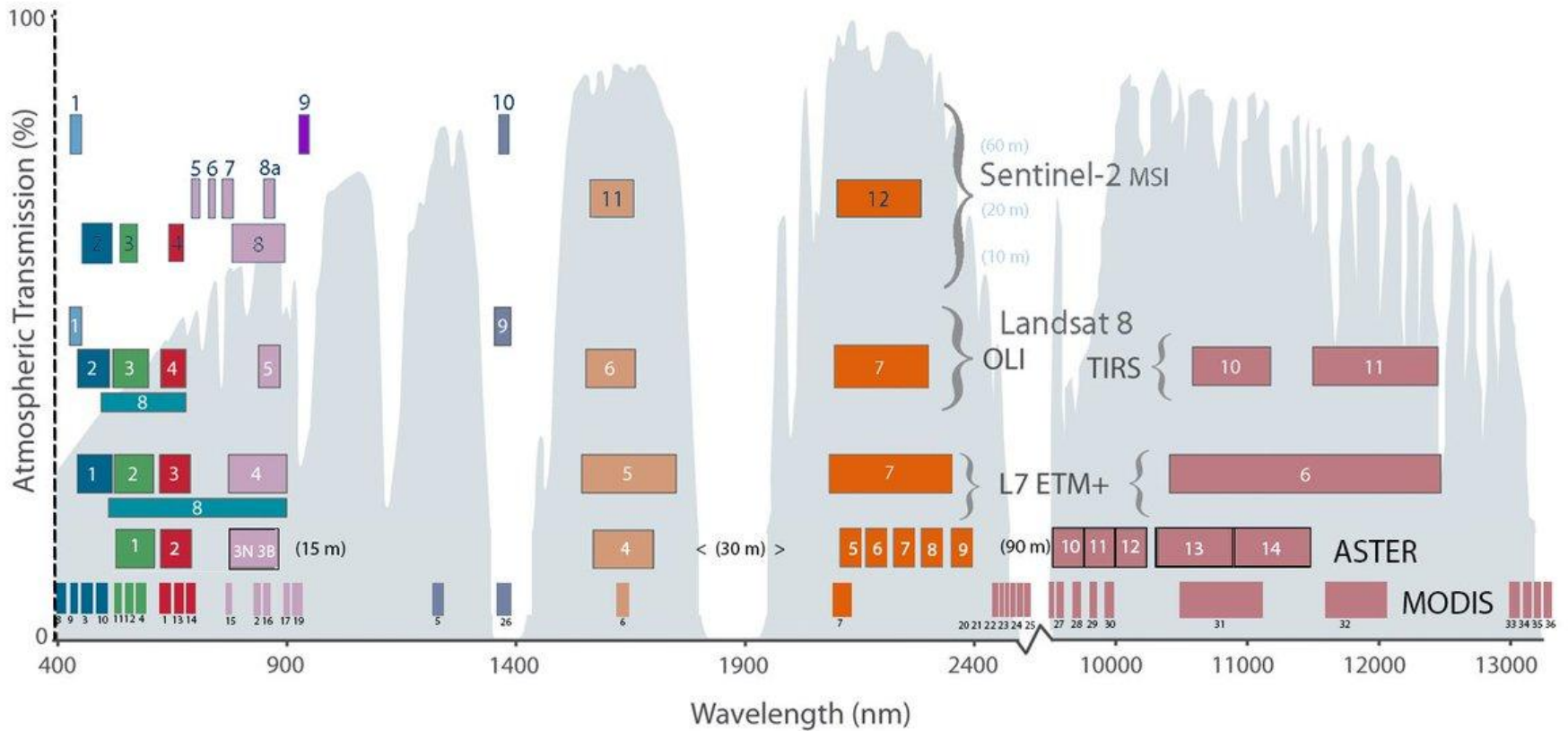


Τηλεπισκοπικός Δέκτης

- Ενεργός ή Παθητικός
- Επίγειος, αερομεταφερόμενος ή δορυφορικός
- Δορυφορικός: γεωστατικός ή σε τροχιά
- Πολυφασματικός, υπερφασματικός, θερμικός, μικροκυματικός(radar), lidar(=laser+radar) κ.α.

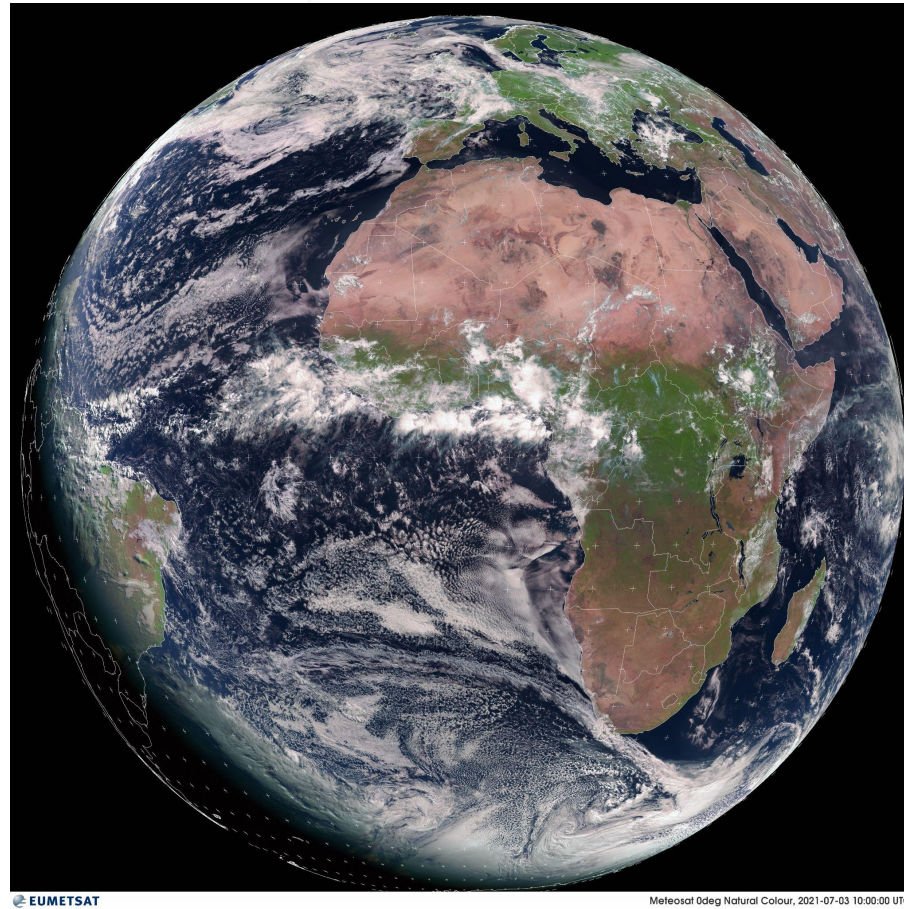
Τηλεπισκοπικός Δέκτης

Comparison of Landsat 7 and 8 bands with Sentinel-2



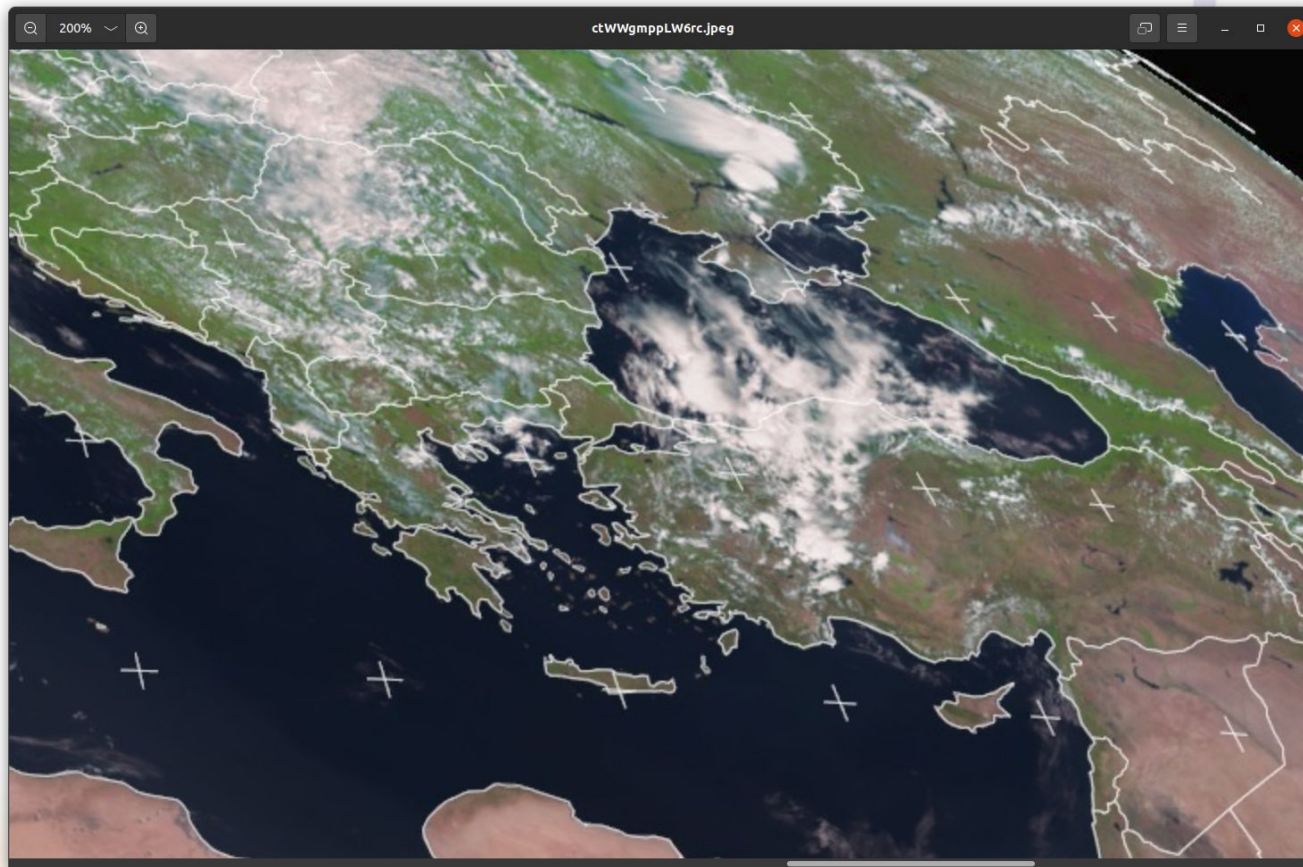
Meteosat SEVIRI

03/07/21 10:00 UTC , Natural Colour



Meteosat SEVIRI

03/07/21 10:00 UTC , Natural Colour



Meteosat SEVIRI


OSCAR
Observing Systems Capability Analysis and Review Tool
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 Satellite Status |
 Gap Analyses

Instrument: SEVIRI

Instrument details

Acronym	SEVIRI		
Full name	Spinning Enhanced Visible Infra-Red Imager		
Purpose	Multi-purpose imagery and wind derivation by tracking clouds and water vapour features		
Short description	12 channels (11 narrow-bandwidth, 1 high-resolution broad-bandwidth VIS) [see detailed characteristics below]		
Background	New development		
Scanning Technique	Mechanical, spinning satellite, E-W continuous, S-N stepping		
Resolution	4.8 km IFOV, 3 km sampling for narrow channels; 1.6 km IFOV, 1 km sampling for broad VIS channel		
Coverage / Cycle	Full disk every 15 min. Limited areas in correspondingly shorter time intervals		
Mass	260 kg	Power	150 W
		Data Rate	3.26 Mbps
Providing Agency	EUMETSAT		
Instrument Maturity	Flown on operational programme		
Utilization Period:	2004-01-09 to 2016-07-04		
Last update:	2021-06-02		

Detailed characteristics

Central wavelength	Spectral interval (99 % encircled energy)	SNR or NEΔT @ specified input
N/A (broad bandwidth channel)	0.6 - 0.9 μm	4.3 @ 1 % albedo
0.635 μm	0.56 - 0.71 μm	10.1 @ 1 % albedo
0.81 μm	0.74 - 0.88 μm	7.28 @ 1 % albedo
1.64 μm	1.50 - 1.78 μm	3 @ 1 % albedo
3.92 μm	3.48 - 4.36 μm	0.35 K @ 300 K
6.25 μm	5.35 - 7.15 μm	0.75 K @ 250 K
7.35 μm	6.85 - 7.85 μm	0.75 K @ 250 K

Satellites this instrument is flying on

Note: a red tag indicates satellites no longer operational, a green tag indicates operational satellites, a blue tag indicates future satellites

- └ **Meteosat Second Generation (MSG)** (EUMETSAT)
 - └ ✘ [Meteosat-8 \(see instrument status\)](#) Aug 2002 - Jul 2016
 - └ ✔ [Meteosat-9 \(see instrument status\)](#) Dec 2005 - 2025
 - └ ✔ [Meteosat-10 \(see instrument status\)](#) Jul 2012 - 2030
 - └ ✔ [Meteosat-11 \(see instrument status\)](#) Jul 2015 - 2033
 - └ ✔ [Meteosat-8 \(IODC\) \(see instrument status\)](#) Sep 2016 - 2022

Instrument classification

- └ Earth observation instrument
 - └ Passive optical radiometer or spectrometer
 - └ Moderate resolution optical imager

WIGOS Subcomponents

- └ Subcomponent 1
 - └ Multi-spectral VIS/IR imagery with rapid repeat cycles [in GEO]

Mission objectives

Primary mission objectives

- Cloud cover
- Cloud optical depth
- Cloud top height
- Cloud top temperature
- Cloud type

Show all

Tentative Evaluation of Measurements

The following list indicates which measurements can typically be retrieved from this category of instrument. To see a full Gap Analysis by Variable, click on the respective variable.

Note: table can be sorted by clicking on the column headers

MODIS



NASA LAADS DAAC

About LAADS Find Data Data Discovery Quality Learn Profile

1 PRODUCTS 2 TIME 3 LOCATION 4 FILES 5 REVIEW & ORDER

MOD02QKM (61) No date selected. No location selected. No files selected. reset

MODIS:Aqua MODIS Terra, Aqua
MODIS Collection 6.1 - Level 1, Atmosphere, Land (Archive Set 61) Not selected keyword Browse products Clear Selected Products

All [52]
Level-0 / Level-1 [7]
MODIS Terra, Aqua [7]
Atmosphere [11]
Aerosol [2]
Water Vapor [1]
Cloud Properties [1]
Atmosphere Profiles [2]
Cloud Mask [1]
Joint L2 Atmosphere Product [1]
L3 Atmosphere Product [3]
Land [22]
Radiation Budget Variables [14]
Land Surface Reflectance [6]
Land Surface Temperature & Emissivity [8]
Ecosystem Variables [7]
Vegetation Indices [6]
LAI & fPAR [1]
Land Cover Characteristics [1]
Thermal Anomalies & Fire [1]
Other [12]

MYD00F
MODIS/Aqua Level 0 Raw Instrument Packets (5 minutes) i

MYD021KM
Level 1B Calibrated Radiances - 1km i

MYD02HKM
Level 1B Calibrated Radiances - 500m i

MYD02OBC
Level 1B Onboard Calibrator/Engineering Data i

MYD02QKM
Level 1B Calibrated Radiances - 250m i

MYD02SSH
MODIS/Aqua Level 1B Subsampled Calibrated Radiances 5km i

MYD03
Geolocation - 1km i

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MODIS



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About LAADS Find Data Data Discovery Quality Learn Profile

1 PRODUCTS 2 TIME 3 LOCATION 4 FILES 5 REVIEW & ORDER

2 products selected No date selected. No location selected. No files selected. reset

Date Range Single Date

Display as: YYYY-MM-DD

2021-06-19 - 2021-07-03

Add Date

+ Advanced

Please select a date or date range to search.

Coverage Selection:

- Day (granules contain day data only)
- Day-Night Boundary (granules contain data over the seasonal, latitude boundary between day and night)

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MODIS



A screenshot of the NASA LAADS DAAC web interface for MODIS data. The interface is dark-themed with a blue header. At the top, it says "NASA LAADS DAAC" on the left and navigation links like "About LAADS", "Find Data", "Data Discovery", "Quality", "Learn", and "Profile" on the right. Below the header is a search bar with five tabs: "PRODUCTS", "TIME", "LOCATION", "FILES", and "REVIEW & ORDER". The "LOCATION" tab is active. Below the search bar, there are filters: "2 products selected", a date range "2021-06-19, 2021-07-03", and coordinates "W: 21.4°, N: 38.6°, E: 21.7°, S: 38.3°". A "reset" button is on the right. The main area is a satellite map of the Balkans region. On the left, there is a sidebar with icons for "Search by Product", "Online Archive", "Filename Search", "Image Viewer", "Load/Save Search", and "Past Orders". On the right, there is a "SELECT AREA OF INTEREST" panel with options: "World", "Countries", "Tiles", "Validation Sites", "Draw Custom Box (Classic)" (which is selected), and "Enter Coordinates". Below this panel, it shows "Current selection: W: 21.4°, N: 38.6°, E: 21.7°, S: 38.3°". At the bottom of the interface, there is a footer with the NASA Goddard logo, "Level-1 and Atmosphere Archive & Distribution System", and "Privacy Policy and Important Notices".

MODIS



NASA LAADS DAAC

About LAADS Find Data Data Discovery Quality Learn Profile

1 PRODUCTS 2 TIME 3 LOCATION 4 FILES 5 REVIEW & ORDER

2 products selected 2021-06-19 , 2021-07-03 21.4, 38.6, 21.7, 38.3 1 file selected reset

MOD02QKM.A2021175.0910.061.2021175194449.hdf	i	MOD02QKM (61)	📄	2021-06-24 09:10:00	157 MB
MYD02QKM.A2021175.1230.061.2021176153013.hdf	i	MYD02QKM (61)	📄	2021-06-24 12:30:00	159 MB
MYD02QKM.A2021175.1055.061.2021176155917.hdf	i	MYD02QKM (61)	📄	2021-06-24 10:55:00	168 MB
MYD02QKM.A2021175.1050.061.2021176160059.hdf	i	MYD02QKM (61)	📄	2021-06-24 10:50:00	166 MB
MOD02QKM.A2021176.0955.061.2021176200621.hdf	i	MOD02QKM (61)	📄	2021-06-25 09:55:00	157 MB
MYD02QKM.A2021176.1135.061.2021177150242.hdf	i	MYD02QKM (61)	📄	2021-06-25 11:35:00	155 MB
MOD02QKM.A2021177.0900.061.2021177194105.hdf	i	MOD02QKM (61)	📄	2021-06-26 09:00:00	154 MB
MOD02QKM.A2021177.1035.061.2021177194043.hdf	i	MOD02QKM (61)	📄	2021-06-26 10:35:00	171 MB
MYD02QKM.A2021177.1040.061.2021178150705.hdf	i	MYD02QKM (61)	📄	2021-06-26 10:40:00	165 MB
MYD02QKM.A2021177.1220.061.2021178151729.hdf	i	MYD02QKM (61)	📄	2021-06-26 12:20:00	165 MB
MOD02QKM.A2021178.0940.061.2021178194125.hdf	i	MOD02QKM (61)	📄	2021-06-27 09:40:00	163 MB
MYD02QKM.A2021178.1125.061.2021179151635.hdf	i	MYD02QKM (61)	📄	2021-06-27 11:25:00	166 MB
MYD02QKM.A2021179.1205.061.2021180161750.hdf	i	MYD02QKM (61)	📄	2021-06-28 12:05:00	153 MB
MYD02QKM.A2021179.1030.061.2021180170105.hdf	i	MYD02QKM (61)	📄	2021-06-28 10:30:00	170 MB
MOD02QKM.A2021180.0930.061.2021180193716.hdf	i	MOD02QKM (61)	📄	2021-06-29 09:30:00	148 MB
MOD02QKM.A2021180.1105.061.2021180193802.hdf	i	MOD02QKM (61)	📄	2021-06-29 11:05:00	176 MB
MYD02QKM.A2021180.1110.061.2021181152637.hdf	i	MYD02QKM (61)	📄	2021-06-29 11:10:00	155 MB
MOD02QKM.A2021181.0835.061.2021181193428.hdf	i	MOD02QKM (61)	📄	2021-06-30 08:35:00	154 MB
MOD02QKM.A2021181.1010.061.2021181193436.hdf	i	MOD02QKM (61)	📄	2021-06-30 10:10:00	169 MB
MOD02QKM.A2021181.1015.061.2021181193500.hdf	i	MOD02QKM (61)	📄	2021-06-30 10:15:00	161 MB
MOD02QKM.A2021179.0845.061.2021182140003.hdf	i	MOD02QKM (61)	📄	2021-06-28 08:45:00	160 MB
MOD02QKM.A2021179.1025.061.2021182140430.hdf	i	MOD02QKM (61)	📄	2021-06-28 10:25:00	161 MB
MYD02QKM.A2021181.1155.061.2021182163632.hdf	i	MYD02QKM (61)	📄	2021-06-30 11:55:00	159 MB
MOD02QKM.A2021182.0915.061.2021182211051.hdf	i	MOD02QKM (61)	📄	2021-07-01 09:15:00	165 MB
MOD02QKM.A2021183.1000.061.2021183194500.hdf	i	MOD02QKM (61)	📄	2021-07-02 10:00:00	155 MB

Showing 1 to 43 of 43 entries

Return to Top Previous 1 Next

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MYD02QKM....hdf Show all

MODIS



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About LAADS Find Data Data Discovery Quality Learn Profile

1 PRODUCTS 2 TIME 3 LOCATION 4 IMAGES 5 REVIEW & ORDER

2 products selected 2021-06-19, 2021-07-03 21.4, 38.6, 21.7, 38.3 1 file selected

Visible Composite
MYD021KM_A2021181_1155_061_2021182163632.hdf

Gallery Tools Files

Not all product layers are available for image viewing

Showing all images

Selected Files

<input type="checkbox"/>	MYD02QKM_A2021173.1105.061_2021174205118.hdf	2021-06-22 11:05:00
<input type="checkbox"/>	MYD02QKM_A2021174.1145.061_2021175161032.hdf	2021-06-23 11:45:00
<input type="checkbox"/>	MYD02QKM_A2021174.1150.061_2021175161122.hdf	2021-06-23 11:50:00
<input type="checkbox"/>	MYD02QKM_A2021177.1040.061_2021178150705.hdf	2021-06-26 10:40:00
<input type="checkbox"/>	MYD02QKM_A2021175.1050.061_2021176160059.hdf	2021-06-24 10:50:00
<input type="checkbox"/>	MYD02QKM_A2021175.1230.061_2021176153013.hdf	2021-06-24 12:30:00
<input type="checkbox"/>	MYD02QKM_A2021175.1055.061_2021176150917.hdf	2021-06-24 10:55:00
<input type="checkbox"/>	MYD02QKM_A2021176.1135.061_2021177150242.hdf	2021-06-25 11:35:00
<input type="checkbox"/>	MYD02QKM_A2021179.1205.061_2021180161750.hdf	2021-06-28 12:05:00
<input type="checkbox"/>	MYD02QKM_A2021179.1030.061_2021180170105.hdf	2021-06-28 10:30:00
<input type="checkbox"/>	MYD02QKM_A2021180.1110.061_2021181152637.hdf	2021-06-29 11:10:00
<input checked="" type="checkbox"/>	MYD02QKM_A2021181.1155.061_2021182163632.hdf	2021-06-30 11:55:00

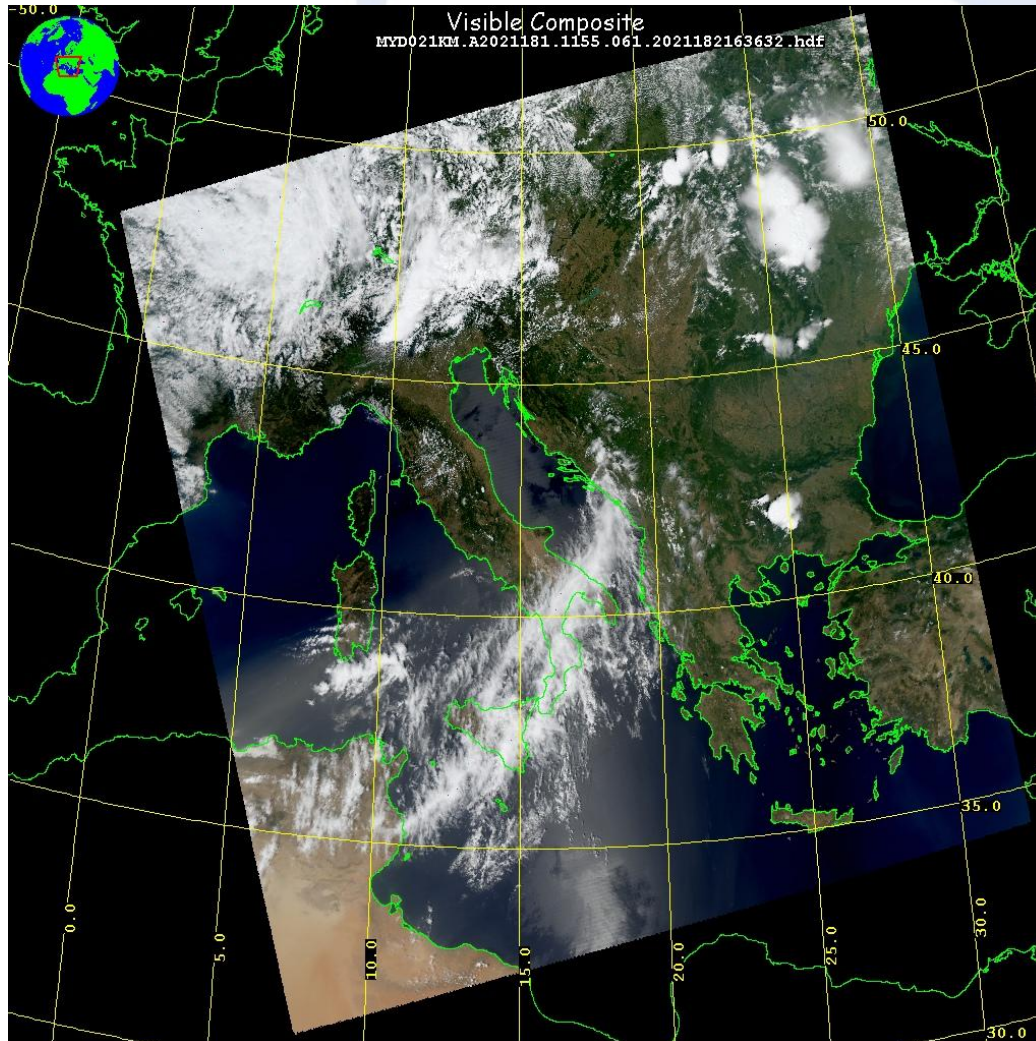
Aqua Granule Level 1 browse RGB FROM MYD021KM [2021-06-30 11:55:00]
* NOTE - displayed image is not science quality

previous next close menu hide map selected get data save image

NASA Goddard Level-1 and Atmosphere Archive & Distribution System Privacy Policy and Important Notices

MYD02QKM.....hdf Show all

MODIS



Landsat



USGS
science for a changing world

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[Search Criteria](#) [Data Sets](#) [Additional Criteria](#) [Results](#) [Search Criteria Summary \(Show\)](#) [Clear Search Criteria](#)

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.

Geocoder [KML/Shapefile Upload](#)

Select a Geocoding Method
Feature (GNIS)

Search Limits: The search result limit is 100 records; select a Country, Feature Class, and/or Feature Type to reduce your chances of exceeding this limit.

[US Features](#) [World Features](#)

Feature Name
(use % as wildcard)

State
All

Feature Type
All

[Show](#) [Clear](#)

Polygon [Circle](#) [Predefined Area](#)

[Degree/Minute/Second](#) [Decimal](#)

1. Lat: 38° 32' 18" N, Lon: 021° 32' 19" E [✖](#)

[Use Map](#) [Add Coordinate](#) [Clear Coordinates](#)

Date Range [Cloud Cover](#) [Result Options](#)

Search from: 05/01/2021 to: 07/03/2021

Search months: (all)

[Data Sets >](#) [Additional Criteria >](#) [Results >](#)

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Landsat



USGS
science for a changing world

EarthExplorer [Manage Criteria](#) Item Basket (0) [Help](#) [Feedback](#) [Logout \[chiossif\]](#)

Search Criteria **Data Sets** Additional Criteria Results Search Criteria Summary (Show) [Clear Search Criteria](#)

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:

This data set list is cached for performance. If your user permissions have changed or you are not seeing an expected dataset, click [here to refresh your list](#).

- Aerial Imagery
 - AVHRR
 - CEOS Legacy
 - Commercial Satellites
 - Declassified Data
 - Digital Elevation
 - Digital Line Graphs
 - Digital Maps
 - EO-1
 - Global Fiducials
 - HCMM
 - ISERV
 - Land Cover
 - Landsat
 - Landsat Collection 2 Level-2
 - Landsat Collection 2 Level-1
 - Landsat 8 OLI/TIRS C2 L1
 - Landsat 7 ETM+ C2 L1
 - Landsat 4-5 TM C2 L1

[Clear All Selected](#) [Additional Criteria »](#) [Results »](#)

Leaflet | Tiles © Esri — Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, UPR-EGP, and the GIS User Community, Esri

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Landsat



The screenshot displays the USGS EarthExplorer web application. The main interface shows search results for a Landsat Collection 2 Level-1 Product Bundle. A modal dialog box titled "Product Download Options for LC08_L1TP_184033_20210630_20210701_02_RT" is open, listing individual band files for download. The background shows a satellite map of the region around Thessaly, Greece, with various geographical features and labels like "Gulf of Pagasas" and "Gulf of Corinth".

Product Download Options for LC08_L1TP_184033_20210630_20210701_02_RT
Landsat Collection 2 Level-1 Product Bundle

1.13 GiB Landsat Collection 2 Level-1 Product Bundle

The following items are available for individual download

(Item Name Filter)

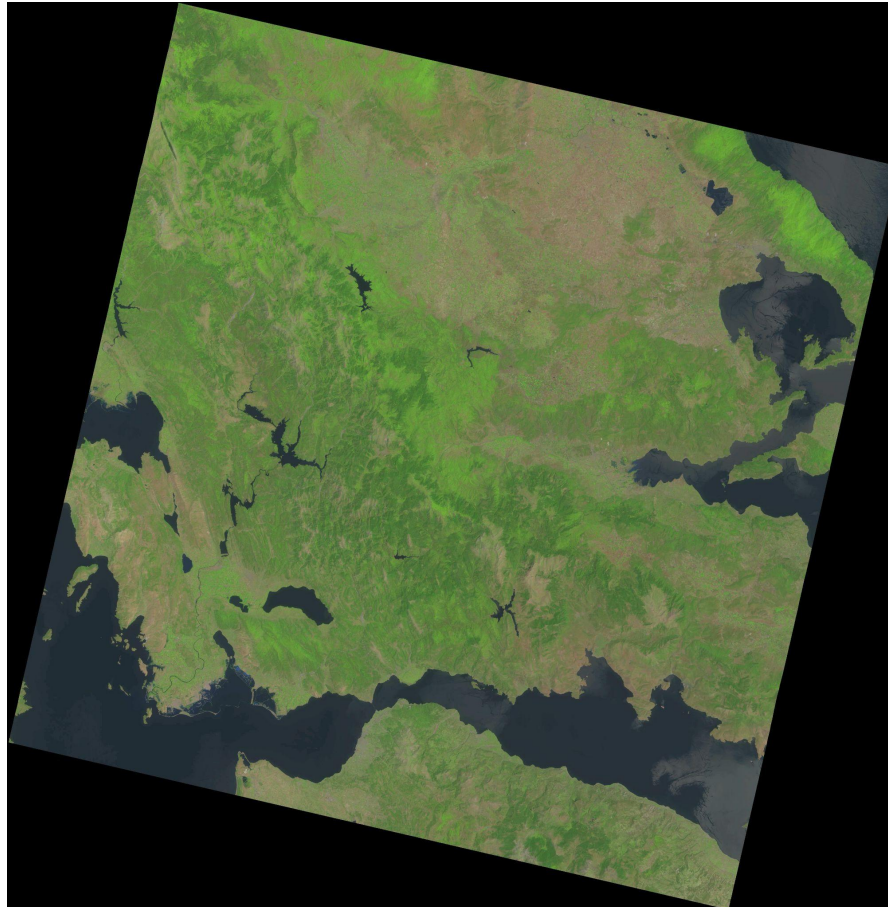
		114.64 KIB	LC08_L1TP_184033_20210630_20210701_02_RT_ANG.txt <i>Landsat Collection 2 Level-1 Band File</i>
		82.27 MIB	LC08_L1TP_184033_20210630_20210701_02_RT_B10.TIF <i>Landsat Collection 2 Level-1 Band File</i>
		79.53 MIB	LC08_L1TP_184033_20210630_20210701_02_RT_B11.TIF <i>Landsat Collection 2 Level-1 Band File</i>
		79.06 MIB	LC08_L1TP_184033_20210630_20210701_02_RT_B1.TIF <i>Landsat Collection 2 Level-1 Band File</i>
		80.57 MIB	LC08_L1TP_184033_20210630_20210701_02_RT_B2.TIF <i>Landsat Collection 2 Level-1 Band File</i>
		83.03 MIB	LC08_L1TP_184033_20210630_20210701_02_RT_B3.TIF <i>Landsat Collection 2 Level-1 Band File</i>

[Add All to Bulk](#) [Close](#)

[Download](#) Full-Resolution Browse (Quality) JPEG (6.00 MiB)

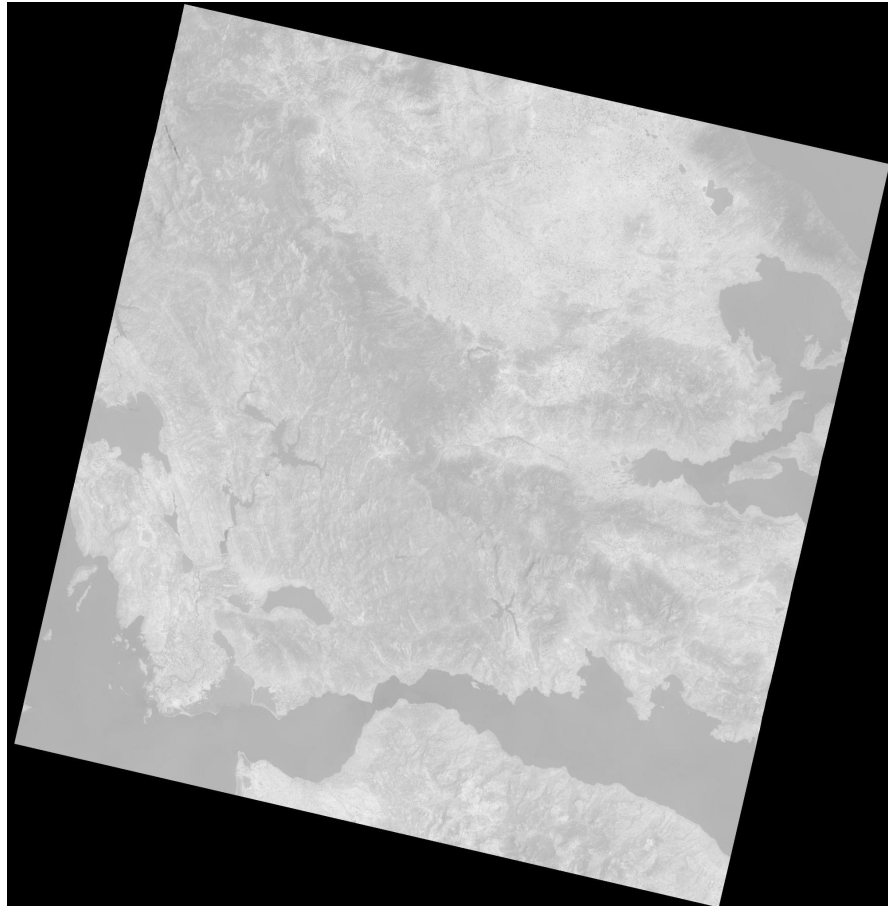
Landsat OLI

30/06/21 09:10:48.4970080 UTC , Natural Colour



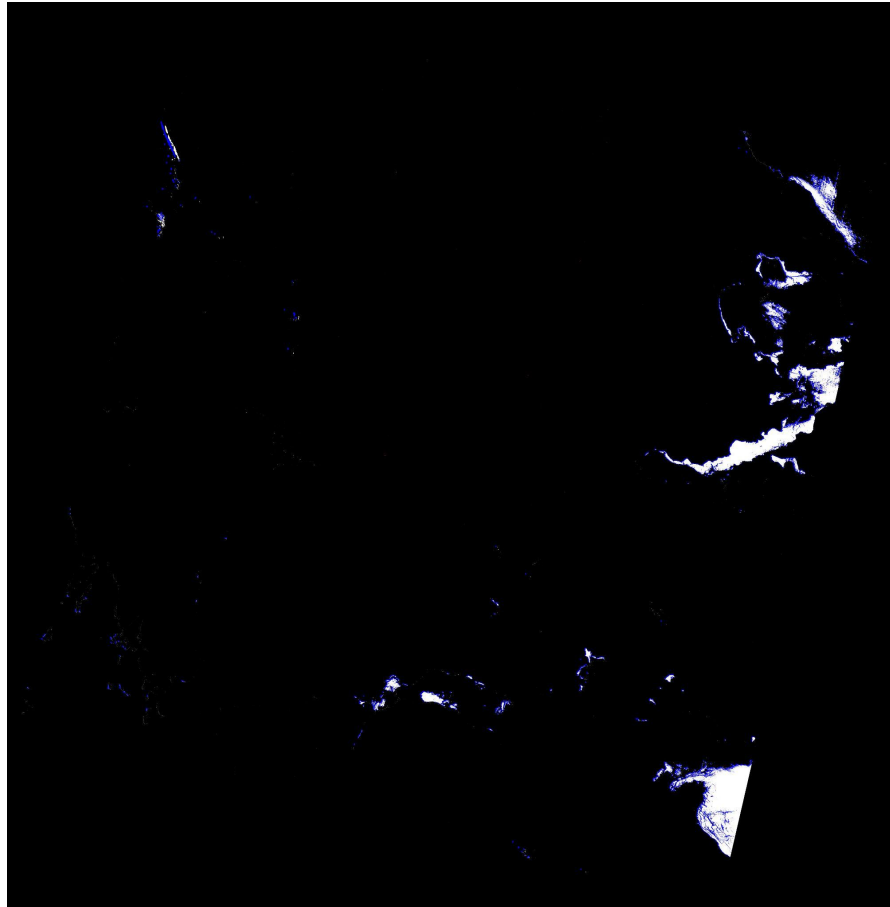
Landsat TIRS

30/06/21 09:10:48.4970080 UTC , Greyscale



Landsat

30/06/21 09:10:48.4970080 UTC , Quality band



Sentinel



The screenshot displays the Copernicus Open Access Hub search interface. The top navigation bar includes the ESA and Copernicus logos, the text "Copernicus Open Access Hub", and user icons. A search bar is located at the top left. The main interface is divided into a search filter panel on the left and a map on the right.

Advanced Search Panel:

- Sort By:** Ingestion Date (dropdown), Descending (dropdown)
- Order By:** (dropdown)
- Sensing period:** (input field)
- Ingestion period:** (input field)
- Mission: Sentinel-1:** (unselected)
 - Satellite Platform: (dropdown)
 - Polarisation: (dropdown)
 - Relative Orbit Number (from 1 to 175): (input field)
 - Product Type: (dropdown)
 - Sensor Mode: (dropdown)
- Mission: Sentinel-2:** (selected)
 - Satellite Platform: S2A_* (dropdown)
 - Relative Orbit Number (from 1 to 143): (input field)
 - Product Type: S2MSI1C (dropdown)
 - Cloud Cover % (e.g.[0 TO 9.4]): (input field)
- Mission: Sentinel-3:** (unselected)
 - Satellite Platform: (dropdown)
 - Timeliness: (dropdown)
 - Product Level: (dropdown)
 - Instrument: (dropdown)
 - Relative Orbit Start [1-385]: (input field)

Map: Shows a map of Greece with a highlighted orange path. Key locations labeled include Komboti, Neochori, Amfilochia, Agrinio, Panetolio, Kenourgio, Thermo, Mesolongi, Etoliko, and Nafpaktos. Water bodies like Kremasta Reservoir Lake, Trichonida Lake, Etoliko Lagoon, and Klisova Lagoon are also visible. The map includes standard navigation controls like zoom in/out and a search icon.

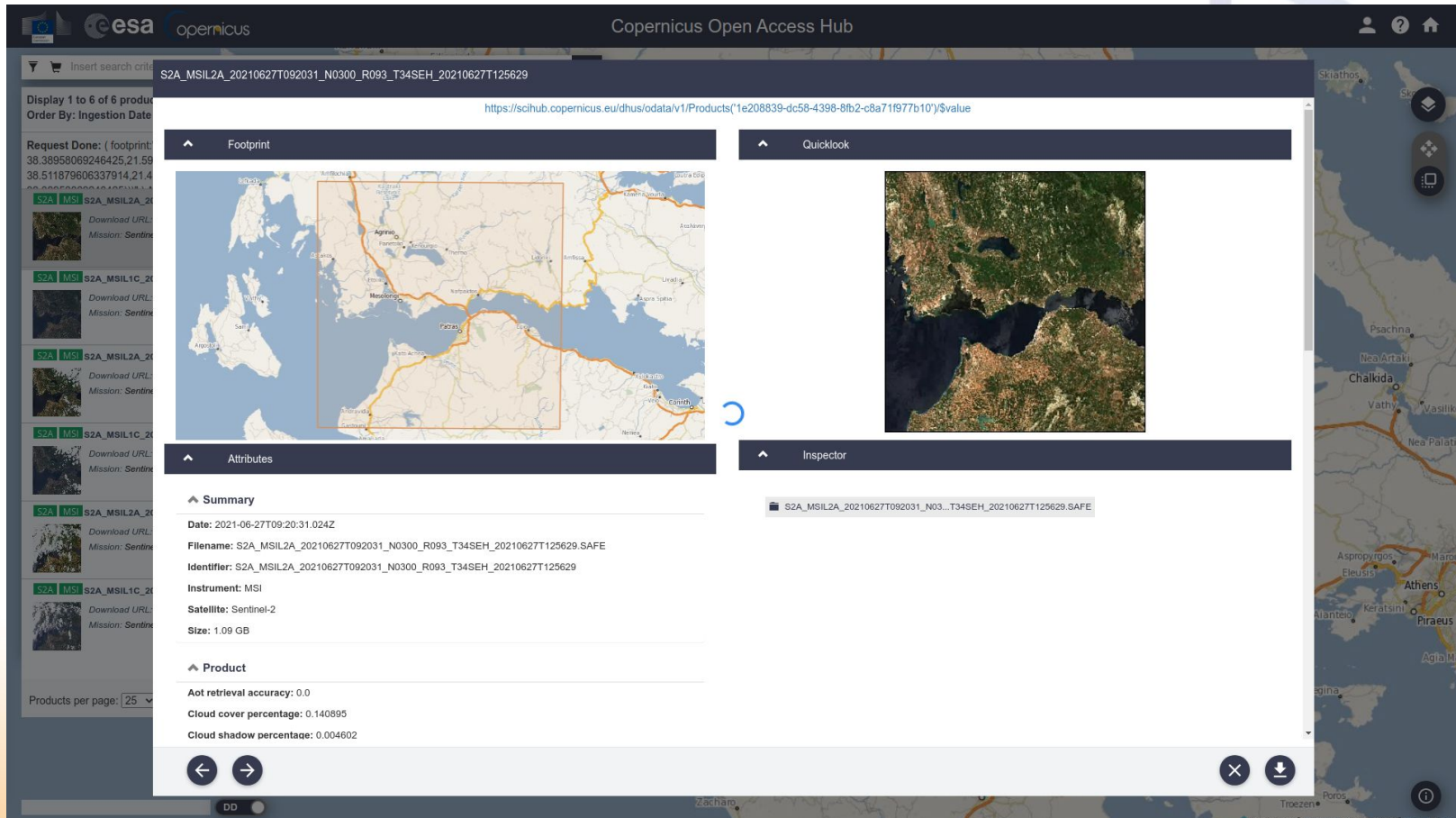
Sentinel



The screenshot displays the Copernicus Open Access Hub interface. On the left, a search results panel shows five Sentinel-2 MSI products. The top product is S2A_MSIL2A_20210627T092031_N0300_R093_T34SEH_20210627T125629, with a size of 1.09 GB. Below it are S2A_MSIL1C_20210627T092031_N0300_R093_T34SEH_20210627T105626 (801.52 MB), S2A_MSIL2A_20210617T092031_N0300_R093_T34SEH_20210617T121819 (1.08 GB), S2A_MSIL1C_20210617T092031_N0300_R093_T34SEH_20210617T103345 (804.18 MB), and S2A_MSIL2A_20210607T092031_N0300_R093_T34SEH_20210607T123359 (1.07 GB). The right side of the interface features a map of Greece with a green rectangular area of interest centered over the Peloponnese region, specifically around the cities of Patras and Mesolongi. The map includes various geographical features, roads, and place names. The interface also includes a search bar at the top, a navigation menu, and a status bar at the bottom showing the current location as Lat Lon: 39.13, 20.57.

Sentinel

27/06/21 09:20:31.024 UTC , Natural Colour



The screenshot displays the Copernicus Open Access Hub interface. The main content area is divided into four panels: Footprint, Quicklook, Attributes, and Inspector. The Footprint panel shows a map of Greece with a red rectangular area indicating the satellite's footprint. The Quicklook panel shows a natural color satellite image of the same area. The Attributes panel provides metadata for the product, and the Inspector panel shows the product ID.

esa opernicus Copernicus Open Access Hub

Insert search criteria

S2A_MSIL2A_20210627T092031_N0300_R093_T34SEH_20210627T125629

https://scihub.copernicus.eu/dhus/odata/v1/Products('1e208839-dc58-4398-8fb2-c8a71f977b10')/\$value

Display 1 to 6 of 6 products
Order By: Ingestion Date

Request Done: (footprint: 38.38958069246425,21.5938.511879606337914,21.4...)

S2A MSI S2A_MSIL2A_20210627T092031_N0300_R093_T34SEH_20210627T125629
Download URL: https://scihub.copernicus.eu/dhus/odata/v1/Products('1e208839-dc58-4398-8fb2-c8a71f977b10')/\$value
Mission: Sentinel-2

S2A MSI S2A_MSIL2A_20210627T092031_N0300_R093_T34SEH_20210627T125629
Download URL: https://scihub.copernicus.eu/dhus/odata/v1/Products('1e208839-dc58-4398-8fb2-c8a71f977b10')/\$value
Mission: Sentinel-2

S2A MSI S2A_MSIL2A_20210627T092031_N0300_R093_T34SEH_20210627T125629
Download URL: https://scihub.copernicus.eu/dhus/odata/v1/Products('1e208839-dc58-4398-8fb2-c8a71f977b10')/\$value
Mission: Sentinel-2

S2A MSI S2A_MSIL2A_20210627T092031_N0300_R093_T34SEH_20210627T125629
Download URL: https://scihub.copernicus.eu/dhus/odata/v1/Products('1e208839-dc58-4398-8fb2-c8a71f977b10')/\$value
Mission: Sentinel-2

S2A MSI S2A_MSIL2A_20210627T092031_N0300_R093_T34SEH_20210627T125629
Download URL: https://scihub.copernicus.eu/dhus/odata/v1/Products('1e208839-dc58-4398-8fb2-c8a71f977b10')/\$value
Mission: Sentinel-2

S2A MSI S2A_MSIL2A_20210627T092031_N0300_R093_T34SEH_20210627T125629
Download URL: https://scihub.copernicus.eu/dhus/odata/v1/Products('1e208839-dc58-4398-8fb2-c8a71f977b10')/\$value
Mission: Sentinel-2

Products per page: 25

DD

Summary

Date: 2021-06-27T09:20:31.024Z
Filename: S2A_MSIL2A_20210627T092031_N0300_R093_T34SEH_20210627T125629.SAFE
Identifier: S2A_MSIL2A_20210627T092031_N0300_R093_T34SEH_20210627T125629
Instrument: MSI
Satellite: Sentinel-2
Size: 1.09 GB

Product

Aot retrieval accuracy: 0.0
Cloud cover percentage: 0.140895
Cloud shadow percentage: 0.004602

S2A_MSIL2A_20210627T092031_N03...T34SEH_20210627T125629.SAFE

Πρακτική άσκηση

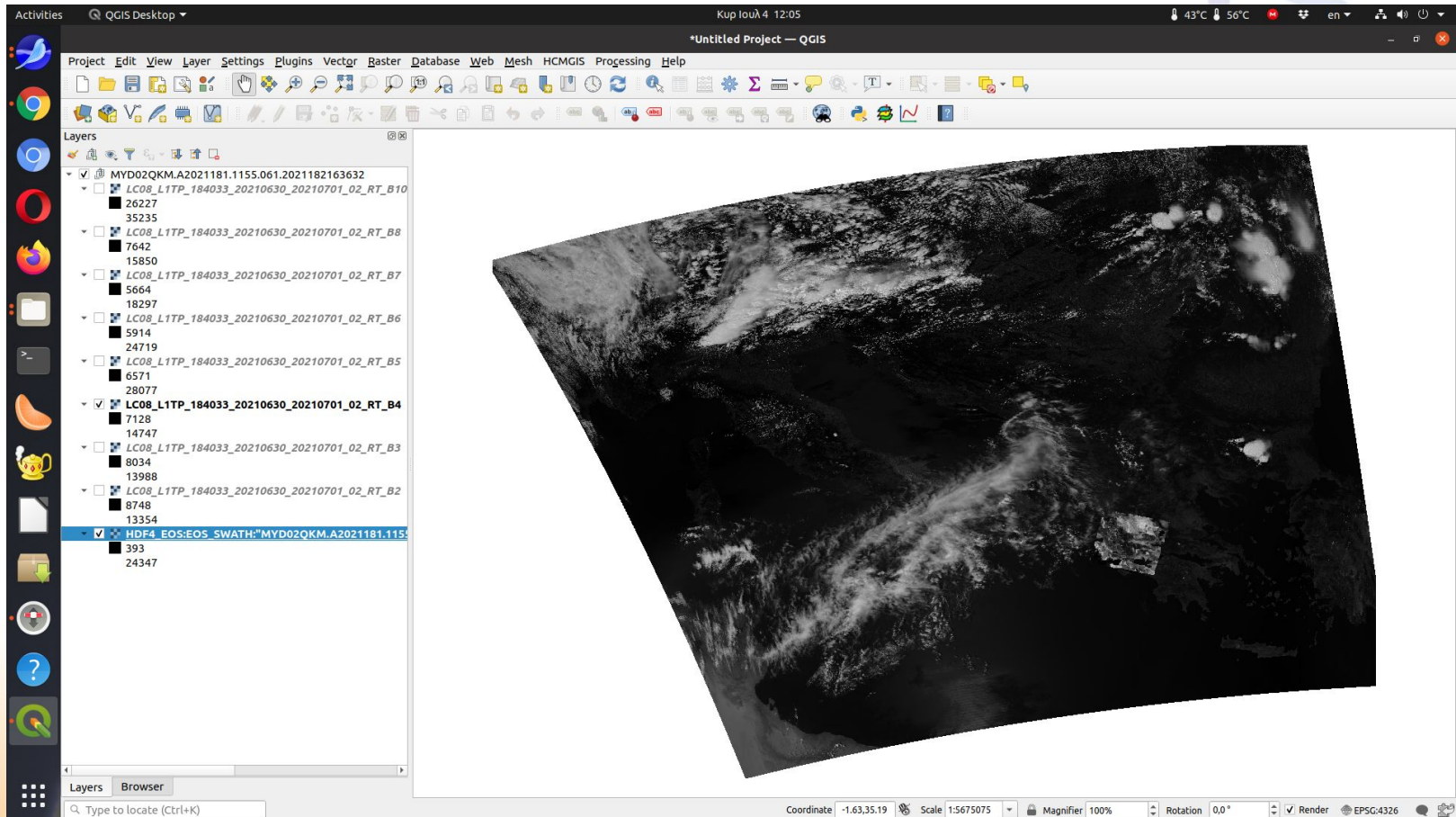
- Πλοηγηθείτε σε ένα από τα αποθετήρια τηλεπισκοπικών δεδομένων
- Επιλέξτε δέκτη και μελετήστε τα τεχνικά χαρακτηριστικά του
- Επιλέξτε χρονικό διάστημα και περιοχή ενδιαφέροντος
- Μεταφορτώστε τοπικά τα τηλεπισκοπικά δεδομένα της επιλογής σας
- Δείτε τα τηλεπισκοπικά δεδομένα με το QGIS ή άλλο σχετικό λογισμικό της επιλογής σας



Εφαρμογή σε QGIS

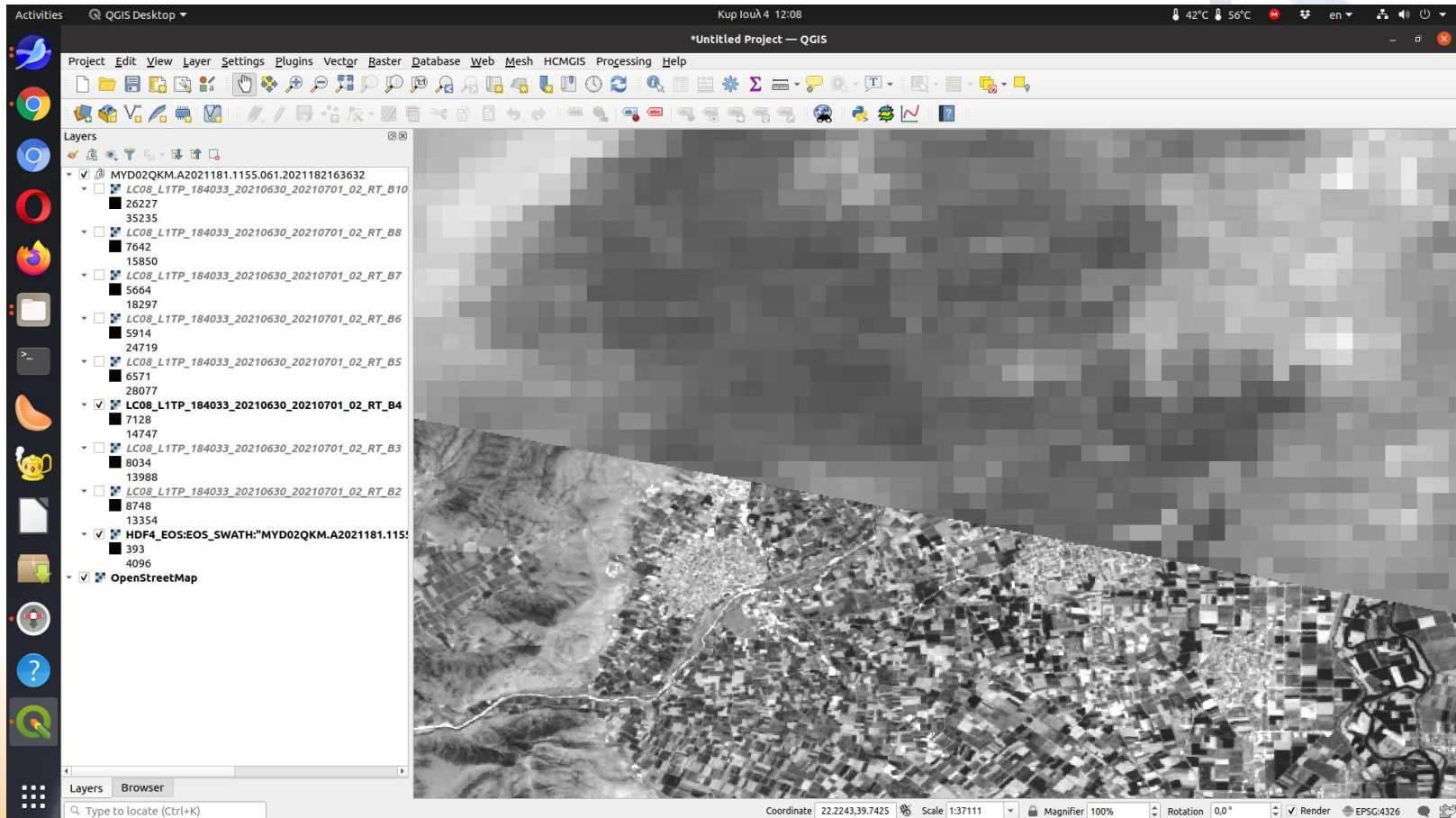
MODIS and Landsat OLI

2021181 (30/6/2021) and 30/06/21, Green band



MODIS and Landsat OLI

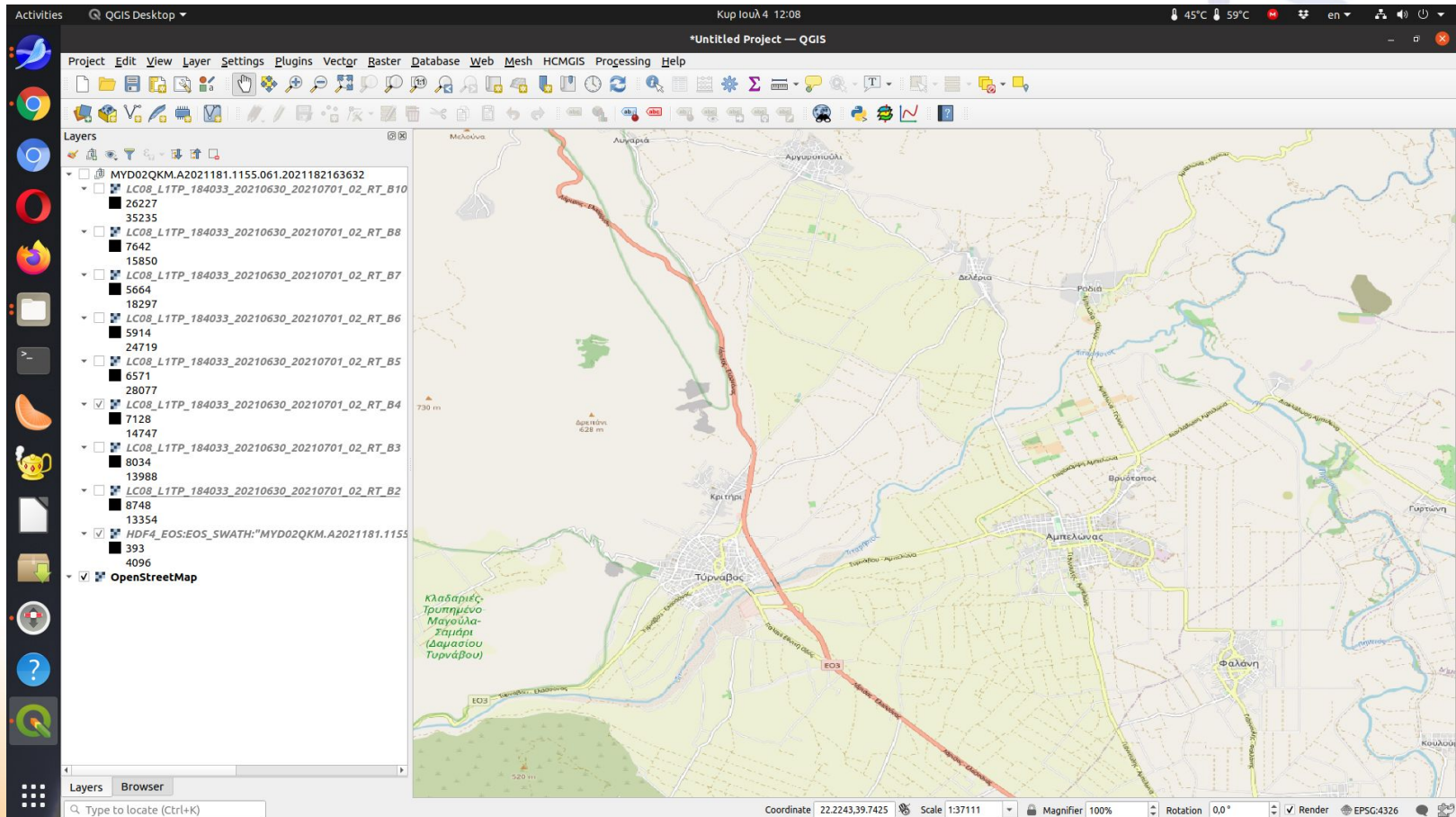
2021181 (30/6/2021) and 30/06/21, Green band



MODIS and Landsat OLI

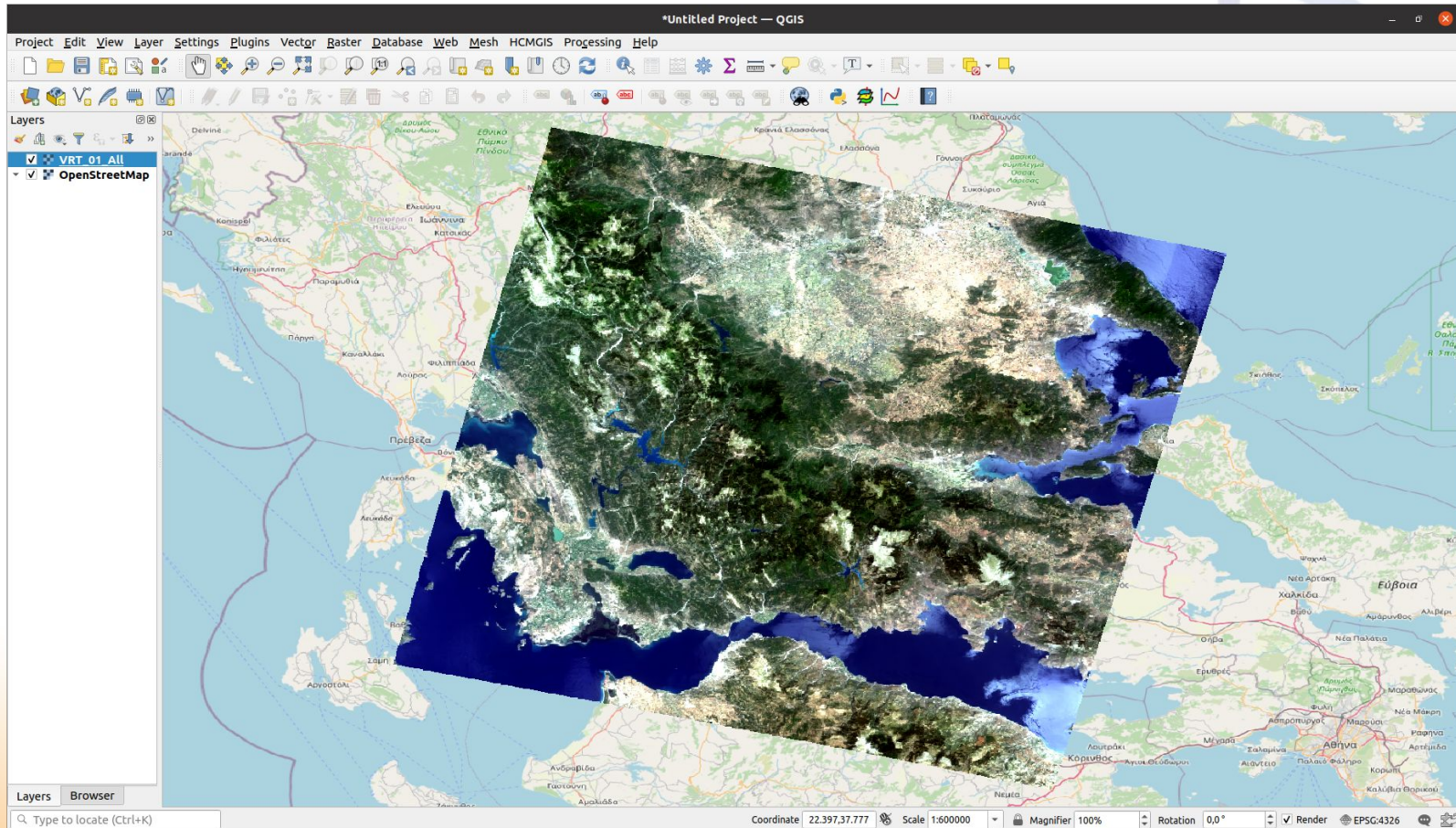


2021181 (30/6/2021) and 30/06/21, (OpenStreetMap)



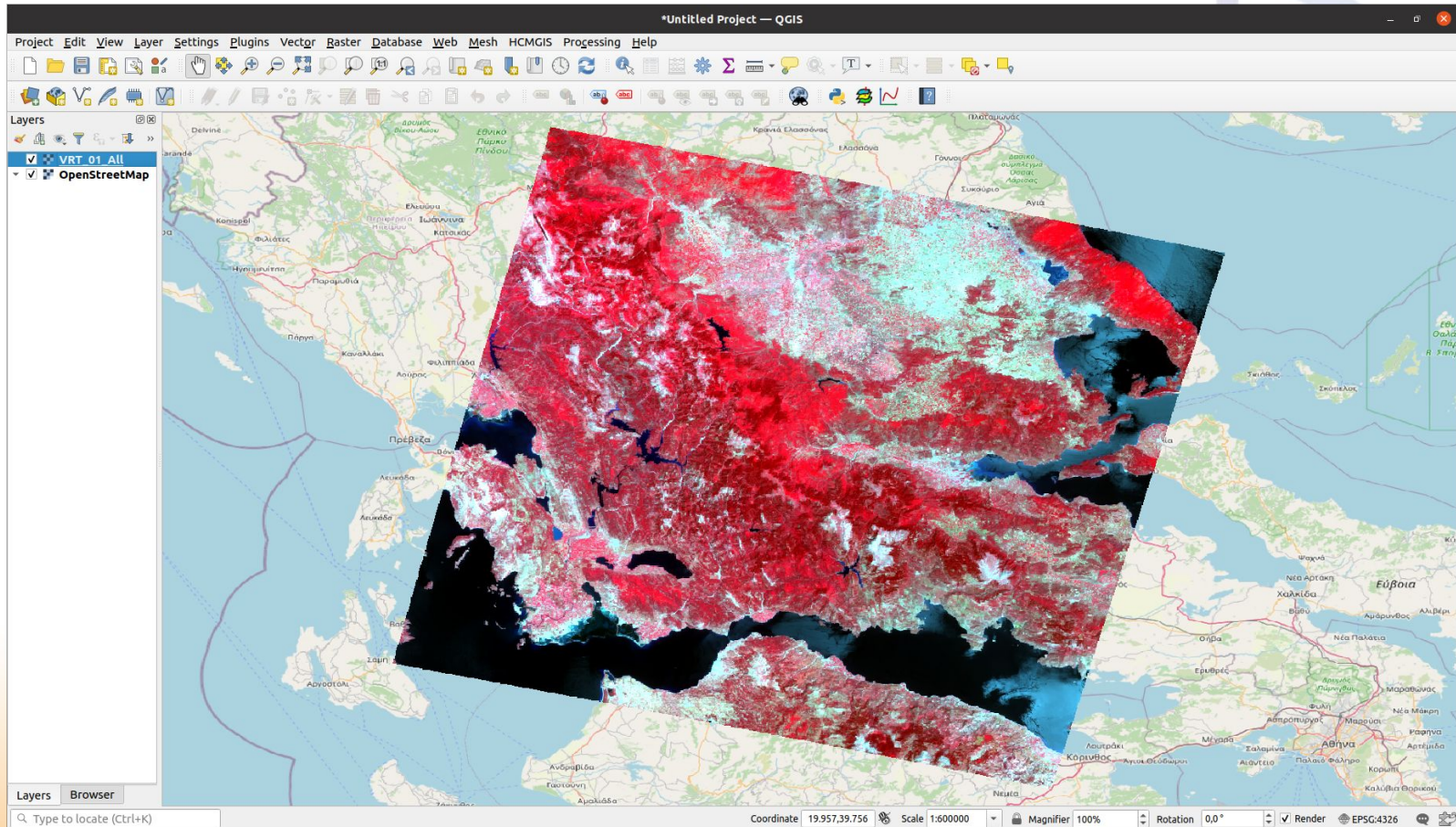
Landsat OLI

30/06/21, Natural Color (432RGB)



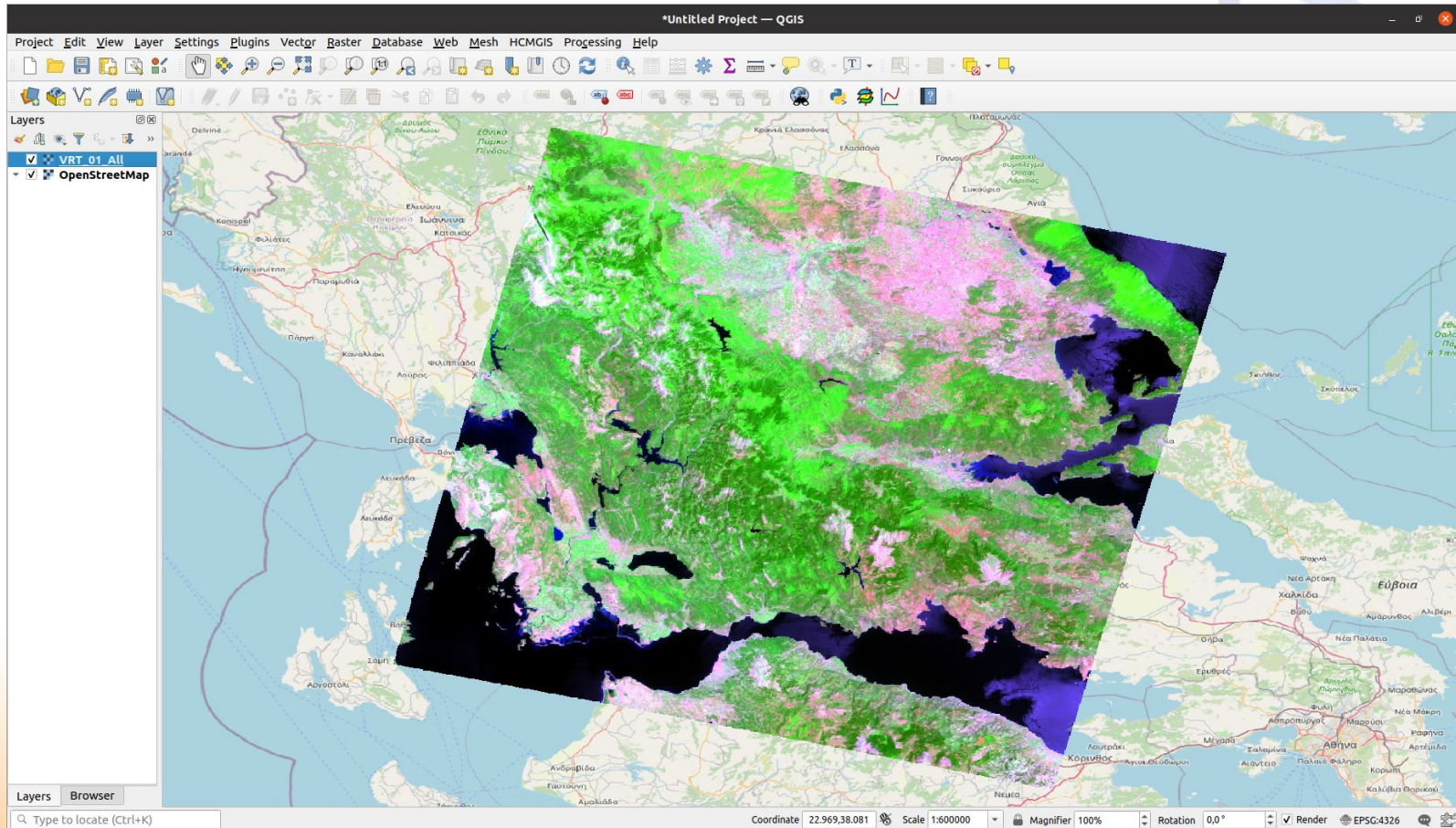
Landsat OLI

30/06/21, False Color (543RGB)



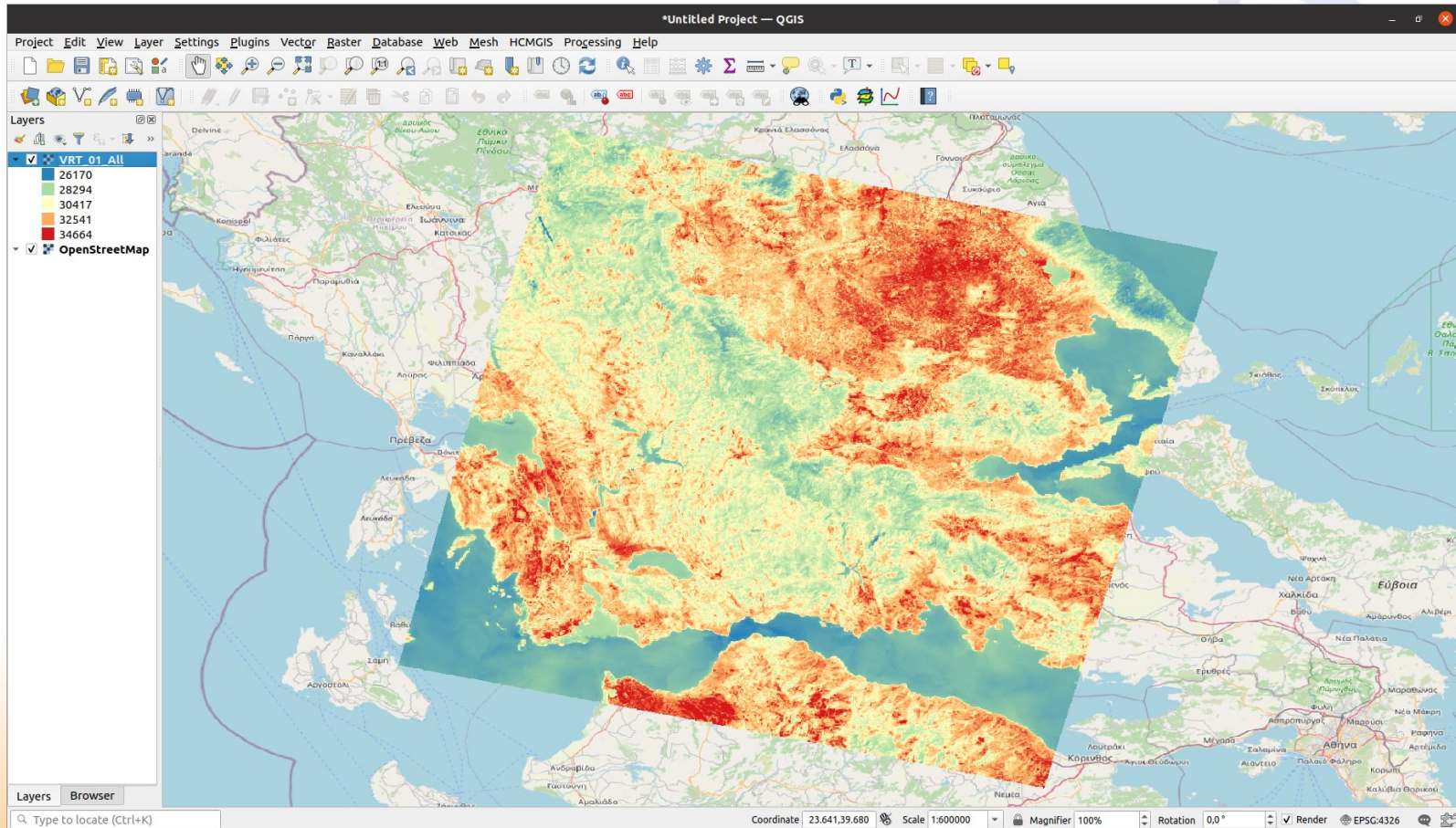
Landsat OLI

30/06/21, False Color (743RGB)

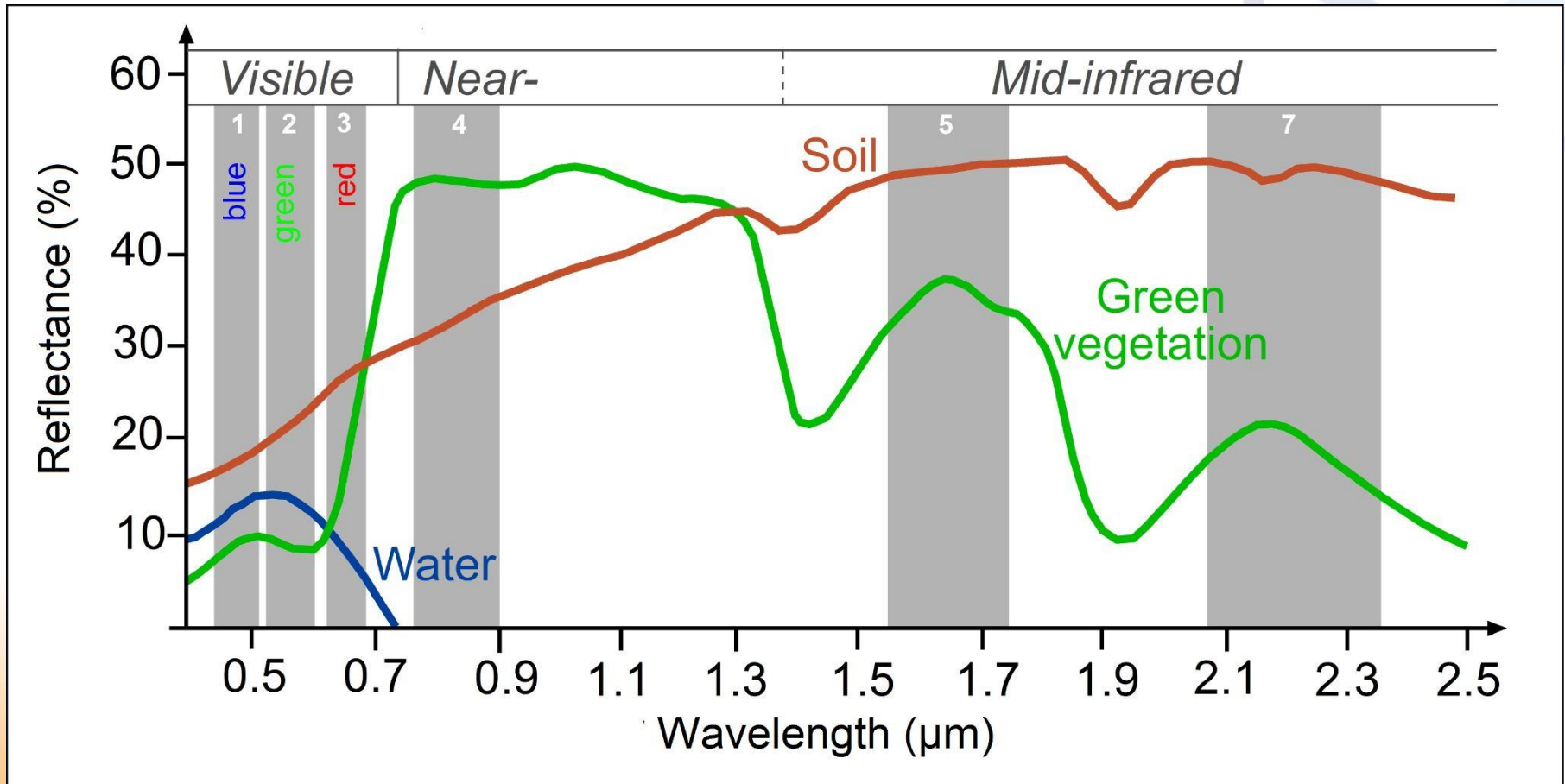


Landsat OLI

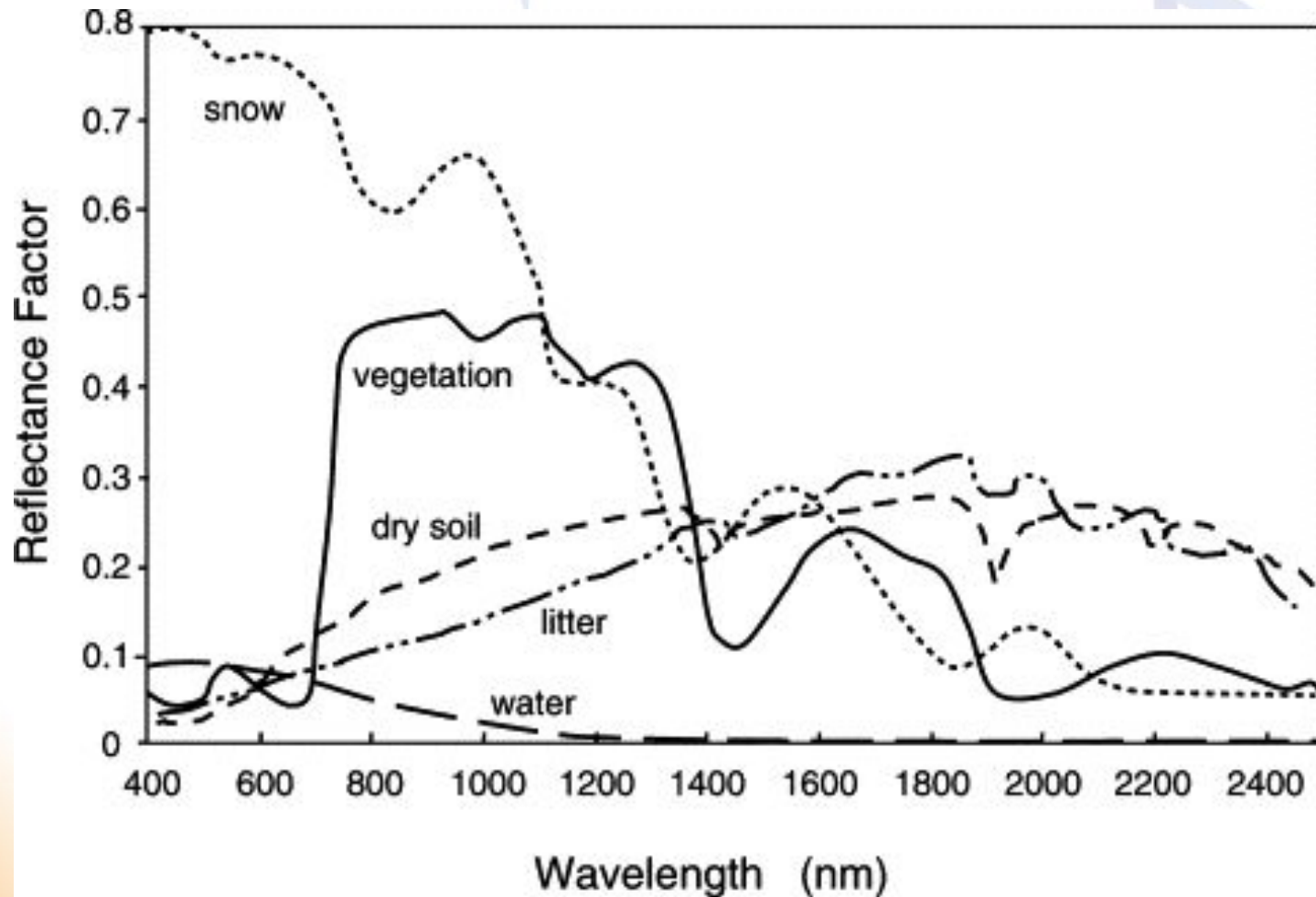
30/06/21, Thermal Band 10 pseudocolor



Reflectance of water, soil and vegetation (Landsat TM)

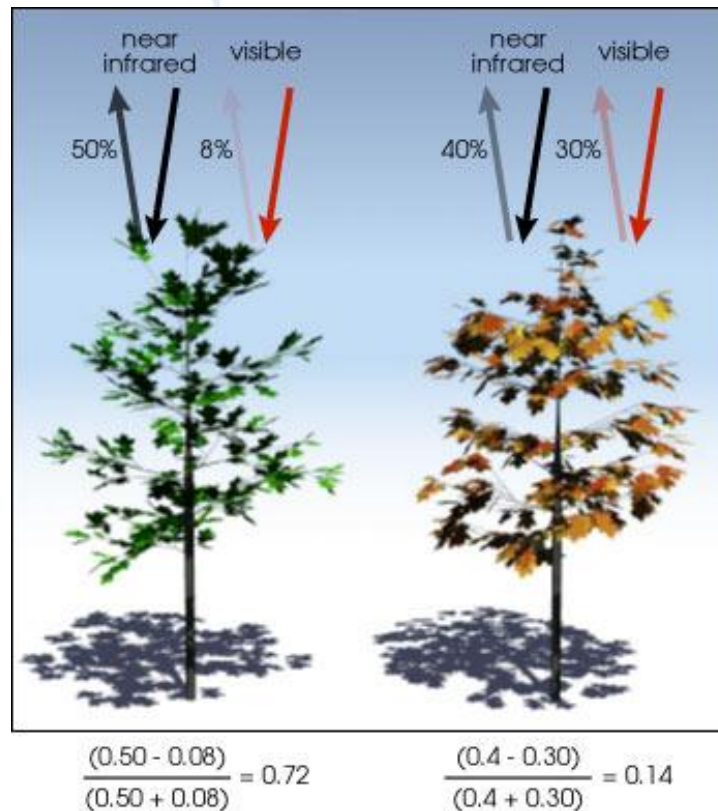


Reflectance of water, litter, dry soil, vegetation and snow



NDVI

Normalized Difference Vegetation Index



$$\text{NDVI} = (\text{NIR} - \text{Red}) / (\text{NIR} + \text{Red})$$

Landsat OLI

30/06/21, NDVI formula

Raster Calculator

Raster Bands

- VRT_01_All@1
- VRT_01_All@2
- VRT_01_All@3
- VRT_01_All@4**
- VRT_01_All@5
- VRT_01_All@6
- VRT_01_All@7
- VRT_01_All@8
- VRT_01_All@9
- VRT_01_All@10
- VRT_01_All@11

Result Layer

Output layer: 0701_02_RT/NDVI.tiff

Output format: GeoTIFF

Selected Layer Extent

X min: 473085,00000 X max: 703515,00000

Y min: 4189185,00000 Y max: 4423215,00000

Columns: 15362 Rows: 15602

Output CRS: EPSG:32634 - WGS 84 /

Add result to project

Operators

+	*	sqrt	cos	sin	tan	log10	(
-	/	^	acos	asin	atan	ln)
<	>	=	!=	<=	>=	AND	OR
abs	min	max					

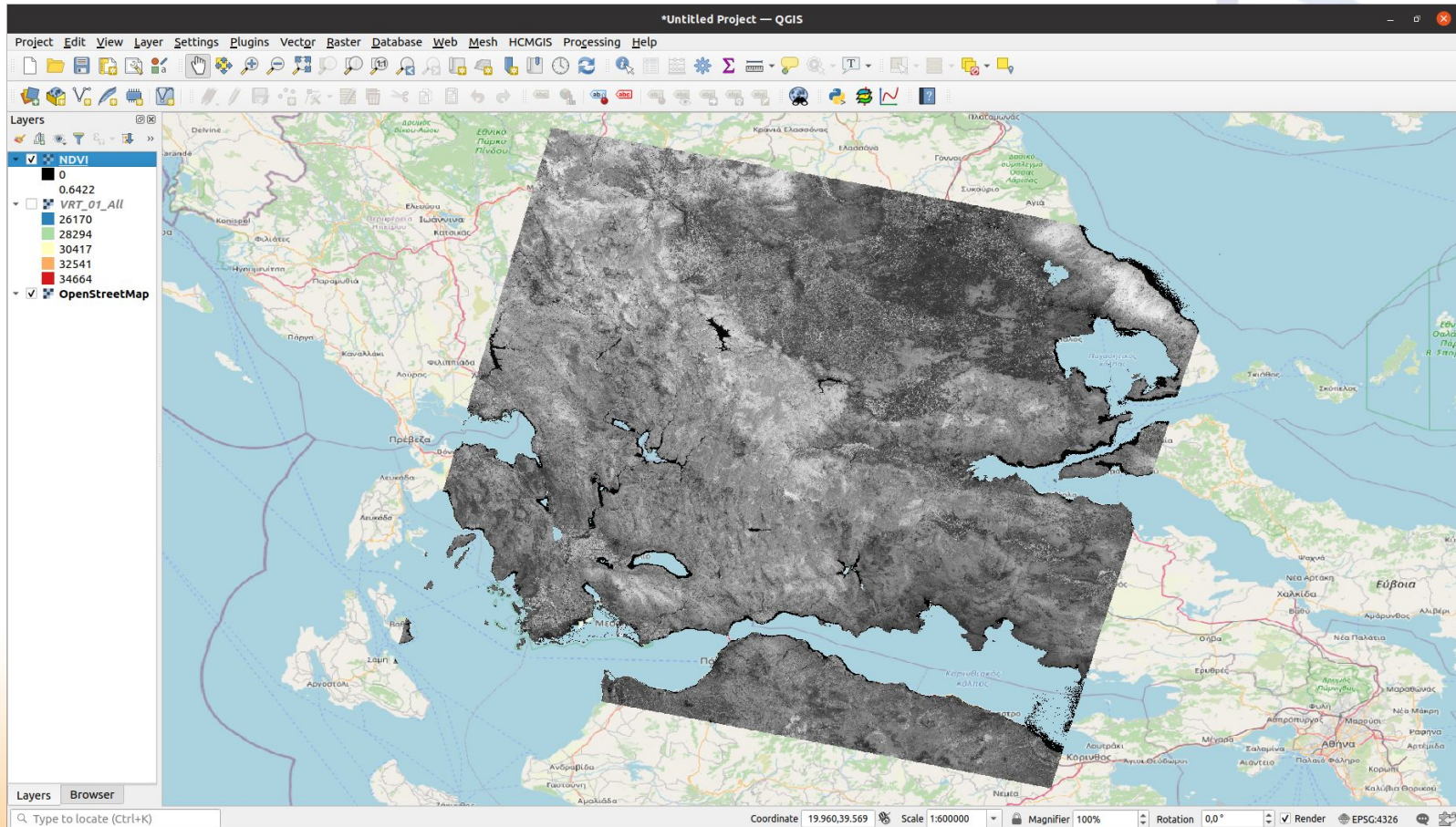
Raster Calculator Expression

```
( "VRT_01_All@5" - "VRT_01_All@4" ) / ( "VRT_01_All@5" + "VRT_01_All@4" )
```

Expression valid

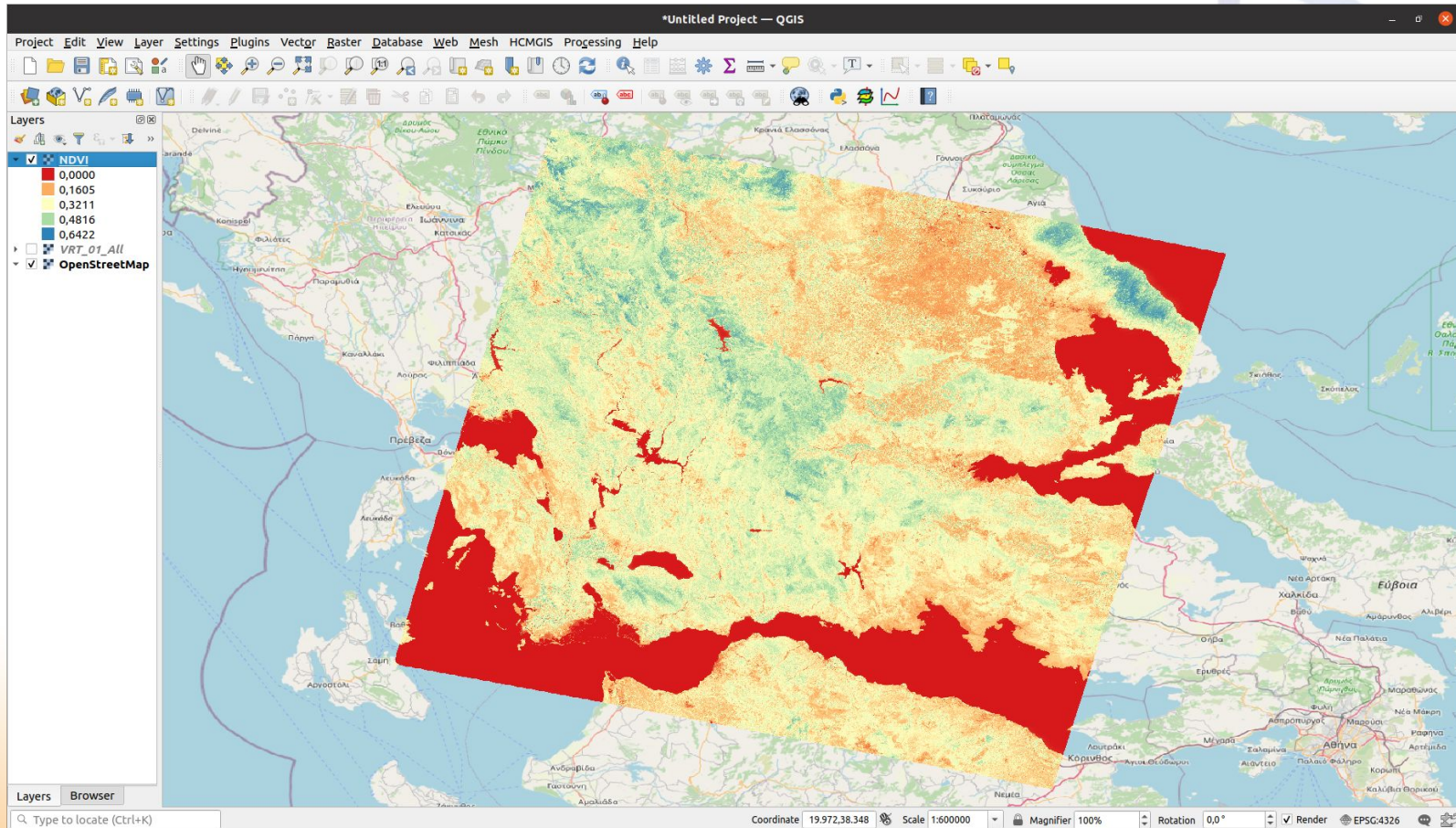
Landsat OLI

30/06/21, NDVI greyscale



Landsat OLI

30/06/21, NDVI pseudocolor



Πρακτική άσκηση

Στο QGIS ή άλλο σχετικό λογισμικό της επιλογής σας:

- Εμφανίστε τα κανάλια του δέκτη σε τόνους του γκρι και ψευδέγχρωμες παλέτες
- Εμφανίστε έγχρωμα σύνθετα με φυσικό ή όχι χρώμα
- Μελετήστε το [διάγραμμα ανακλαστικότητας](#) και εντοπίστε δείκτες ανάδειξης φασματικών κατηγοριών
- Υπολογίστε και εμφανίστε τον δείκτη της επιλογής σας



Χρήσιμοι σύνδεσμοι

BEYOND

NOA & GRNET operate the Copernicus International Hub



BEYOND
Center of EO Research
and Satellite Remote Sensing

SATELLITE DATA ACCESS HUBS

- 
HELLENIC Mirror Site
 Hellenic Mirror Site is the official Copernicus data access point for Greece publicly serving satellite data from the Sentinels over the region of South & Southeastern Europe, Middle East & North Africa, in a timely manner. It is part of the Copernicus Collaborative Ground Segment.
- 
EO TOOLKIT
 The Earth Observation Toolkit is a Linux image preloaded with tools and libraries for downloading and processing Copernicus Sentinel Earth observation data. The image is designed to operate in the cloud using the ~okeanos service, provided by GRNET.
- 
Sentinel Missions Federated Access
Sentinel Missions-Federated Access
 BEYOND' Center of EO Research and Satellite Remote Sensing we developed two difference services, the Copernicus Sentinel Broker Hub and the Umbrella Sentinel Access Point, that both bring the various Sentinel Access Points all together in a one stop shop (the so called federated access) offering uniform access to Sentinel 1, Sentinel 2, Sentinel 3, and Sentinel 5p metadata.
 - Umbrella Sentinel Access Point
 - Copernicus Sentinel Broker Hub
- 
Satellite Access Polar Orbit
 The gateway to access the satellite data from eight different polar orbit satellites namely EOS/Terra, EOS/Aqua, SUOMI NPP, NOAA-20, FengYun-3B, NOAA-19, Metop-A, Metop-B acquired by the X/L Band satellite reception antenna operated by BEYOND/NOA.
- 
Sentinels GreekHub
 The Copernicus Data Hubs compose the layer of services that is responsible for disseminating the Copernicus Sentinel data taken directly from the Copernicus Ground Segment to the European mirror sites, the International organizations that have agreements with ESA, the Copernicus DIAS services and to any other services and organizations that has an agreement with ESA.

BEYOND

Centre of EO Research & Satellite Remote Sensing




Our Team Meet BEYOND people	Outreach See our publications / presentations	Training & Education Join our activities	Annual Report 2020 Download the PDF (Greek Version)
---------------------------------------	---	--	---

[isaly earthquakes of March 3, 2021 10:16:07 UTC and March 4, 2021 18:38:17 UTC](#)
[Δελτίο Τύπου_Η Αττική ενώνει τις δυνάμεις της](#)
[Interferogram of Týrnavos earthquake](#)

«Εκτίμηση κινδύνων Σεισμού, Πυρκαγιάς και Πλημμυρών στην Περιφέρεια Αττικής» με χρηματοδότηση της Περιφέρειας ύψους 2.2 εκ. ευρώ

Η Αττική ενώνει τις δυνάμεις της με στόχο τη δημιουργία «επιπέδου προστασίας» των πολιτών και του περιβάλλοντος από τις φυσικές καταστροφές



BEYOND THEMATIC AREAS

Agriculture

Agriculture monitoring, for the purposes of food security, control of the implementation of sustainable agriculture policies and the improvement of the overall agricultural productivity.

Disasters

The rapid changes in climate over the last decades, together with the explosion of human population, have shaped the context for a fragile biosphere, prone to natural and manmade disasters that result in massive flows of environmental immigrants.

WEB SERVICES



BEYOND

Centre of EO Research & Satellite Remote Sensing

BEYOND THEMATIC AREAS

Agriculture

Agriculture monitoring, for the purposes of food security, control of the implementation of sustainable agriculture policies and the improvement of the overall agricultural productivity.

[Read more](#)

Climate

Understanding the Earth system, its weather, climate, atmosphere, and natural/human-induced hazards is crucial to protecting the global environment, reducing disaster losses, and achieving sustainable development.

[Read more](#)

Coordination-Research

BEYOND Center of Excellence covers the spectrum of coordination and support actions (CSA) in GEO domain.

[Read more](#)

Epidemics

Mosquito-Borne Diseases (MBDs) infect almost 700 million people every year and are recognized in over 100 countries, causing millions of deaths annually.

[Read more](#)

Disasters

The rapid changes in climate over the last decades, together with the explosion of human population, have shaped the context for a fragile biosphere, prone to natural and manmade disasters that result in massive flows of environmental immigrants.

[Read more](#)

Energy

The EU revised Renewable Energy Directive establishes an overall policy for the production and promotion of energy from renewable sources in the EU.

[Read more](#)

Procurement-Innovation

BEYOND Center has also competences in Pre-Commercial Procurement (PCP) and other procurement schemes in the GEO domain, in which among many assignments it gathers, analyzes and evaluates needs from the demand side.

[Read more](#)

Capacity-Building

BEYOND Center leverages on the long lasting experiences gained through competitive frameworks and education activities, in providing targeted Capacity Building activities for a broad range of interested stakeholders.

[Read more](#)

WEB SERVICES



- Fire
- Clouds
- House
- Sun
- House with solar panels
- Globe
- EFFIS
- EMS
- COVID - 19
- ARTIFICIAL Intelligence
- EYWA
- NEXT GEOS
- DATA ACCESS
- Satellite Access Polar Orbit
- SENTINELS GREEKHUB
- Satellite Access Federated Access

BEYOND

FireHub - Fire Monitoring Service



The screenshot displays the FireHub interface with a satellite map of Greece. A table titled "Fire Events Query Data" is visible in the bottom right corner, listing fire events with their EID, AREA, Sensor, Municipality, Beginning Time, End Time, and Duration.



EID	AREA(ha)	Sensor	Municipality	Beginning Time	End Time	Duration
S6612		SEVIRI	Δ. Κεφαλονίδς	2021-07-03 12:20:00	2021-07-03 16:15:00	4
S6605		SEVIRI	Δ. Φερσόλων	2021-07-02 10:10:00	2021-07-02 18:35:00	8.5
S6610		SEVIRI	Δ. Ασπροπόργου	2021-07-03 10:50:00	2021-07-03 11:20:00	0.58
S6609		SEVIRI	Δ. Ασπροπόργου	2021-07-03 09:55:00	2021-07-03 12:20:00	2.5
S6611		SEVIRI	Δ. Φερσόλων	2021-07-03 11:20:00	2021-07-03 11:50:00	0.58

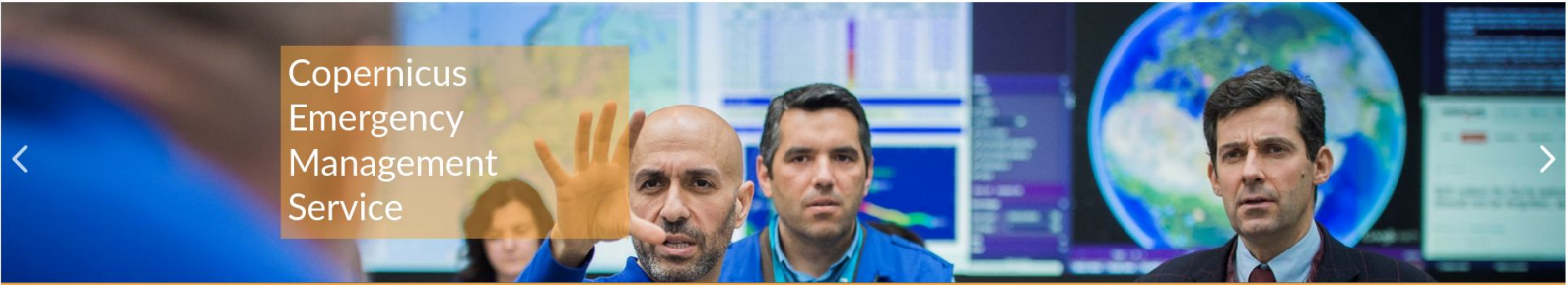
Below the table, there is a legend for "All Detected Hotspots End Time (Days)Hours" and "High Resolution Satellite Observations". The status information at the bottom right indicates: Mode: Realtime, Time: 2021-07-03T16:20:03 GMT, Time Window: 1d, Total #Events: SEVIRI: 5 HighRes: 0, Latest #Events: 1.

Copernicus Emergency Management Service (CEMS)

Copernicus EMS On Demand Mapping

Implemented by the European Commission as part of the Copernicus Programme


  Home [FAQ/Service Overview](#) [Access to EMS data](#)



Copernicus
Emergency
Management
Service



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Information for emergency response and disaster risk management.



On demand mapping

Copernicus EMS On Demand Mapping provides on-demand detailed information for selected emergency situations that arise from natural or man-made disasters anywhere in the world.



Copernicus Emergency Management Service (CEMS)

Flood Wildfires Drought

Rapid Mapping provides geospatial information within hours or days of a service request in order to support emergency management activities in the immediate aftermath of a disaster.



Risk & Recovery Mapping supplies geospatial information in support of Disaster Management activities including prevention, preparedness, risk reduction and recovery phases.



Early Warning & Monitoring

Copernicus EMS Early Warning and Monitoring offers critical geospatial information at European and global level through continuous observations and forecasts for floods, droughts and forest fires.



Floods

The **European Flood Awareness Systems (EFAS)** and **Global Flood Awareness Systems (GloFAS)** provide complementary flood forecast information to relevant stakeholders that support flood risk management at the national, regional and global level.



Fires

The **European Forest Fire Information System (EFFIS)** monitors forest fire activity in near-real time. EFFIS supports wildfire management at the national and regional level for EU member states and across the Middle East and North Africa.

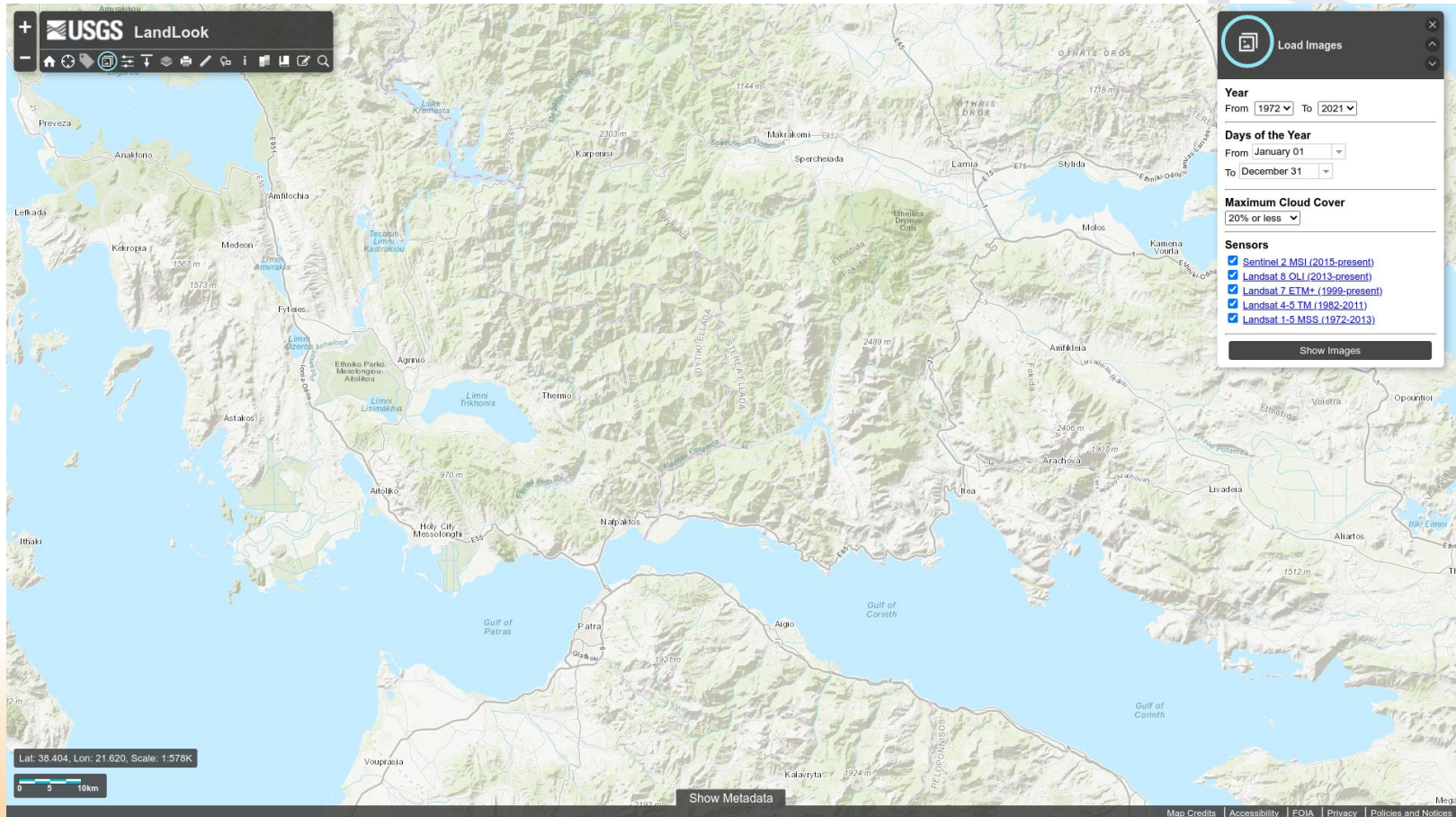


Droughts

The **Drought Observatory (DO)** provides drought-relevant information and early-warnings for **Europe (EDO)** and **globally (GDO)**. The service publishes short analytical reports (Drought News) in anticipation of an imminent drought.



USGS - LandsatLook 2.0



ESA's ERS-1: 17 July 1991

30 years of outstanding achievements



Celebrating 30 years of ERS

What?
The European Remote Sensing (ERS) satellite programme was composed of two missions, ERS-1 and ERS-2

When?
Launched on 17 July 1991 and 21 April 1995, on Ariane-4 rockets from Europe's Spaceport in Kourou, French Guiana, with same sun-synchronous polar orbit at about 780 km altitude

Applications
The satellites circled Earth over 120,000 times in total, continuously observing and monitoring our planet's land, atmosphere, oceans and ice caps, while supporting scientific research, operational services and applications in several domains

Instruments
ERS-1 and ERS-2 were the most advanced and complex satellites of their time, delivering an enormous volume of data to Earth through a comprehensive set of instruments, including:

- An imaging synthetic aperture radar (SAR)
- A radar altimeter (RA)
- A water vapour measuring microwave radiometer (MWR) and a temperature-measuring radiometer (ATSR)
- An ozone monitoring spectrometer (GOME) – on ERS-2 only

Data and Users?
ERS data supported over 5,000 projects producing some 4000 scientific publications. Archived heritage data still provide a wealth of information, and are continuously improved to build harmonised, long time data series with successor missions like Envisat and Copernicus Sentinels

Heritage Value
Both satellites far exceeded their design life of three years, with ERS-1 ending in 2000 and ERS-2 in 2011. Today data are accessible and enhanced as part of the Heritage Space Programme, together with data from other missions

Built by?
Designed and built by an international consortium of European industries led by DSS (Dornier Satelliten Systeme GmbH)

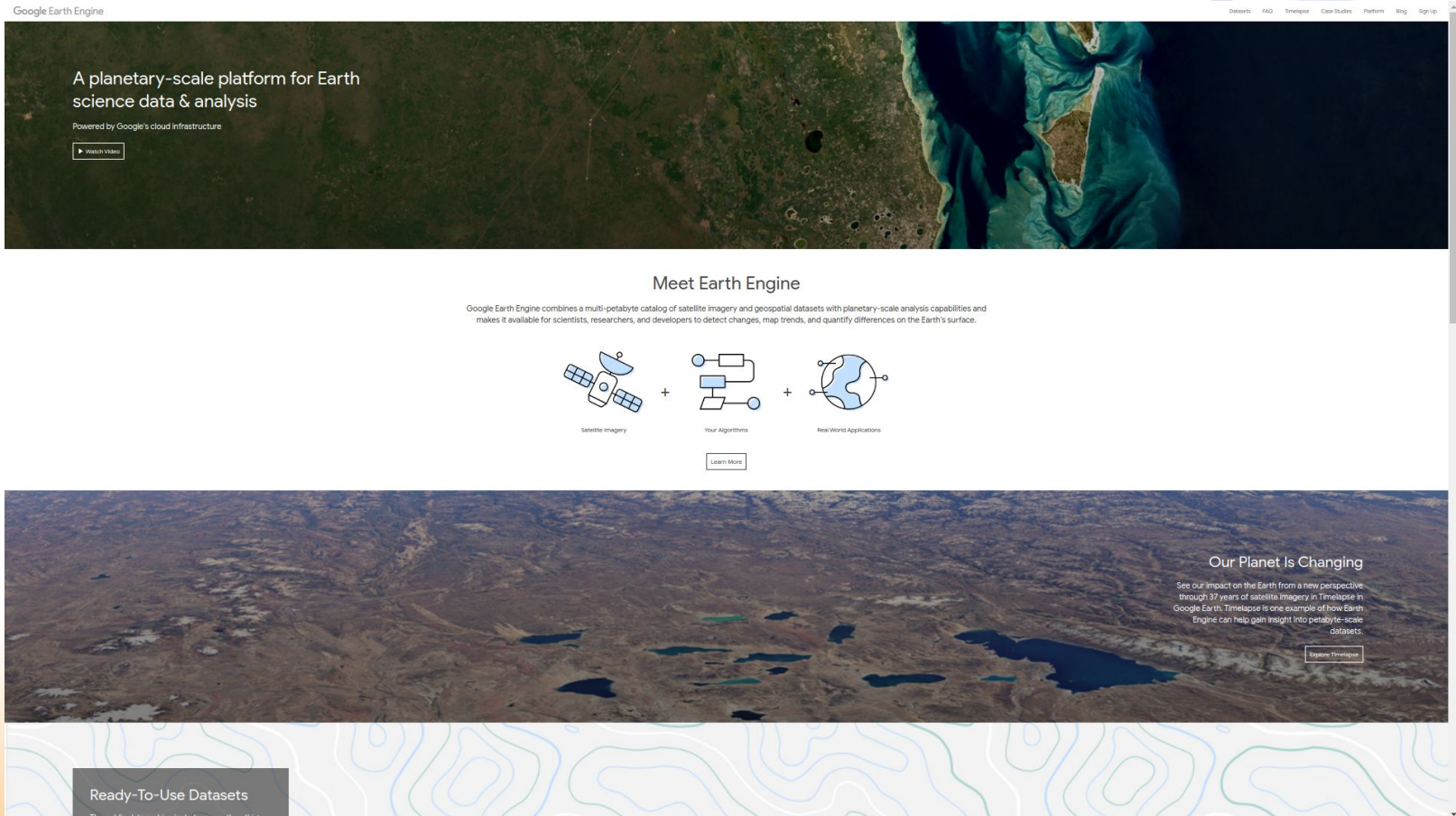
Innovation
A tandem mission was implemented following the launch of ERS-2, which shared the same orbit as ERS-1. This enabled an accurate, three-dimensional digital map of Earth's land surfaces and allowed to detect small changes on Earth's surface with a range precision of 1 cm, opening new fields of applications.

Data Access
<https://earth.esa.int/eogateway/missions/ers/data>

For more information visit:
<https://earth.esa.int/eogateway/missions/ers>

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Google Earth Engine



Google Earth Engine

Home | About | FAQ | Tutorials | Case Studies | Platform | Blog | Sign Up

A planetary-scale platform for Earth science data & analysis

Powered by Google's cloud infrastructure

[Watch Video](#)

Meet Earth Engine

Google Earth Engine combines a multi-petabyte catalog of satellite imagery and geospatial datasets with planetary-scale analysis capabilities and makes it available for scientists, researchers, and developers to detect changes, map trends, and quantify differences on the Earth's surface.

Satellite Imagery + Your Algorithms + Real-World Applications

[Learn More](#)

Our Planet Is Changing

See our impact on the Earth from a new perspective through 37 years of satellite imagery in Timelapse in Google Earth. Timelapse is one example of how Earth Engine can help gain insight into planetary-scale datasets.

[Explore Timelapse](#)

Ready-To-Use Datasets

The public data archive includes more than thirty

Google Earth Engine



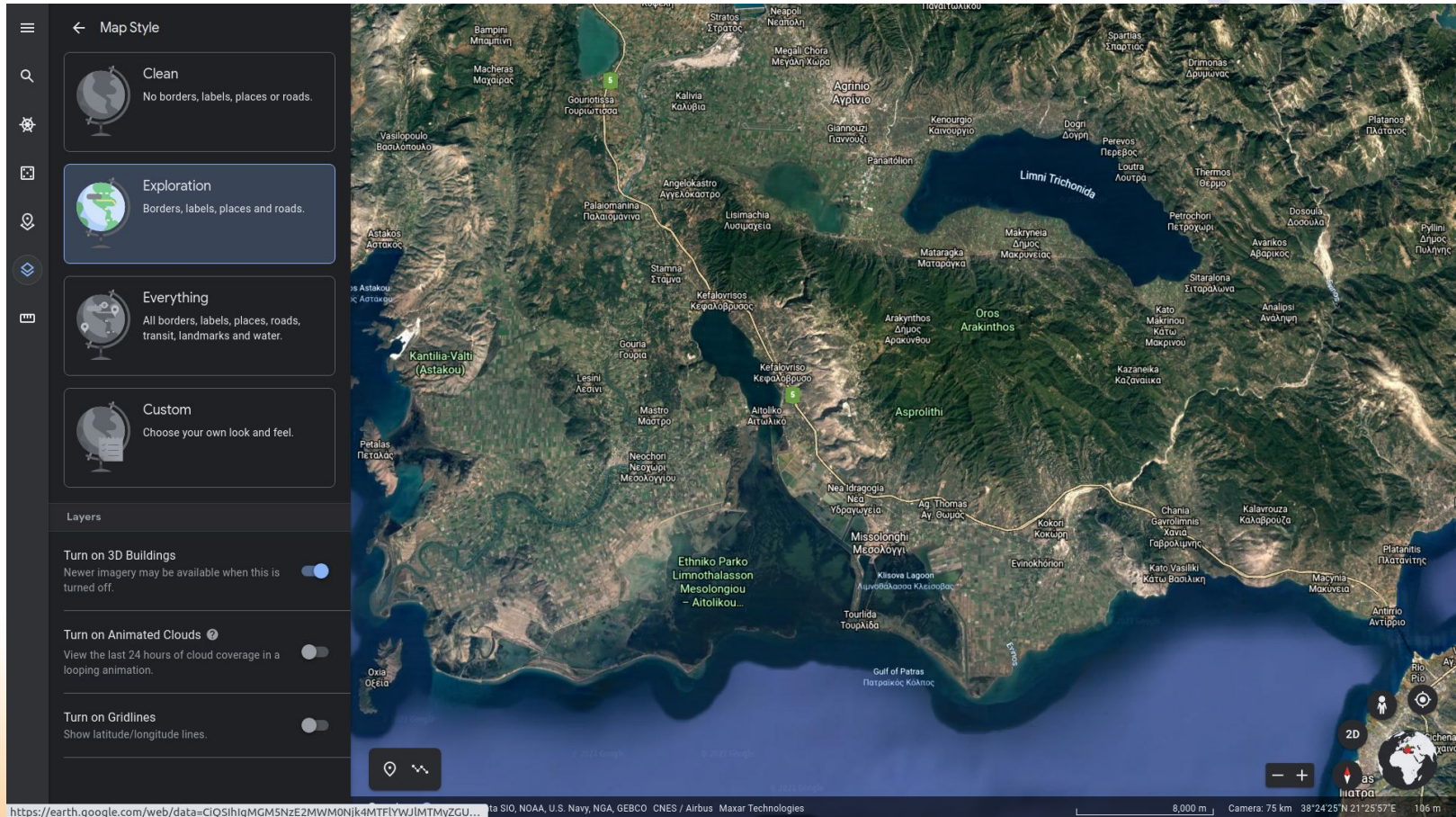
Google Earth Engine

[Datasets](#) [FAQ](#) [Timelapse In Earth](#) [Case Studies](#) [Platform](#) [Blog](#) [Sign Up](#)

Google Earth Timelapse

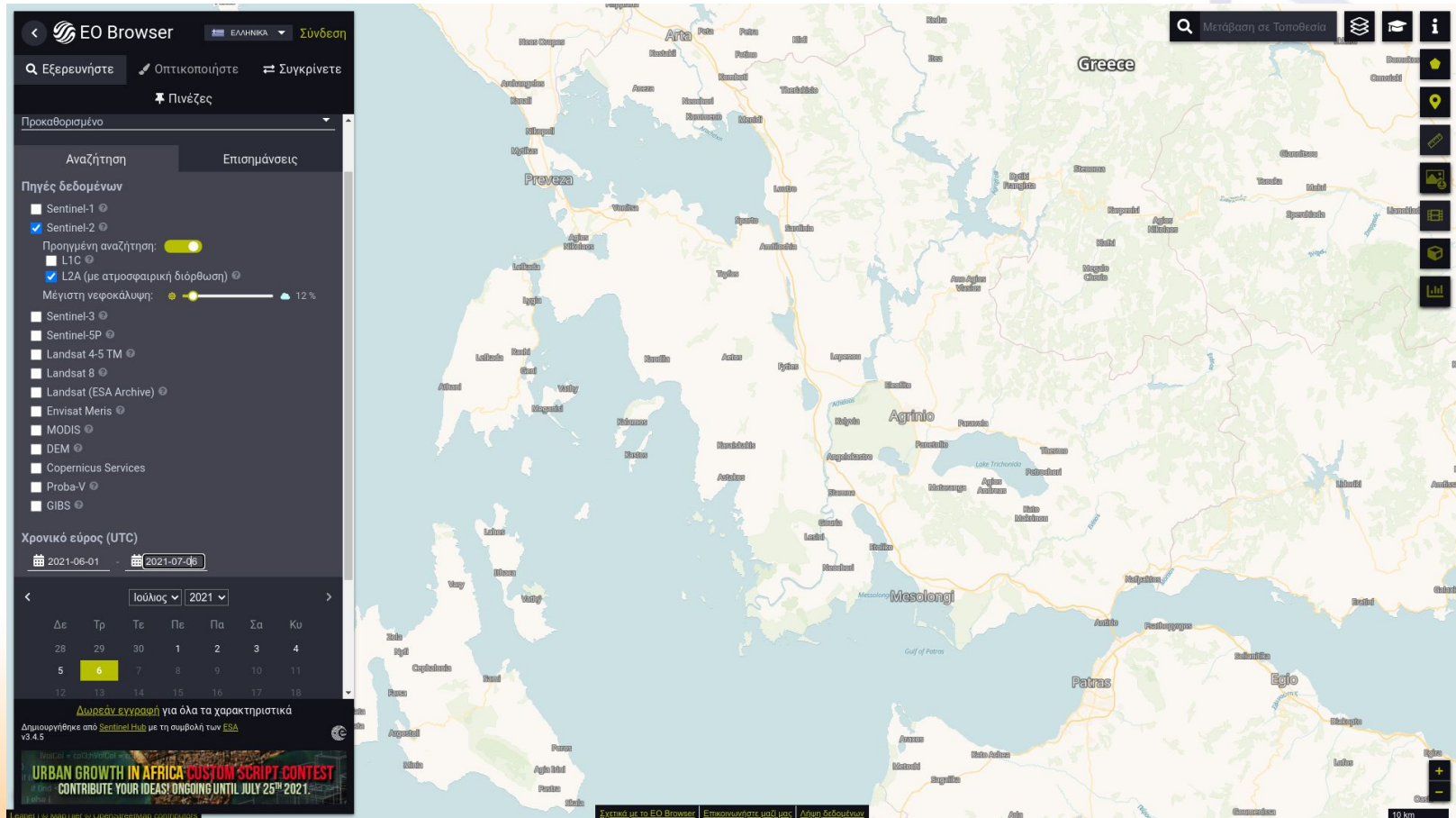
A screenshot of the Google Earth Engine interface. The main view is a satellite timelapse of the Berlin Brandenburg Airport construction site. The search bar at the top left shows coordinates 52.36048, 13.50878. On the left sidebar, under "Timelapses around the world", the selected timelapse is "Construction of the B... Schonefeld, Germany". The main view shows a satellite image with a central construction site. A "NOW VIEWING" overlay at the bottom center indicates "Construction of the Berlin Brandenburg Airport". At the bottom, a timeline shows years from 2008 to 2020, with 2015 selected. A zoom level of 0.5x is shown on the right. A small inset map in the top right corner shows the location within Germany.

Google Earth



Sinergise EO Browser

DragonHack - Best Earth Observation Hack challenge

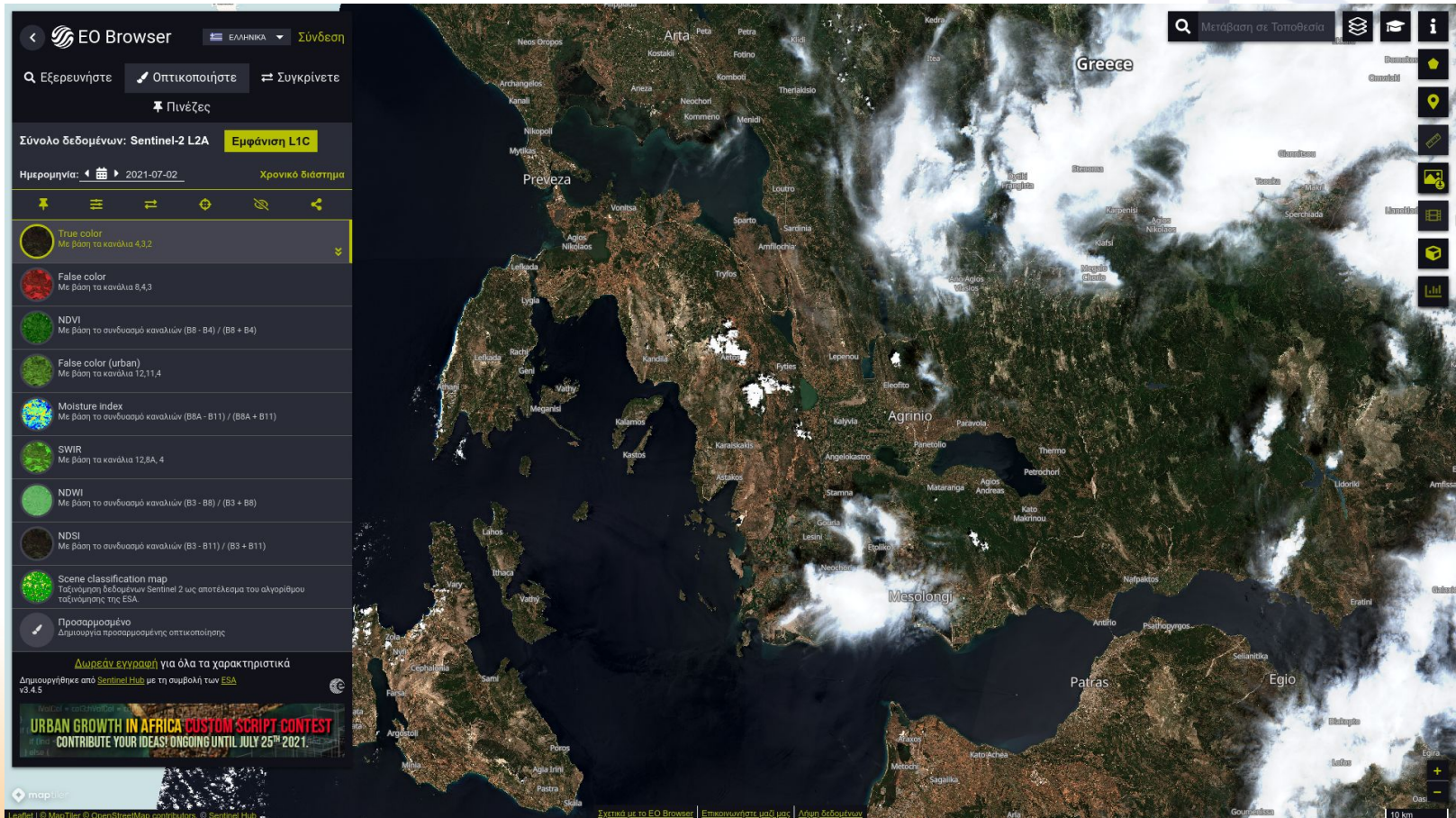


The screenshot displays the EO Browser interface. On the left, a sidebar contains the following elements:

- Search bar: Εξερευνήστε
- Tools: Οπτικοποιήστε, Συγκρίνετε
- Πινέζες (Layers)
- Προκαθορισμένο (Predefined)
- Αναζήτηση (Search) / Επιστημόσεις (Layers)
- Πηγές δεδομένων (Data Sources):
 - Sentinel-1
 - Sentinel-2
 - Προηγμένη αναζήτηση: L1C
 - L2A (με ατμοσφαιρική διόρθωση)
 - Μέγιστη νεφοκάλυψη: 12%
 - Sentinel-3
 - Sentinel-5P
 - Landsat 4-5 TM
 - Landsat 8
 - Landsat (ESA Archive)
 - Envisat Meris
 - MODIS
 - DEM
 - Copernicus Services
 - Proba-V
 - GIBS
- Χρονικό εύρος (UTC): 2021-06-01 to 2021-07-06
- Calendar: July 2021, with the 6th highlighted.
- Διαρέν ενγγραφή (Disclaimer) for all characteristics.
- Advertisement: URBAN GROWTH IN AFRICA CUSTOM SCRIPT CONTEST

The main map area shows a satellite view of Greece, with labels for cities like Preveza, Agrinio, Mesolongi, Patras, and Eglio. A search bar at the top right contains the text "Μεταβίση σε Τοποθεσία". A toolbar on the right side includes icons for home, location, and other map functions. A 10 km scale bar is visible at the bottom right.

Sinergise EO Browser DragonHack - Best Earth Observation Hack challenge



KOMPSAT-2



Korean EO satellite launched on July 28th, 2006

find more data

KOMPSAT-2 ESA archive
Data
03 May 2021

Keywords: Cameras Energy and Natural Resources Human Dimensions KOMPSAT-2 Land Surface Mapping and Cartography MSC Natural Hazards and Disaster Risk

KOMPSAT-2 DOWNLOAD ⓘ

Description	Details	Related Datasets
-------------	---------	------------------

Description

Kompsat-2 ESA archive collection is composed by bundle (Panchromatic and Multispectral separated images) products from the Multi-Spectral Camera (MSC) onboard KOMPSAT-2 acquired from 2007 to 2014: 1m resolution for PAN, 4m resolution for MS

Spectral Bands:

Band	Color	Wavelength Range (nm)	Description
PAN		500 – 900 nm	Locate, identify and measure surface features and objects primarily by their physical appearance
MS1	Blue	450 – 520 nm	Mapping shallow water, differentiating soil from vegetation
MS2	Green	520 – 600 nm	Differentiating vegetation by health
MS3	Red	630 – 690 nm	Differentiating vegetation by species
MS4	NIR	760 – 900 nm	Mapping vegetation, mapping vegetation vigor/health, Differentiating vegetation by species

Details

DATA SET SPECIFICATIONS

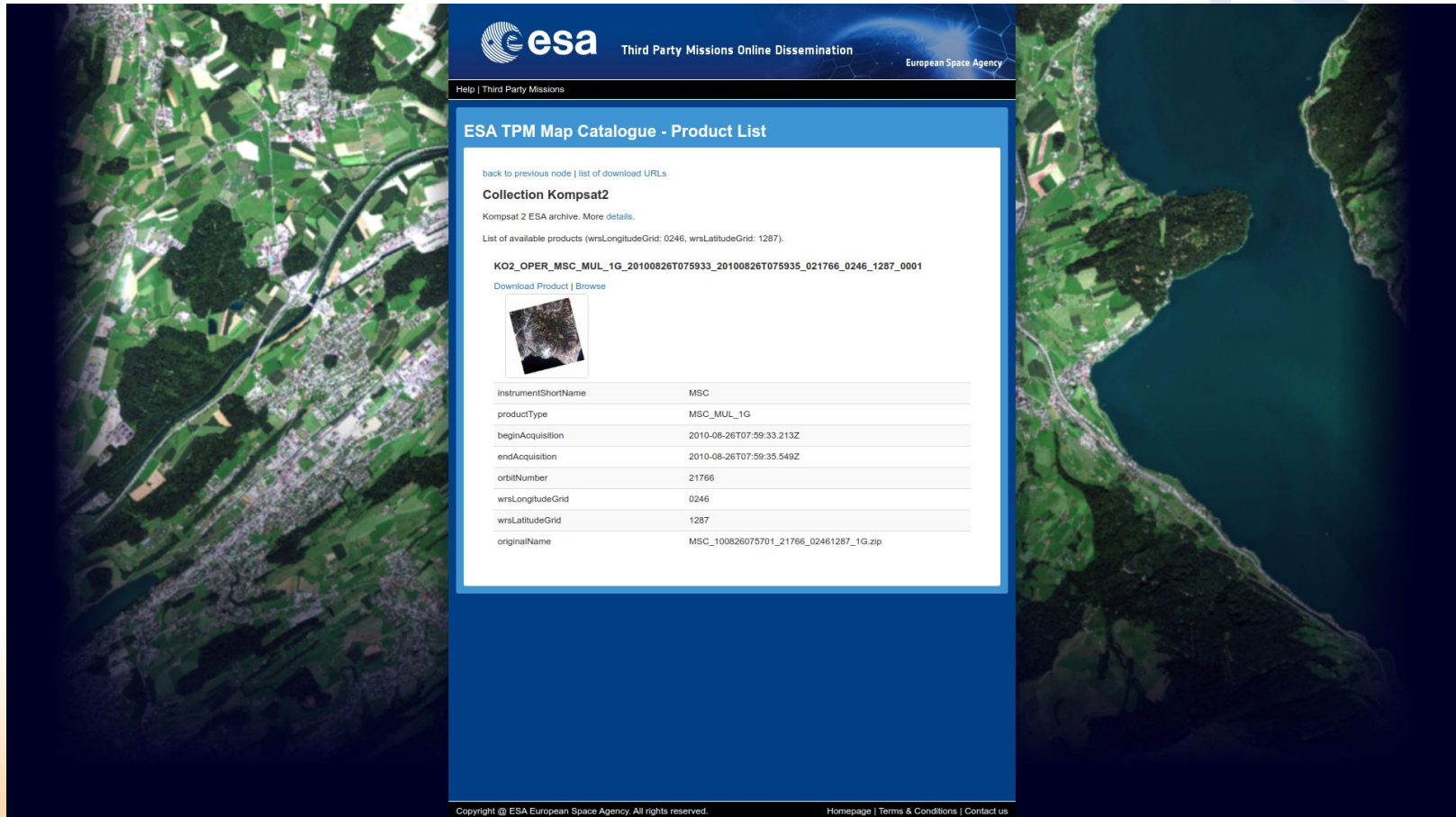
Spatial coverage: 90 N, -90 S, -180 W, 180 E
Temporal coverage: 2007-04-18 - 2014-03-21
Date of launch: 2006-07-28
Operators: KARI
Mission status: onGoing
Orbit height: 685 km
Orbit type: Sun-synchronous
Swath width: 15 km
Resolution: Very High Resolution - VHR (0 - 5m)
Wavelengths: VIS (0.40 - 0.75 μm), NIR (0.75 - 1.30 μm)
Product types: MSC_MUL_1R, MSC_MUL_1G

PROCESSING LEVEL

level 1, level 1G, level 1R, multiple

KOMPSAT-2

2010-08-26 07:59:33.213 - 07:59:35.549 UTC



esa Third Party Missions Online Dissemination European Space Agency

Help | Third Party Missions

ESA TPM Map Catalogue - Product List

[back to previous node](#) | [list of download URLs](#)


Collection Kompsat2

Kompsat 2 ESA archive. [More details](#).

List of available products (wrsLongitudeGrid: 0246, wrsLatitudeGrid: 1287).

KO2_OPER_MSC_MUL_1G_20100826T075933_20100826T075935_021766_0246_1287_0001

[Download Product](#) | [Browse](#)

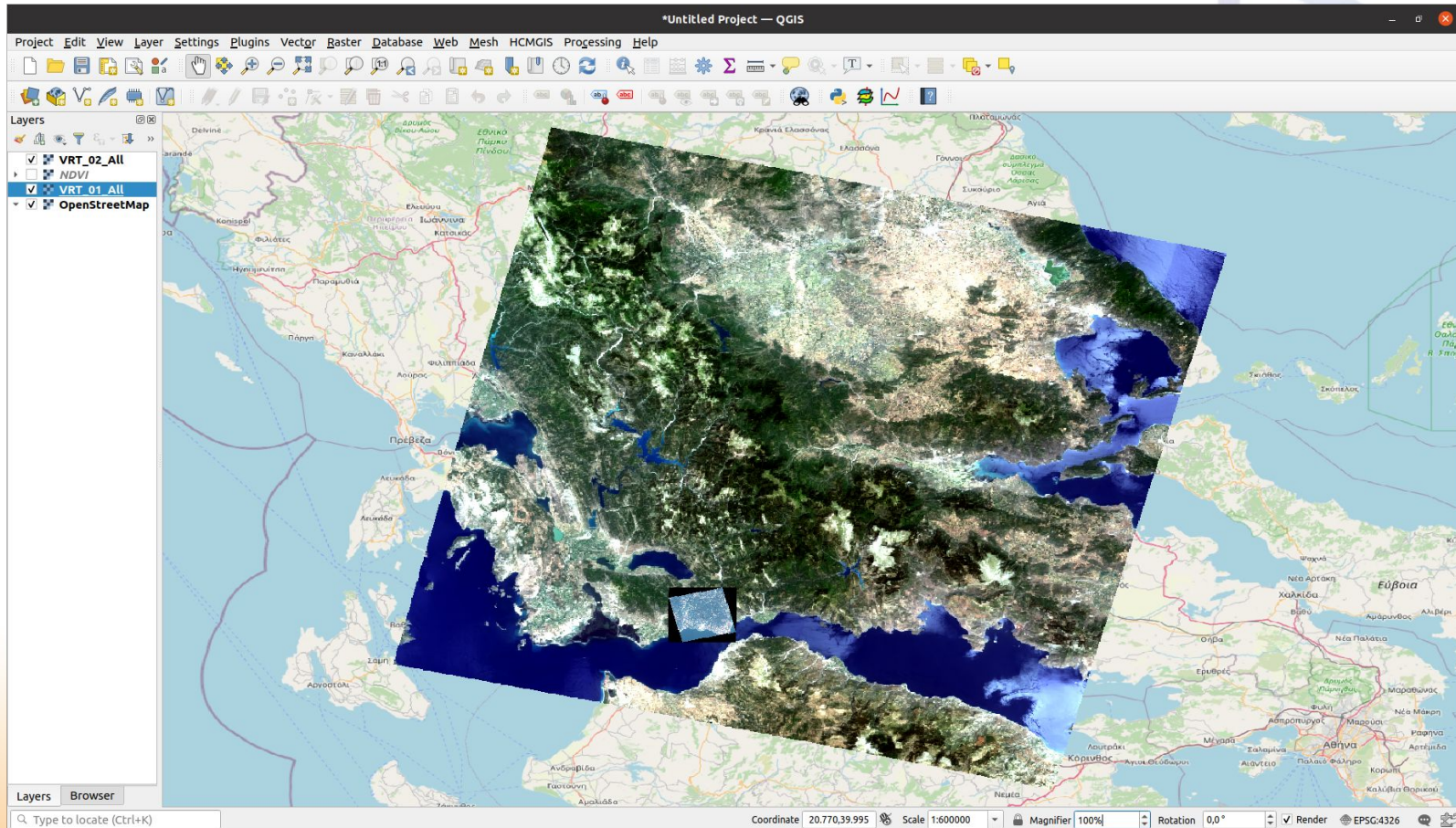


instrumentShortName	MSC
productType	MSC_MUL_1G
beginAcquisition	2010-08-26T07:59:33.213Z
endAcquisition	2010-08-26T07:59:35.549Z
orbitNumber	21766
wrsLongitudeGrid	0246
wrsLatitudeGrid	1287
originalName	MSC_100826075701_21766_02461287_1G.zip

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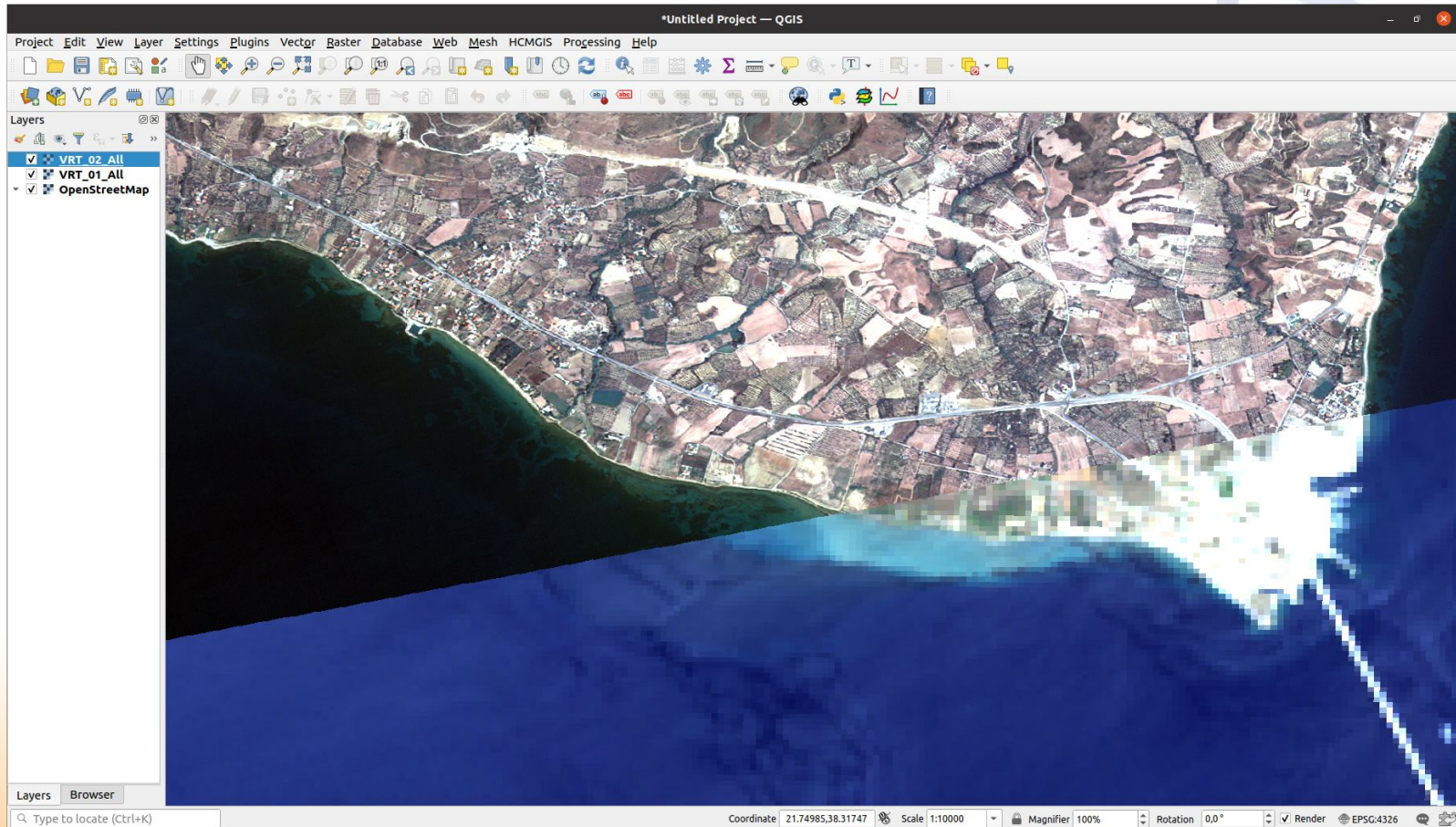
Landsat vs KOMPSAT-2

30/06/21 vs 26/08/2010, Natural colors



Landsat vs KOMPSAT-2

30/06/21 vs 26/08/2010, Natural colors



WorldView - 2 , 3



INFORMATION PRODUCTS



Standard Imagery

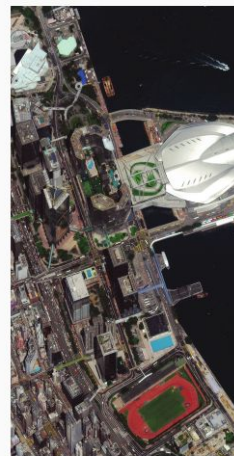
DigitalGlobe's Standard Imagery products are designed for users with knowledge of remote sensing applications and image processing tools that require data of modest absolute geometric accuracy and/or large area coverage. They use DigitalGlobe's constellation of satellites, which include QuickBird (archive only), GeoEye-1, WorldView-1, WorldView-2, and WorldView-3. Choose from our expansive archive or submit a new collection request. Standard Imagery products are available in two varieties: Standard and Ortho Ready Standard.

Features

- » Georeferenced to a cartographic projection
 - Industry standard projections and datums
- » High resolution
 - 30 cm, 40 cm, 50 cm and 60 cm panchromatic, natural color, color infrared, or 4-band pan sharpened
 - 1.6 m – 2.4 m multispectral
- » Large image swath collection size
 - 16.4 km – 18.0 km width at nadir
- » Small minimum order size
 - 25 sq km—archive
 - 100 sq km—tasking
- » Superior image classification and analysis
 - 11-bit digitization (up to 2,048 levels of gray scale)
 - Discrete non-overlapping spectral bands
- » Open systems
 - Compatible with commercial software providers
 - Popular image file formats

Benefits

- » Locate features in map coordinate space
- » Identify features, create maps, and detect changes from recent global imagery at the highest resolution possible from commercial imaging satellites
- » Flexible options—Standard Imagery is normalized for topographic relief and Ortho Ready Standard Imagery is ready for users to orthorectify
- » Purchase only the coverage needed for your project and budget
- » Improve feature classification and identification in dark or bright areas such as building shadows or snow and perform more flexible image enhancement
- » Get your project up and running quickly and easily based on standard map projections and formats



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INFORMATION PRODUCTS » STANDARD IMAGERY



Specifications

Product options	Pixel resolution*	Image bands
Panchromatic	30 cm, 50 cm, as collected	Panchromatic
Multispectral (4-band)	1.2 m, 2 m, as collected	Blue, Green, Red, NIR1
Multispectral (8-band)	1.2 m, 2 m	Coastal, Blue, Green, Yellow, Red, Red Edge, NIR1, NIR2
Bundle (pan + 4-band)	30 cm, 50 cm, as collected	Panchromatic
	1.2 m, 2 m, as collected	Blue, Green, Red, NIR1
Bundle (pan + 8-band)	30 cm, 50 cm	Panchromatic
	1.2 m, 2 m	Coastal, Blue, Green, Yellow, Red, Red Edge, NIR1, NIR2
Natural Color	30 cm, 50 cm, as collected	Blue, Green, Red
Color Infrared	30 cm, 50 cm, as collected	Green, Red, NIR1
4-band Pan Sharpened	30 cm, 50 cm, as collected	Blue, Green, Red, NIR1

Spectral characteristics (nanometers)

	Coastal	Blue	Green	Yellow	Red	Red Edge	Near-IR1	Near-IR2	Pan (B@W)
QuickBird™		430–545	466–620	590–710			715–918		405–1053
GeoEye-1		450–510	510–580	655–690			780–920		450–800
WorldView-1									397–905
WorldView-2	396–458	442–515	506–586	584–632	624–694	699–749	765–901	856–1043	447–808
WorldView-3	400–450	450–510	510–580	630–625	630–690	705–745	770–895	860–1040	450–800

Image accuracy specifications

QuickBird™	23 m CE90
GeoEye-1	5.0 m CE90
WorldView-1, WorldView-2 ¹ , WorldView-3	5.0 m CE90

Processing	Standard	Ortho Ready Standard
Applied corrections	Radiometric, sensor, and geometric corrections Mapped to a cartographic projection	
Geometric corrections	Projected to a plane using map projection and datum, coarse DEM applied to normalize for topographic relief	Projected to a plane using map projection and datum, projected to a constant base elevation to allow for orthorectification

Order parameters

Product type	Panchromatic, Multispectral, or Bundle; Natural Color; Color Infrared; 4-band Pan Sharpened
Image bits / pixel	8 or 16 bits
File formats	GeoTIFF 1.0, NITF 2.1, NITF 2.0

* All four bands delivered in a single file
¹ Up to 30° off nadir
² Archive Only

Deliverables

Standard Imagery can be acquired directly from the DigitalGlobe archive or you can submit a new collection request. Standard Imagery is ordered by area, with a minimum purchase of 25 sq km for archive or 100 sq km tasking orders, up to a maximum of 10,000 sq km per order. If your order crosses more than one strip, one standard imagery product per scene is delivered. Products are delivered on your choice of standard digital media with Image Support Data files including image metadata.

Delivery methods

- Media delivery: DVD
- Media delivery: external HD
- Web-based delivery: FTP

DS-STAND 10/14

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Planet



The screenshot shows the Planet website interface. At the top left is the Planet logo. The top right navigation bar includes links for PRODUCTS, SOLUTIONS, PARTNERS, COMPANY, BLOG, and GALLERY. The main content area features the heading "Real-Time Satellite Monitoring with Planet" and a sub-headline: "With 180+ Dove satellites in orbit, PlanetScope Monitoring provides a high-resolution, continuous, and complete view of the world from above, every day." Below this is a teal "GET STARTED" button. To the right, there are several satellite imagery thumbnails and a computer monitor displaying the PlanetScope web application interface, which includes a map, a list of recent images, and various controls.

WHAT IT IS

Global Perspective, Daily Insight, and Real-time Analysis with Planet's Satellite Monitoring

With Planet Monitoring, observe areas of geographic interest

WHAT IT IS

Global Perspective, Daily Insight, and Real-time Analysis with Planet's Satellite Monitoring

With Planet Monitoring observe areas of geographic interest, discover patterns, track infrastructure, and identify changes as they happen. From space, Planet Monitoring equips you with ground-truth data you need to make timely, informed decisions.



High Resolution

3.7 meter resolution images in four multispectral bands: RGB and Near Infrared



Image Library

Extensive archive of high-resolution images dating from 2009



Global Coverage

Over 300 million square kilometers of imagery collected each day

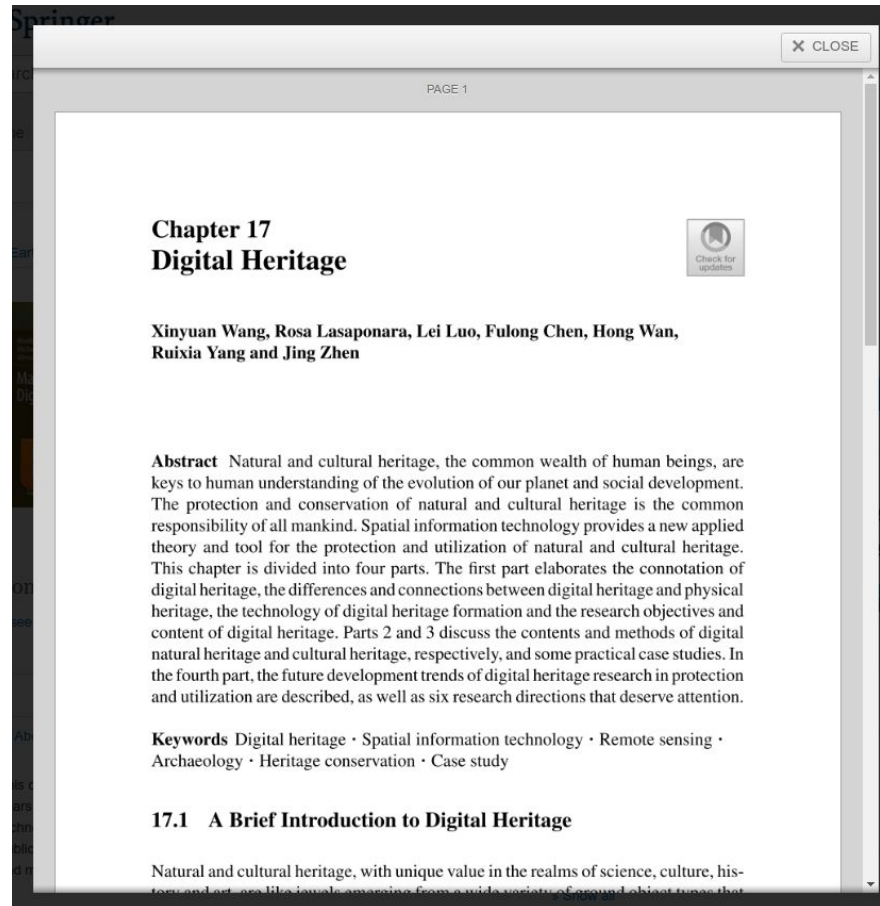


Access and Integration

Ready-to-use images and data, integrated simply into your existing workflow

Planet Monitoring provides 3.7 meter resolution images of the entire Earth daily. Access to these ready-to-use images is made simple with Planet's APIs, web application, and GIS integrations. Available through a subscription model, Planet Monitoring can be scaled to the requirements of your analysis and application needs.

Manual of Digital Earth



Ευχαριστούμε

Ερωτήσεις;



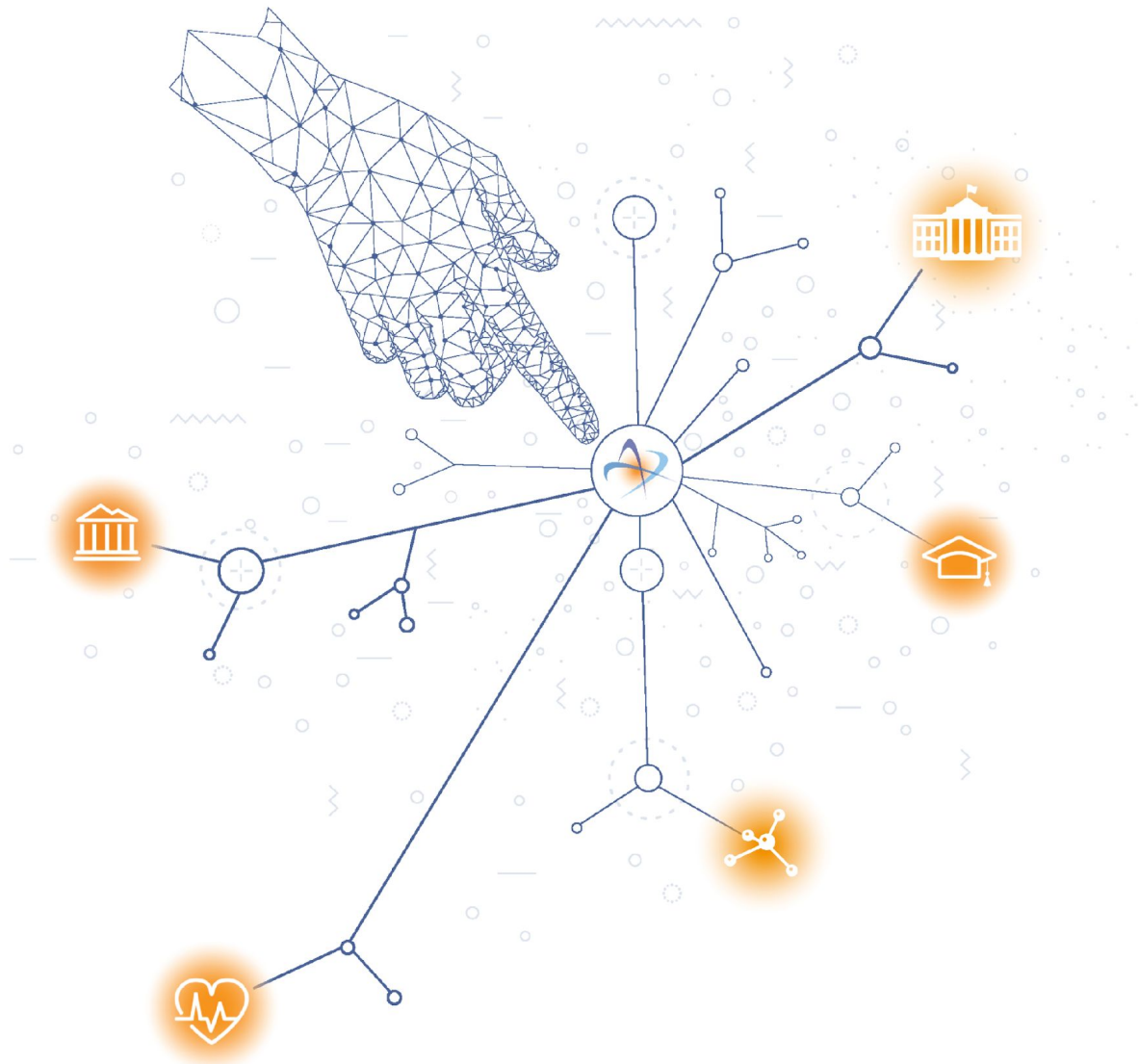
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