

GEO-Google Earth Engine Programme

This document is submitted by the Secretariat to the Programme Board for decision.

1 INTRODUCTION

During GEO Week 2019 (Canberra, Australia), GEO and Google announced a new initiative to offer cost-free access to Google Earth Engine (GEE), to increase the use of Earth observations to address the world's greatest challenges.

The GEO-GEE Programme will support the work of eligible GEO Members and/or Participating Organizations by helping operationalize their work and bridge the gap between science and application, in order to produce tangible products that engage with end users and decision makers. Proposals for projects that aim to deliver significant impact using Earth observations and data science with respect to environmental and development goals are being solicited, including the Sendai Framework for Disaster Risk Reduction, the Paris Agreement on Climate Change, the United Nations Sustainable Development Goals (SDGs), as well as ocean conservation and biodiversity preservation. The call for proposals under the GEO-GEE Programme was published on 5 December 2019, with applications requested by 15 March 2020. The application form is provided as Annex A to this document.

The GEO-GEE Programme is carried out in cooperation with the GEO Secretariat, GEO Programme Board, Google and EO Data Science (a small geospatial company located in Australia). Google will award up to 25 licenses for unlimited use of GEE over the next two years, valued at US\$ 3 million, to the institutions submitting successful proposals. EO Data Science will provide in-kind technical support and mentoring through an outreach programme to help eligible GEO Members and Participating Organizations obtain the results from GEE that they need. The GEO Secretariat will work with the Programme Board, Google and EO Data Science to develop a competitive review process to allocate these licenses based on merit.

The initiative is a result of the open call issued by GEO in September 2019 inviting proposals from companies that provide cloud-based geospatial processing platforms for the development of applications using Earth observations. The ongoing call encourages commercial cloud service vendors to provide data access and processing credits to the GEO community.

2 INVOLVEMENT OF THE GEO PROGRAMME BOARD

In the implementation of the similar GEO-Amazon Web Services (AWS) Cloud Credits Programme, the Programme Board requested that it have the right to nominate up to three of its members to participate on the team that reviewed the proposals. This was agreed by the Secretariat, although only two Programme Board members, Kathy Fontaine (ESIP) and Krystal Wilson (SWF), ultimately participated in the review.

The Programme Board is invited to participate in the selection of proposals for the GEO-GEE License Programme. Based on the GEO-AWS Cloud Credits Programme process, the time

requirement for review team members would be in the order of 1 to 2 hours per proposal for the review itself. The number of proposals which will be received is unknown at this time, although the maximum number of licenses to be granted is capped at 25, which is also the number of proposals received in the GEO-AWS call. It is possible (and desirable) that the number of proposals exceeds this number, perhaps considerably. This work load would be divided among the Programme Board reviewers, such that each reviewer would review an equal portion of the proposals received. It would therefore reduce the potential workload of each reviewer if the Programme Board were to nominate three reviewers instead of only two.

In addition to the review of the proposals, which is done individually, the reviewers would be expected to participate in at least two teleconferences of the review team to discuss the proposals and come to a consensus on which would be accepted. In the previous process, there were two teleconferences of approximately 2 hours each. The GEO-GEE License Programme process may require additional meeting time, depending on the number of proposals received.

The expected period in which the review process will take place is from the close of the application period (15 March) to July 2020. Participation in the process will not require any travel on the part of the reviewers.

3 DECISIONS REQUIRED

The Programme Board is requested to decide:

1. Whether it wishes to nominate individuals to the review team; and
2. (If it does,) How the individual reviewers will be selected.

ANNEX A

GEO-GOOGLE EARTH ENGINE (GEE) PROGRAMME APPLICATION

1 PURPOSE

The GEO-Google Earth Engine programme aims to support GEO by helping operationalize its work to tackle the world's biggest sustainable development challenges through cost-free use of Google Earth Engine (“GEE”). The programme will provide eligible applicants with access to the GEE platform to help with bridging the gap between science and application, to produce tangible products that engage with end users and decision makers. The GEO-Google Earth Engine programme will target organizations and initiatives that aim to deliver significant impact with respect to environmental and development goals, including the Sendai Framework for Disaster Risk Reduction, the Paris Agreement (UNFCCC COP21), the United Nations Sustainable Development Goals, as well as Ocean conservation and biodiversity preservation, using Earth Observations and Data Science.

In addition, EO Data Science will provide in-kind technical support and mentoring through an outreach programme to help approved proposals from the GEO community get the results needed from GEE. EO Data Science is a dedicated Earth Observations company and a leading GEE partner globally. The mission of EO Data Science is to partner with organizations to operationalize earth observations, leveraging cloud technology and data science to address specific outcomes.

2 ELIGIBILITY AND PROGRAMME DETAILS

Non-profit and government agencies and research organizations associated with GEO are eligible to apply to use GEE for projects approved under this Programme, at no charge, for a 2-year period. Up to 25 participants will be selected based on the criteria described below.

The use of GEE will be governed by the Terms of Service at <https://earthengine.google.com/terms/>. In the event there is a conflict between the terms in this Application and the Terms of Service, the terms in this Application will govern.

The selected participants will be required to set up a GEE account with an institutional email address. Additionally, the selected participants should provide a physical mailing address and the name of an authorized representative to the GEO Secretariat.

3 PROJECT ASSESSMENT CRITERIA

Proposals will be evaluated against the following criteria:

- a) Applications should outline innovative projects that will use GEE, including any plans to use free, open, multi-source Earth observation space and in-situ analysis-ready data.
- b) Projects should aim to produce high impact last mile applications that effectively communicate science and outputs at scale.
- c) Projects must identify tangible deliverables that enhance national capacity to comply with global policy mandates (such as the UN 2030 Agenda for Sustainable

Development, Paris Agreement on Climate Change, the Sendai Framework for Disaster Risk Reduction, or Ocean conservation and biodiversity preservation).

- d) Given the broad scope of issues addressed by these global policy initiatives, ideal projects should demonstrate an approach that combines both interdisciplinary (involving collaboration of scientists/technology developers from at least two disciplines) and transdisciplinary (integrating the natural, social and economic domains together with relevant scientific and technological disciplines, societal groups, stakeholders and users) components in the research and applications phases.
- e) Projects should feature opportunities for co-design, co-production and co-implementation with local stakeholders. Projects should demonstrate a plan to transition from research to practical application and show impact that is translatable to other contexts and the wider community.
- f) Projects should address how they intend to support the GEO Work Programme. The GEO Secretariat will consult with the GEO Programme Board to determine how projects will feature within the GEO Work Programme.
- g) Data and Google Earth Engine scripts used and developed in the course of the project, along with best practices, should be made fully and freely open and accessible to the wider GEO community, in compliance with GEOSS Data Sharing Principles, and will ultimately form part of the GEOSS platform.

4 EVALUATION PANEL

Submitted proposals will be reviewed and evaluated by the GEO Secretariat Director, the GEO Senior Scientist, three members of the GEO Programme Board, Google and EO Data Science. Neither the GEO Secretariat nor Google make any guarantees regarding the awarding of GEE licenses. Applicants submit their proposals in the knowledge that the proposals may be declined without further consideration, subsequent to the review and evaluation process, at which point any further contact between the GEO Secretariat and the applicant will be terminated.

5 GUIDELINES ON EARTH OBSERVATION DATA USAGE

Use of Earth observation data from any open, free and fully accessible source is strongly encouraged in the proposed project. To find free and open data, proponents are invited to use the GEOSS portal¹. Google also hosts public domain datasets accessible at the Earth Engine Data Catalog², ready for analysis with GEE.

6 INTELLECTUAL PROPERTY RIGHTS

- a) All datasets used in the project should be used in a way consistent with the applicable license and/or terms of use as described at <https://earthengine.google.com/terms/> as well as the terms of use for each specific dataset.

¹ <https://www.geoportal.org>

² <https://developers.google.com/earth-engine/datasets>

- b) All data used in the project should be fully documented (showing provenance and access conditions, if any), and made available in a free and open manner, according to the GEOSS Data Sharing Principles and the FAIR guidelines³.
- c) Data from third party space-borne platforms used in the project (either in its original or processed formats) should be made available using the same license and giving the same rights of use as the original data.
- d) Data from in-situ measurements provided by third parties used in the project should be made available using the same license as the original data.
- e) Data from in-situ measurements produced in the project should be made available using a FAIR-compliant data license, such as Creative Commons⁴ or the Open Database License⁵.
- f) Google Earth Engine scripts used to produce the results should be made available using one of the licenses approved by the Open Source Initiative⁶. The scripts are defined as calls to Google Earth Engine (GEE). GEE itself is an intellectual property of Google and will not be made available as open source.

7 PROJECT FOLLOW-UP AND MONITORING

- a) Project development, execution and results will be monitored by the GEO Secretariat, in close consultation with the GEO Programme Board and Google. Each project will receive a GEE license to be used during the two years' duration of the project and in accordance with the terms of service.
- b) Each project will be required to present its results on a yearly basis, on specific side events linked to the GEO Plenary. Presentation of the results will be required as a basis for the continuation of the grant.
- c) GEE will not retain any interest or rights in the intellectual property developed in the course of the project by the applicants.
- d) Google and EO Data Science will provide outreach/awareness building and light technical support on an ad hoc basis.
- e) EO Data Science will provide capacity building and support (with ad hoc contributions from GEE); awareness raising campaign with the GEO community (Seminars, webinars, etc.); technical training sessions (instructor led); active mentoring and support helpdesk; and project-specific deployment support.

8 DEADLINE AND ANTICIPATED TIMELINE

- a) Submissions must be made by the relevant GEO Principal to the GEO Secretariat Senior Scientist (dcripe@geosec.org) by **15 March 2020**.
- b) Decisions will be announced by **15 June 2020**, and GEE licenses will start on **1 July 2020**.
- c) Results of projects will be presented at the GEO-XVII (2020) and GEO-XVIII (2021) Plenaries, as well as GEO Symposia and other relevant GEO events. Projects are

³ <https://www.nature.com/articles/sdata201618>

⁴ <https://creativecommons.org/>

⁵ <https://opendatacommons.org/licenses/odbl/>

⁶ <https://opensource.org/licenses>

expected to deliver annual progress reports on each anniversary of their launch date. Projects will close by **31 May 2022**.

9 FURTHER INFORMATION

The GEO Secretariat will be available for any questions or concerns from interested from GEO Members and relevant agencies and organizations during the application process, and to assist finding potential links with the GEO Work Programme. Please contact Dr. Douglas Cripe, GEO Senior Scientist (dcripe@geosec.org).

APPLICATION FORM

Lead author

Name:

Agency/institution:

Mailing address:

Email:

Phone:

Collaborators

Please indicate all collaborating agencies and institutions, and the relevant focal points from each (with contact information).

Executive summary (2 pages max)

Please concisely summarize the problem that the project addresses, how the project will address it, and what the anticipated impacts are, especially in terms of how they support national efforts to meet global policy frameworks and development objectives. Please, specify the articles, goals, targets and indicators (as appropriate) that the project addresses in relation to the Sendai Framework for Disaster Risk Reduction, the Paris Agreement, the United Nations Sustainable Development Goals or Ocean conservation and biodiversity preservation. If relevant, please, specify the links to other GWP's activities, including Regional GEOs activities.

Project plan (15 pages max)

Please make clear the inter or transdisciplinary nature of the methodology to be applied, cloud computing credits and Earth observation requirements, and clear description of deliverables/applications and timeline (total maximum lifespan of 2 years).