



Coordinating and Integrating EO Activities in North Africa, Middle East, and Balkans. Accelerating the Development of Links with Geo/ Geoss/Copernicus and Inspire initiatives

Alexia Tsouni
National Observatory of Athens

Antwerp, 19/09/2018



<http://geocradle.eu>



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The **GEO-CRADLE** project has received funding from the European Union's **Horizon 2020** research and innovation programme under grant agreement No 690133

The continuous provision of **accurate and timely information** through coordinated and sustained **Earth Observation** together with INSPIRE data, Copernicus, and GCI information

is a **key enabler**

for **informed decision making**, in response to regional challenges and towards the achievement of the **UN SDGs** and the implementation of relevant **EU Directives**.



In this direction **GEO-CRADLE** coordinates and integrates state-of-the-art EO activities in the regions of **North Africa, Middle East, and Balkans** and develops links with GEO related initiatives towards GEOSS, contributing amongst others to:



GEO-CRADLE brings together **key players** representing the **entire EO value chain** and promotes the uptake and exploitation of innovative EO activities in NAMEBA through:

- ✓ **Cooperation**
- ✓ **Awareness raising**
- ✓ **Capacity building**
- ✓ **Open data sharing principles**
- ✓ **Interoperability**



Challenges in GEO-CRADLE

GEO-CRADLE is **the only EU GEO funded CSA** that runs over the diversified territories of North Africa, Middle East and Balkans (NAMEBA):

- ✓ **Identifying common needs and regional priorities;**
- ✓ **Fostering the regional cooperation and integration of monitoring capabilities and skills, and facilitating the networking of stakeholders;**
- ✓ **Defining coordination and support actions that are beneficial from societal and market wise point of view, and also realistic and in line with the domestic priorities and user needs;**
- ✓ **Proposing/setting up large scale regional initiatives in Earth Observation (space based and in-situ) relating to capacity building and delivery of services and innovative information in the thematic areas of the project such as:**

Adaptation to Climate Change
Improved Food Security – Water Extremes Management
Access to Raw Materials
Access to Renewable Energy Resources - Solar Energy



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GEO-CRADLE Thematic Areas vs UN SDGs



SUSTAINABLE DEVELOPMENT GOALS
17 GOALS TO TRANSFORM OUR WORLD



Adaptation to Climate Change (ACC)

13 CLIMATE ACTION 	3 GOOD HEALTH AND WELL-BEING
11 SUSTAINABLE CITIES AND COMMUNITIES 	15 LIFE ON LAND

Improved Food Security – Water Extremes Management (IFS-WEM)

2 ZERO HUNGER 	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
-------------------	---

Access to Raw Materials (ARM)

1 NO POVERTY 	2 ZERO HUNGER
------------------	-------------------

Access to Solar Energy (SENSE)

7 AFFORDABLE AND CLEAN ENERGY 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
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GEO_CRADLE: Coordinating and Integrating State-of-the-Art Earth Observation Activities in the Regions of North Africa, Middle East, and Balkans and Developing Links With GEO Related Initiatives Towards GEOSS H2020-SC5-2015, GA : No 690133

2016-2019
2.910.800 EUR
<http://geocradle.eu/en/>

IN SUPPORT TO	LINKED TO GEO SOCIETAL BENEFIT AREA	LINKED TO COPERNICUS THEMATIC AREA	LINKED TO UN SUSTAINABLE DEVELOPMENT GOAL (SDG)	PROJECT TYPE
 <input checked="" type="checkbox"/>	 DISASTERS  ENERGY  FOOD SECURITY  PUBLIC HEALTH  WATER MANAGEMENT	 ATMOSPHERE  MARINE  LAND  CLIMATE  EMERGENCY  SECURITY	 ZERO HUNGER  AFFORDABLE ENERGY  CLIMATE CHANGE  LIFE ON LAND  SUSTAINABLE CITIES	COORDINATION ACTION RESEARCH & INNOVATION INNOVATION ACTION
 <input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>



- **INSPIRE and Copernicus share key requirements.**
- **A key issue is alignment to achieve interoperability.**
- **Content and geometry need to be harmonized and connected.**



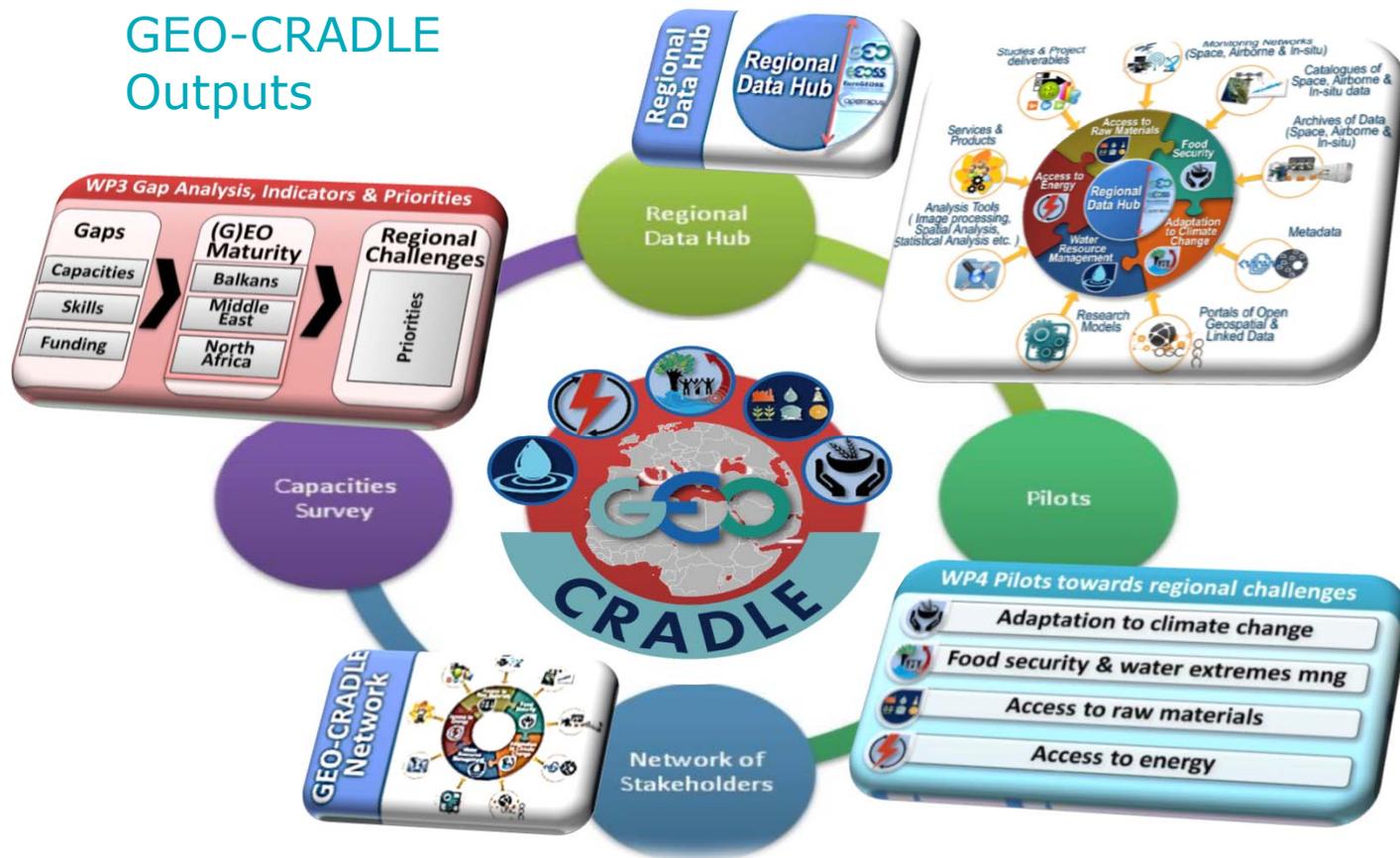
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GEO-CRADLE Outputs



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GEO-CRADLE Regional Workshops

16 Regional Workshops have taken place so far in NAMEBA:

- advocating for free & open data policies in support of **GEO & INSPIRE principles**
- supporting **knowledge sharing - capacity building**
- providing participants with a unique **cross-sector networking opportunity** (e.g. an enhanced cooperation between academia and industry)
- identifying the potential **local challenges and needs** that can be addressed by Earth Observation
- enhancing **growth and innovation** in the geo-information sector
- enabling more **informed decision making**

DATE	LOCATION
27/04/2016	Cairo, Egypt
14/07/2016	Novi Sad, Serbia
26/09/2016	Tirana, Albania
17-18/10/2016	Rabat, Morocco
19/10/2016	Timimoun, Algeria
16/11/2016	Limassol, Cyprus
03/01/2017	Chişinău, Moldova
02/02/2017	Abu Dhabi, United Arab Emirates
24/03/2017	Sofia, Bulgaria
26/04/2017	Brussels, Belgium (Industrial market)
09/05/2017	Magurele, Romania
25/05/2017	Cairo, Egypt
14/09/2017	Tel Aviv, Israel
07/12/2017	Tunis, Tunisia
15-16/03/2018	Istanbul, Turkey
04-05/06/2018	Thessaloniki, Greece (3 rd South-Eastern Europe GEO Workshop)





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GEO-CRADLE Portal

<http://geocradle.eu>

Search

About GEO-CRADLE Team Activities Regional Capacities Outreach Resources Tools News & Events English

GEO-CRADLE Project

Coordinating and integrating Earth Observation activities

- Pilot Activities**
Follow our pilot activities in four thematic areas:
- Survey & Networking Platform**
Take part in our
- DataHub**
Access, search and share Earth Observation Data for the three regions.
- Funding Opportunities**
Explore the available funding opportunities and the benefit of



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GEO-CRADLE Networking Platform

<http://geocradle.eu/platform>

**Available for the first
time in the RoI:**

- inventory of regional capacities
- profiles of stakeholders
- assessment of country maturity
- potential partnerships

GEO-CRADLE Networking Platform
Database of GEO-CRADLE stakeholders

Register Login

HOME PROFILES USER MANUAL

Country Organisation Name Thematic Area

Roadmap Terrain Satellite Zoom In Zoom Out

Search by Keywords: e.g. word1, word2

If you wish to use more filters for your search, please visit the [Advanced Search Page](#).

1. GO TO SEARCH PAGE
2. CHOOSE YOUR FILTERS
3. GET YOUR SEARCH RESULTS

COUNTRIES 29

STAKEHOLDERS 191

PROFILES VIEWS 61278



GEO-CRADLE Networking Platform

- **Software:** Wordpress.
- **Access:** Open access to all.
- **Profiles:** The profiles include exclusive and specific information collected by the GEO-CRADLE Survey.
- **Validation:** The profiles are validated by an administrator before publishing.
- **Filtering / search:** Three different mechanisms for filtering / search:
 - ✓ **Map search:** 3 filters to search the database & displays results on the map;
 - ✓ **Keywords search:** search by one or more keywords;
 - ✓ **Advanced search page:** 10 filters combined with “search by keywords” option.



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Search option 1: Map view

The screenshot shows the GEO-CRADLE Networking Platform interface. At the top, there are navigation links for Register and Login. The main header includes the platform name and navigation options: HOME, PROFILES, and USER MANUAL. The central feature is a world map with search filters: Country, Organisation Name, and Thematic Area, all enclosed in a red circle. Below the map, there is a search bar with the placeholder text "Search by Keywords: e.g. word1, word2" and a search icon. A note below the search bar reads: "If you wish to use more filters for your search, please visit the [Advanced Search Page](#)." At the bottom of the search section, there is a three-step navigation guide: 1. GO TO SEARCH PAGE (with a magnifying glass icon), 2. CHOOSE YOUR FILTERS (with a filter icon), and 3. GET YOUR SEARCH RESULTS (with a list icon).



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Filters:

Country: Greece

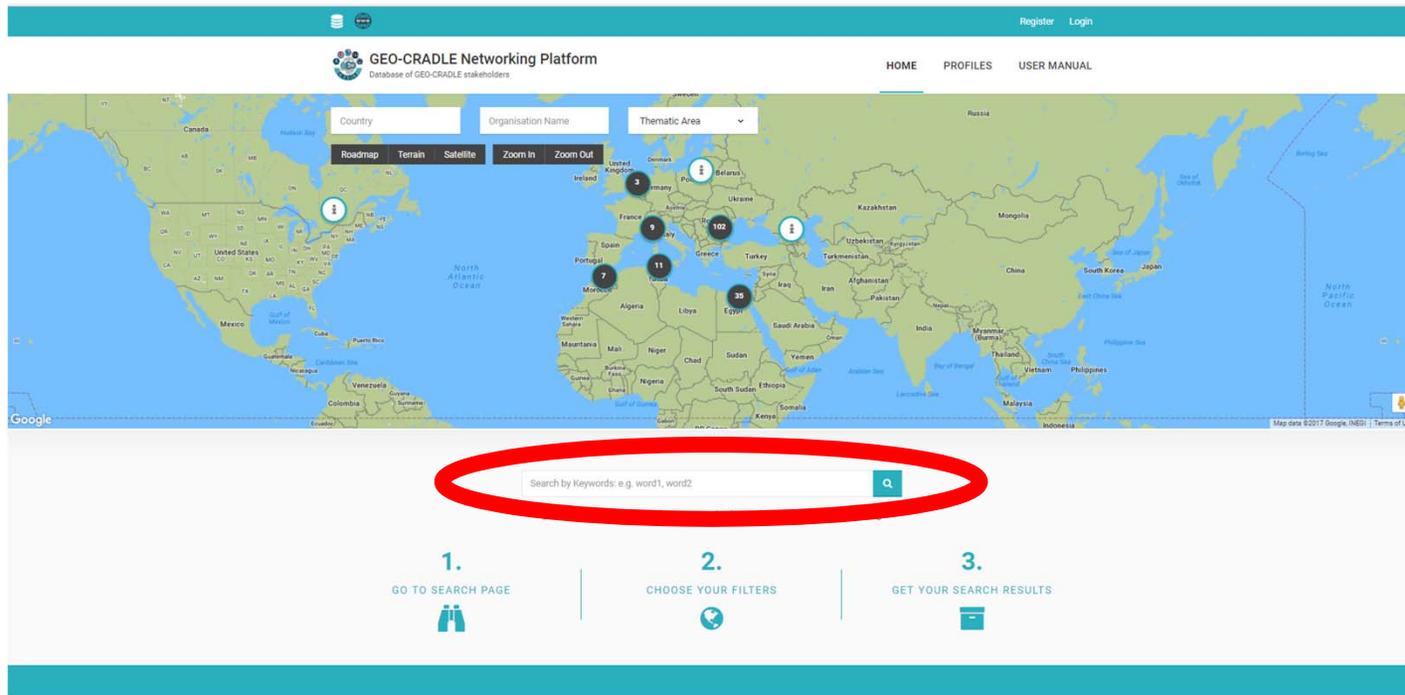
Thematic Area: Food security

Results on the map: 14

The screenshot shows the GEO-CRADLE Networking Platform interface. At the top, there is a teal navigation bar with 'Register' and 'Login' links. Below this is the platform's logo and name, 'GEO-CRADLE Networking Platform', with the subtitle 'Database of GEO-CRADLE stakeholders'. Navigation links for 'HOME', 'PROFILES', and 'USER MANUAL' are visible. The main content is a map of Greece. Two search filters are highlighted with red circles: 'Greece' in the 'Country' dropdown and 'Food security' in the 'Thematic Area' dropdown. The map shows various cities in Greece, including Athens, Thessaloniki, and Ioannina. The map data is attributed to Google, 2018.



Search option 2: Search by keywords (for quick search)



Register Login

GEO-CRADLE Networking Platform
Database of GEO-CRADLE stakeholders

HOME PROFILES USER MANUAL

Country Organisation Name Thematic Area

Roadmap Terrain Satellite Zoom In Zoom Out

Search by Keywords: e.g. word1, word2

1. GO TO SEARCH PAGE

2. CHOOSE YOUR FILTERS

3. GET YOUR SEARCH RESULTS



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Filters:
Keywords: Thessaloniki

Results: 9

Country Organisation Food se

9 Search Results Found

Thessaloniki

If you wish to use more filters for your search, please visit the [Advanced Search Page](#).

GEO-CRADLE Networking Platform

9 Search Results Found

- AKKT - ENGINEERING
- Agrostis Ltd
- GEOSAT Company for Exploration and Development
- Q-LAB
- ANEO
- ANETH sa
- ERGIFLANNING
- RAX
- ARISTOTLE UNIVERSITY OF THESSALONIKI



Search option 3: Advanced search page

The screenshot shows the GEO-CRADLE Networking Platform interface. At the top, there are links for Register and Login. The main header includes the platform name and navigation links for HOME, PROFILES, and USER MANUAL. Below the header is a world map with search filters for Country, Organisation Name, and Thematic Area. The map displays several data points with information icons. Below the map is a search bar and a navigation bar with three steps: 1. GO TO SEARCH PAGE, 2. CHOOSE YOUR FILTERS, and 3. GET YOUR SEARCH RESULTS. A red oval highlights the navigation bar.



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Search by Keywords: e.g. word1, word2

Thematic Areas

- Access to raw materials
- Climate change
- Energy
- Food security
- Other

Role in the value chain

- Raw data/provider
- Value-adder(data process-modelling)
- GIS/mapping service provider
- End User with in house GIS/ mapping capabilities
- End User

Region

- Balkans
- North Africa
- Middle East
- Other

Organization type

- Institutional
- Research & Academic
- Commercial

Space-borne capacities

- Do you own/operate EO satellite systems? e.g. Sentinel 1, RASAT
- Do you own/operate EO Ground Segment facilities, for reception storage and redistribution of satellite data? e.g. ESA Mirror Site

Ground-based/In-situ monitoring networks/facilities

- Meteorological/Climatic
- Atmospheric Composition/Profiling
- Hydrometric/Water Quality
- Soil attributes/Spectra
- Energy/Radiation
- Other (e.g. Earthquake/Landslide)

Modelling and computing processing capacities

- Meteorological/Climatic
- Atmospheric Composition/Profiling
- Hydrometric/Water Quality
- Soil attributes/Spectra
- Energy/Radiation
- Other (e.g. Earthquake/Landslide)

The source of EO data used in the model.

- Geospatial data (e.g.DTM)
- Remote sensing data (e.g. raw satellite high-level images)
- In situ data (e.g. temperature-pressure-humidity)
- Other

Organisation has sufficient available computing resources for the processing and exploitation of EO data and the models running

- Server Clusters
- HPC Clusters
- Cloud Infrastructure
- Visualization Infrastructure
- Processing Power Capacity (CPU-RAM-Storage Capacity)
- Other

EO data exploitation for the provision of value-adding services and products

- Ecosystems(desertification-environmental impact-pollution)
- Land Motion/Ground Movement
- Inland Water (lakes and lakes)
- Land Use/Cover & Change (classified activities and statistics)
- Mesoscale (wind-waves)
- Geology
- Urban Areas
- Infrastructure (buildings-telecommunications and energy supply)
- Forest
- Snow/Ice
- Air Quality
- Climate
- Marine Ecosystems (including pollution-oil spills)
- Weather
- Floods
- Fires
- Agriculture (farming-crops-yield-etc)
- Other (e.g. landslides-earthquakes-etc)



Filters:

Region: Balkans

Thematic area: Climate change

Role: Raw data/provider

GEO-CRADLE Networking Platform
Database of GEO-CRADLE stakeholders

HOME PROFILES USER MANUAL

Search [1] word2

Thematic Areas

- Access to raw materials
- Climate change
- Energy
- Food security
- Other

Role in the value chain

- Raw data/provider
- Value-adder (data process-modelling)
- GIS/mapping service provider
- End User with in house GIS/mapping capabilities
- End user

Region

- Balkans
- North Africa
- Middle East
- Other

27 Search Results Found

Results: 27

Climate change, Food security, Other

AKKT - ENGINEERING

Remote Sensing and GIS Department, Space Research and Technology Institute, Bulgarian Academy of Sciences (SRTI-BAS)

Forest Research Institute - BAS

Forest Ecology

Climate change, Food security, Energy

IAAΔΕΤ

National Observatory of Athens

Institute for Astronomy & Astrophysics, Ioannina

STRANDJA Nature park Directorate, Bulgaria

STRANDJA Nature park Directorate

Climate change, Food security

REPUBLIKA E SHQIPËRIE

MINISTRIA E BUJQËSISË DHE ZHVILLIMIT RURAL DHE ADMINISTRIMISË URBANE

Ministria e Bujqësisë, Zhvillimit Rural dhe Administrimit Urbane

Agjencia Kombëtare e Mjedisit



Example Profile: National Observatory of Athens

National Observatory of Athens
Institute for Astronomy & Astrophysics, Space Applications and Remote Sensing

Climate change, Food security, Energy

☆ ☆ ☆ ☆ ☆

Share Add to favorites Print

Description Details Activity Focus Capacities National Activities Engagement in GEO-CRADLE Location

Description

The Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing (IAASARS) is one of the three institutes of the National Observatory of Athens, the oldest research institution in Greece. The main activities of the institute involve basic and applied research in a number of topics in astrophysics, from distant galaxies to the solar neighborhood, as well as ground based and space-borne remote sensing, earth observation and signal processing. The institute is also committed to outreach and science dissemination for the general public and operates two very popular visitor centers at Penteli and Thessia.

Details

First Name Hani
Last Name Kortoos

Contact Person
Hani Kortoos
kortoos@noa.gr
0030-210-8109186
Message

495 views

Contact us

Sections:

Description

Details

Activity Focus

Capacities

National Activities

Engagement in
GEO-CRADLE

Location



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GEO-CRADLE Portal

<http://geocradle.eu>

Search

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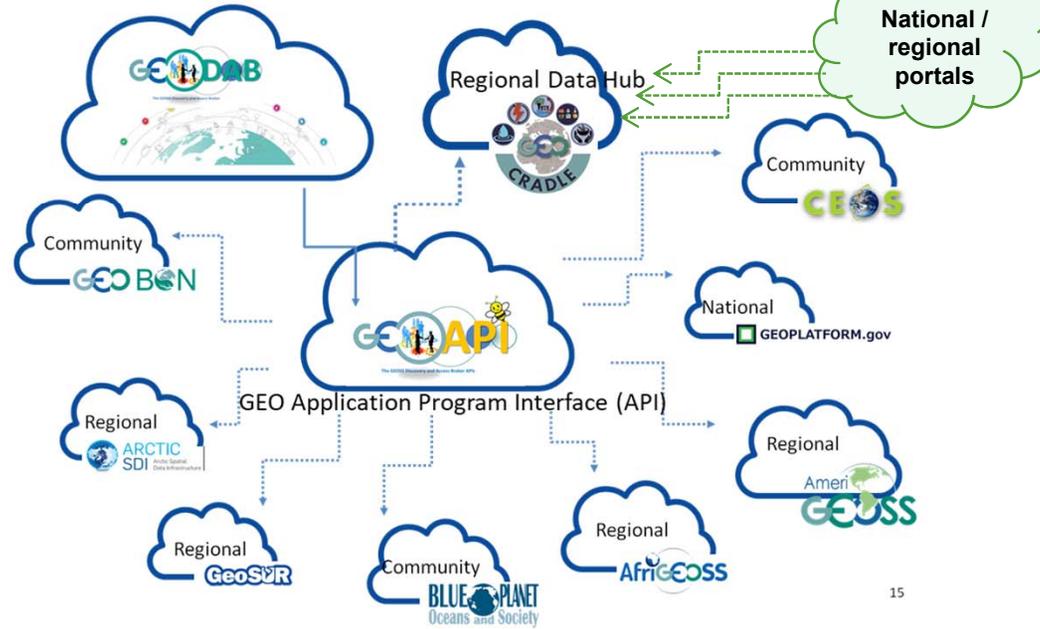
Users/GEO Portals

National, regional or thematic community portals,
leveraging GEOSS Common Infrastructure (GCI) resources
and GEO DAB APIs

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GEO Discovery and Access Broker (DAB)



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Geocradle



About

The Regional Data Hub (RDH) provides access to both region-related datasets, portals and services developed by a regional network of raw data providers, intermediate users/service providers, end-users from Industry, Academic and Public Sector from the Region of Interest, and, also, datasets and services directly fed from the GEOSS-portal. Moreover, being the centralised gateway for regional data providers to contribute easily and timely their products to GEOSS, the Regional Data Hub is designed to become the focal node in the region in the context of GEOSS and Copernicus implementation. The RDH facilitates access to downloadable files of Space-borne data from real-time EO satellite missions acquisitions; data from Airborne campaigns performed in the region; In-situ data; and Models such as Atmospheric and Climate.

Find



<http://datahub.geocradle.eu>

GEO-CRADLE Regional DataHub

Stable service
and full
interoperability
with GCI and
GEO DAB APIs,
as well as
connection with
data available
through the
project pilots.



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✓ **The GEO-CRADLE RDH is designed and operates as the focal node in the region in the context of GEOSS and Copernicus implementation.**

- It is an open data web management tool / portal (developed using web technologies such as PHP, HTML5, JavaScript, CSS, etc.) that provides access to region-related datasets and services, directly fed from GCI, and at the same time being the central gateway for regional data providers to contribute easily and timely their products to GEOSS.
- It advances the current state of the art by integrating DKAN, which is a complementary implementation of CKAN (Comprehensive Knowledge Archive Network) over Drupal/PHP, with the GEO DAB APIs. DKAN CMS (Content Management System) is an open-source data management platform that treats data as content, facilitating the subsequent publication, management, and maintenance of these, no matter the administration team, its size and level of technical expertise.



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✓ Several **achievements** were accomplished for the RDH to be able to provide its users the functionalities described above:

- **Search in multiple sources** (although by default DKAN looks up for datasets and resources in a single local database).
- **Search for datasets in remote resources** (integration of the GEO DAB APIs in the DKAN environment).
- **Display the remote datasets and resources on-the-fly and with high performance** (using a rendering cache mechanism which also implements an Adaptive Time-to-Live consistency mechanism to periodically check the consistency of the cached rendering structures with the original data to assure that users do not receive stale data).
- **Cleaning data mechanism** (cleans identical or duplicate data, discovers missing information for data, discovers URL that have changed or that are not working anymore, discards data with invalid URL schemes, etc.)
- **Preview mechanism** (to preview data of various formats and services, such as CSV files, Web Map Services, Zip files, etc.)

An integrated Search and Display mechanism that offers the users unified, centralized and user-friendly interface.



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Search examples

(1) Select the "Datasets" section

(2) Apply free text (e.g. climate)

Geocradle

Search by key words and filters
Get your search results

Datasets

Search

climate

Apply

Select any filter and click on Apply to see results



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Home / climate / Dataset

Page breadcrumb which depicts user's applied filters according to their appliance order

Content Types

- Dataset
- Tags
- Format
- Publisher

Global Earth Observation System of Systems (GEOSS) (5021)

Related Portals and Sites (23)

PILOT 1: Adaptation to Climate Change (ACC) (1)

Author

License

Datasets

5045 results

Search
climate

Datasets as search results

Search Facets that allow the users to further filter the search results

DEAR-Clima
PILOT 1: Adaptation to Climate Change (ACC)
The DEAR-Clima (Data Extraction Application for Regional Climate) is a user friendly interactive web application tool that visualizes and provides time series of essential climate variables and climate indices based on high
2x Resource(s)

The Satellite Application Facility on Climate Monitoring (CM SAF)
Related Portals and Sites
The Satellite Application Facility on Climate Monitoring generates, archives and distributes widely recognised high-quality satellite-derived products and services for climate monitoring in operational mode.
1x Resource(s)

FAO - FFEM Database
Related Portals and Sites
The database of the regional project "Maximize the production of goods and services of Mediterranean forest ecosystems in the context of global changes" funded by the French Global Environment Facility (FFEM) has been



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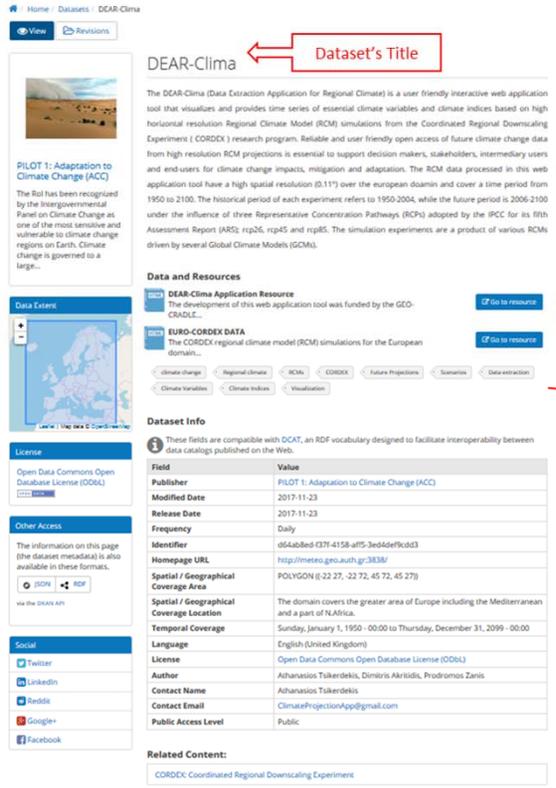
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Full Page View of the Dataset

Home / Datasets / DEAR-Clima

View Revisions



DEAR-Clima ← Dataset's Title

The DEAR-Clima (Data Extraction Application for Regional Climate) is a user friendly interactive web application tool that visualizes and provides time series of essential climate variables and climate indices based on high horizontal resolution Regional Climate Model (RCM) simulations from the Coordinated Regional Downscaling Experiments (CORDEX) research program. Reliable and user friendly open access of future climate change data from high resolution RCM projections is essential to support decision makers, stakeholders, intermediary users and end-users for climate change impacts, mitigation and adaptation. The RCM data processed in this web application tool have a high spatial resolution (0.11°) over the European domain and cover a time period from 1950 to 2100. The historical period of each experiment refers to 1950-2004, while the future period is 2006-2100 under the influence of three Representative Concentration Pathways (RCPs) adopted by the IPCC for its fifth Assessment Report (AR5): rcp26, rcp45 and rcp85. The simulation experiments are a product of various RCMs driven by several Global Climate Models (GCMs).

Data and Resources

- DEAR-Clima Application Resource**
The development of this web application tool was funded by the GEO-CRADLE... [Go to resource](#)
- EURO-CORDEX DATA**
The CORDEX regional climate model (RCM) simulations for the European domain... [Go to resource](#)

climate change | regional climate | RCM | CORDEX | Future Projections | Scenarios | Data extraction

Climate Variables | Climate Indices | Visualization

Dataset Info

These fields are compatible with DCAT, an RDF vocabulary designed to facilitate interoperability between data catalogs published on the Web.

Field	Value
Publisher	PILOT 1: Adaptation to Climate Change (ACC)
Modified Date	2017-11-23
Release Date	2017-11-23
Frequency	Daily
Identifier	d5a4b6ed-0371-4158-af55-3e44df9f0cd3
Homepage URL	http://mimeso.geo.auth.gr/3838/
Spatial / Geographical Coverage Area	POLYGON (E:22 27, -22 72, 45 72, 45 27)
Spatial / Geographical Coverage Location	The domain covers the greater area of Europe including the Mediterranean and a part of N.Africa.
Temporal Coverage	Sunday, January 1, 1950 - 00:00 to Thursday, December 31, 2099 - 00:00
Language	English (United Kingdom)
License	Open Data Commons Open Database License (ODDL)
Author	Athanasios Tsikerdekis, Dimaris Akritidis, Prodromos Zanis
Contact Name	Athanasios Tsikerdekis
Contact Email	ClimateProjectionApp@gmail.com
Public Access Level	Public

Related Content:

CORDEX: Coordinated Regional Downscaling Experiments

Dataset's Data Extent

Dataset's License widget

Other Access widget (Provides JSON & RDF view of the Dataset)

Social widget (The user can instantly share the dataset through various social media platforms)

Dataset's Description

Dataset's Links to its Resources

Dataset's tags (Provide links that initiate searches with these tags)

Dataset's Additional Information



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DATA

Regions of Interest

- Balkans
- Middle East
- North Africa

Thematic Areas

- Climate Change
- Food Security & Water Extremes
- Raw Materials
- Energy

EO Data Categories

- Space borne
- Ground based
- Modelling



DATA PROVIDERS

GEO-CRADLE Survey

- 10 national portals and sites

National portals in total: 42

Desk Research

- 32 national portals and sites
- 12 continental and global portals and sites

GEOSS Portal

- 25.131.225 datasets



Data Providers

National sites and portals in numbers



Total Number of Portals per Rol (unique)



Total Number of Portals per Thematic Area

	Adaptation to Climate Change	Improved Food Security and Water Mgt	Better access to Raw Materials	Better access to Energy	Total Number of Portals per Rol (unique)
Balkans	16	17	8	3	23
Middle East	6	8	1	2	18
North Africa	0	1	0	0	1
	22	26	9	5	Total number of portals and sites: 42



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a/a	Portals	Prioritised Portals	Brokered by GEOSS
1.	Danube Reference Data and Services Infrastructure (DRDSI)		Done
2.	Eusoils		In progress
3.	Albania - GEOportal		Pending
4.	Montenegro - GEOportal		Pending
5.	Croatia - GEOportal		Pending
6.	Moldova - National geospatial data of Moldova		In progress
7.	FYROM – Soil information system		Pending
8.	Bosnia & Herzegovina - GEOportal		Pending
9.	REP of SRPSKA - GEOportal		Pending
10.	Slovenia- Portal and Forest Data Viewer		Done
11.	Cyprus - Geoportal		In progress
12.	Cyprus - Air quality		In progress
13.	United Arab Emirates - Abu Dhabi Geospatial Portal and Map Viewer		Pending
14.	Poland - Central geological Db		Pending



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INSPIRE-compliant example



Geocradle

Home Groups Datasets News Log in

Home / Datasets / Slovenian GeoPortal

View Revisions

Slovenian GeoPortal

Geoportal of spatial information is the central portal for access to the infrastructure for spatial information and is intended to permit access to spatial data sets and services related to spatial data and other information and services related to infrastructure for spatial information. Managed geo-spatial information for the national point of contact.

Data and Resources

Surveying and Mapping Authority of the Republic of Slovenia - GeoPortal [Go to resource](#)

Overview [data change](#) [Data security](#) [Orthoregistry](#) [Catalogue](#) [Web](#)

Dataset Info

These fields are compatible with OGC's, an RDF vocabulary designed to facilitate interoperability between data catalogs published on the Web.

Field	Value
Publisher	Related Portals and Sites
Modified Date	2017-07-26
Release Date	2017-07-25
Homepage URL	http://www.gsu.gov.si/en/
Identifier	a3a86863-82f6-40c1-abc7-59e168e858d5
Spatial / Geographical Coverage Area	POLYGON ((15.62255859375 45.775186183521, 15.46875 45.35986533396, 14.622802734375 45.490945692627, 13.309996523438 45.457000041329, 13.304443359375 46.278631221561, 13.502197265625 46.581518465638, 15.457763671875 46.724800374667, 16.408081054688 46.894689285549, 16.622314453125 46.483264729156, 15.908203125 46.111325657298))
Spatial / Geographical Coverage Location	Slovenia
Language	English (United Kingdom) Slovenian (Slovenian)
License	Open Data Commons Open Database License (ODbL)
Contact Name	The Surveying and Mapping Authority of the Republic of Slovenia
Contact Email	gsu@gsu.si
Public Access Level	Public

Data Extent

License

Open Data Commons Open Database License (ODbL)

Other Access

The information on this page (the dataset metadata) is also available in these formats:

[JSON](#) [RDF](#)

Use the OGCs API

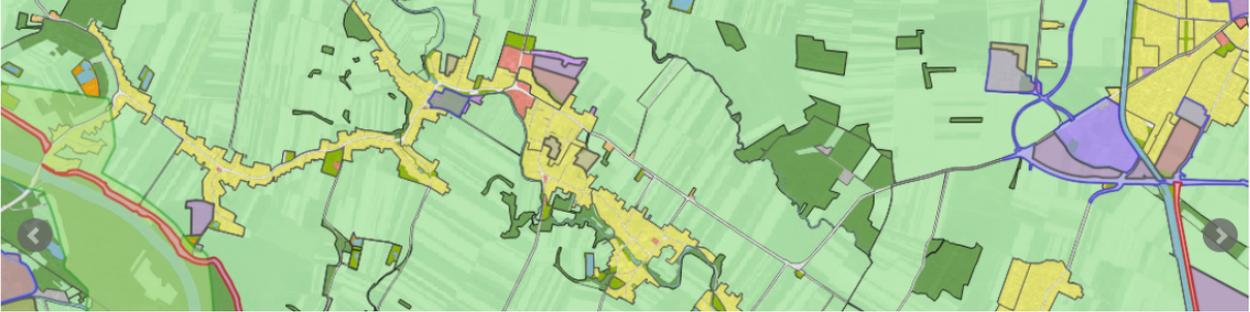
Social



www.geoportal.gov.si/eng/ Αναζήτηση

REGULATIONS AND MATERIALS Collection List NETWORK SERVICES IMPLEMENTATION OF THE DIRECTIVE NEWS About

 slovenian geo-portal 



Viewer Spatial Information System

Viewer is a public service, which was to look into spatial data on the state and municipal spatial acts, administrative acts in the field of building construction and the restrictions in place.

[Relationship](#)



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GEO-CRADLE Portal

<http://geocradle.eu>

GEO-CRADLE Project
Coordinating and integrating Earth Observation activities

- Pilot Activities**
Follow our pilot activities in four thematic areas:
- Survey & Networking Platform**
Take part in our
- DataHub**
Access, search and share Earth Observation Data for the three regions.
- Funding Opportunities**
Explore the available funding opportunities and the benefit of



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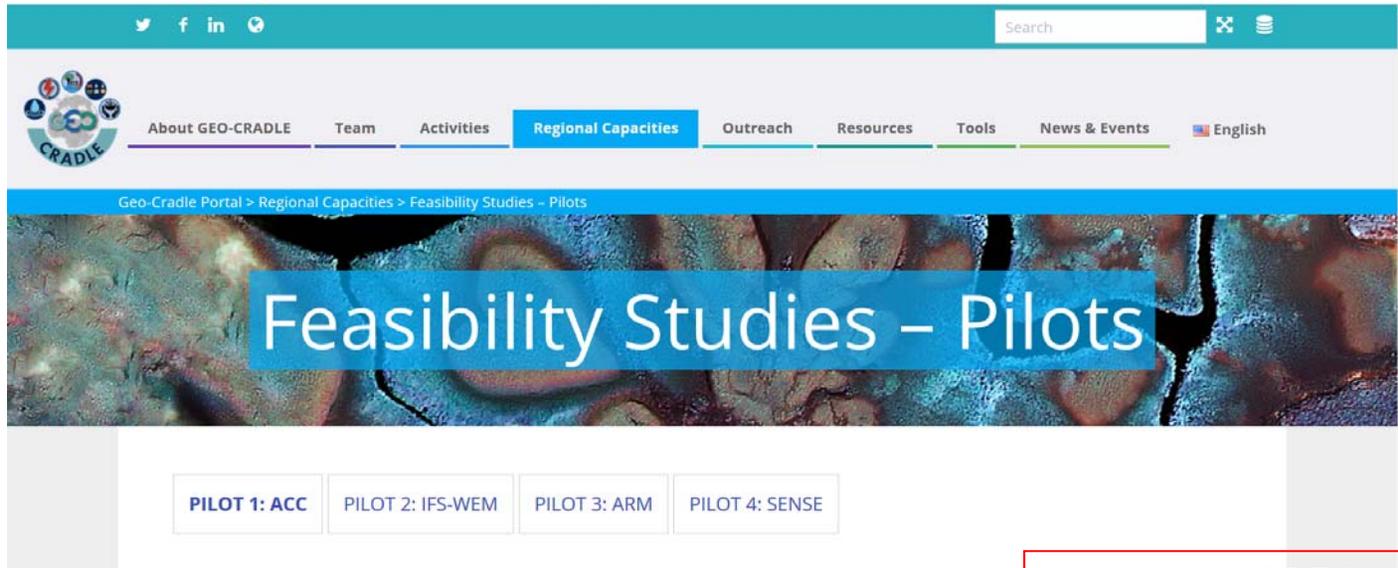


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GEO-CRADLE Pilots

<http://geocradle.eu/en/regional-capacities/feasibility-studies>



- 1) Adaptation to Climate Change
- 2) Improved Food Security – Water Extremes Management
- 3) Access to Raw Materials
- 4) Access to Solar Energy

**FREE AND OPEN
ACCESS TO ALL
PILOTS'
DATASETS AND
SERVICES**



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Pilot 1: Adaptation to Climate Change

DEAR-Clima



Welcome

The Data Extraction Application for Regional Climate (DEAR-Clima) is a user friendly interactive web application tool that visualizes and provides time series of essential climate variables and climate indices based on high horizontal resolution Regional Climate Model (RCM) simulations from the Coordinated Regional Downscaling Experiment (CORDEX) research program. Reliable and user friendly open access of future climate change data from high resolution RCM projections is essential to support decision makers, stakeholders, intermediary users and end-users for climate change impacts, mitigation and adaptation. The RCM data processed in this web application tool have a high spatial resolution (0.11°) over the european doamin and cover a time period from 1950 to 2100. The historical period of each experiment refers to 1950-2004, while the future period is 2006-2100 under the influence of three Representative Concentration Pathways (RCPs) adopted by the IPCC for its fifth Assessment Report (AR5); rcp26, rcp45 and rcp85. The simulation experiments are a product of various RCMs driven by several Global Climate Models (GCMs).

The development of this web application tool was funded by the GEO-CRADLE project that aims to coordinate and integrate state-of-the-art Earth Observation activities in the regions of North Africa, Middle East, and Balkans and develop links with GEO related initiatives towards GEOSS. The server is located at the Department of Meteorology and Climatology, School of Geology, Aristotle University of Thessaloniki, Greece.

[Go to Application](#)

<http://meteo3.geo.auth.gr:3838>



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Pilot 1: Adaptation to Climate Change

DEAR-Clima

The screenshot displays the DEAR-Clima web application interface. At the top is a dark navigation bar with links for Home, Domain, Experiments, Scenarios, Variables, Application, About, and Contact. Below this is a light grey bar with 'Guidelines' and 'Subscribe' buttons. The main content area has a dark 'Input' tab selected, with sub-tabs for 'Plot', 'Plot (ΔT)', and 'Graphical Options'. The interface is divided into three main sections, each with a red circle highlighting its title:

- 1. Temporal & Variable Selection:** Contains a 'Temporal Selection' dropdown menu set to 'Yearly' and a 'Variable' dropdown menu set to 'Temperature (2m)'.
- 2. Grid Selection:** Features 'Insert Coordinates' and 'Select on Map' buttons. Below them, a text box displays 'Selected Longitude: 28.5668245366239' and 'Selected Latitude: 40.615259680776'. This section includes two maps: 'Selection Map' (a world map) and 'Display Map' (a zoomed-in map of the Mediterranean region with a grid and an orange square indicating the selected location).
- 3. Initiate Processing:** Contains a single 'Process' button.



Pilot 1: Adaptation to Climate Change

DEAR-Clima

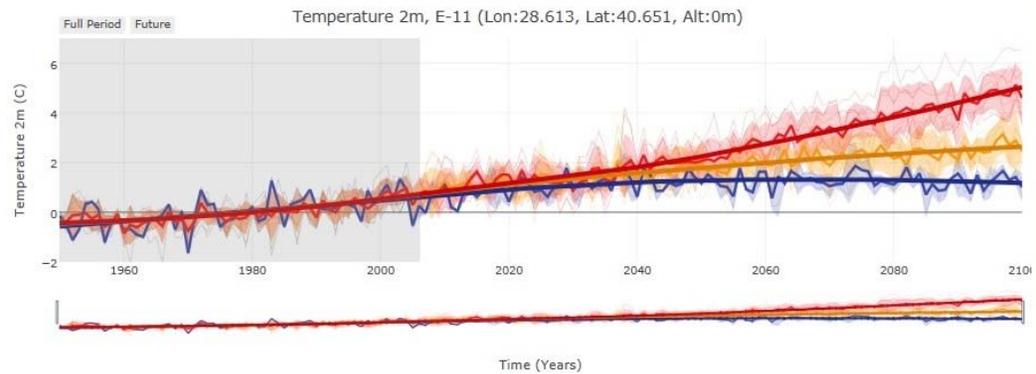
[Guidelines](#) [Subscribe](#)

[Input](#) [Plot](#) [Plot \(\$\Delta T\$ \)](#) [Graphical Options](#)

Download

[.csv \(\$\Delta T\$ \)](#)

Hints: Drag-and-drop to zoom into a specific period. Return back to the initial stage by double clicking anywhere in the plot area. Change the displayed features using the Graphical Options panel. The ΔT plot is calculated by subtracting the mean value of the historical period 1960-1990 from all the values of the historical, rcp26, rcp45 and rcp85 experiments.



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Pilot 1: Adaptation to Climate Change

Desert Dust



PRETECT

About School Data Latest forecasts News

The PRE-TECT campaign
Revealing the secrets of desert dust

1st - 30th April, 2017



Organized by the
National Observatory of Athens



The goal

PRE-TECT is an atmospheric experiment organized by the National Observatory of Athens in the framework of the ACTRIS. The experiment will take place from 1st 30th April 2017, aiming to advance desert dust characterization from remote sensing measurements. It will employ advanced inversion techniques developed in the framework of ACTRIS, focusing on aerosol absorption and aiming to fulfill the objectives of the ACTRIS JRA1 activity ("Improving the accuracy of aerosol light absorption determinations"). The specific aim of the campaign is to validate the remote sensing retrievals against surface and airborne in-situ measurements. The campaign is framed by a number of parallel activities. [Learn more](#).

<http://pre-TECT.space.noa.gr>



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Pilot 1: Adaptation to Climate Change

Select date

Desert Dust

Pilot 1: Adaptation to Climate Change				Select date	Desert Dust	
17	18	19	20	21	22	23
AERONET	AERONET	AERONET	AERONET	AERONET	CAMS cross-section:	AERONET
CAMS cross-section:	CAMS cross-section:	CAMS cross-section:	CAMS cross-section:	CAMS cross-section:	CAMS maps	CAMS cross-section:
CAMS maps	CAMS maps	CAMS maps	CAMS maps	CAMS maps	CAPS PMssa	CAMS maps
CAPS PMssa	CAPS PMssa	CAPS PMssa	CAPS PMssa	CAPS PMssa	Cloud radar	CAPS PMssa
Cloud radar	Cloud radar	Cloud radar	Cloud radar	Cloud radar	Dust forecast	Cloud radar
DREAM-NMM-ECM	DREAM-NMM-ECM	DREAM-NMM-ECM	DREAM-NMM-ECM	DREAM-NMM-ECM	Dust forecast (MSG ;	DREAM-NMM-ECM
Dust forecast	Dust forecast	Dust forecast	Dust forecast	Dust forecast	Dust forecast at Skin	Dust forecast
Dust forecast (MSG ;	Dust forecast (MSG ;	Dust forecast (MSG ;	Dust forecast (MSG ;	Dust forecast (MSG ;	FLEXPART	Dust forecast (MSG ;
Dust forecast at Skin	Dust forecast at Skin	Dust forecast at Skin	Dust forecast at Skin	Dust forecast at Skin	HALO	Dust forecast at Skin
FLEXPART	FLEXPART	FLEXPART	FLEXPART	FLEXPART	Microwave Radiomet	FLEXPART
HALO	HALO	HALO	HALO	HALO	MSG-Dust	HALO
Microwave Radiomet	Microwave Radiomet	Microwave Radiomet	Microwave Radiomet	Microwave Radiomet	PollyXT	Microwave Radiomet
MSG-Dust	MSG-Dust	MSG-Dust	MSG-Dust	MSG-Dust	PollyXT classification	MSG-Dust
PollyXT	PollyXT	PollyXT	PollyXT	PollyXT	PREDE POM-01	PollyXT
PollyXT classificati	PollyXT classificati	PollyXT classificati	PollyXT classificati	PollyXT classificati	PSR observations	PollyXT classificati
PREDE POM-01	PREDE POM-01	PREDE POM-01	PREDE POM-01	PREDE POM-01	Pyranometer GHI & I	PREDE POM-01
PSR observations	PSR observations	PSR observations	PSR observations	PSR observations	Sea salt forecast	PSR observations
Pyranometer GHI & I	Pyranometer GHI & I	Pyranometer GHI & I	Pyranometer GHI & I	Pyranometer GHI & I	SENSE	Pyranometer GHI & I
Sea salt forecast	Sea salt forecast	Sea salt forecast	Sea salt forecast	Sea salt forecast	Smoke forecast	Sea salt forecast
SENSE	SENSE	SENSE	SENSE	SENSE	WRF overview	SENSE
Smoke forecast	Smoke forecast	Smoke forecast	Smoke forecast	Smoke forecast	WRF WIND(...)	Smoke forecast
WRF overview	WRF overview	WRF overview	WRF overview	WRF overview		WRF overview
WRF WIND(...)	WRF WIND(...)	WRF WIND(...)	WRF WIND(...)	WRF WIND(...)		WRF WIND(...)



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Pilot 1: Adaptation to Climate Change

Desert Dust

21

- AERONET
- CAMS cross-sections
- CAMS maps
- CAPS PMssa
- Cloud radar
- DREAM-NMM-ECMWF
- Dust forecast
- Dust forecast (MSG)
- Dust forecast at Skin
- FLEXPART
- HALO
- Microwave Radiometer
- MSG-Dust
- PollyXT
- PollyXT classification
- PREDE POM-01
- PSR observations
- Pyranometer GHI & I
- Sea salt forecast
- SENSE
- Smoke forecast
- WRF overview
- WRF WIND(...)

AERONET

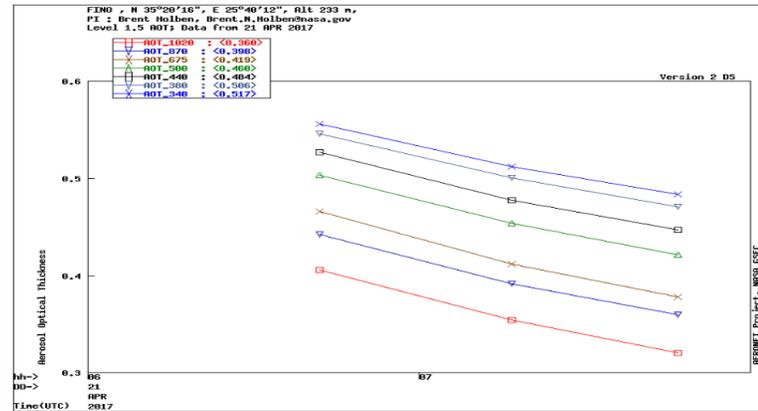
Uploaded on 2017-04-21 17:15:28

Start time	April 21, 2017, midnight	Duration	1 day
Stop time	April 22, 2017, midnight	Instrument	CIMEL sunphotometer

[← Previous](#)

[Next →](#)

Related graphs



Graph 1: Aerosol optical depth

Aerosol optical depth by AERONET sun-photometer



Pilot 1: Adaptation to Climate Change

Desert Dust

21
AERONET
CAMS cross-sections
CAMS maps
CAPS PM _{ss}
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Dust forecast at Skin
FLEXPART
HALO
Microwave Radiometer
MSG-Dust
PollyXT
PollyXT classification
PREDE POM-01
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Pyranometer GHI & I
Sea salt forecast
SENSE
Smoke forecast
WRF overview
WRF WIND(...)

Cloud radar

Uploaded on 2017-04-22 13:11:12

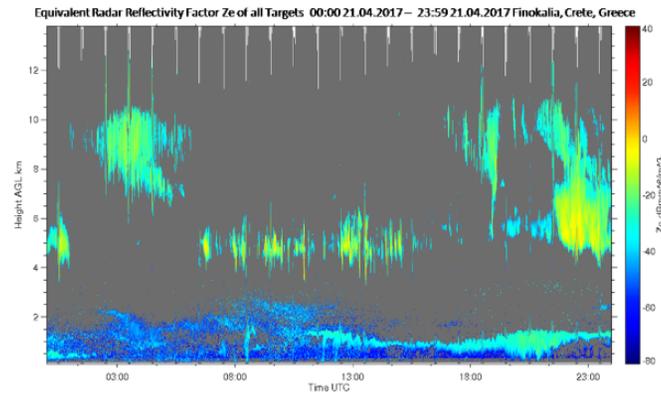
Start time April 21, 2017, midnight **Duration** 1 day

Stop time April 22, 2017, midnight **Instrument** Doppler Cloud Radar MIRA-35

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Related graphs



Cloud and aerosol properties



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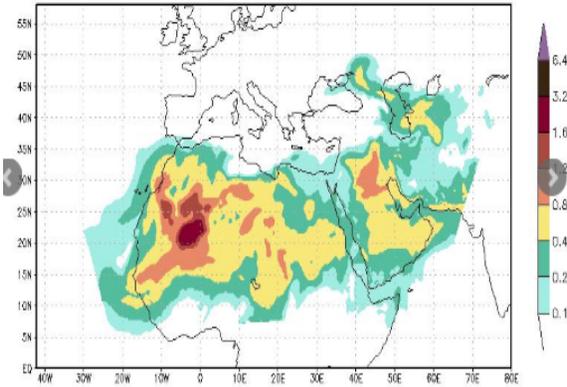
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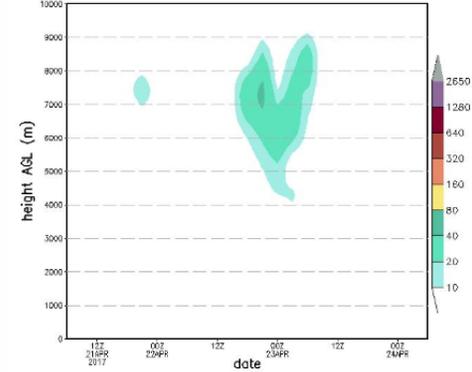
Desert Dust

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AERONET
CAMS cross-section:
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CAPS PM _{ss}
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DREAM-NMM-ECMWF
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Dust forecast (MSG)
Dust forecast at Skin
FLEXPART
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SENSE
Smoke forecast
WRF overview
WRF WIND(...)

IAASARS/NOA NMME-DREAM MSG Assimilation Run
AOD 23APR2017 03UTC



NMME-DREAM Total dust concentration [$\mu\text{g}/\text{m}^3$]
Station = FINOKALIA



Horizontal and vertical dust forecasts
with satellite assimilation



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PollyXT classification
PREDE POM-01
PSR observations
Pyranometer GHI & I
Sea salt forecast
SENSE
Smoke forecast
WRF overview
WRF WIND(...)



PollyXT classification

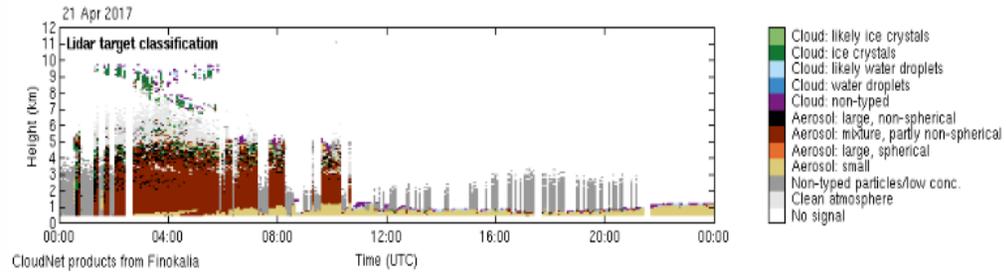
Uploaded on 2017-04-24 16:27:58

Start time	April 21, 2017, midnight	Duration	1 day
Stop time	April 22, 2017, midnight	Instrument	PollyXT lidar

← Previous

Next →

Related graphs



Graph 1: Multiwavelength aerosol classification - 2017-04-21

Aerosol Classification by the PollyXT Lidar



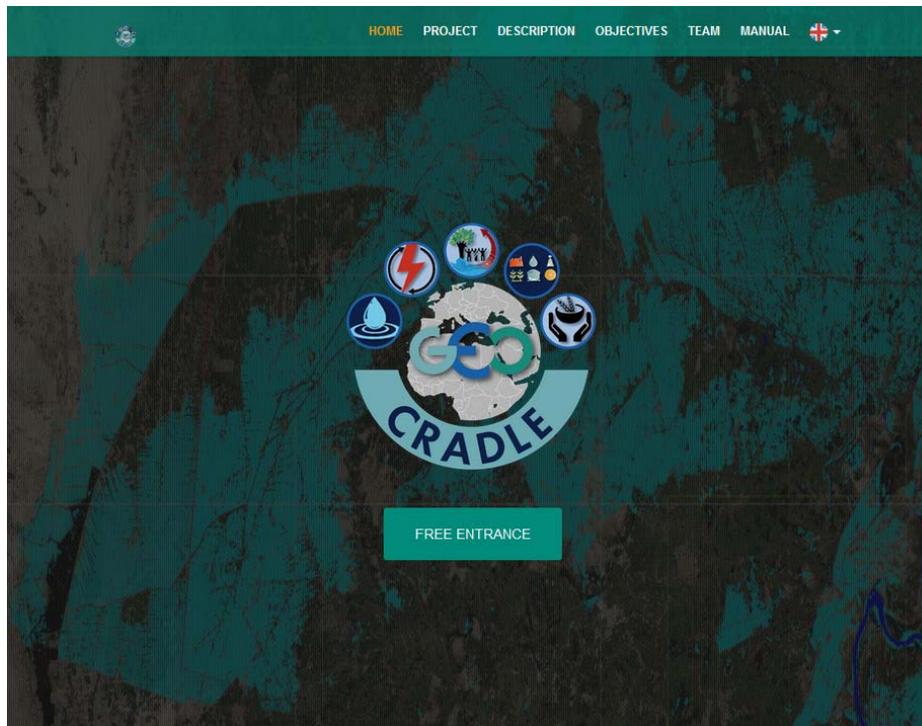
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Pilot 2: Improved Food Security – Water Extremes Management



MyDewetra

Click on
FREE ENTRANCE
and hit Dewetra
on the left pane to
enter the main platform



<http://geo-cradle.mydewetra.org>



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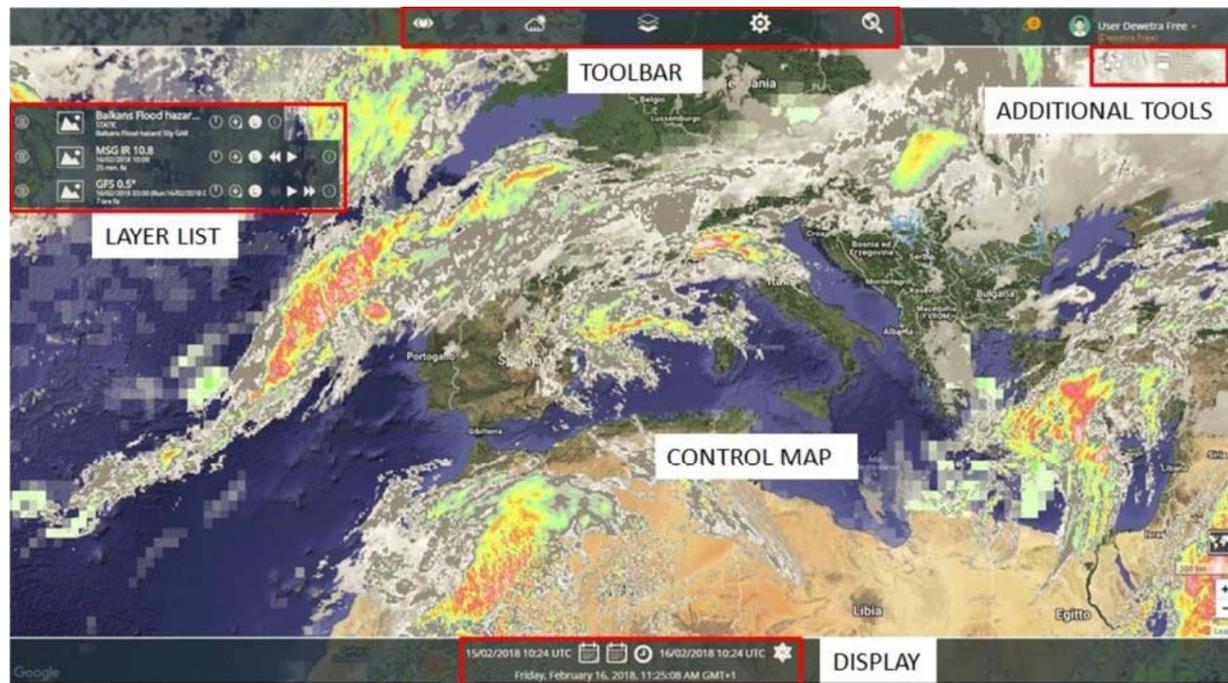


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MyDewetra



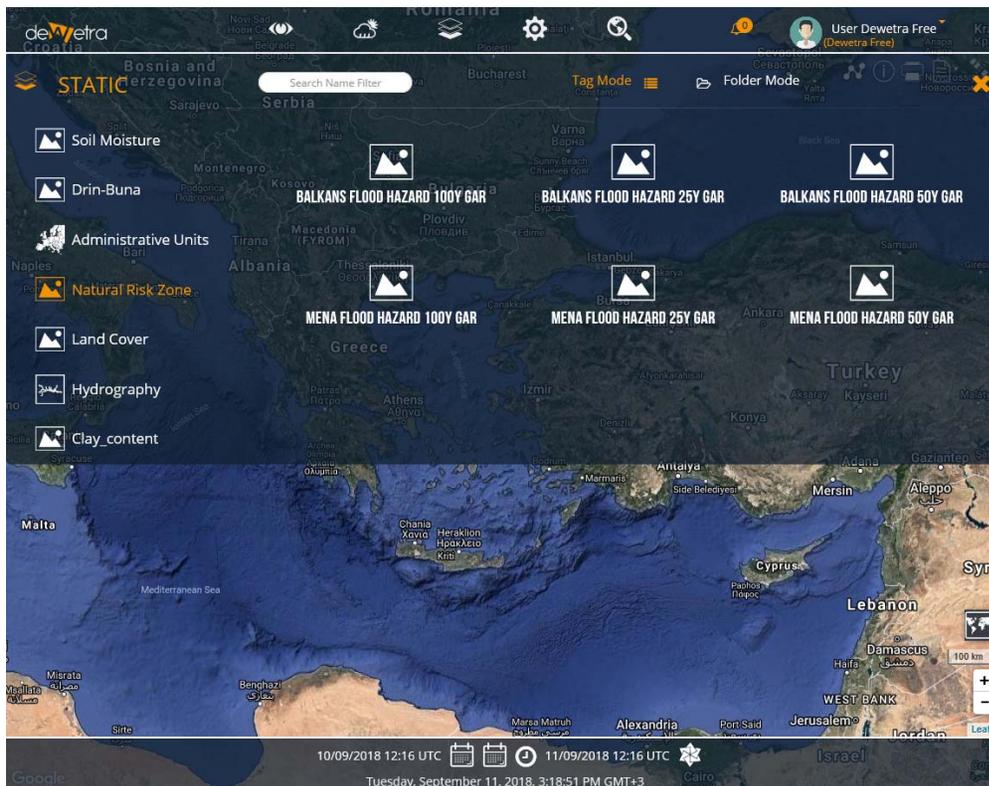
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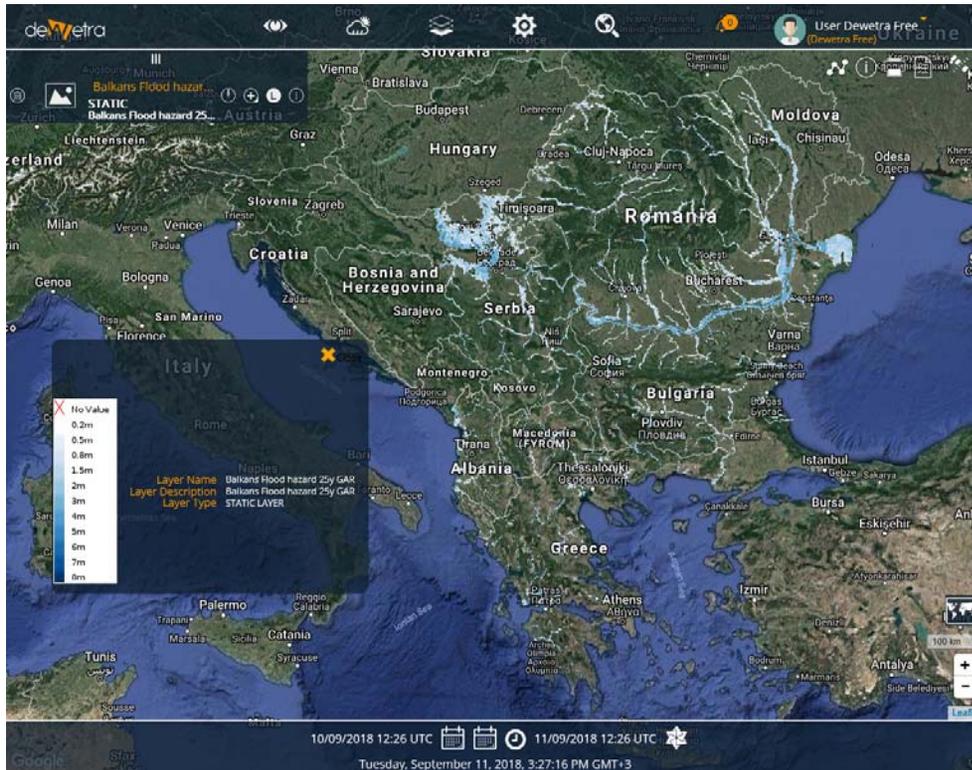


MyDewetra

STATIC Layer contains data that does not change frequently, needed to design a comprehensive risk scenario such as the exposures or the hazard maps.



Pilot 2: Improved Food Security – Water Extremes Management

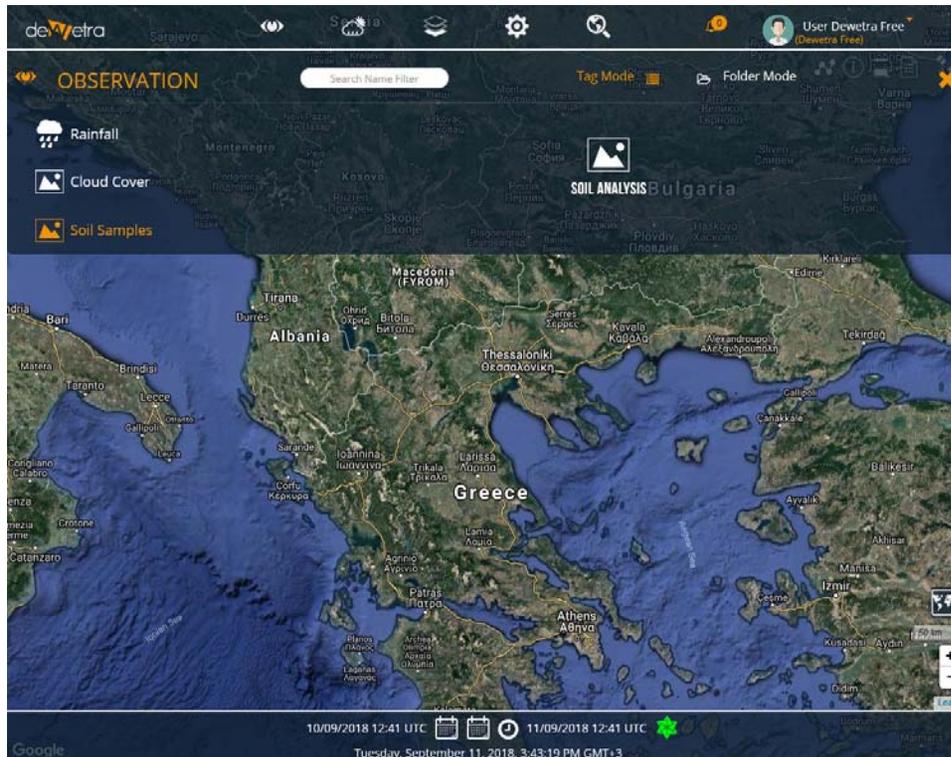


MyDewetra

Balkans –
25y Flood Hazard –
Press L to get the
legend



Pilot 2: Improved Food Security – Water Extremes Management



MyDewetra

OBSERVATION Layer

Soil Samples

SOIL ANALYSIS

- Click on soil analysis
- Zoom to a region containing soil samples (e.g. North Eastern Greece)



Pilot 2: Improved Food Security – Water Extremes Management

MyDewetra



Chemical parameter	Value
OM	1.75 %
CaCO3	0.00 %
sand_fraction	53.00 %
silt_fraction	24.00 %
clay_fraction	23.00 %
NO3	35.00 ppm

The screenshot also shows the same title bar and status bar as the previous figure.

- Click on a point and visualize the spectrum / chemical results (which can be downloaded)



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Pilot 2: Improved Food Security – Water Extremes Management

Home / Datasets / Regional Soil Spectral Library

View Revisions



Regional Soil Spectral Library

Part of pilot 2 - Improved Food Security and Water Extremes Management

The importance of soils is ubiquitously recognized; they provide essential services such as food production, prevention of land degradation, water quality, and they act as carbon sinks. It has been thus recognized that a spatio-temporal monitoring of soil quality and soil properties is necessary. One of the most important technologies used to monitor soils is soil spectroscopy which utilizes the spectral information of soil samples to derive their properties. For the successful upscaling (i.e. use of Earth Observation tools) of soil spectroscopy it is important to create detailed soil spectral libraries on the ground, which assist in the validation of the sensors as well as development of soil models.

The Regional Soil Spectral Library

The current dataset contains a regional vis-NIR (350-2500 nm) soil spectral library of the region. It contains metadata regarding the soils sampled, their key properties, and their spectral signature. The spectral signatures were obtained using a standardization protocol. The dataset encompasses the following countries and soil properties:

Country	Samples	SOM	Texture	CaCO3	pH	NO3	EC	CEC
Albania	107	107	107	X	X	X	X	X
Bulgaria	105	105	105	X	105	X	X	105
Cyprus	96	96	94	96	96	X	93	X
Egypt	10	6	X	4	6	X	6	X
FYROM	124	124	124	X	124	X	X	X
Greece	928	928	928	928	X	928	X	X
Israel	221	106	193	150	137	X	141	X
Serbia	63	63	63	63	63	63	X	X
Turkey	100	94	98	100	100	X	100	X
All	1754	1629	1712	1341	631	991	334	105

Regional Soil Spectral Library

Form of the datasets

To assist future researchers using this soil spectral library, the datasets are provided in the following formats:

- Per country SSLs in .csv format
- Complete GEO-CRADLE SSL in .csv format

The documentation describing what each column represents may be found in D4.6.

Data and Resources

- SSL Albania**
This SSL was established by the Institute for Nature Conservation in Albania... [Download](#)
 - SSL Bulgaria**
This SSL was established by the Space Research and Technology Institute (...). [Download](#)
 - SSL Cyprus**
This SSL was established by the Cyprus University of Technology (CUT). [Download](#)
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 - SSL Serbia**
This SSL was established by the Institute of Physics Belgrade (IPB). [Download](#)
 - SSL Turkey**
This SSL was established by the Space Technologies Research Institute (...). [Download](#)
 - SSL GEO-CRADLE**
This dataset contains the complete GEO-CRADLE SSL (i.e. all of the countries)... [Download](#)
- [Download All](#)

<http://datahub.geocradle.eu/dataset/regional-soil-spectral-library>



Pilot 3: Access to Raw Materials



<http://www.europe-geology.eu/map-viewer>

Onshore | Marine | Minerals | Geohazards | Energy | Soil | Groundwater | All Maps | Metadata | About EGDI

EGDI is
EuroGeoSurveys'
European
Geological
Data
Infrastructure



EGDI - All maps

EGDI

This map shows all available data sets registered in EGDI.

Go to The Portal for more details or choose a thematic map here:

- Mineral Resources
- Geological Map 1:1M
- Geological Map 1:5M
- Geological Map 1:100k
- Hydrogeological Map
- Geochemistry
- Marine Geology
- Southern Permian Basin Atlas
- Geohazards
- Boreholes

Go to location... Zoom N North

500 km

EPSG:3034 EPSG:4326



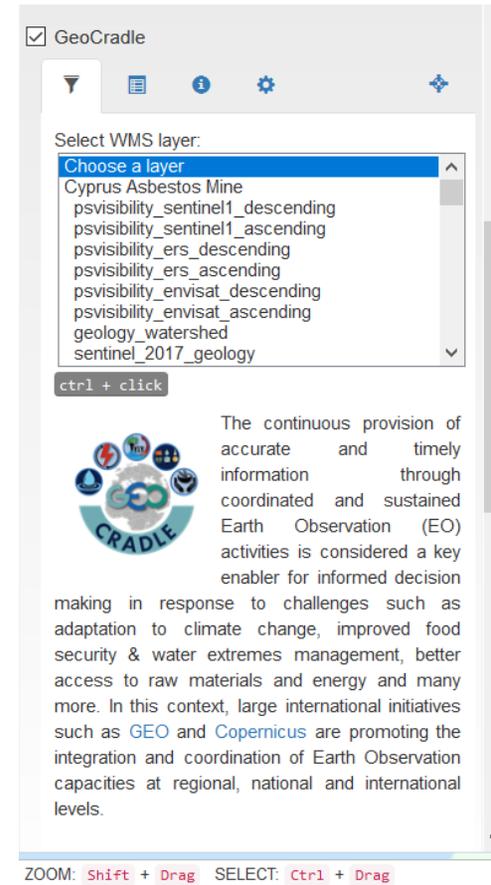
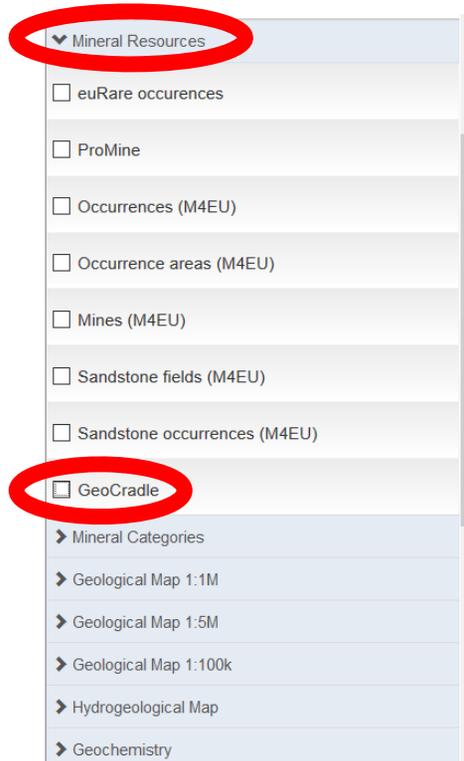
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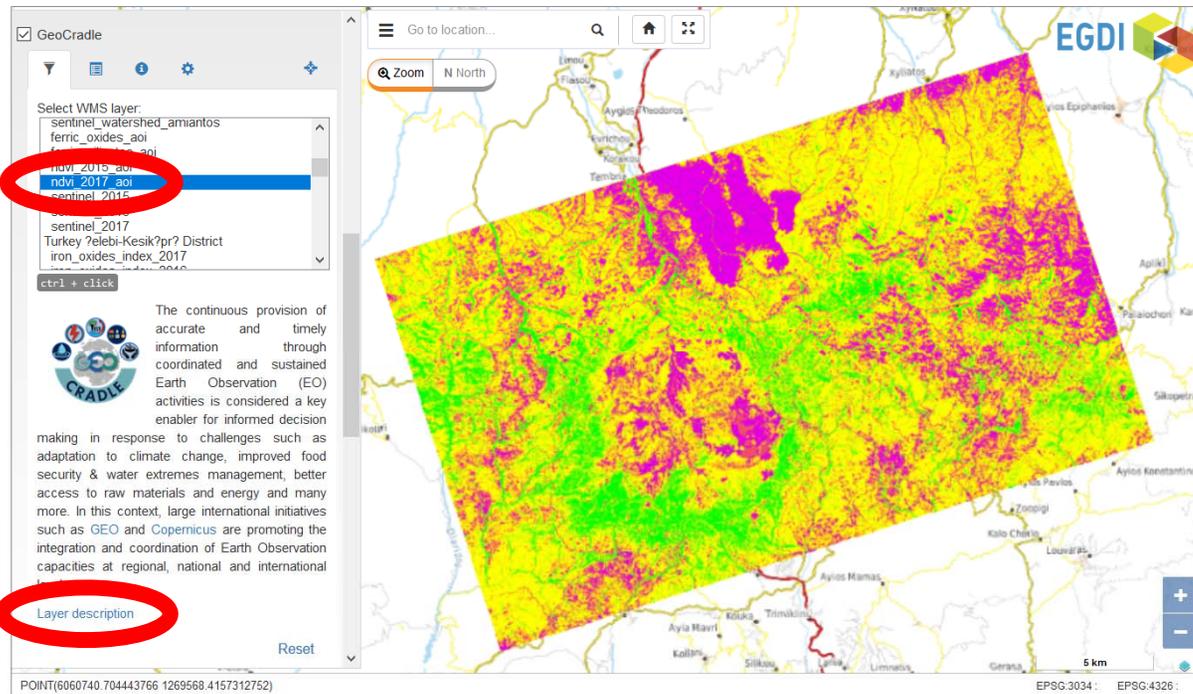
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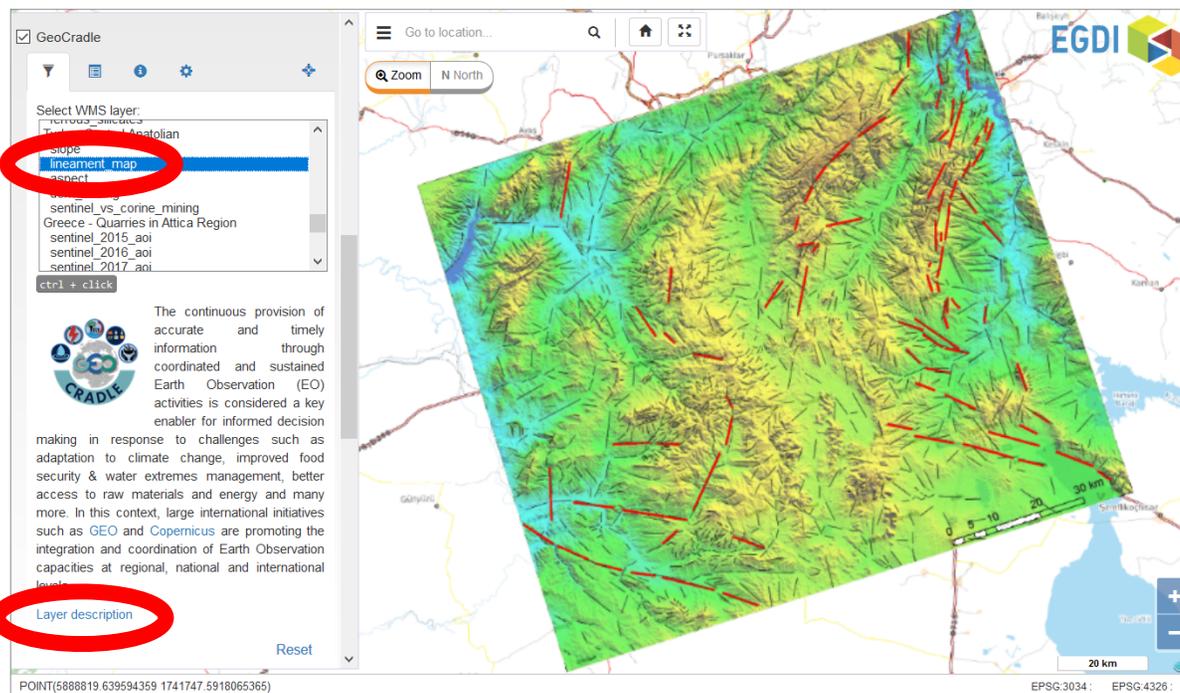
Pilot 3: Access to Raw Materials



Normalized difference vegetation index (NDVI) calculated from Sentinel-2 image from 2017. The index was calculated based on the formula: $((NIR-RED)/((NIR+RED)))$, where individual components correspond to the spectral band of the satellite.



Pilot 3: Access to Raw Materials



Lineament map extracted from 5 different techniques (DEM, Directional Filters, Principal Component Analysis, False Color Composite and Rationing) based on Landsat-8 image and SRTM.



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Pilot 4: Access to Solar Energy

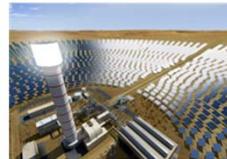
Application developed in support to the Ministry of Electricity & Renewable Energy of Egypt

Provides the solar power information in climatological basis for the Global Horizontal Irradiance (GHI) and the Direct Normal Irradiance (DNI)

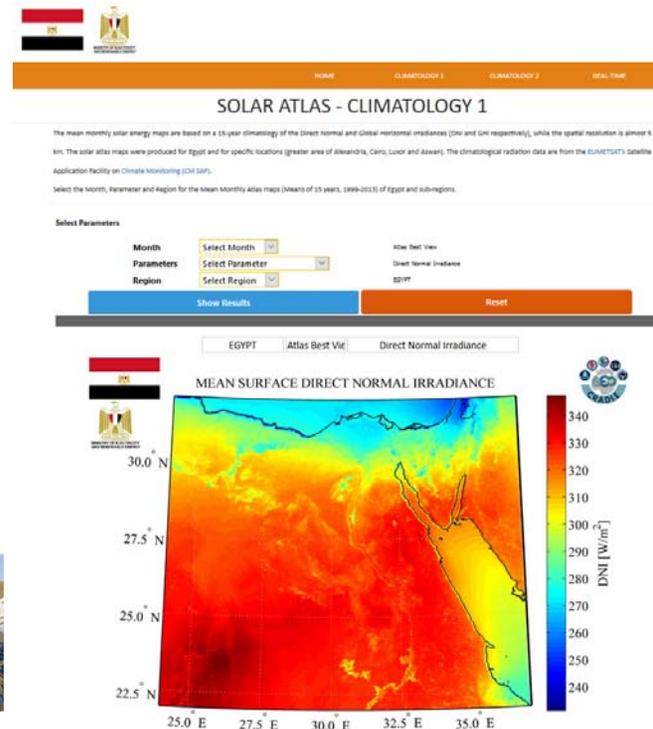
GHI applies to PhotoVoltaic (PV) installations



DNI applies to Concentrated Solar Power (CSP) plants



Solar Atlas of Egypt



<http://cedarekmp.net/solaratlas/web2>



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Pilot 4: Access to Solar Energy

Solar Atlas of Greece

A static applications based on an analytical database of climatological solar energy maps of Greece (GHI, DNI).

The user is able to choose additionally fixed or color optimized scale.

Such applications provided for the first time for Greece through the Geo-Cradle project and are able to provide useful information about the solar energy potential for potential solar farm installations.



PILOT 4: Access to Energy (SENSE)

The Solar Atlas of Greece

The mean monthly solar energy maps of Greece are based on a 15-year climatology of the Direct Normal and Global Horizontal Irradiances (DNI and GHI respectively), while the spatial resolution is almost 5 km. The climatological radiation data are from the EUMETSAT's Satellite Application Facility on Climate Monitoring (CM SAF). Select the year, month, parameter and scale type for the mean monthly maps of Greece. By selecting the Atlas options you are able to retrieve the 15-year means (1999-2013).

15 Years Me Direct Norm
15 Years Me Color Optim

geocradle@noa.gr
+30 210 3490086

Horizon 2020
The GEO-CRADLE project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 690133

<http://datahub.geocradle.eu/solar>



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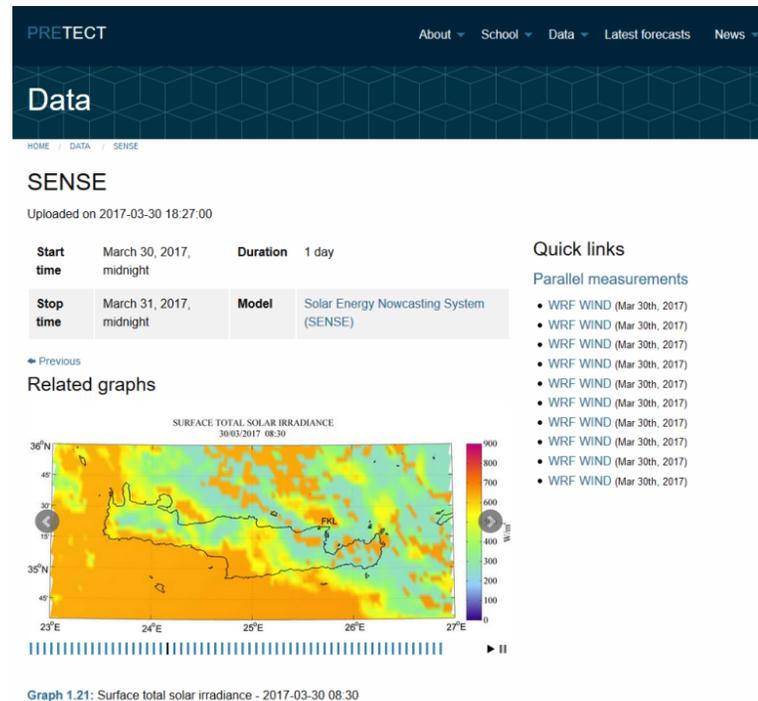
Pilot 4: Access to Solar Energy

PRETECT

The Solar Energy Nowcasting System (SENSE) was applied for a scientific campaign in Crete (PRE-TECT).

Through this portal the user is able to retrieve the produced maps of Crete in high spectral, spatial and temporal resolution (1 nm, 0.05 x 0.05 degrees, 15 min).

The aerosol and cloud impacts were simulated through data input from the Copernicus Atmosphere Monitoring Service (CAMS) and the Meteosat Second Generation (MSG).



<http://pre-TECT.space.noa.gr/instruments/25>



Pilot 4: Access to Solar Energy

PAR Atlas for Greece, Cyprus, Egypt

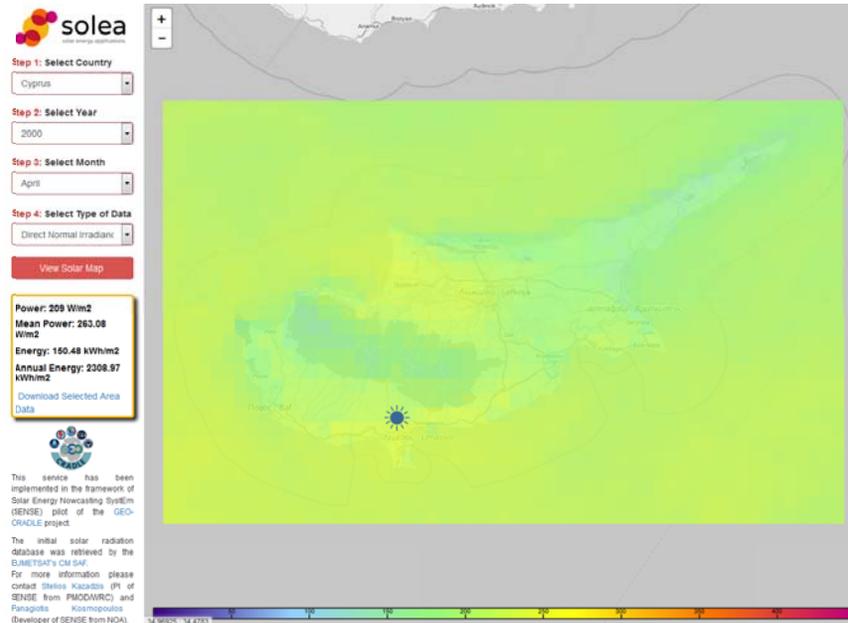
Dynamic application with background databases of solar power, energy and Photosynthetically Active Radiation (PAR) for Greece, Cyprus and Egypt.

The user is able to download the selected area data in the form of json files.

The solar power describes the "strength" of the irradiance (W/m^2).

The solar energy calculates the potential energy production by a PV or CSP system (kWh/m^2)

The PAR quantifies the energy that supports photosynthesis.



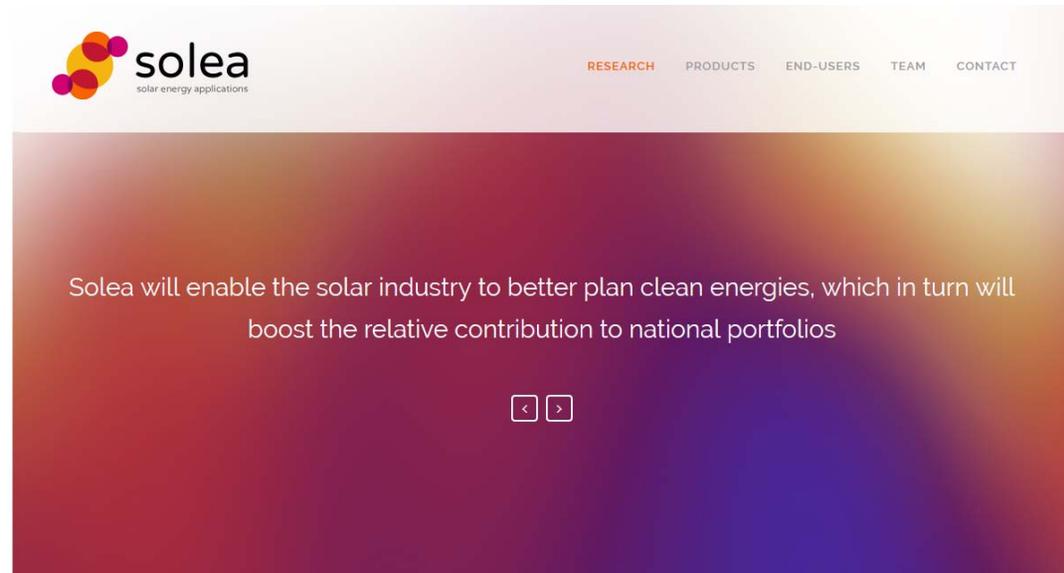
<http://beyond-eocenter.eu/solarapp>



Pilot 4: Access to Solar Energy

SOLEA

All the above web applications, the technical background and much more implementations of SENSE can be found with analytical descriptions and additional information (publications, books, presentations, dissemination material) at the Solar Energy Applications (SOLEA) website.



The exploitation of EO data through GEO activities and SENSE will provide access to advanced solar energy related products, in support to large scale solar farm projects, grid operators, national and private electrical transmission and handling entities, so as to guarantee the uninterrupted energy flow and the power grid stability.

<http://solea.gr>



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GEO-CRADLE upgrade in GEO: Project -> Community Activity -> Initiative

GEO Capacity Building in North Africa, Middle East, Balkans, and Black Sea

A **continuation** and **extension** of the work of the **GEO CRADLE** which will capitalise, sustain and scale-up its results, as well as key outcomes of other relevant EU flagship projects and initiatives (e.g. GEOGLAM, NextGEOSS, ERAPLANET, EuroGEOSS, AfriGEOSS, GEO-VENER, EO4SDG), in support of the **3 GEOSS priorities**, namely **CC**, **DRR** and **SDGs**.

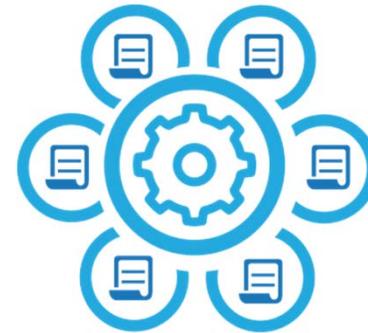
Geographic extension



Thematic extension



Operational Maturity



GEO-CRADLE network engaged in EUROGEOSS: Expressions of Intent

No	Theme	Action Group
1	Reinforcing Common Agriculture Policy	Agriculture/Food
2	Disaster Resilience Showcase under H2020 call	Disaster Resilience
3	NextGEOSS – Enhanced landslide risk assessment framework	
4	Earth Observation for Disaster-Resilient Societies	
5	Earth Observation for SOLar energy and applications	Energy
6	Earth Observation for Epidemics of Vector-borne Diseases	Climate



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thank you!



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