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Industrial Leadership

Horizon 2020 Pillar: Industrial Leadership

Programme: Leadership in Enabling and Industrial Technologies - Space

Call Title: Space 2018-2020

Call Identifier: H2020-SPACE-2018-2020

Topic Title: International Cooperation Copernicus – Designing EO downstream applications with international partners

Topic Identifier: DT-SPACE-06-EO-2019

Type of Action: RIA Research and Innovation action

Deadline(s): 12-03-2019 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-space-06-eo-2019.html

Specific Challenges: Copernicus, the Union's Earth observation and monitoring programme produces a wealth of data and information regarding the Earth sub-systems (land, atmosphere, oceans) and cross-cutting processes (climate change, emergency and security). Cooperation with international partners is key to promoting the uptake of Copernicus globally, exploiting possibilities for integrating in-situ, space data and information technologies. Building the Copernicus full, free and open data policy, the Commission seeks to facilitate access to Copernicus data and information for interested international partners. Administrative cooperation arrangements on Copernicus data access and earth observation data exchange have already been signed with the United States and Australia, and discussions towards similar cooperation have been started with other countries and regions (including Africa, Latin American countries and **Asia-Pacific** countries).

Cooperation with partner countries should be fostered with a view to using Copernicus data to jointly develop algorithms, services and/or products which serve local user needs and/or enhance the Copernicus global product quality.

Proposals are encouraged to use the Copernicus Data and Information Access Services (DIAS), or other existing data access solutions instead of setting up their own download and processing infrastructure. They are also encouraged to integrate third-party data (including in-situ data) and envisage data assimilation into models and products made available on the Copernicus platform of the Copernicus services..

For such applications and developments to succeed in the market or with public users, the products need to be shaped according to users' needs and their value to users must be openly demonstrated to the wider user community. This needs

to be achieved in an environment integrated at the level of the user, in order for users to accept the innovative potential which the product promises. This will require also specific attention to be given to the various processes in place in the users' workflows which incorporate the EO information. Furthermore, the transition of R&D product prototypes to viable commercial product lines after the end of the EU funded phase remains a challenge to be addressed early on during product development.

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 are expected to adopt open standards for data documentation, data models and services including data processing, visualisation and cataloguing on a large scale.

Tasks shall include joint calibration and validation activities or integration of local in-situ systems to enhance the quality of data and 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[1].

For proposals under this topic:

- Participation of at least one partner from a country that has signed a Copernicus Cooperation Arrangement[2] is required;
- Participation of industry, in particular SMEs, is encouraged;
- Involvement of post-graduate scientists, engineers and researchers is encouraged, for example through professional work experience or through fellowships/scholarships as applicable;
- Participation of partners involved in international **GEO Initiative**s is encouraged.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This topic contributes to the Horizon 2020 focus area "Digitising and transforming European industry and services".

Expected Impact:

- Establish sustainable supply chains for innovative EO value added products and services with demonstrated commercial value with international client communities;
- Complete integration, based on international standards, into the customer's existing business processes and processing chains, as well as the economic viability of the application is to be demonstrated;
- Enhance the European industry's potential to take advantage of market opportunities and establish leadership in the field and to boost business activity;
- Lead to new or improved products, processes or services on the market that are capable of generating within 3 years after the end of public funding a significant turnover for the participants, and create new jobs;
- Lead to an improved quality of the Copernicus global product, thereby enhancing the stating of Copernicus data and information in a global environment and **GEOSS**.

Cross-cutting Priorities: International cooperation

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[1] http://www.copernicus.eu/main/data-access

[2] See Copernicus.eu for list of countries concerned

Societal Challenges

Horizon 2020 Pillar: Societal Challenges

Programme: Climate action, environment, resource efficiency and raw materials

Call Title: Greening the economy in line with the Sustainable Development Goals (SDGs)

Call Identifier: H2020-SC5-2018-2019-2020

Topic Title: Multi-stakeholder dialogue platform to promote nature-based solutions to societal challenges: follow-up project

Topic Identifier: SC5-23-2019

Type of Action: CSA Coordination and support action

Deadline(s): 04-09-2019 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc5-23-2019.html

Specific Challenges: Nature-based solutions (NBS) have a high – but largely untapped – potential for delivering multiple ecosystem services (such as carbon sequestration, soil and water retention and purification, pollination, increased human well-being…) to address diverse societal challenges with a systemic and innovative approach. An effective and self-sustainable multi-stakeholder platform that fosters dialogue, interactions, knowledge and information sharing, collaboration and think-and-do-tanks among relevant stakeholders is necessary to support the understanding and promote the use of nature-based solutions and speed up market up-take. Stakeholders include science, policy, administration, business (including SMEs), society (including NGOs, CSOs, and citizens as appropriate), public and private investors.

The establishment of such platform is currently being undertaken by ThinkNature[1], with support from Oppla[2] and Biodiversa[3]. ThinkNature is an ongoing CSA funded under SC5 WP 2016 that is due to terminate end 2019. The Oppla portal is developing as the EU NBS knowledge repository, supporting access, sharing and marketing of nature-based solutions knowledge, including from NBS EU-funded projects.

Scope: The action should aim to build upon the achievements of ThinkNature and further develop and consolidate an effective and self-sustainable EU community of innovators and practitioners and think-and-do-tanks to promote the design, development, replication and upscaling of nature-based solutions at the European and global scale.

The action should, on the basis of continuous and strategically driven stakeholder dialogue, exchanges of practices and experiences and sharing of expertise related to the various social, economic, financial, environmental, educational, institutional, regulatory and cultural NBS-relevant aspects, across multiple scales (local, regional, national and EU):

- further develop and maintain an online open source stakeholders platform that would facilitate the interactions;
- develop a business plan to make such a platform financially self-sustainable;
- identify specific domains and priorities where further research and innovation is needed for marketable nature-based solutions;
- establish NBS hubs and organize communication and outreach campaigns and regular events in all Member States, involving, as appropriate, international networks and environmental communicators and targeting all relevant stakeholders involved, including the scientific community, in the overall NBS value chain;
- facilitate the clustering of current and upcoming EU-funded nature-based solutions relevant research and innovation projects and other EU or national initiatives;
- assist the European Commission in organizing science-policy workshops and drafting briefings and contributions to EU policies related to nature, environment, climate, water, etc. Appropriate links with other relevant policy platforms such as Climate-ADAPT[4] and BISE[5] should be ensured;
- develop guidelines for practitioners with state-of-the-art NBS design practices, protocols and standards;
- facilitate the development and mainstreaming of NBS-related professional training and the inclusion of NBS in high-education curricula (as, for example, NBS for architects and urban planners; ecosystem services for engineers, etc.), and Masters;
- promote international cooperation with key strategic international partners[6];
- proposals shall address all of the above points. The platform must ensure that all evidence, data and information will be accessible through the Oppla portal.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 2 million for a period of up to 4 years would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

Actions are expected to lead to:

- effective and self-sustainable EU community of innovators, practitioners and think-and-do-tanks; identification of knowledge gaps and user needs; assessment of market potential for NBS;
- enhanced awareness among public authorities, the private sector and society at large about the advantages and any risks of NBS and therefore a wider use of these solutions as opposed to or in combination with grey infrastructure;
- improved cooperation and synergies with key strategic international partners and the emergence of a global market for nature-based solutions.

Delegation Exception Footnote: This activity directly aimed at supporting the development and implementation of evidence base for R&I policies and supporting various groups of stakeholders is excluded from the delegation to EASME and will be implemented by the Commission services.

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[1] https://www.think-nature.eu/

[2] https://oppla.eu/ Developed by FP7-funded projects OPERAs and OpenNESS forknowledge on ecosystem services, natural capital and nature-based solutions;

[3] http://www.biodiversa.org/ Funded under the Horizon 2020 ERA-NET COFUND scheme

[4] http://climate-adapt.eea.europa.eu/

[5] https://biodiversity.europa.eu/

[6] Such as CELAC countries, China, Belmont Forum, **South East Asia**

Horizon 2020 Pillar: Societal Challenges

Programme: Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy

Call Title: Sustainable Food Security

Call Identifier: H2020-SFS-2018-2020

Topic Title: European Joint Programme on agricultural soil management

Topic Identifier: LC-SFS-20-2019

Type of Action: COFUND-EJP COFUND (European Joint Programme)

Deadline(s): 23-01-2019 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-sfs-20-2019.html

Specific Challenges: Good agriculture soil management[1] contributes to food security, climate change mitigation/adaptation and ecosystem services. Preserving and increasing fertility of soils, not least through their organic content and water retaining capacity, increases agricultural production. Soils and their carbon, nitrogen and phosphorus content are also important for climate change mitigation. A number of good soil management practices have been developed to deal with some of the challenges; however serious knowledge gaps exist, e.g. on the characteristics of soils in various regions of Europe, the factors influencing their fertility functions including their capacity to store carbon, depending on different climate and environment conditions. The European Union is committed to addressing climate change with ambitious targets. An integrated framework for soil research in Europe is required to overcome current fragmentation and unleash the potential of agricultural soils to contribute to climate change mitigation/adaptation, while preserving or increasing agricultural functions.

Scope: The European Joint Programme will boost soil research with main emphasis on agricultural soil management and its contribution to climate change mitigation and adaptation. The aim is to construct a sustainable framework for an integrated community of research groups working on related aspects of agricultural soil management[2]. The activities should look at how management of agricultural soils can reduce degradation of land and soils (in particular soil erosion and loss of organic matter), preserve and increase fertility of soils and how the processes related to organic content and water retaining capacity can support mitigation and adaptation to climate change. The EJP will evaluate and foster implementation of novel technologies for soil management and carbon sequestration. The aim of the EJP is also to look for synergies between different

approaches used in Europe for farm level accounting of emissions and removals from agricultural activities and particularly of carbon storage. In doing so, activities will contribute to improving inventories, measurements, reporting and accounting activities at different scales. Sustainable agricultural productivity and environmental aspects will also be targeted in connection with climate change mitigation and adaptation, so that optimisation of land management is ensured.

The European Joint Programme will include joint programming and execution of research and other joint integrative activities such as education and training (e.g. short-term missions, workshops), knowledge management, access to experimental facilities and databases, including also harmonisation, standardisation. Farmers, landowners and other stakeholders should be included in research activities as appropriate in the spirit with the multi-actor approach[3].

State-of-art technologies for mapping and soil sampling and analysis (physical, chemical and biological parameters) should be explored for wider and simple use at various levels. In return, by e.g. developing new ICT tools, this could help farmers to protect and manage soils in line with current scientific understanding of processes. The EJP should also facilitate sampling and further development of LUCAS[4] –European Soil Database as well support EU contribution to global soil mapping activities.

Participating legal entities must have research funding and/or management responsibilities in the field of agriculture soil management.

The proposal should include a five-year roadmap describing the key priorities and governance processes as well as the first annual work plan.

The acquired knowledge should support policy making in the domain of agricultural soil management and related areas, such as agriculture, climate and environment, and when feasible and appropriate knowledge exchange between science and practice for better agricultural soil management by farmers should be envisaged.

The activities will need to be coordinated as appropriate with other international soil related activities under the United Nations umbrella among them the **Global Soil Partnership** and more particularly with European Soil Partnership node; with **The Global Research Alliance on Agricultural Greenhouse Gases**; Horizon 2020 project CIRCASA[5]; 4‰ Initiative: soils for food security and climate; Joint Programming Initiatives (FACCE, CLIMATE); the Belmont Forum and soil activities coordinated by the European Commission Joint Research Centre [6] when relevant and appropriate. The work of the EJP will also support a number of policies: the Common Agricultural Policy, Climate Change related policy and relevant environmental policies, in particular the implementation of the EU Soil Thematic Strategy[7].

Financial support provided by the participants to third parties is one of the aims of this action and, in order to achieve the objectives of the action, the 60 000 EUR threshold provided for in Article 137(1)(c) of the Financial Regulation N°966/2012 and Article 210(a) of the Rules of Application Regulation N°1268/2012 can be exceeded.

Considering the budget available, the scope covered and the potential entities for the EJP, the Commission considers that an EU contribution to a maximum 50% of the total eligible costs of the action or up to 40 million EUR would allow this specific challenge to be addressed appropriately.

Expected Impact: The project will lead to significant long term alignment and implementation of soil-related research strategies and activities at national and EU level by:

- fostering understanding of soil management and its influence on climate mitigation and adaptation, sustainable agricultural production and environment;
- understanding how soil carbon sequestration can contribute to climate change mitigation at regional level including accounting for carbon;
- strengthening scientific capacities and cooperation across Europe including training of young soil scientists;
- Supporting harmonised European soil information, including for international reporting;
- fostering the uptake of soil management practices which are conducive to climate change adaptation and mitigation;
- developing region-specific fertilisation practices considering the local soil, water and pedo-climatic conditions;

In the long term, the programme will strengthen the role of the farming sector as a steward of land and soil resources. It will increase its capacity to adapt to climate change and contribute to mitigation and carbon sequestration.

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[1] Soil management includes: soil conservation, soil fertility and soil biodiversity.

[2] Agro-forestry is included in the topic.

[3] See definition of the 'multi-actor approach' in the introduction of this Work Programme part.

[4] Land use/cover area frame statistical survey, abbreviated as LUCAS, is a European field survey program funded and executed by Eurostat http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Land_use/cover_area_frame_survey_%28LUCAS%29

[5] Project selected under SFS-50-2017 topic

[6] European Soil Data Centre; EIONET - European Environment Information and Observation Network – soil network

[7] COM(2006)231

Horizon 2020 Pillar: Societal Challenges

Programme: Smart, green and integrated transport

Call Title: Building a low-carbon, climate resilient future: Green Vehicles

Call Identifier: H2020-LC-GV-2018-2019-2020

Topic Title: InCo flagship on "Urban mobility and sustainable electrification in large urban areas in developing and emerging economies"

Topic Identifier: LC-GV-05-2019

Type of Action: IA Innovation action

Deadline(s): 25-04-2019 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-gv-05-2019.html

Specific Challenges: Climate change, energy security and local air pollution are some of the key questions for the 21st century. Urban areas in developing and emerging countries are major driving factors in growing global energy demand and Greenhouse Gas emissions.

Although cities cover only 2% of the earth's surface, 50% of the world's population lives in cities, but they are responsible for three-quarters of the global energy consumption as well as approximately 80% of the global greenhouse gas emissions. While the trend towards urbanisation and the associated increase of personal and freight transport creates massive challenges, in particular in developing and emerging economies, it also offers the unique opportunity to shape energy use especially in the transport and urban form towards a low carbon pathway. Moving towards sustainable mobility will also help addressing urban congestion, access to jobs and public services, and local air pollution.

This is why urbanisation requires integrated mobility solutions that bring together technology opportunities with local and national policy, including land use and mobility planning. Efficient transport and mobility, based on a balanced mix of public and private transport and dependent on the characteristics of each city, is and will continue to be the backbone of cities' growth and competitiveness.

Whereas environmental issues are very high on urban mobility agendas, the importance of transport in urban social and economic structures is often neglected in discussions. All three aspects of urban sustainability must be treated with equal importance and have to be examined in parallel.

Scope: Actions should bring together European, **Asian** (e.g. China), CELAC (Community of Latin American and Caribbean States) and African research partners, government agencies and urban authorities, private sector and civil society with relevant expertise and competence within the corresponding cooperation framework and foster participatory engagement in urban electrification in order to reduce air pollution and CO2 emissions. All types of vehicle are considered under this topic (powered 2 wheelers, cars, buses, trucks and LDV).

Proposals should address all of the following activities:

- Development of a toolbox for advanced management strategies towards a more efficient private and public electric mobility: E-mobility management strategies, focusing on smart deployment and operation of vehicles, in particular electrified vehicle, to increase mobility and energy efficiency, emission reduction and user acceptance of electrified vehicles
  - A smart and cooperative management of the vehicle in urban operation, (intermodal route planning, ecorouting eco-driving charging and parking infrastructure availability…).
  - Deployment and operation of infrastructure use charging infrastructure (conventional and wireless) and network, availability of parking places. Adaptation and integration of existing/ adapted vehicles of different types if necessary.
  - Efficient integration of the operations of different electrified road public transport, from e-bike to bus rapid transit (e- BRT) including mini-buses, taxi and mobility services on demand through smart navigation and routing, coordinated traffic management, demand-responsive service and dispatching
- Comparative demonstrations activities and pilots in cities will include at least one demonstrator in the following regions: Europe, **Asia**, Africa and CELAC (leading to a minimum of 4 city demonstrators). Demonstrations will involve local partners. Innovative concepts for electrified road public transport (passenger and freight), jointly designed through International Partnerships as a contribution to a wider sustainable mobility concept, from the perspective of a seamless mobility, taking in account the acceptance of users (travellers or freight operator).
- Implementation concepts to scale up the demonstration activities. Evaluation of the relative outputs and accordingly the development of implementation concepts to scale up the demonstration activities and exploration of the sustainable mobility planning in the city transformation process :
  - Sustainable planning of city and transportation infrastructure: link city planning with policy discussion and implementation solutions and city goals and with any Air Quality Plans
  - Dedicated plans for financing solutions, including public and private operations.
  - Regional and international replication conditions to reach out to a larger number of cities and countries

Cooperation and synergies with ongoing activities undertaken with international initiatives such as Decarbonising Transport (International Transport Forum) and

the Urban Electric Mobility Initiative (UN-Habitat) and other joint initiatives of European Member States international cooperation initiatives and the European Commission (e.g. Mobilise Your City) should be sought where appropriate.

In line with the strategy for EU international cooperation in research and innovation[1], international cooperation is encouraged.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 15 and 18 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

Proposals are expected to contribute to:

- Capability to quantify the potential reduction of greenhouse gas and pollutant emissions as well as traffic congestion, by demonstrating improvements that can be achieved with new urban mobility systems and electrification, for each stakeholder in the value chain (in line with the objectives set by the COP21 and the New Urban Agenda)
- UN's Sustainable Development Goals 11 "Sustainable cities and communities" and 13 "Climate Action"
- Reference models of the mobility system to provide a basis in order to assess the ability to replicate sustainable concepts by demonstrating the short- and long-term benefit for the stakeholders involved, and especially considering the relevant boundary conditions (i.e infrastructure, vehicle, usage needs and patterns, governance, financing schemes, urban organisation, etc) and how the result contributes to key EU policy goals (including climate goals and competitiveness of European industry)
- A basis for strengthening the collaboration of the European Union with **Asia** (e.g. China, India, etc), Latin America (CELAC) and Africa, which also offers both a common starting point for common future legislative efforts, as well a favourable setting for new business opportunities for innovative local and European entrepreneurs.

Cross-cutting Priorities: Open Innovation, Clean Energy, Contractual Public-Private Partnerships (cPPPs), EGVI, RRI, Socio-economic science and humanities, International cooperation

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[1] (COM (2012) 497)