Geosciences Open Science Ecosystem (GEO OSE)

November 22, 2024

Program solicitation **NSF 25-506**

Proposal deadline (due 5 p.m. submitter's local time):

Feb. 14, 2025 (Track 1)

Nov. 14, 2025 (Track 2)

Raleigh Martin (GEO/EAR)
Andrew Zaffos (GEO/RISE)
Maria Womack (GEO/AGS)
Scott White (GEO/OCE)
Emma Menio (GEO/OPP)
Marlon Pierce (CISE/OAC)

WEBINAR LOGISTICS

- Webinar (including Q&A) will be **recorded** and posted on the GEO OSE program page: https://beta.nsf.gov/funding/opportunities/geosciences-open-science-ecosystem-geo-ose
- Following the presentation, time will be provided for general Q&A (next slide)
- Proposal-specific questions may be directed to Program Contacts listed on the GEO OSE program page

Zoom Webinar Set-up

- All attendees are muted, and webcams are disabled.
- To enable live transcript, click on the 

feature.
- To ask a question, please use the 

feature.
  - You may submit questions at any time.
  - You may send questions anonymously:

PROGRAM OVERVIEW

Topics to be covered:

- Key changes from NSF 23-534
- Background and motivation
- Program priorities
- Scientific scope
- GEO OSE proposal tracks
- Relation to other opportunities

Key changes from NSF 23-534

1. **Program scope:** Stronger focus on instilling open science practices, approaches, and capacity in the geosciences. *Cyberinfrastructure (CI) development is no longer in scope.*
2. **Specific requirements:** Updated proposal requirements for "Geosciences Advancement" and "Open Science Alignment," reflected in Solicitation-Specific Review Criteria.
3. **Program tracks:** Updated Track 1 and Track 2 guidelines: scope of activities, budget limits, and submission dates.
4. **Eligible proposers:** Now includes Tribal Nations; see also updated guidelines for other Federal Agencies and FFRDCs.

Background and motivation

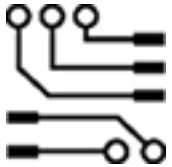
- **Building on 2023 Year of Open Science:**
  - *"Open Science is the principle and practice of making research products and processes available to all, while respecting diverse cultures, maintaining security and privacy, and fostering collaborations, reproducibility, and equity"* (White House OSTP)
  - GEO OSE program launches and supports **12 new projects** (6 Track 1, 6 Track 2)

- **Harnessing emerging principles guiding open science:** FAIR, CARE, TRUST, Reproducibility, Replicability
- **Democratizing cyberinfrastructure (CI):** Building capacity and lowering barriers to accessing an ecosystem of computing, software, and data resources for the geosciences

Priority goals for GEO OSE

Open science practices:

Develop and foster adoption of open, inclusive, and equitable research practices across geoscience domains informed by open science principles, including FAIR, CARE, TRUST, Reproducibility, and Replicability



Open science approaches:

Advance transformational and innovative open science approaches that advance geosciences research and education by leveraging and building connections across the existing ecosystem of cyberinfrastructure resources

Open science capacity:

Strengthen the capacity of current and future geoscientists to access, utilize, and collaborate within the growing ecosystem of open science resources, and to enable broad participation

This solicitation supports activities across this spectrum of priority areas

Scientific scope of GEO OSE

"Geosciences" refers to the academic research communities supported by the Geosciences Directorate (GEO) at NSF, which includes the domains of ***atmospheric and geospace sciences***, ***Earth sciences***, ***ocean sciences***, and ***polar sciences***

Further details on the scientific topics that are supported in the geosciences can be found within descriptions of individual GEO programs (https://www.nsf.gov/funding/programs.jsp?org=GEO)

GEO OSE proposal tracks

Track 1

- ***Smaller-scale activities*** such as open science planning activities for geoscience domains, education/training initiatives that support open science practices, or open science mobilization campaigns
- **2 years duration**
- **$500,000 maximum budget** (project total across collaborative proposals)

Track 2

- ***Larger-scale activities*** aimed at fostering transformation of geoscience research communities toward open science practices (may build on prior Track 1 support)
- **3 years** duration
- **$1,000,000 maximum budget** (project total across collaborative proposals)

Relation to other opportunities

The Geosciences Open Science Ecosystem (GEO OSE) program seeks to support efforts that foster open, inclusive, and equitable research practices and that leverage expanding information resources and computing capabilities to address interdisciplinary grand challenge research questions at the forefront of the geosciences.

GEO OSE does ***NOT*** support efforts primarily intended to create or maintain cyberinfrastructure (CI) (e.g., data repositories, software packages, development/acquisition of computational hardware).

- Instead, consider Cyberinfrastructure for Sustained Scientific Innovation (CSSI) or related CI development programs across NSF.
- Efforts focused on improving CI literacy or data science skills development should consider Training-based Workforce Development for Advanced Cyberinfrastructure (CyberTraining) or Data Science Corps (DSC).
- Efforts to establish general foundational principles for research data management or to generically advance open science approaches should consider Cyberinfrastructure for Public Access and Open Science (CI PAOS), Pathways to Enable Open-Source Ecosystems (POSE), or other open science-related programs across NSF.
- Efforts to answer specific geoscience research questions should consider appropriate disciplinary programs across GEO.

PROPOSAL PREPARATION

Topics to be covered:

- Submission eligibility
- Merit review criteria
- Leveraging shared computing
- Budget preparation
- Other proposal requirements

Submission eligibility

Eligible organizations to submit proposals:

- Institutions of Higher Education (IHEs)
- Non-profit, non-academic organizations
- Tribal Nations

May be eligible to submit:

- Other Federal Agencies and Federally Funded Research and Development Centers (FFRDCs): *Contact a cognizant Program Officer before preparing a proposal for submission (See PAPPG Chapter I.E.2(d) for restrictions.)*

Other organization types:

- May participate via subaward, consulting, or unfunded collaboration arrangements, subject to applicable policies

Merit review criteria

<u>Standard criteria</u>:

Broader Impacts:
The potential to benefit society and contribute to the achievement of specific, desired societal outcomes

Intellectual Merit:
The potential to advance knowledge

<u>Solicitation-specific criteria</u>:
**these must be addressed within subheadings in proposal Project Description*

Geosciences Advancement:
- How well do proposed activities contribute to demonstrated needs for advancing geosciences research and/or education?
- Do proposed activities include effective plans and strategies to achieve broad participation of geoscientists throughout the project and lead to broad benefit beyond the immediate proposal team?

Open Science Alignment:
- How effective and feasible is the vision for open science, and how well do the proposed activities help the project move towards this vision?
- How well does the proposed work complement the existing ecosystem of open science resources and initiatives?
- Will the project lead to transformation toward open science practices within the intended geoscience domain(s)?

Leveraging NSF-supported shared computing

- This solicitation does **not** support the development of new computer hardware capabilities or significant hardware acquisition, nor does it support projects that are primarily intended to develop new cyberinfrastructure.
- PIs may consider using NSF-supported advanced computing resources described in PAPPG II.E.7, e.g., **ACCESS** (Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support): https://access-ci.org/
- Additional opportunities via National Artificial Intelligence Research Resource (NAIRR) Pilot and National Discovery Cloud for Climate (NDC-C)
- Commercial **cloud computing resources** available via CloudBank Cloud Access - https://www.cloudbank.org/faq. Cloud credits do incur costs, but CloudBank may offer a cost-effective approach *(See Proposal Preparation Instructions)*

Budget preparation

- **Track 1:** Maximum **$500,000** (sum across collaborative proposals), over 2 years
- **Track 2:** Maximum **$1,000,000** (sum across collaborative proposals), over 3 years
- **Travel costs:** Awardees are expected to budget for one project PI/co-I to travel to annual PI meetings (see detailed instructions in solicitation)
- **CloudBank.org**: Costs count toward budget limit but should ***not*** be listed on budget page; rather, specify this in associated supplementary document (see solicitation)

Other proposal requirements

- **Title:** Please note that titles should be preceded with "GEO OSE Track 1: " or "GEO OSE Track 2:"
- **CloudBank:** If requesting cloud credits through CloudBank, note special proposal preparation instructions in the solicitation
- Note updated PAPPG (Proposal & Award Policies & Procedures Guide) effective May 20, 2024
  - Updated **Mentoring Plan** requirement (postdocs & grad students)
  - New requirements for **Tribal Nation Approval** (as applicable)
  - Updated info on **Data Management & Sharing Plans** (DMSPs)

OTHER CONSIDERATIONS

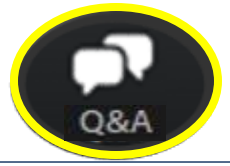
Topics to be covered:

- Resources for proposers
- Q&A session

Resources for proposers

- Read the solicitation carefully! (NSF 25-506)
- This presentation will be posted on GEO OSE program page
- Proposers are encouraged to reach out to Program Contacts with specific questions.
  - *SUGGESTION: To facilitate well-informed advice from NSF, it is helpful to provide a 1-page project summary when reaching out.*

GEO OSE Q&A

To ask a question, please use the 

feature.

You may submit questions at any time.
You may send questions anonymously:

Webinar / Q&A will be **recorded** and posted on the GEO OSE program page https://beta.nsf.gov/funding/opportunities/geosciences-open-science-ecosystem-geo-ose

Please direct further questions to any of the below program alias:

geo-ose@nsf.gov