



## EuroGEOSS Request 2018

Fields marked with \* are mandatory.

### Request for Expressions of Intent to scale-up and showcase EuroGEOSS Pilot Applications

EuroGEOSS is a regional initiative launched in October 2017 by the European countries, the European Commission and organizations participating to the Group on Earth Observations (GEO). From 2018 onwards, the EuroGEOSS initiative plans to launch periodic Requests for Expressions of Intent. All organizations located in European GEO member countries which are involved in developing, promoting or deploying innovative EO derived solutions are invited to come forward with voluntary Expressions of Intents for networking with other stakeholders along the value chain and scaling-up their activities within a timeframe of maximum three years.

**This EuroGEOSS Request provides the online form to submit your Expression of Intent to the EuroGEOSS initiative. Submissions are accepted until 30 June 2018.**

#### Why to submit an Expression of Intent?

- To share good practice, benchmark experiences and scale them up across different local contexts and across the EU;
- To network including with users and other stakeholders not yet involved in European Research and innovation EO activities;
- To get high visibility and recognition - including in GEO and Copernicus events - and take part in a more strategic dissemination at European and international level under the EuroGEOSS flag;
- To benefit from EuroGEOSS as a regional gateway to GEO;
- To link with important EO projects and programmes in Europe including Copernicus, Horizon 2020 and its follow-up programme after 2020;
- To benefit from and contribute to a reinforced European EO marketplace;
- To get regularly informed on funding opportunities;

- To participate in a European-wide, lasting partnership where shared competences, resources and skills are combined.

The Expressions of Intent should build upon the combination of existing funded developments. They must address the EuroGEOSS scoping priorities and selection criteria annexed to the text of the EuroGEOSS Request 2018.

All Expressions of Intent submitted online to the EuroGEOSS Request 2018 will be analyzed by the EuroGEOSS Coordination Group.

Action Groups will be established for each of those application areas where critical mass and market potential is identified from the submitted Expressions of Intents. Being selected for an Action Group is the prime mechanism to get your activity labelled as a EuroGEOSS activity. Each Action Groups shall facilitate upscaling of a specific EO applications characterized by a Technology Readiness Levels (TRLs) equal or above 5.

The Action Groups are not subject to a contractual basis. They represent ad hoc voluntary partnerships aiming at advancing the EuroGEOSS innovation agenda on a best effort basis and for a period of maximum three years.

For more information on this survey - including the EuroGEOSS selection criteria - see the "*Request 2018 for Expressions of Intent*" and the related *Frequently Asked Questions (FAQ)* available from the [EuroGEOSS](#) web site. You can also send your eventual questions to [RTD-EUROGEOSS@ec.europa.eu](mailto:RTD-EUROGEOSS@ec.europa.eu).

#### ***Disclaimer***

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***Data protection related to this survey:*** *personal data protection will be ensured (please click [here](#) for further information).*

***Specific Privacy Statement:*** *is available [here](#).*

**DEADLINE FOR SUBMISSIONS: 30 June 2018**

**FEEDBACK BY EMAIL TO CONTRIBUTORS: end August 2018**

**LAUNCH OF SELECTED ACTION GROUPS: mid September 2018**

## **1 PARTNERSHIP SUPPORTING THE EXPRESSION OF INTENT**

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### **1.1 LEAD ORGANISATION**

\* Lead organisation name

*100 character(s) maximum*

Luxembourg Institute of Science and Technology (LIST)

\* Lead organisation address (Address, city, country)

*100 character(s) maximum*

41, rue du Brill

\* Lead organisation URL/website

*100 character(s) maximum*

www.list.lu

Lead organisation profile in relation to GEO and/or Copernicus

If applicable, please describe briefly the links between your organisation and the GEO initiative and/or the Copernicus programme.

*1000 character(s) maximum*

In the environmental domain, LIST develops strategies, technologies and tools to better monitor, assess, use and safeguard natural and renewable resources. Its research department 'Environmental research and innovation', which is engaged with this proposal, has largely dedicated its activities on the investigation of the added-value for disaster risk reduction, precision farming and maritime surveillance of satellite Earth Observation (EO) data. Several of its research projects are funded by the European Space Agency or the European Commission and make extensively use of data generated by the Copernicus programme. The research department was further selected by the EC as a Copernicus Relay in Luxembourg and is part of the Copernicus Academy.

\* Contact person (Name and firstname)

*50 character(s) maximum*

Matgen Patrick

\* Contact person e-mail

patrick.matgen@list.lu

## 1.2 OTHER ORGANISATIONS

Name of other organisations (Please include the name and country of the other organisations separated by comma.)

*1000 character(s) maximum*

Swedish Meteorological and Hydrological Institute (Sweden), Global Flood Partnership represented by the Joint Research Centre (Italy) and some of its representative user organizations

Types of organisations (Please select all types of organisations participating in your coalition)

- International organisation
- Public authority
- Research
- Business

- Non-governmental organisation
- Interest group
- Other (please specify below)

Are you looking for additional, specific expertise along the value chain?

- Yes
- No

## 2 YOUR EXPRESSION OF INTENT

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**\* Descriptive title**

*200 character(s) maximum*

Satellite Earth Observation-derived water bodies and floodwater record over Europe

Acronym (optional)

*20 character(s) maximum*

**\* Abstract/executive summary (including the overall description of the intended EuroGEOSS pilot application)**

*2000 character(s) maximum*

Hydrological extremes such as floods have enormous environmental, social and economic consequences and it is expected that climate change effects combined with a growing population in ill-planned flood-prone coastal and riverine areas will increase their impacts in the future. With more lives and assets at risk, governments are increasingly investing in flood reduction measures to improve or at least maintain the current safety level. Understanding historical trends in flooding greatly enhances the ability of flood managers to take action and to address the underlying risk. The HASARD mapping algorithm that was recently implemented on the European Space Agency's (ESA) Grid Processing On Demand (GPOD) environment enables systematic, automatic and reliable spaceborne Synthetic Aperture Radar-based (SAR) mapping of terrestrial water bodies. The proposed pilot intends to upscale and operationalize the HASARD service so that a water bodies and floodwater record is generated at large scale and over a long period to support flooding-related disaster risk reduction in Europe. By contributing to a better understanding, monitoring and prediction of risks of extreme weather events and enabling a better resilience of our societies to such events, the pilot directly connects to the sustainable development goal 13 (Take urgent action to combat climate change and its impacts).

### EXPECTED INNOVATION OUTCOMES

(to tick one or several options from the form)

**\* What main EuroGEOSS innovation outcomes?**

- Real life, user-driven demonstrated EO applications
- Reviews of user-related experience and questions
- Catalogues of good practices available in different languages
- Strategies for scaling-up new services including critical success factors
- Guidelines for business models, evidences on return on investment

- Innovative procurements of interoperable innovative solutions
- Innovation deals in the field of service solutions
- Reference site with high potential for replication in Europe
- Inter-regional cooperation
- Cooperation with H2020 projects
- Awareness raising campaigns
- Emerging themes of novel interest for European research & innovation.
- Education and training modules, including for trainers
- Other (please specify below)

**EuroGEOSS POLICY PRIORITIES ADDRESSED BY YOUR INTENT** (to tick relevant options from the form)

**\* EuroGEOSS priorities**

- |  |  |
|--|--|
| <input type="checkbox"/> SDG2: Zero hunger                             | <input type="checkbox"/> SDG 14: Life below water / SDG 15: Life on land   |
| <input type="checkbox"/> SDG 3: Good health and well-being             | <input type="checkbox"/> SDG 13: Climate action - Paris agreement          |
| <input type="checkbox"/> SDG 6: Clean water and sanitation             | <input checked="" type="checkbox"/> SDG 13: climate action Paris agreement |
| <input type="checkbox"/> SDG 7: Affordable and clean energy            | <input checked="" type="checkbox"/> Sendai Framework                       |
| <input type="checkbox"/> SDG 9: Industry innovation and infrastructure | <input checked="" type="checkbox"/> EU policies                            |
| <input type="checkbox"/> SDG 11: Sustainable cities and communities    |  |

**\* Link to GEO SBAs**

- |  |  |
|--|--|
| <input type="checkbox"/> Food sustainability and sustainable agriculture | <input type="checkbox"/> Sustainable urban development             |
| <input type="checkbox"/> Public health surveillance                      | <input type="checkbox"/> Biodiversity and ecosystem sustainability |
| <input checked="" type="checkbox"/> Water resources management           | <input type="checkbox"/> Crosscutting: climate change and impact   |
| <input type="checkbox"/> Energy and mineral resource management          | <input checked="" type="checkbox"/> Disaster resilience            |
| <input type="checkbox"/> Infrastructure and transport management         |  |

Is your Intent supporting directly the implementation of a specific EU policy?

- Yes  
 No

In case of support to EU policies, please specify

*500 character(s) maximum*

The generated floodwater and flood hazard products (2002-2010) can be used to update and evaluate flood hazard/risk maps produced by the EC Member States to comply to the Directive 2007/60/EC on the assessment and management of flood risks

**EO application domains**

- |  |  |
|--|--|
| <input type="checkbox"/> EO for sustainable agriculture                  | <input checked="" type="checkbox"/> EO for resilient cities        |
| <input type="checkbox"/> EO for public health surveillance               | <input type="checkbox"/> EO for nature conservation                |
| <input type="checkbox"/> EO for sustainable water management             | <input checked="" type="checkbox"/> EO for climate services        |
| <input type="checkbox"/> EO for renewable energies and energy efficiency | <input checked="" type="checkbox"/> EO for disaster risk reduction |
| <input type="checkbox"/> EO tracking human settlement                    |  |

- \* End user dimension (Who are the end users? How are they involved? How consolidated are the user needs?)

*1500 character(s) maximum*

The targeted community of users is the Global Flood Partnership, that is a multi-disciplinary group of scientists, operational agencies and flood risk managers focused on developing efficient and effective global flood tools. The main aim of the GFP is to establish a partnership for global flood forecasting, monitoring and impact assessment to strengthen preparedness and response and to reduce global disaster losses and to understand the impact of climate change effects. The current chair of the GFP is the Joint Research Centre. Approximately 90 organizations are represented during the GFP annual meeting. As of 2017, more than 300 people from 6 continents are registered on the GFP mailing list. Since 2016 the GFP is recognized as a GEO participating organization. The proposed pilot will be co-designed and evaluated with inputs from some of the key member organizations of the GFP who have expressed an interest in the availability of a global water bodies and floodwater record derived from multi-annual SAR observations. These key organizations are Deltares, RSS-Hydro, Fathom Global, ECMWF, CIMA Research Foundation and JRC, but other GFP organizations will be invited to join the effort. The characteristics of the pilot's product will be defined together with these end user organizations. Progress of the project will be presented at the different GFP events and the data sets will be advertised through the GFP information channels.

- \* Market potential (Please document the level of already established market/uptake potential?)

*1000 character(s) maximum*

The market potential has not yet been evaluated.

- \* Targeted Technology Readiness Level (TRL) (What level of service demonstration/validation have you achieved /do you aim to achieve?)

*1000 character(s) maximum*

The SAR-based flood mapping tool is scientifically validated and implemented on ESA's Grid Processing On Demand environment for pre-operational testing at global scale (TRL 7), The flood hazard analysis tools are scientifically validated and a tested in a relevant environment (TRL 5). For both applications it is foreseen to move the TRL up to a level of 8-9 at the end of the project by improving the underlying image processing algorithms and rendering the end-to-end processing chain more efficient. We target a fully operational service over Europe at the end of the project.

- \* Description of planned upscaling activities (e.g. wider user base, extended service quality with additional data sources, transnational

deployment in Europe, closer-to-market activity, service replication/incubation, other upscaling activity?)

*1500 character(s) maximum*

The service will be implemented over Europe. However, the system can be easily upscaled to global scale as all input data sets are available at global scale and free of charge. However, some 'blind spots' will remain as SAR signals are not able to provide reliable information in specific areas (e.g. densely built environments, densely vegetated areas, high latitudes)

- \* Link to GEO and GEOSS (How do you intend to take advantage of GEOSS data/GEO activities?)

*800 character(s) maximum*

Our end user organizations the Global Flood Partnership is recognized as a GEO participating organization.

\* Leveraging Copernicus (How about exploiting existing data/services/platforms/resources from the Copernicus programme?)

*1000 character(s) maximum*

The proposed service is entirely built upon Copernicus mission through the processing of Sentinel-1 data for generating flooding-related products at large scale

Duration(starting from September 2018)

- One-year duration
- Two-year duration
- Three-year duration

\* Funding resources (Reference to existing/upcoming funding resources or projects supporting your Expression of Intent)

*50 character(s) maximum*

ESA, National Research Fund, EC

Comments (optional)

*1000 character(s) maximum*

### 3 ABOUT THE EuroGEOSS REQUEST 2018

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\* How did you learn about this EuroGEOSS Request?

*300 character(s) maximum*

From the Principal Investigator of our H2020 Innovation Action project proposal

Suggestions in view of future EuroGEOSS Requests (optional).

We would like to give you the opportunity to comment on this survey.

This will be taken into account for subsequent EuroGEOSS Requests after 2018.

*1000 character(s) maximum*

THANK YOU FOR YOUR COOPERATION.

#### Background Documents

[EuroGEOSS Request 2018 for Expressions of Intent.pdf](#)

[EuroGEOSS concept paper.pdf](#)

[FAQ](#)

[SpecificPrivacyStatement - EuroGEOSS\\_2018.pdf](#)

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**Contact**

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