

CLEAN VERSION

Topic	Novel in-situ observation systems
Topic identifier	SC5-18-2017
Publication date	14 October 2015
Types of action	RIA Research and Innovation action
Deadline Model	single-stage
Planned opening date	08 November 2016
Deadline	07 March 2017 17:00:00
Website:	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2194-sc5-18-2017.html

Topic Description

Specific Challenge:

A more systematic observation of the Earth system is required at a resolution and accuracy that cannot always be provided through remote sensing technologies. There is therefore a need to extend and improve the in-situ component of the Global Earth Observation System of Systems (GEOSS) and of the EU Copernicus programme in order to collect the relevant data necessary to cover observation gaps, calibrate and validate remote-sensing data and deliver Earth Observation services, including monitoring variables, for policy makers, local users and citizens.

However, components of existing in-situ observing and monitoring systems are too often bulky, expensive and power hungry, which hinders their wide-scale deployment for continuous environmental monitoring. The challenge here is to explore and test new technological solutions that would lower the costs of acquiring, deploying and maintaining monitoring and observing stations which would contribute to filling the in-situ observational gaps of Earth observation systems. This issue is especially acute in less developed countries where in-situ Earth observation capacities have deteriorated.

Scope:

Actions should develop new, in-situ Earth observation systems, taking advantage of new technology and the latest developments in sensor science so that measurements can be performed using low energy sensors and communication systems, requiring less demanding maintenance. Actions should focus on the transfer and adaptation of new technologies into operational systems, enabling a real breakthrough in the efficiency of deploying and maintaining new in-situ observing systems in a cost-effective way. The research and innovation activities under this topic may take into account concepts such as citizens' observatories, disposable sensors, and the use of unmanned platforms. The project should take into account as much as possible relevant research outcomes from programmes of the European Research Council, the

Leadership in Enabling and Industrial Technologies and the European Metrology Research Programme [1].

Prominent criteria for the selection of the projects will be fulfilling agreed European and international standards regarding the quality of the measurements, and the interoperability for data exchange with other existing monitoring and observing platforms and with user applications. Proposals should establish formal links, where appropriate, with the GEO Global Initiatives (e.g. GEOGLAM, GEOBON, GFOI, GMOS, AFRIGEOSS, BLUE PLANET) and with the relevant Copernicus services so that the new monitoring and observing platforms fulfil well-identified needs under these two major initiatives. Test phases enabling proof-of-concept of the observation and monitoring platforms in real conditions should be organised during the course of the project. Participation of SMEs in project consortia is encouraged in order to facilitate the development of innovative and operational systems.

Projects should foresee activities to cluster with other projects financed under this topic and – if possible – also under other parts of Horizon 2020.

The Commission considers that proposals requesting a contribution from the EU of between EUR 4 million and EUR 5 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:

The project results are expected to contribute to:

- improved in-situ components of the GEOSS and Copernicus programmes;
- cost-effectiveness of the new systems when compared to previous ones;
- new opportunities and market development of the European Earth observation commercial sector and for downstream users;
- measurable added value for the Copernicus and/or GEOSS initiatives;
- the provision of information necessary to ensure food, water and energy security, to cope with the scarcity of natural resources, to develop mitigation and adaptation solutions to climate change, and to make communities more resilient to natural hazards.

[1]<http://www.emrponline.eu/>

Participants` Comments Version

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However, components of existing in-situ observing and monitoring systems are too often bulky, expensive and power hungry, which hinders their wide-scale deployment for continuous environmental monitoring. The challenge here is to **explore and test new technological solutions** that would **lower the costs** of acquiring, deploying and maintaining monitoring and observing stations which would contribute to filling the in-situ observational gaps of Earth observation systems. This issue is especially acute in **less developed countries** where **in-situ Earth observation** capacities have deteriorated.

Scope:

Actions should develop new, **in-situ Earth observation systems**, taking advantage of new technology and the latest developments in **sensor science** so that measurements can be performed using **low energy sensors** and **communication systems**, requiring less demanding maintenance. Actions should focus on the **transfer and adaptation of new technologies into operational systems**, enabling a **real breakthrough** in the efficiency of deploying and maintaining new in-situ observing systems in a cost-effective way. The research and innovation activities under this topic may take into account concepts such as **citizens' observatories**, **disposable sensors**, and the use of **unmanned platforms**. The project should take into account as much as possible relevant research outcomes from programmes of the European Research Council, the

Leadership in Enabling and Industrial Technologies and the European Metrology Research Programme [1].

Prominent criteria for the selection of the projects will be **fulfilling agreed European and international standards** regarding the quality of the measurements, and the **interoperability** for data exchange with other existing monitoring and observing platforms and with user applications. Proposals should establish formal links, where appropriate, with the GEO Global Initiatives (e.g. GEOGLAM, GEOBON, GFOI, GMOS, AFRIGEOSS, BLUE PLANET) and with the relevant Copernicus services so that the new monitoring and observing platforms fulfil **well-identified needs** under these two major initiatives. Test phases enabling **proof-of-concept of the observation and monitoring platforms in real conditions** should be organised during the course of the project. **Participation of SMEs** in project consortia is encouraged in order to facilitate the development of innovative and operational systems.

Projects should foresee activities to **cluster with other projects** financed under this topic and – if possible – also under other parts of Horizon 2020.

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FINAL ANALYSIS

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Commented [g1]: Consortium

Commented [g2]: Users

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Commented [g3]: Consortium/INCO

Scope:

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Commented [g5]: Consortium

Commented [g6]: Consortium

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ANALYSIS OF THE CALL

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Analysis of the Call

CONTENT

WP1: Mapping

- Limitations of the available in-situ systems – boundary conditions
- Review of the available state-of-the-art technologies (citizens' observatories, disposable sensors, and the use of unmanned platforms).

WP2: Development of new in-situ Earth observation systems

- Definition of type of systems, of their specifications and of their cost-effectiveness
- Building prototypes

WP3: Testing and compatibility to standards

- Testing in real conditions
- Evaluation of performance and compatibility to standards
- Prospects for commercialization (IPR, market search)

WP4 Communication and dissemination

- Establishing links with GEO Global Initiatives
- Establishing links with policy makers, local users and citizens
- Dissemination actions

WP5: Management

- Scientific
- Administrative and financial

CONSORTIUM

Partners with competences in:

- Contacts with GEOSS and EU Copernicus programme
- Contacts with policy makers and users
- Experience in less developed countries
- Sensor sciences
- citizens' observatories, disposable sensors, and the use of unmanned platforms
- International standards and testing
- Market development and commercialization
- SMEs

In addition:

- Good balance of countries (EU MS, Associated, 'Third')
- Good balance of academic/business

BUDGET

Cost items: Labor, Consumables, Equipment (?), Travel, Events, Other, Subcontracting, Indirect cost (25%).

Breaking down to Task level

Breaking down to participants in every Task