

National Observatory of Athens (NOA)

Dr. Haris KONTOES

kontoes@noa.gr

Research Director & Coordinator of GEO-CRADLE

GEO-CRADLE started as a CSA project funded by the H2020 but today is a GEO Initiative after the decision taken in the last GEO Ministerial in Kyoto

Horizon 2020 Regional Seminar Addressing Euro-Mediterranean Common Challenges through Research and Innovation Cooperation, 22 January 2019, EuroMed University of Fes, Morocco



GEO-CRADLE

http://geocradle.eu

GEO-CRADLE coordinates and integrates state-of-the-art EO activities in the regions of **North Africa**, **Middle East**, **and Balkans** (NAMEBA) and develops links with GEO related initiatives towards GEOSS, contributing amongst others to EuroGEOSS and AfriGEOSS.









THE OVERARCHING GOAL

Develop and sustain updated the roadmap for the implementation of GEO, GEOSS, and Copernicus in regions

The **GEO-CRADLE** project has received funding from the European Union's **Horizon 2020** research and



innovation programme under grant agreement No 690133



GEO-CRADLE

✓ Brings together key players representing the entire EO value chain (> 300 stakeholders) from 29 countries

✓ Promotes the uptake and exploitation of innovative EO activities in NAMEBA





The GEO-CRADLE project has received funding from the European Union's Horizon 2020 research and

innovation programme under grant agreement No 690133

The GEO-CRADLE addresses

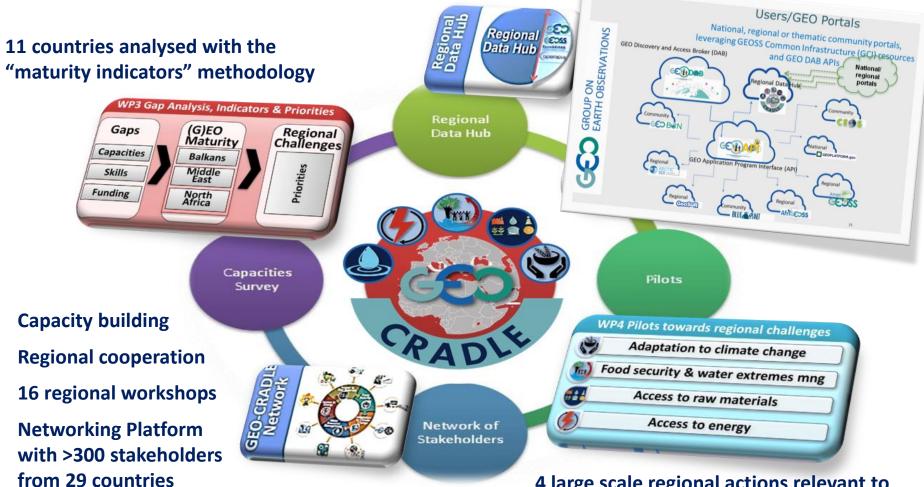


Through the support of

- ✓ Regional Cooperation
- ✓ Awareness raising
- Capacity building
- Training upon Open data accessing, sharing and exploitation

The Activities

Regional Data Hub with >25,000,000 datasets



4 large scale regional actions relevant to capacity building and delivery of innovative services in support of 11 UN SDGs

Results: Maturity Indicators Methodology & Assessment

Visualisation

in maturity

cards

Definition of

Independent validation

"scoring"

ranges

Replication

& upscaling

Data Analysis and sample Collection of augmentation data through many sources

Innovative, independent, up-to-date and replicable methodology for the assessment and monitoring of EO maturity at national level

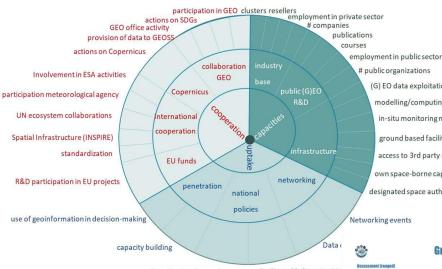
A very extensive set of 32 indicators was defined across 3 main fields:

Capacities

Definition of

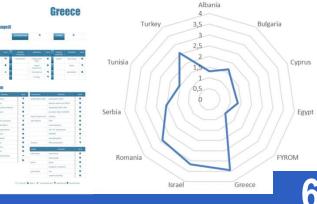
maturity

- Cooperation 2.
- **National Uptake** 3. and Awareness



national budget & investment **Dedicated Policy prioritie**



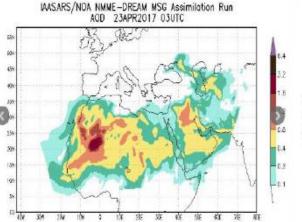


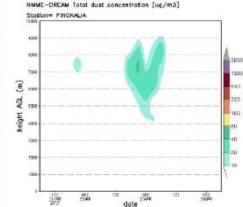
Application of the methodology in 11 countries of the **BAMENA** region:

Albania, Bulgaria, Cyprus, Egypt, FYROM, Greece, Israel, Romania, Serbia, Tunisia, Turkey,

Results: Thematic 1 – Adaptation to Climate Change

Desert Dust services:





Regional Climate Change services:

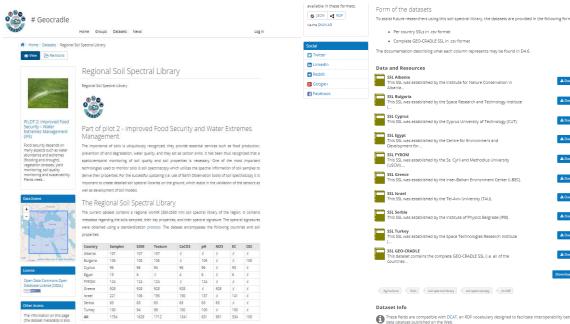
DEAR-Clima	f Home	😧 Domain	Experiments	Ø Scenarios	📰 Variables 🕶	Application	About	🛁 Conta	ct			
					G	uidelines Subscrit	×					
Input Plot	Plot (ΔT)	Graphical Op	otions									
	Download	1					the mean valu		ole clicking anywhere in orical period 1960-199 nts.			
	📥 .csv (ΔT)		6	Full Period Future		Temperature :	2m, E-11 (I	Lon:28.6	13, Lat:40.651, A	lt:Om)		
			Temperature 2m (C)				1 10 14		A			
			d L	and the	wood	A A	WV	VY	V V V	- 440	A H W	<u>vv</u>
			-2	1960	1980	2000		2020	2040	2060	2080	210
			Ļ		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		~ ~	Time (Ye	ars)	and the second	and the second second	

Engagement of end-users:



Results: Thematic 2 – Improved Food Security & Water Extremes Management

Regional Soil Spectral Library: 1754 soil samples from 9 countries (Albania, Bulgaria, Cyprus, Egypt, FYROM, Greece, Israel, Serbia, Turkey)



Engagement of end-users:

Albania: Ministry of Environment, Ministry of Economic Development, Tourism, Trade & Entrepreneurship

Greece: The Agriculture Cooperatives of Nestos, NESPAR, and the Cooperatives of Xanthi, Eleftheroupoli, and Volvi

GEO's Secretariat

myDEWETRA platform:

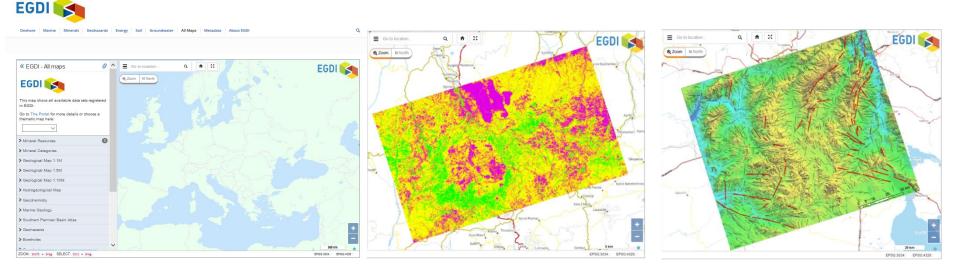


8

Results: Thematic 3 – Access to Raw Materials

EuroGeoSurveys' European Geological Data Infrastructure (EGDI):

Products for 3 countries (Greece, Cyprus, Turkey)



Engagement of end-users:

Greece: Ministry of Environment and Energy, Municipality of Alexandroupolis

Cyprus: Ministry of Agriculture, Rural Development and Environment, the Hellenic Copper Mines Ltd

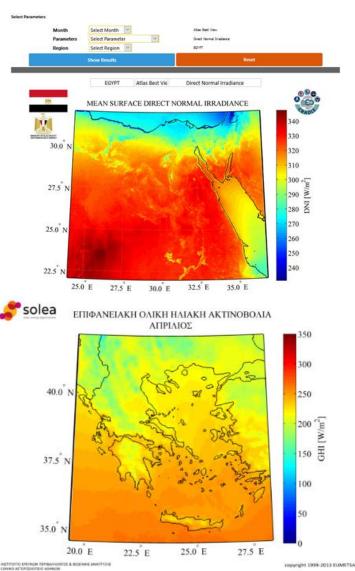
Turkey: JADE - Association of Geological Researches of Turkey, and JeoDijital Bilisim Teknoloji Madencilik in Turkey

Morocco: Minister of Energy, Mining, Water and Environment

Algeria: Geological Survey of Algeria

Results: Thematic 4 – Access to Energy

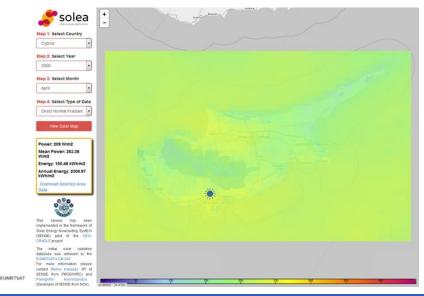
Solar Atlas for Egypt and Greece:



PRE-TECT campaign in Greece:

Graph 1.21: Surface total solar irradiance - 2017-03-30 08:30

PAR Atlas for Greece, Cyprus, Egypt:



Engagement of end-users:

Egypt: Ministry of Electricity and Renewable Energy

Greece: National Independent Power Transmission Operator, Attica Group with Bluestar and Superfast Ferries, National and Kapodistrian University of Athens

Pre-tect campaign

Results: Capacity Building & Stakeholders Engagement

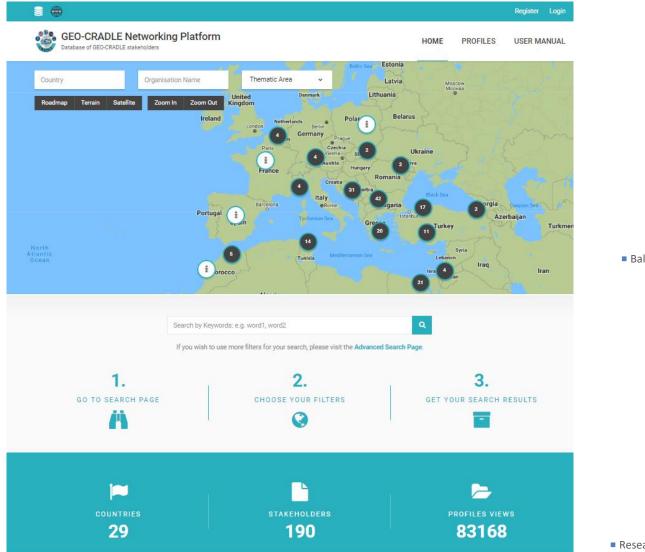
Date	Location	
28/04/2016	Cairo, Egypt	
14/07/2016	Novi Sad, Serbia	
26/09/2016	Tirana, Albania	
17-18/10/2016	Rabat, Morocco	
19/10/2016	Timimoun, Algeria	
16/11/2016	Limassol, Cyprus	
03/01/2017	Chişinău, Moldova	
02/02/2017	Abu Dhabi, United Arab Emirates	
24/03/2017	Sofia, Bulgaria	
26/04/2017	Brussels, 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)	

16 Regional Workshops have taken place in the BAMENA region:

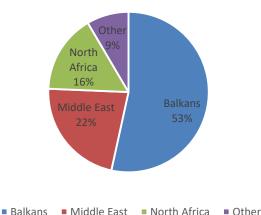
- advocating for free & open data policies in support of GEO & INSPIRE principles
 - supporting knowledge sharing capacity building
- providing a unique cross-sector networking opportunity
- identifying the potential **local challenges and needs** that can be addressed by Earth Observation
- enhancing growth & innovation in the geo-information sector
- enabling more informed decision making



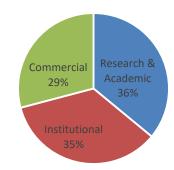
Results: The Regional Networking Platform



STAKEHOLDERS PER REGION



STAKEHOLDERS PER TYPE



Results: The Regional Data Hub

December 13, 2017 (1) November 23, 2017 (1) # Geocradle

About

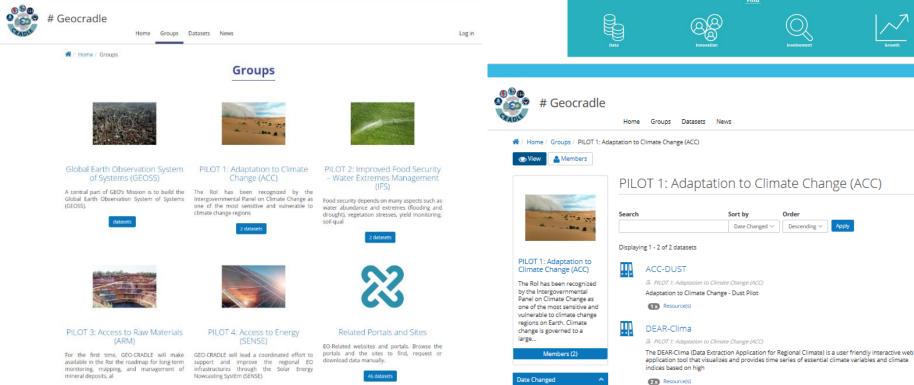
Find

Orde

Date Changed V Descending V

25534239 datasets & 45 related portals and sites





1	3

0 =

Login

Login

GEO-CRADLE Gap Analysis

- Findings of previous projects
- Inventory of EO capacities
- User Requirements Analysis
- Regional Priorities

EO Maturity Indicators

- National EO Capacities
- National User Uptake and Market Penetration
- International Cooperation

Existing Documentation

- GEO/GEOSS
- Copernicus
- Other Flagship initiatives, instruments & programmes

Project Partners

- State-of-play of EO at national level
- Insights on national markets
- Relaying insights by users

Analysis and synthesis by GEO-CRADLE

- Construct thorough picture of current state-of-play at regional level
- Identify key opportunities and major weaknesses/challenges in the region
- Define who, what, when, how in form of action plan



External Experts

- Insights through dedicated workshops
- Interviews with demand/supply actors
- Thematic expertise by advisory board



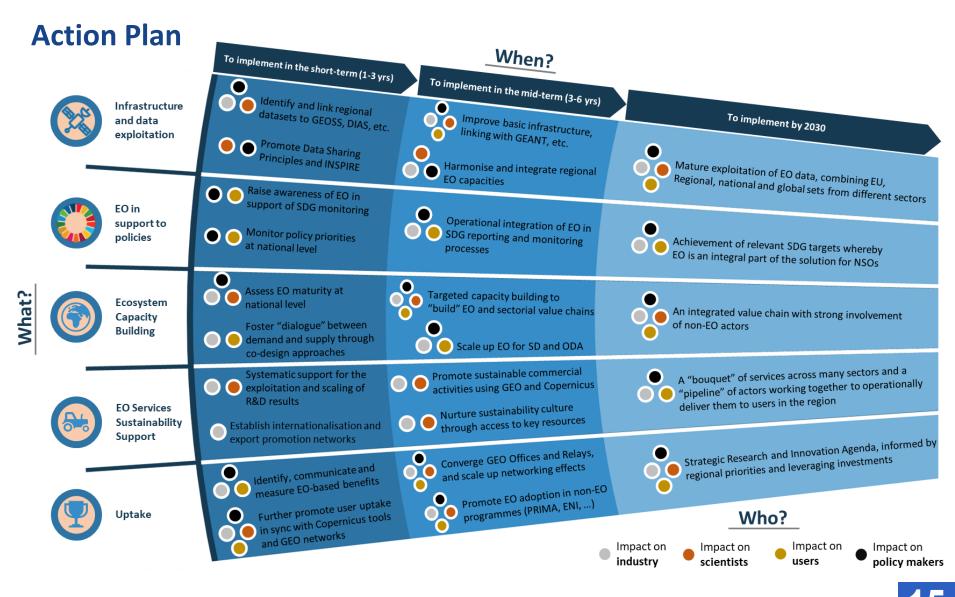
Roadmap

- Short vs long term actions for uptake of GEO and Copernicus
- Strategies for cross-fertilisation of programmes and activities
- Long-term exploitation of regional capacities/capabilities





The DD CDADLE projection received funding from the Devoyage Us only the perreceiver and interaction programme under grant agreement No 202233.



Action Plan

Action 1: Identify and link regional datasets to GEOSS **Platform**, DIAS and data gateways Action 2: Promote Data Sharing Principles and INSPIRE Action 3: Improve **basic infrastructure**, linking with GEANT, etc Action 4: Harmonise and integrate regional EO capacities Action 5: Raise awareness of **EO in support of SDG monitoring**

Action 6: Monitor **policy priorities** at national level

Action 7: Foster operational integration of EO in SDG reporting and monitoring processes

Action 8: Assess EO maturity at national level

Action 9: Foster "dialogue" between demand and supply through co-design approaches Action 10: Carry out targeted capacity building to "build" **EO and sectorial value chains** Action 11: Scale up EO for Sustainable Development and ODA

Action 12: Provide systematic support for the exploitation and scaling of R&D results Action 13: Establish internationalisation and **export promotion networks** Action 14: Promote sustainable commercial activities using GEO and Copernicus Action 15: Nurture sustainability culture through access to key resources

Action 16: Identify, **communicate and measure EO-based benefits** Action 17: Further promote user uptake in sync with Copernicus tools and GEO networks Action 18: **Converge GEO Offices and Relays**, and scale up networking effects Action 19: Promote **EO adoption in non-EO programmes** (PRIMA, ENI, ...) Action 20: Develop and implement a Strategic Research and Innovation Agenda, informed by regional priorities and leveraging investments

Action Plan

- DEVELOP AND IMPLEMENT A STRATEGIC RESEARCH AND INNOVATION AGENDA, INFORMED BY REGIONAL PRIORITIES AND LEVERAGING EXISTING INVESTMENTS
- EXPLOT EXISTING FUNDING INSTRUMENTS IN SUPPORT TO CAPACITY BUILDING AND SERVICE DELIVERY
- ENSURE THE ENGAGEMENT OF LOCAL ACTORS IN EU PARTNERSHIP
- SUPPORT THE DEVELOPMENT OF NEW EO SERVICES FOR SDG MONITORING AND POLICY PRIORITIES AT
 NATIONAL LEVEL
- CARRY OUT TARGETED CAPACITY BUILDING ACTIONS FOR BUILDING EO SECTORIAL VALUE CHAINS
- CAPITALISE ON EXISTING INITIATIVES e.g. GEO-CARDLE, AFRIGEOSS, EUROGEOSS, TO FOSTER HARMONISATION AND SERVICE DEVELOPMENT BY INTEGRATING REGIONAL CAPACITIES, SKILLS
- IDENTIFY AND INTEGRATE **REGIONAL DATA** SETS AND OPEN THEM TO WIDELY USED PORTALS e.g. GEOSS GCI, DIAS, OTHER REGIONAL GATEWAYS (GEO-CRADLE RDH)
- PROMOTE OPEN DATA SHARING PRINCIPLES
- SUPPORT THE DEVELOPMENT OF NEW DATA PORTALS USING OPEN STANDARDS
- DEVELOP THE INFRASTRUCTURE FOR FACILITATING FAST ACCESS TO EO DATA BY LINKING TO GEANT, DIAS, SENTINEL DATAHUBS, etc
- CONVERGE GEO OFFICES AND RELAYS AND SCALE UP NETWORKING IN THE REGIONS

The GEO-CRADLE Initiative: Raise Awareness on Funding Resources



The GEO-CRADLE Initiative: Proposal Submission in EU Calls

Short info about the call

EuroGEOSS (<u>www.eurogeoss.eu</u>) is a H2020 Innovation Action call under Work Programme Year H2020-2018-2020 whose main objective is to **strengthen the benefits for Europe of the Global Earth Observation System of Systems** (**GEOSS**). The main objective of this project is to accelerate users' uptake of open Earth Observation (EO) data and information for the benefit of Europe, through the effective use of European EO resources (including space, airborne, insitu measurements and citizen observations) to prepare for operational environmental forecasting, and for mitigation and adaptation actions through **building on Copernicus services and GEOSS initiatives and flagships**.

Funding scheme

H2020 rules

EUROFEAN APPROACH TO GEOSS

Submission

It is a 2-stage proposal in which 55 organizations participated, under ARMINES coordination and NOA's participation as a key partner. Among the vast and multidisciplinary types of organizations, several members of the GEO-CRADLE consortium and networking platform participated.

No	Organization	Role in GEO-CRADLE		
1	NOA (National Observatory of Athens / IAASARS)	Project Coordinator of GEO-CRADLE		
2	i-BEC (inter-Balkan Environment Center)	Consortium Partner of GEO- CRADLE, Regional Coordinator		
3	CEDARE (Centre for Environment and Development for the Arab Region and Europe)	Consortium Partner of GEO- CRADLE, Regional Coordinator		
4	EARSC (European Association of Remote Sensing Companies)	Consortium Partner of GEO-CRADLE		
5	PMOD/WRC (Physikalisch- Meteorologisches Observatorium Davos / World Radiation Center)	Consortium Partner of GEO-CRADLE		
6	CIMA (Centro Internazionale in Monitoraggio Ambientale)	Consortium Partner of GEO-CRADLE		
7	TAU (Tel Aviv University)	Consortium Partner of GEO-CRADLE		
8	EGS (EuroGeoSurveys)	Consortium Partner of GEO-CRADLE		
9	BIOSENSE INSTITUTE (Research and Development Institute for Information Tech)	Member of the GEO-CRADLE Networking Platform		
10	AoA (ACADEMY OF ATHENS)	Member of the GEO-CRADLE Networking Platform		
11	EVENFLOW	Member of the GEO-CRADLE Networking Platform		
12	DRAXIS ENVIRONMENTAL S.A.	Member of the GEO-CRADLE Networking Platform		
13	NEUROPUBLIC S.A.	Member of the GEO-CRADLE Networking Platform		

The GEO-CRADLE Initiative: Proposal Submission in EU Calls

Short info about the call

PRIMA (http://prima-med.org) is a new Partnership for Research and Innovation in the Mediterranean Area, envisaged to develop (much-needed) solutions for a more sustainable management of water and agro-food systems. The main objective of this ten-year initiative (2018-2028) is to devise new R&I approaches to improve water availability and sustainable agriculture production in a region heavily distressed by climate change, urbanisation and population growth. PRIMA is being financed through a combination of funding from participating countries (currently €274 million), and a €220 million contribution from the EU through Horizon 2020, its research and innovation funding programme (2014-2020). PRIMA programmes support research and innovation through distinct types of actions/activities:

- In Section 1: Research & Innovation Actions (RIA), and Innovation Actions (IA) as defined in the General Annexes of H2020.
- In Section 2: Research and Innovation Activities (RIA*[2]) based on national rules.
- In Section 3: National research programmes (PSIAs).

Funding scheme: Based on National Regulations

Submission

NOA is coordinating under Section 2 - Thematic area 2: Sustainable farming systems under Mediterranean environmental constraints under Topic 1.2.1: Adaptation of Agriculture to Climate Change the submission of a proposal that will team up partners of the GEO-CRADLE project.



No	Organization	Role in GEO-CRADLE
1	NOA (National Observatory of Athens / IAASARS)	Project Coordinator of GEO-CRADLE
2	AUTH (Aristotle University of Thessaloniki)	Contributor to the Adaptation to Climate Change pilot implemented in the framework of GEO- CRADLE
3	CEDARE (Centre for Environment and Development for the Arab Region and Europe)	Consortium Partner of GEO-CRADLE, Regional Coordinator
4	TUBITAK UZAY (Space Technologies Research Institute)	Consortium Partner of GEO-CRADLE
5	CIMA (Centro Internazionale in Monitoraggio Ambientale)	Consortium Partner of GEO-CRADLE
6	CERT (Centre of Telecommunications Studies and Research)	Consortium Partner of GEO-CRADLE
7	CUT (Cyprus University of Technology)	Consortium Partner of GEO-CRADLE

The GEO-CRADLE Initiative: Raise Awareness on Funding Resources

Short info about the call

CHIST-ERA (<u>www.chistera.eu</u>) is a 2017 **Call for Research Proposals** supporting 2 different topics: 1) Object recognition and manipulation by robots: Data sharing and experiment reproducibility (ORMR); & 2) Big data and process modelling for smart industry (BDSI). CHIST-ERA is a consortium of funding organizations with programmes supporting Information and Communication Sciences and Technologies (ICST). The CHIST-ERA consortium is itself supported by the European Union's Future & Emerging Technologies scheme (FET). **CHIST-ERA promotes multidisciplinary and transnational ICST research** with the potential to lead to significant breakthroughs. The funding organizations jointly support research projects selected in the framework of CHIST-ERA, in order

Funding scheme

National funding organization, thus each partner must fulfil the conditions of the funding organisation they are applying to.

Submission

Under NOA's coordination a proposal has been submitted on 2017-01-11 that teams up with 2 partners and 1 end-user of the GEO-CRADLE project.

Short info about the call

EO4SD (Larger scale EO exploitation activities in support of sustainable development initiative) is an ESA tender (EOP-SEI/SNC/VAE_SOW/17-027) aiming at building long-term sustainable use of EO-derived information services to support international development activities (e.g. World Band, Asian Bank etc.). It focuses on 4 specific thematic domains of sustainable development, namely:

- Climate Resilience
- Disaster Risk Reduction
- Marine & Coastal Resources Management
- States Affected by Fragility, Conflict & Violence

Funding scheme

EC-ESA funding.

Submission

Under GMV's coordination the proposal was submitted in October 2017. NOA is one of the partners and exploits the "EO capacity building" competences that have been radically developed through the GEO-CRADLE project. In addition, SIGE, a Tunisian local company was reached through the GEO-CRADLE network, so as to act as a local office in this region.

Organization Role in GEO-CRADLE NOA (National Observatory of Athens / IAASARS) Project Coordinator of GEO-CRADLE

2	PMOD/WRC (Physikalisch- Meteorologisches Observatorium Davos / World Radiation Center)	Consortium Partner of GEO-CRADLE
	IPTO (Independent Power Transmission Operator of Greece)	End-User of the Solar Energy pilot implemented in the framework of GEO-CRADLE

No	Organization	Role in GEO-CRADLE		
1	NOA (National Observatory of Athens / IAASARS)	Project Coordinator of GEO-CRADLE		
2	SIGE (Société d'ingénierie géomatique et environnementale)	Nember of the GEO-CRADLE Networking Platform		

Areas Open to Collaboration

- Coordination of EO activities at regional level
- Capacity Building
- Networking & Stakeholders Engagement
- Assessment of EO maturity at national level
- Operationalisation of EO-based services relevant to:
 - Adaptation to Climate Change
 - Improved Food Security & Water Extremes Management
 - Access to Raw Materials
 - Access to Energy
 - Disasters Management
 - Water Resources Management
- Implementation of data sharing principles





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



Website geocradle.eu



FOLLOW OUR ACTIVITIES Twitter @geocradle | Facebook Geo-Cradle |

23