

## H2020 2018-2020 CALL SELECTION LEIT-SPACE DRAFT WP

TOTAL CALLS	CODE	TOPIC/NAME	TYPE OF ACTION	TRL		BUDGET OF CALL	SUGGESTED PROJECT BUDGET	STAGE	OPENING DATE	DEADLINE
				FROM	TO					
6										
	<a href="#">LC-SPACE-03-EO</a>	<b>Copernicus evolution - preparing for the next generation of Copernicus Marine Service ocean models</b>	RIA			5	5	Single	1 Nov 2017	1 Mar 2018
	<a href="#">LC-SPACE-04-EO</a>	<b>Copernicus evolution – Research activities in support of cross-cutting applications between Copernicus services</b>	RIA			8	2-3	Single	1 Nov 2018	5 Mar 2019
	<a href="#">SU-SPACE-EGNSS-3</a>	<b>EGNSS applications fostering societal resilience and protecting the environment</b>	IA			4	1-3	Single	1 Nov 2018	5 Mar 2019
	<a href="#">DT-SPACE-01-EO</a>	Copernicus Market Uptake	IA				1-2	Single	1 Nov 2017	1 Mar 2018
	<a href="#">LC-SPACE-02-EO</a>	Copernicus evolution – Mission exploitation concepts	CSA			8	2-3	Single	1 Nov 2017	1 Mar 2018
	<a href="#">DT-SPACE-06-EO</a>	International Cooperation Copernicus – Designing EO Downstream applications with international partners	RIA			5	1-2	Single	1 Nov 2018	5 Mar 2019

## **LC-SPACE-03-EO-2018: COPERNICUS EVOLUTION - PREPARING FOR THE NEXT GENERATION OF COPERNICUS MARINE SERVICE OCEAN MODELS**

Scope: Numerical codes shall be prepared to achieve smallest target effective resolution in the kilometric range constrained by high-resolution EO datasets. The following activities are required:

- Deliver global ocean analyses and forecasts at a kilometric scale with additional process complexity;
- Production of ocean forecasts and analyses that exploit upcoming HR satellite datasets;
- Develop advanced numerical schemes with improved accuracy and stability;
- Exploit the opportunities of new high performance computing (HPC) technology;
- Allow easy interfacing of the Copernicus service with local coastal models, allowing for two-way data exchange between coastal systems and the Copernicus Marine System;
- Assess the impact of solving the ocean dynamics at kilometric scales on the role of ocean on climate (e.g. vertical exchange of heat, representation of over flows);
- Assess the impact of solving the ocean dynamics at kilometric scales on the coupling with biogeochemistry and on the carbon, oxygen and nutrient cycles.
- Assess the adequacy and quality of satellite-derived ocean data into the coastal models, thus providing an opportunity for validation and integration with local ocean conditions.

## **LC-SPACE-04-EO-2019-2020: COPERNICUS EVOLUTION – RESEARCH ACTIVITIES IN SUPPORT OF CROSS-CUTTING APPLICATIONS BETWEEN COPERNICUS SERVICES**

Scope: Proposals shall demonstrate the technical operational feasibility of one specific cross-cutting thematic application. The proposers are expected to demonstrate that their proposal is relevant for the enhancement of Copernicus core services and capitalise from the corresponding product portfolio.

The output of this research and innovation action should provide a proof-of-concept or a prototype including a benchmarked selection of concurring methodological approaches, where feasible, that shall complement and broaden the panoply of information made currently available by the core services and which can act as reference for the independent assessment of Copernicus services evolution, in light of product extensions and service improvements.

These applications may concern areas in relation to domains such as energy, agriculture and forestry, health, water resources, security, cultural heritage, coastal monitoring, urban planning, climate adaptation, biodiversity and eco-system preservation, exploration and mineral resources, and others. Copernicus DIAS4 facilities leveraging the big data collection and processing should

be taken into account, in order to exploit the potential of data fusion to its maximum, especially in the case of huge data extent (i.e. long time series of multisensory data, which may bring additional value to cross-cutting new applications)..

The proof-of-concept or prototype should allow demonstrating the relevance and suitability to implement the proposed application later on at European level in a cost efficient manner, i.e. potentially with operational Copernicus funding. To allow a discussion of such potential operational funding, the activity should also result in one or more possible scenarios on how this application could potentially be integrated into the existing service architecture.

Proposers are advised to consult information on the Copernicus programme in general at <http://copernicus.eu>, the evolution topics identified there, as well as the availability of Copernicus Sentinel Data, access to Copernicus Contributing Mission data available via the Commission's website.

The proposal should:

- Demonstrate to what extent the proposed evolution could be a candidate for the operational Copernicus service in terms of cost-benefits, calendar and operational feasibility;
- Specify the conditions for making available, for use and exploitation, the results (including IPR) to the entities implementing the EU Copernicus programme, including its contractors and service providers;
- Foster innovation and enhance applications which exploit Copernicus service information from across the service domain.

Participation of industry, in particular SMEs, is encouraged.

### **SU-SPACE-EGNSS-3-2019-2020: EGNSS APPLICATIONS FOSTERING SOCIETAL RESILIENCE AND PROTECTING THE ENVIRONMENT**

Scope: Proposals may address social and professional applications. Promising areas of activities are:

- Applications supporting e-health, safety and emergency management.
- Search and Rescue applications, including tracking of distress situations and response management.
- Emergency and disaster management

- Management and related operation of critical infrastructure (e.g. electricity network, telecommunication networks, financial transactions), timing and synchronisation.
- Efficient Agriculture: Automated machine guidance, precision farming and machine control.
- Surveying and Mapping: Land survey, marine survey, cadastral and geodesy, and construction.

For all the professional areas, the development and innovation should build on:

- Multiple-frequencies E1, E5 and E6;
- Galileo specific signal modulation, e.g. AltBOC;
- High precision and authentication services that will be provided by Galileo, i.e. in the frame of the commercial service;
- Fusion with other data, such as from EO satellites or other in-situ sensors.

Actions should deliver new innovative applications, with commercial impact and a clear market uptake perspective. EGNSS should be part and parcel of the envisaged solution(s). However, where a combination of EGNSS with other technologies is required to make the application(s) work, this is not excluded from the scope.

In projects to be funded under this topic participation of industry, in particular SMEs, is encouraged.

Proposals addressing PRS (Public Regulated Service) related applications are not in the scope of this action.

#### **DT-SPACE-01-EO-2018-20192020: COPERNICUS MARKET UPTAKE**

Scope: Proposals should address a wide variety of applications stemming from the use of Earth observation and its smart integration with other related technologies. Copernicus must be considered as part of the solution which may include other space or non-space inputs. This should lead to greater value, opportunities and especially market uptake. As long as the Data and Information Access Services (DIAS) are operational at the time of the publication of the call for proposals its facilities leveraging on the big data collection and processing should be part of the proposed application. Alternative cloud computing providers may be used in the case DIAS is not operational at the time of the publication of the call for proposals.

A business plan and evidence of user engagement shall be compulsory and shall be provided together with the application, to demonstrate the user need and sustainability of the project.

Proposals need to address the scalability and cost efficiency of the solution, demonstrating how it will work on a large region or even global scale.

Proposals should be innovative in at least one of these dimensions: market, product, process or business model.

Participation of industry, in particular SMEs, is encouraged.

### **LC-SPACE-02-EO-2018: COPERNICUS EVOLUTION – MISSION EXPLOITATION CONCEPTS**

Scope: The scope is identified according to the possible evolution scenarios indicated above. Each proposal shall address only one of the following sub-topics.

#### **B – Preparation of a European capacity for improving agriculture monitoring**

To advance a coordinated preparation of a mature European capacity in this agriculture monitoring field, there is a need to bring together the key European stakeholders and competent entities which are:

- engaged in activities that can answer questions raised by the Experts Group and under an extended scope of activity,;
- have the ability to network with suitable research actors to fill the knowledge gaps;
- have the required expertise to assess the needs for an end-to-end operational system, with due attention to potential international cooperation opportunities for tackling this challenge from local to global levels in a cost efficient way.

At the same time, there is a need for an accompanying scientific and technical support to address:

- Ways to improve Copernicus' ability to support precision agriculture, the monitoring of crop extension and composition, the monitoring of hydrological stress and water needs for irrigation, the assessment of crop diseases and nutrient deficiency in light of different scenarios of availability of additional complementary data from space;
- Identification of research gaps regarding integration/assimilation/utilization of space based data for agriculture monitoring at global, European and farmer levels.

Activities shall coordinate ongoing efforts, include mutual identification of research and infrastructural gaps, identify a clear delineation between a core service and a downstream application and facilitate a cooperation of further research and development to be undertaken to reach sufficiently mature capacities for an operational integration as a subsequent step.

**DT-SPACE-06-EO-2019: International Cooperation Copernicus – Designing EO downstream applications with international partners**

Scope: Proposals shall address a wide variety of applications stemming from the use of Earth observation and their smart integration with other related technologies. Copernicus should be considered as part of the solution which may include other space or non-space inputs. This is likely to lead to greater value, opportunities and especially market uptake. Applications shall be sustained by a production process capable of delivering to the user a product which is validated and accepted as a marketable product in the international partner country. International collaboration has a key role to play in this context, as it enhances access to markets beyond the national borders, notably by enabling space application providers to absorb market-related tacit knowledge and know-how of their partners. Corresponding validations and customisations are to be undertaken, and the business case for the application is to be demonstrated. Service level models are to be developed, with appropriate quality of service definitions for the application. Application products should be expected to adopt open standards for data documentation, data models and services including data processing, visualisation and cataloguing on a large scale.

Activities shall include joint cal/val activities or integration of local in-situ systems to enhance service products. It is important to exploit the added value of integration of EO observation technologies (both satellite, airborne and ground based) with positioning ones, and ICT (enhancing new frontiers opened by cloud computing) from international partner countries through the development of applications, and encourage their insertion into the market.

The choice of EO application is left to the proposer.

Applicants are advised to consult further information on the availability of Copernicus Sentinel Data, access to Copernicus Contributing Mission data, as well as issues recommended to be detailed in the proposals via the Commission's Copernicus website.

For projects to be funded under this topic:

- Participation of partners from countries that have signed a Copernicus Cooperation Arrangement<sup>8</sup> is required;
- Participation of industry, in particular SMEs, is mandatory.
- Participation of partners involved in international GEO initiatives is encouraged.

