GEO WEEK 2018

KYOTO, JAPAN

Monday 29 October, 08.30-12.30

Identifying, communicating and delivering
the value of Earth Observations.
A regional approach.

Moving from research to business: The GEO-CRADLE Pilots' experience

Alexia Tsouni
GEO-CRADLE Project Coordination Team
National Observatory of Athens

Side event Organised by GEO-CRADLE Project & EARSC

EARSC
European Association of Remote Sensing Companies

The GEO-CRADLE Pilots in support of the UN SDGs

Adaptation to Climate Change (ACC)

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

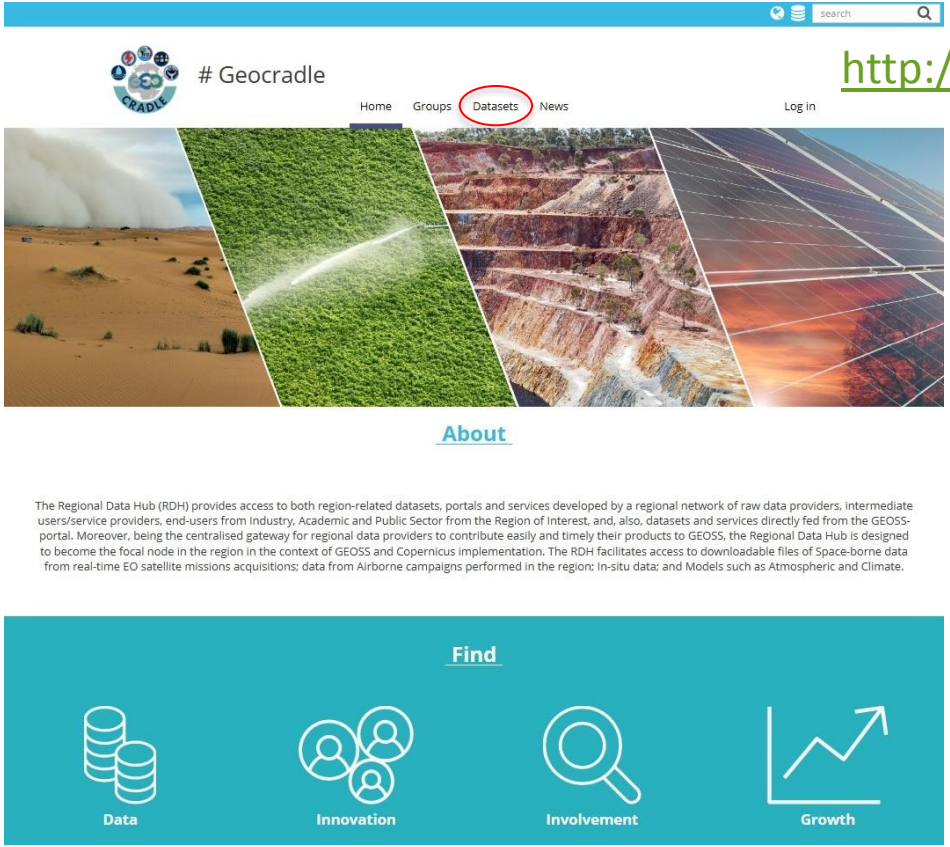
Access to Raw Materials (ARM)

Access to Solar Energy (SENSE)

Pilots applicable & adaptable to all countries

End users & stakeholders engagement

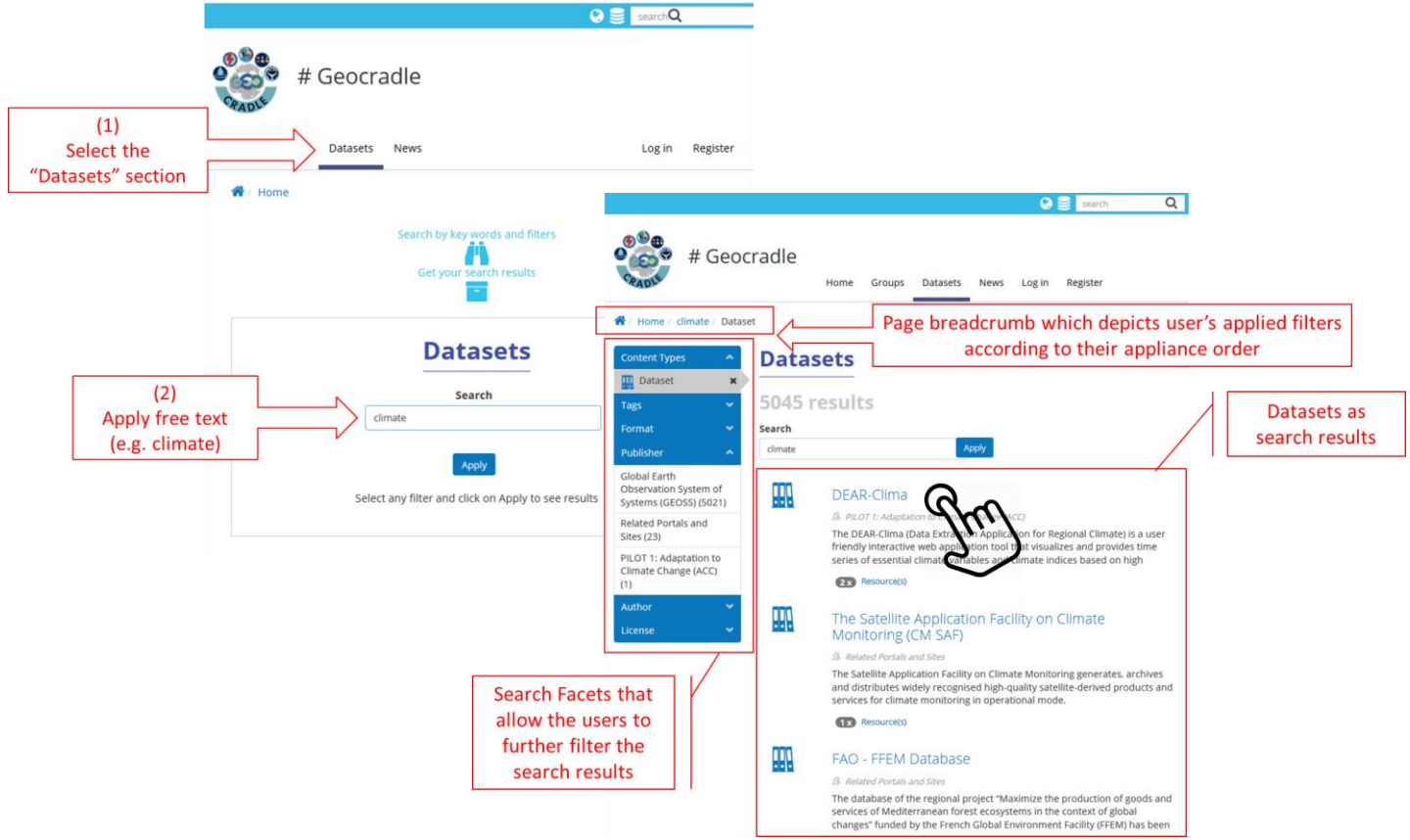
Access to all GEO-CRADLE Pilots results from the Regional Data Hub



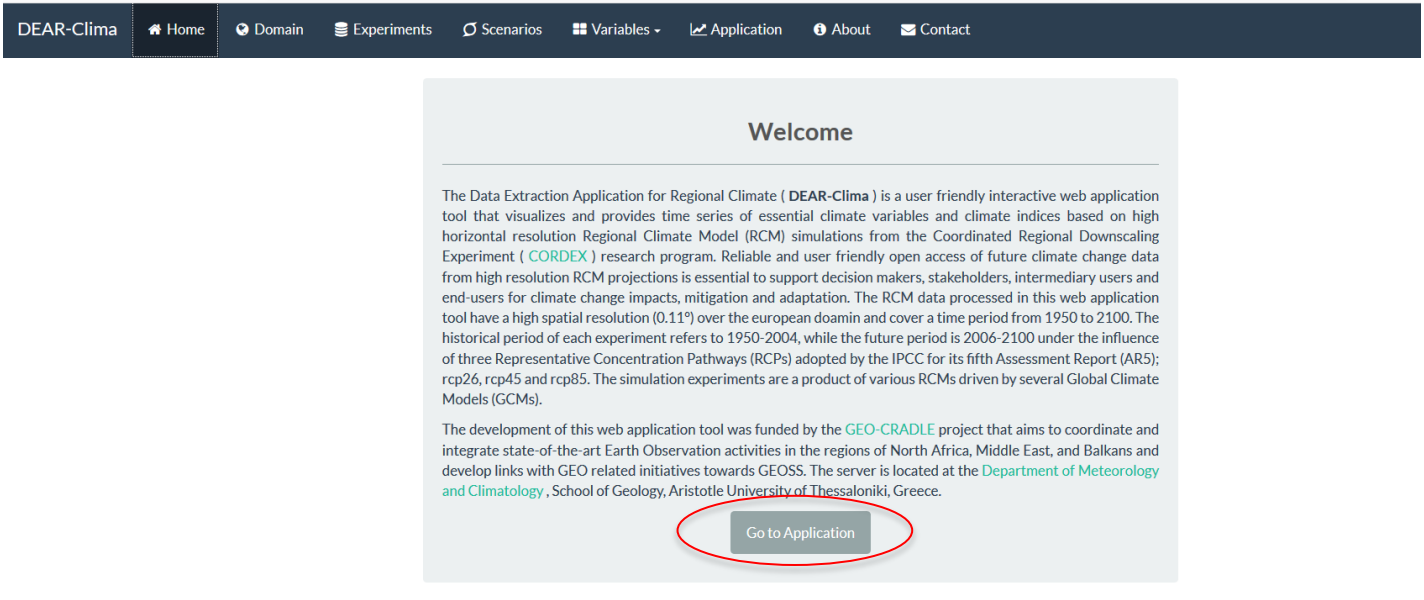
http://datahub.geocradle.eu/

FREE AND OPEN ACCESS TO ALL PILOTS' DATASETS AND SERVICES

Access to all GEO-CRADLE Pilots results from the Regional Data Hub

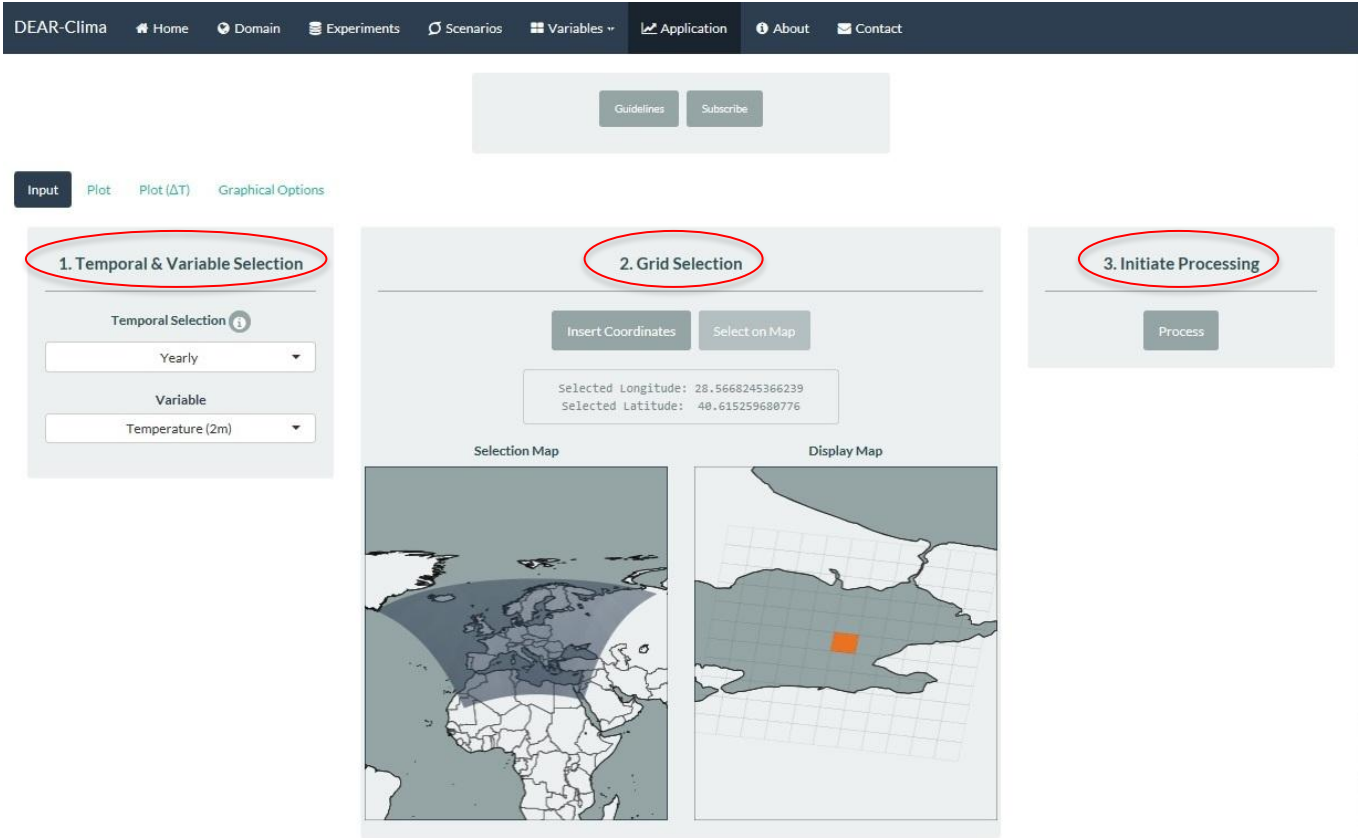


GEO-CRADLE Pilot 1: Adaptation to Climate Change



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

GEO-CRADLE Pilot 1: Adaptation to Climate Change



GEO-CRADLE Pilot 1: Adaptation to Climate Change

DEAR-Clima | Home | Domain | Experiments | Scenarios | Variables | Application | About | Contact

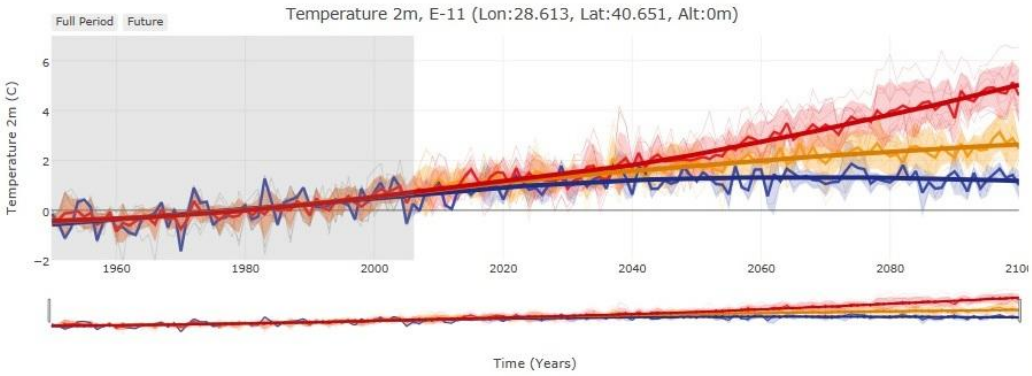
Guidelines | Subscribe

Input | Plot | Plot (ΔT) | Graphical Options

Download

.csv (ΔT)

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 subtracking the mean value of the historical period 1960-1990 from all the values of the historical, rcp26, rcp45 and rcp85 experiments.



GEO-CRADLE Pilot 1: Adaptation to Climate Change

PRETECT

About School Data Latest forecasts News

The PRE-TECT campaign

Revealing the secrets of desert dust

1st – 30th April, 2017

Organized by the

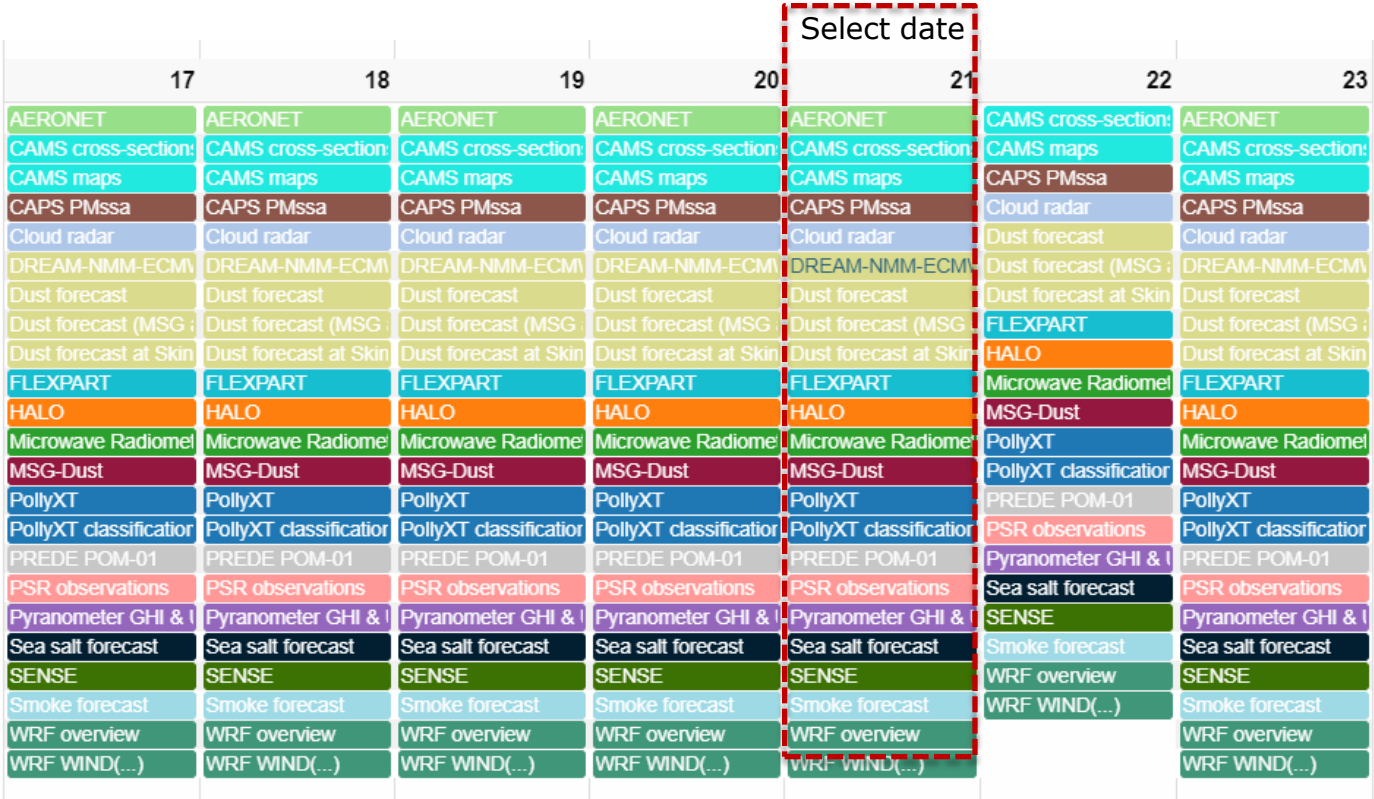
National Observatory of Athens

The goal

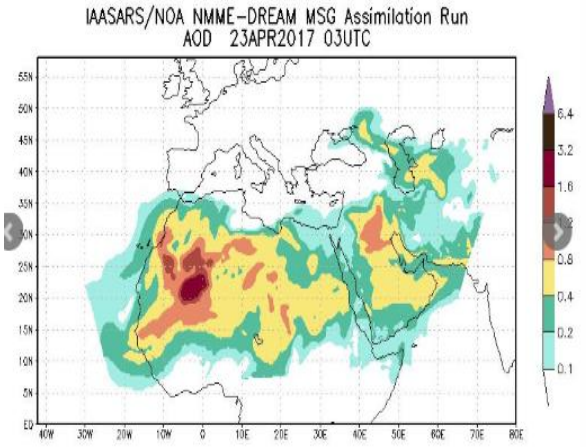
PRE-TECT is an atmospheric experiment organized by the National Observatory of Athens in the framework of the ACTRIS. The experiment will take place from 1st 30th April 2017, aiming to advance desert dust characterization from remote sensing measurements. It will employ advanced inversion techniques developed in the framework of ACTRIS, focusing on aerosol absorption and aiming to fulfil 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.

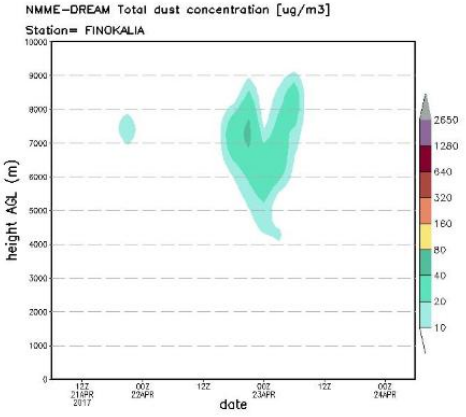
http://pre-tect.space.noa.gr

GEO-CRADLE Pilot 1: Adaptation to Climate Change



GEO-CRADLE Pilot 1: Adaptation to Climate Change





Horizontal and vertical dust forecasts
with satellite assimilation

Engagement of end-users and key stakeholders

Office National de la Meteorologie - Algeria

Ministry of Electricity and Renewable Energy – Egypt

Institute for scientific research – Kuwait

Balloonera Company – Serbia

GEO-CRADLE SENSE pilot solea company for solar energy

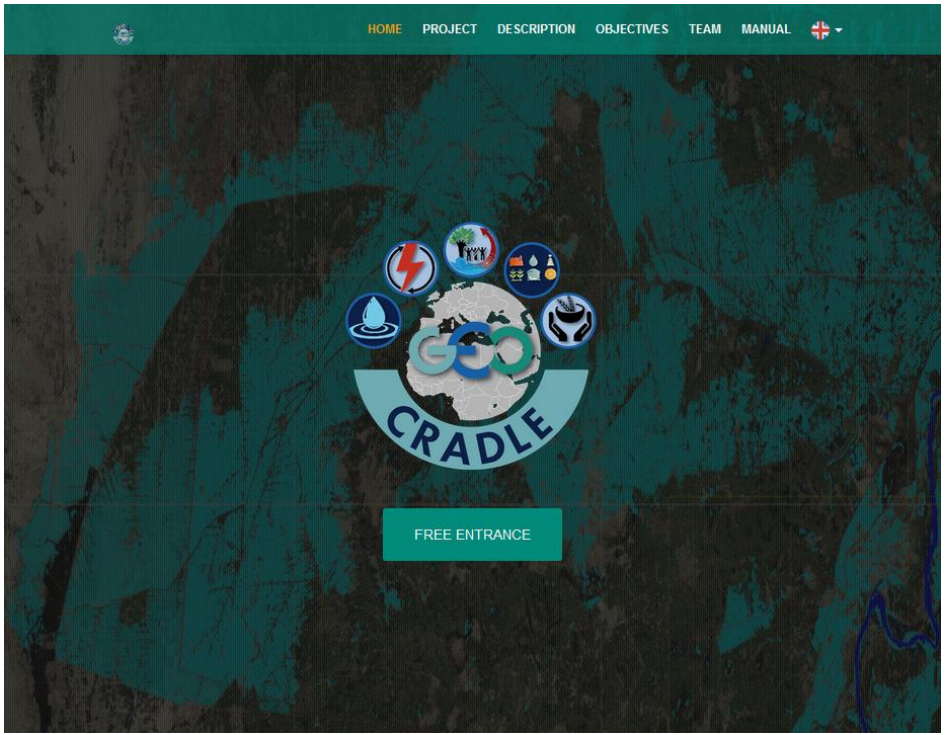
University of Belgrade – Serbia

Department of Meteorology – Cyprus

National Technical University of Athens – Greece

Agence du Bassin Hydraulique du Sebu – Morocco

GEO-CRADLE Pilot 2: Improved Food Security-Water Extremes Mgmt



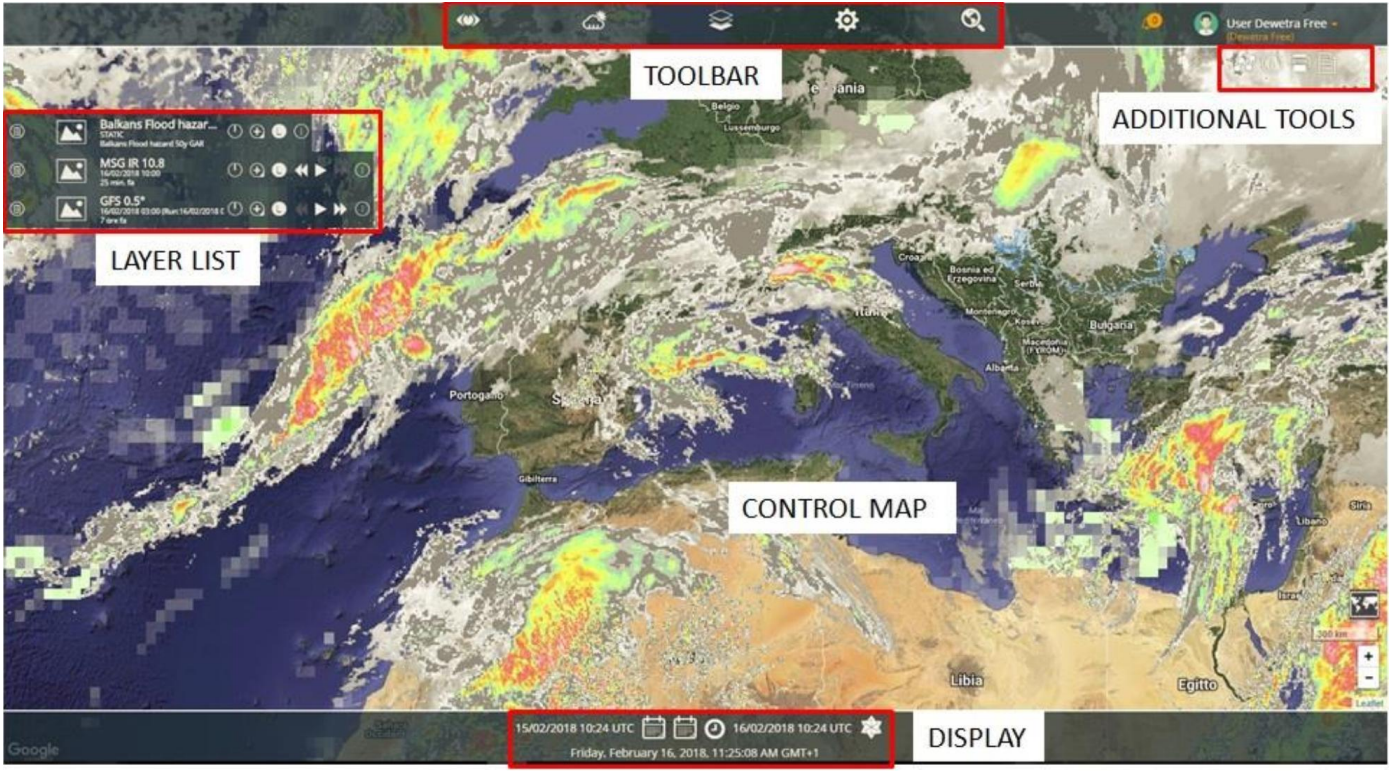
Click on
FREE ENTRANCE
and hit Dewetra
on the left pane to
enter the main platform

cima RESEARCH FOUNDATION

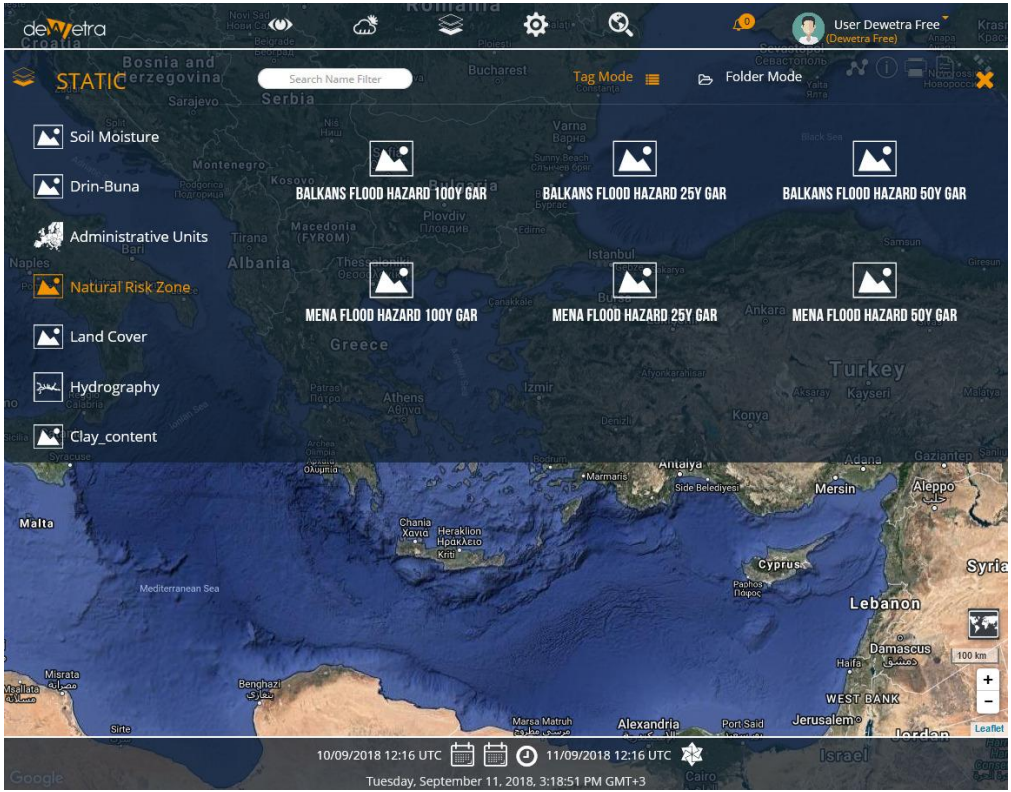
IBEC INTERBALKAN ENVIRONMENT CENTER

http://geo-cradle.mydewetra.org

GEO-CRADLE Pilot 2: Improved Food Security-Water Extremes Mgmt

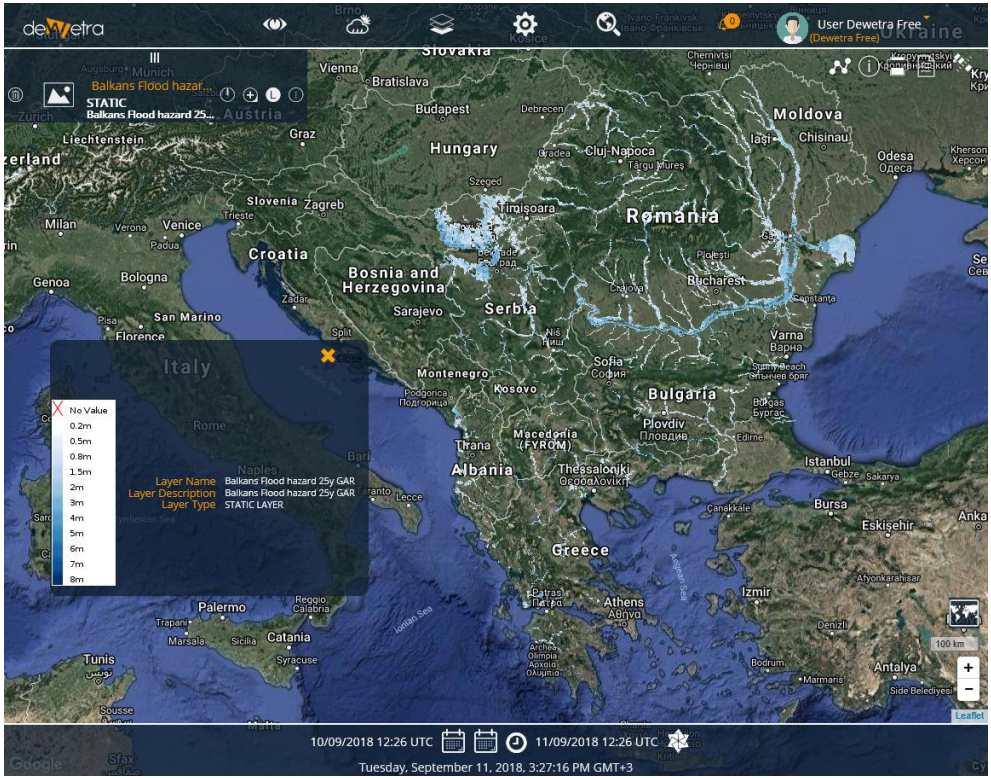


GEO-CRADLE Pilot 2: Improved Food Security-Water Extremes Mgmt



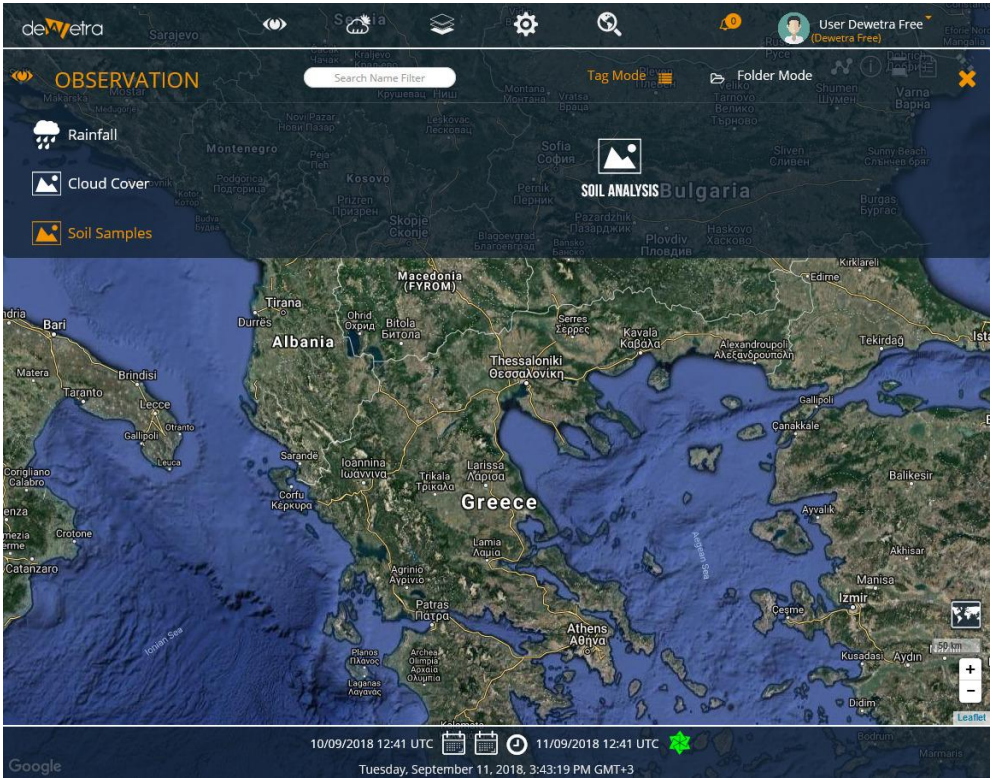
STATIC Layer contains data that does not change frequently, needed to design a comprehensive risk scenario such as the exposures or the hazard maps.

GEO-CRADLE Pilot 2: Improved Food Security-Water Extremes Mgmt



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

GEO-CRADLE Pilot 2: Improved Food Security-Water Extremes Mgmt



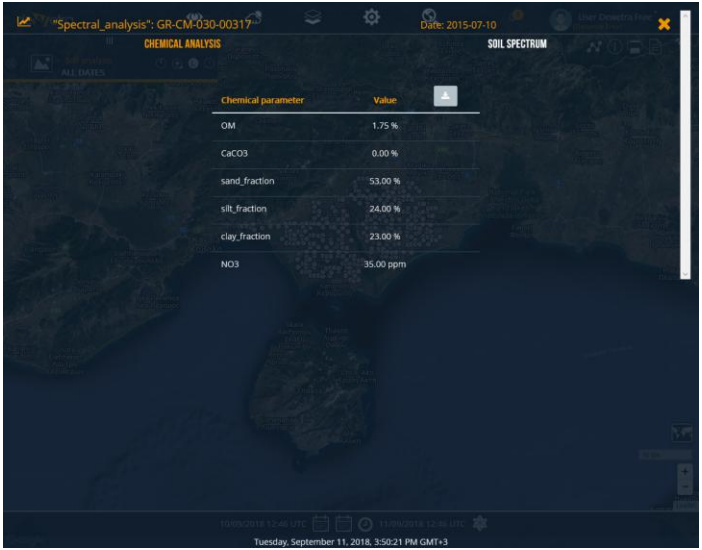
OBSERVATION Layer

Soil Samples

SOIL ANALYSIS

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

GEO-CRADLE Pilot 2: Improved Food Security-Water Extremes Mgmt



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

GEO-CRADLE Pilot 2: Improved Food Security-Water Extremes Mgmt

Home / Datasets / Regional Soil Spectral Library

View | Revisions

PILOT 2: Improved Food Security – Water Extremes Management (IFS)

Food security depends on many aspects such as water abundance and extremes (flooding and drought), vegetation stresses, yield monitoring, soil quality monitoring and sustainability. Plants need...

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.

Regional Soil Spectral Library

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

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

SSL Egypt
This SSL was established by the Centre for Environment and Development for... Download

SSL FYROM
This SSL was established by the Ss. Cyril and Methodius University (USCM).... Download

SSL Greece
This SSL was established by the Inter-Balkan Environment Center (i-BEC). Download

SSL Israel
This SSL was established by the Tel-Aviv University (TAU). Download

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

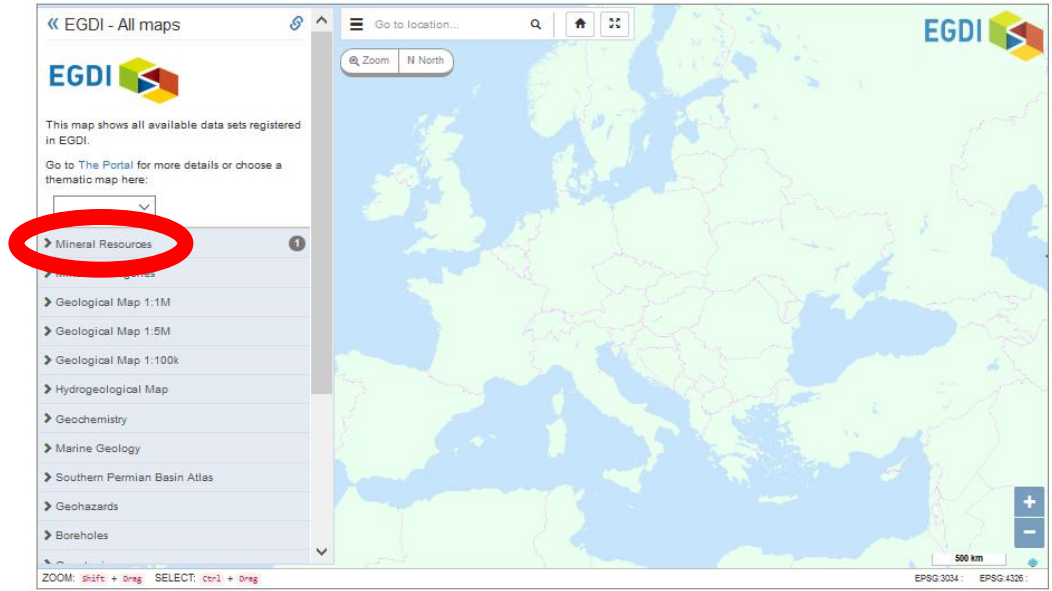
Engagement of end-users and key stakeholders

- Ministry of Economic Development, Tourism, Trade & Entrepreneurship of Albania.
- Ministry of Environment of Albania regarding the development of the hydrological model using EO data.
- GEO's Secretariat regarding the task's activities - particular interest in the countries Albania, FYROM, and Cyprus which are not represented in GEO.
- The agriculture cooperatives of Nestos, NESPAR, Cooperatives of Xanthi, Eleftheroupoli, and Volvi in Greece.
- The Golan Heights Winery

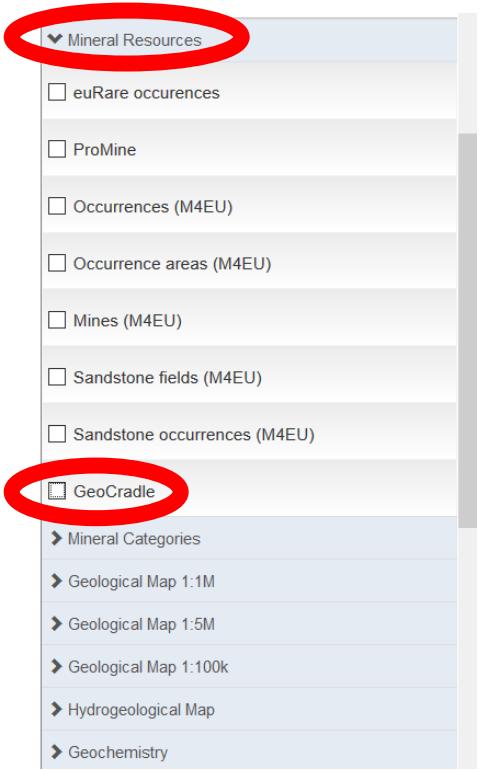
EGDI is EuroGeoSurveys' European Geological Data Infrastructure

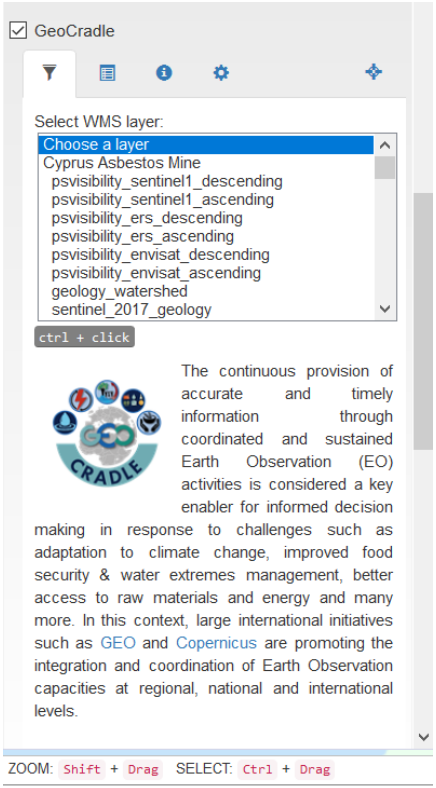
The Geological Surveys of Europe

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

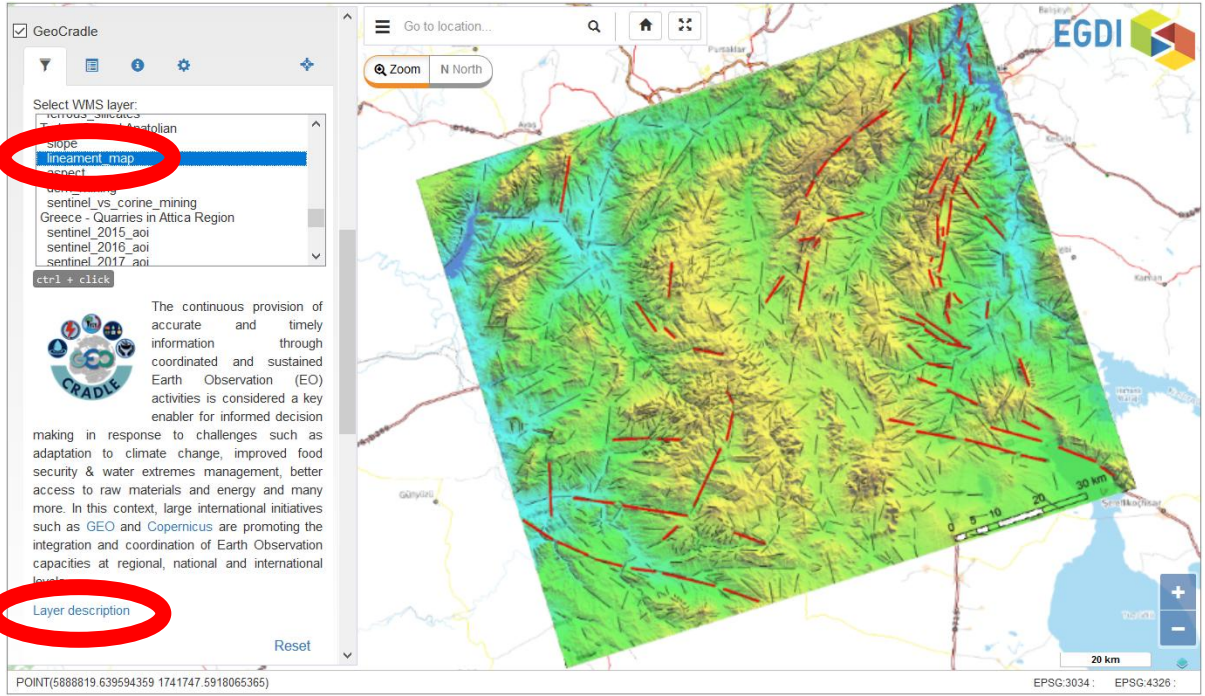


GEO-CRADLE Pilot 3: Access to Raw Materials





GEO-CRADLE 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.

Engagement of end-users and key stakeholders

- Greek Ministry of Environment and Energy: a close collaboration has started in order to implement the pilot project as a tool, used for an attempt to mitigate illegal quarrying.
- Municipality of Alexandroupolis in Greece: an exchange of information upon the strong interest on establishing environmental monitoring of Ayios Filippos abandoned public mine of mixed sulphide ores (Kirki Village, North Greece) lead to the possible future collaboration with Geological Survey of Greece.
- Cyprus GSD-FD-Ministry of Agriculture, Rural Development and Environment: the scoop of the feasibility study for monitoring of ground deformation and stability in the under restoration of the Asbestos Mine was established.
- Hellenic Copper Mines Ltd and Ministry of Agriculture, Rural Development and Environment: the exchange of information on environmental monitoring before the closure of the mine and the possible use of EO data for Skourriotissa Village area can lead to future collaboration with Geological Survey of Cyprus.

Engagement of end-users and key stakeholders

- JADE - Association of Geological Researches, Turkey: Through previous cooperation in the field of research, we managed to establish contact also in the Geo-CRADLE project. JADE proposed one of the test areas and was available during the entire pilot process. The results of the pilot can be used as a starting point for further cooperation in the area of coal deposits in Turkey.

- JeoDijital Bilisim Teknoloji Madencilik, Turkey: The company expressed interest in using remote sensing for environmental research and the potential of iron deposits in the Central Turkey. Consultations with the company lasted throughout the entire pilot phase.

- Minister of Energy, Mining, Water and Environment of the Kingdom of Morocco and Morocco stakeholders: 17-18 October 2016 in Rabat (Morocco) event "Addressing GEO-CRADLE regional challenges - Access to raw materials", & 2nd EGS Networking event "Aimed at in-situ network operators and Geological Surveys – especially in MENA" and Stakeholders' workshop "Using geo-information services in MENA".

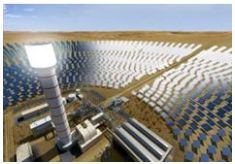
GEO-CRADLE Pilot 4: Access to Solar Energy

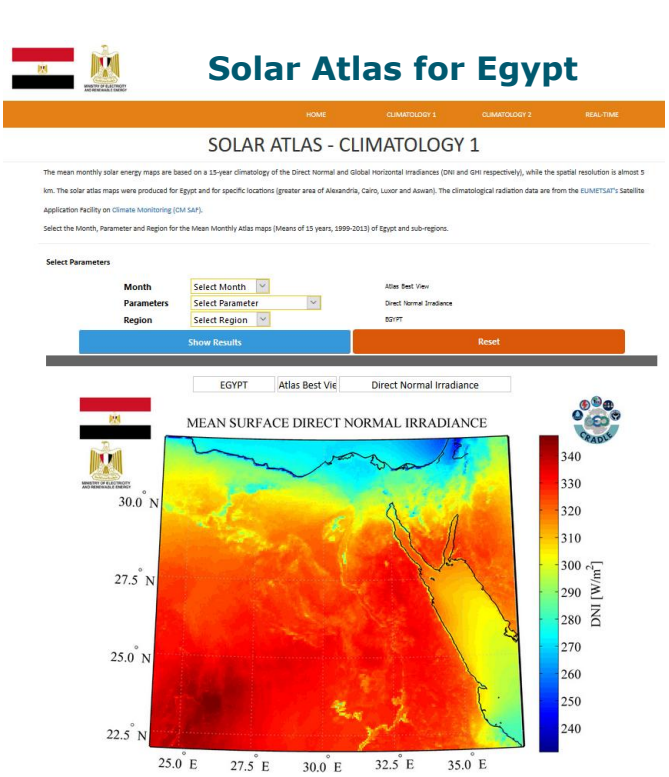
Application developed in support to the Ministry of Electricity & Renewable Energy of Egypt

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





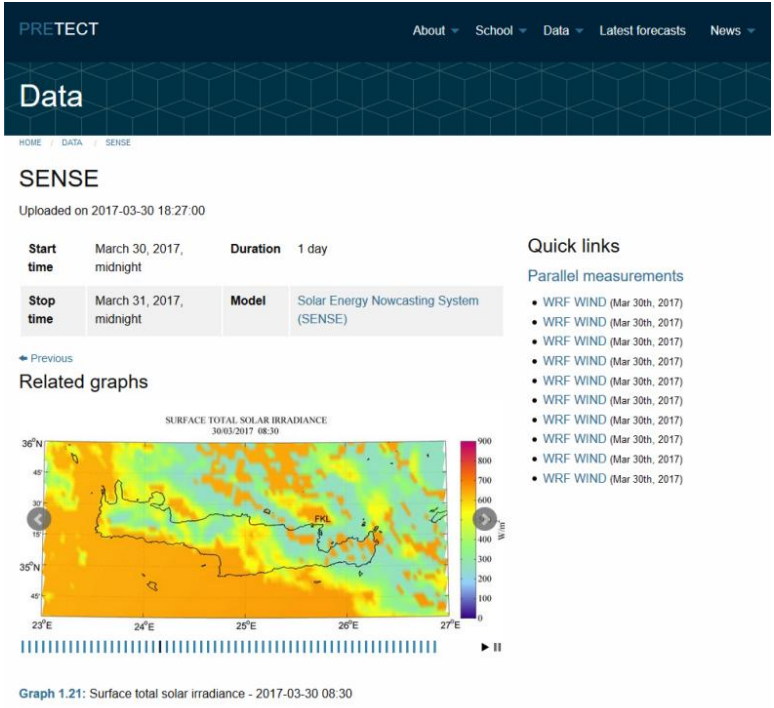
http://cedarekmp.net/solaratlas/web2

GEO-CRADLE Pilot 4: Access to Solar Energy

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

GEO-CRADLE Pilot 4: Access to Solar Energy

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

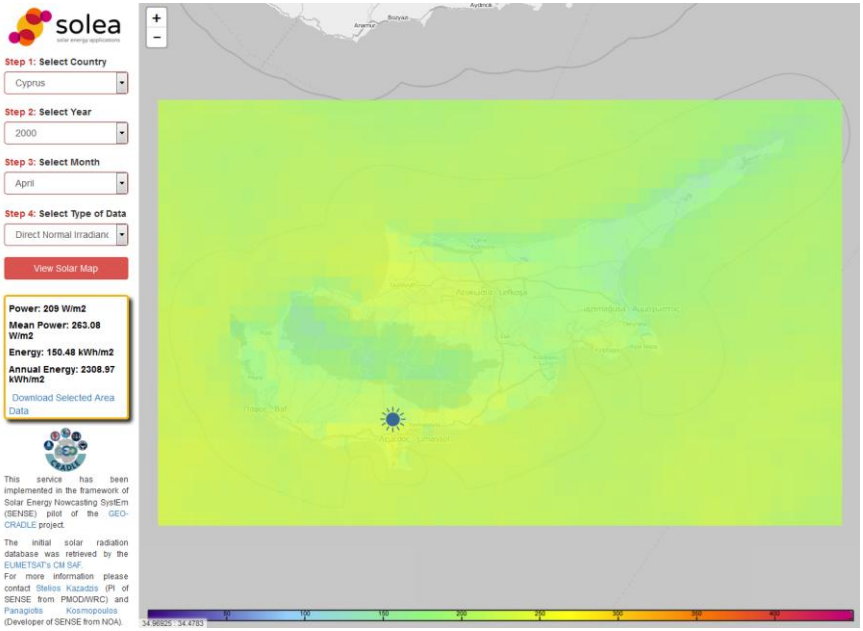
The user is able to download the selected area data in the form of json files.

The solar power describes the "strength" of the irradiance (W/m²).

The solar energy calculates the potential energy production by a PV or CSP system (kWh/m²)

The PAR quantifies the energy that supports photosynthesis.

PAR Atlas for Greece, Cyprus, Egypt



http://beyond-eocenter.eu/solarapp

Engagement of end-users and key stakeholders

MINISTRY OF ELECTRICITY AND RENEWABLE ENERGY

MAGDI YACOUB HEART FOUNDATION
ASWAN HEART CENTRE

ΑΔΜΗΕ
ΑΝΕΞΑΡΤΗΤΟΣ ΔΙΑΧΕΙΡΙΣΤΗΣ ΜΕΤΑΦΟΡΑΣ ΗΛΕΚΤΡΙΚΗΣ ΕΝΕΡΓΕΙΑΣ

Attica Group
SUPERFAST FERRIES
Blue Star Ferries

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thank you!

http://geocradle.eu

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

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Side event Organised by GEO-CRADLE Project & EARSC

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European Association of Remote Sensing Companies