

# Directorate for Geosciences (GEO) Office of the Assistant Director (OAD)

## Response to the 2021 Committee of Visitors Report: Geosciences Education & Diversity (GEO E&D) Programs

Date of the COV: May 12 – 13, 2021

The Directorate for Geosciences (GEO) thanks the 2021 Committee of Visitors (COV) for their time and efforts to review the Fiscal Year 2017 to 2020 activities of the following programs in the Geosciences Education & Diversity (GEO E&D) portfolio: *IUSE:GEOPaths*, *Global Learning and Observations to Benefit the Environment (GLOBE)* and *Geoscience Opportunities for Leadership Development – Expanding the Network (GOLD-EN)*. GEO commends the COV for the excellent guidance provided in the report resulting from the May 12-13, 2021 meeting, and acknowledges and appreciates the substantial amount of work the committee undertook while evaluating the complex portfolio of separate programs which comprises the GEO E&D efforts. The COV also provided comments on GEO's engagement with NSF's INTERN program, even though the program is managed in another Directorate.

In particular the committee provided complimentary assessments of:

- The integrity and efficiency of the merit review process for the GEO E&D.
- How well and fairly the review process has been administered.
- The overall management of programs.
- The diversity of the individuals serving as reviewers.

This Response addresses the specific comments expressed in the COV Report, gathered under five main headings, as defined in the COV template: (1) quality and effectiveness of the merit review process; (2) selection of reviewers; (3) management of the program under review; (4) resulting portfolio of awards; and, (5) other topics. Responses to comments regarding individual programs are included, as necessary. [Note: text in italics is language taken from the COV report].

### Section 1: Quality and Effectiveness of Merit Review Process

*COV Recommendation: The panel noted the diversity of disciplines in the GOLD-EN proposals and whether the PD is seeking input from other disciplines/PDs within NSF. The COV encourages the embedding of a process that ensures input is sought when needed.*

GEO's Response: GEO greatly appreciates the committee's positive findings regarding the quality and effectiveness of the review processes utilized and the specific recommendation to seek expertise within NSF when conducting internal reviews for certain proposals. GEO agrees that expert perspectives should be brought to bear during both external **and** internal reviews.

GEO will actively seek expertise from across the Foundation when internal reviews are necessary for certain proposals.

*COV Recommendation: GEO Ed is encouraged to work with NSF leadership to better define broader impact and provide guidance.*

GEO's Response: The program, NSF, and NSB strive to make sure that guidance about the review criteria is clearly communicated to the community. We will continue to include guidance on broader impacts at the outreach events that the program and Directorate organize.

*Comment: Reviewers should be encouraged to provide more significant details on areas needing improvement to empower corrections/modifications in resubmissions. For GEOPATHs' declinations, more program guidance may be necessary for some PIs who resubmit and are declined multiple times and for PIs from MSIs and community colleges who only submit once and are declined.*

GEO's Response: Program plans to strengthen the guidance provided to reviewers for future panels, which should encourage panelists to provide more intentional comments for improvement of proposals. The revised guidance will also help the Program in providing more helpful PO comments during the declination process.

*COV Comment: Yes, the information [rationale for the award/decline decision] is there, however the form and/or location of the rationale varies.*

GEO's Response: The program will make sure that rationale for recommendations is consistently included in the review analysis.

## **Section 2: Selection of Reviewers**

*COV Recommendation: We encourage the cross-sharing of reviewers (if not done) between GEO and EHR programs.*

GEO's Response: GEO E&D appreciates this recommendation from the committee. In instances where GEO and EHR formally co-review proposals, reviewers are shared. In other cases, GEO ED will continue working with colleagues from EHR and other relevant directorates in expanding the reviewer pool.

*COV Recommendation: GEO Ed is encouraged to ensure that review panels are representative of the demographics of the U.S.A.*

GEO's Response: The Program agrees with the COV members and is committed to ensuring that review panels are representative of the U.S.A. demographics.

*COV Recommendation: We encourage the inclusion of data on conflicts of interest in the Review Analyses. If present in the materials provided, it was not obvious or easy to find.*

GEO's Response: The information regarding conflict of interests is expected to be recorded in a diary note in the electronic jacket. We will make sure that the guidance for the next COV makes the location of conflict of interest information clear.

COV Suggestion: *Invite PIs to review who have not been successful in their proposals as a way for them to broaden their knowledge/understanding of the processes.*

GEO's Response: GEO is pleased that the COV recognizes the ongoing efforts being undertaken to recruit a diverse, knowledgeable, and representative community of reviewers for the programs in the GEO E&D portfolio. Expanding the reviewer pool – to include PIs and project team members who have had declined proposals is an excellent idea. GEO will collate PI contact information from recent declinations and invite those individuals to serve as future panelists.

COV Recommendation: *Reviewer training regarding how to improve feedback to ensure constructive feedback is provided should be encouraged/pursued.*

GEO's Response: GEO agrees with the COV that the quality of the review process would be enhanced through targeted training of reviewers, particularly in positive critiquing. GEO believes the above-mentioned modified and more explicit guidance to reviewers during pre-panel webinars would enhance the quality of the reviews.

### **Section 3: Management of the Program under Review**

COV Comment: *We commend the program manager for his handling of the program, the program's positive action (reaction) in response to prior COV reports, and the effort to diversify institution types and proposal submissions. The support staff is also doing an outstanding job.*

GEO's Response: NSF appreciates the recognition by the COV members and commits to continuing improving the GEO E&D program by responding to community input.

COV Comment: *GEOPATHs could be seen as a "model" program of late in terms of equity with MSIs. Review panel members should be recruited from past MSI institution awardees.*

GEO's Response: GEO appreciates the thoughtful comments provided by the committee regarding management of the programs under review and that GEOPATHs could serve as a model for engagement and support of MSI faculty and staff who could serve as reviewers. GEO agrees and plans to increase its intentional engagement with MSIs through targeted outreach, continued internal partnering with NSF's MSI programs and active recruitment at identity serving professional societies like NABG, SACNAS and AISES.

COV Comment: *INTERN program could benefit from better dissemination of information to increase awareness of the program and "expand" the range/type of institutions and PIs taking advantage of the program. Given that employment opportunities are primarily in the private sector, PIs should be encouraged to avail themselves of the opportunity the program provides for experiences with small businesses or industry to benefit the student. NSF should encourage recipients of INTERN funds to share their experience and research at interdepartmental*

*presentation opportunities. Perhaps the program could encourage professional organizations to provide a forum (virtual) to share such experiences. It is crucial for the students to gain experience presenting and important for non-major students to gain exposure to geoscience. In terms of professional organizations, AMS and AGU are bringing equity issues to the forefront.*

**GEO's Response:** GEO appreciates the COV's excitement about the potential of NSF's INTERN program for the geoscience community. GEO plans to include information about the INTERN program in future GEO ED briefings, outreach and in presentations/posters at professional meetings. GEO ED will also consider working across the GEO divisions to encourage recipients of INTERN support to highlight the program whenever possible.

**COV Comment and Recommendation:** *We were provided the external evaluation, and, upon request, a draft outline of the action plan was presented. Substantive feedback would have been possible if the action plan draft was shared with the COV. The presented high-level draft outline appears to contain impactful actions. Some which we understand are being implemented. The panel was informed that the evaluation plan was an internal document that required that it would be kept confidential to NSF. However, the panel encourages NSF to present and share as much of the material as possible with the community.*

**GEO's Response:** As part of program planning, GEO E&D requested assistance from the Office of Evaluation and Assessment Capability with an examination of the program. Upon completion of such evaluation, the program drafted an action plan that is guiding its activities. The community will be informed of such activities via solicitations or dear colleague letters that announce funding opportunities that will support the goals of the program.

## **Section 5: Other Topics**

**COV Comment:** *The program has made substantial progress (positive) in advancing its mission. It appears that the Budget is a limiting factor. At present we perceive the program to be a 3-person operation (Program manager, and 2-staff members), we can only imagine the impact of having additional staff coupled to a budget increase.*

**GEO's Response:** The GEO E&D program appreciates the COV members recognition that additional resources (budget and personnel) would have a positive impact on the program. GEO is committed to working towards trying to increase resources as opportunities become available. For example, we are exploring the possibility of inviting staff from other units in GEO to join the program through detail opportunities or sharing of staff (i.e., a PO could be assigned to a program in a division and to also work with GEO E&D).

**COV Comment:** *We encourage the program to be more proactive in partnering within and outside NSF. Perhaps using professional societies as a resource to disseminate information and in assisting in the forging of partnerships.*

**GEO's Response:** GEO E&D understands that to reach its goals it must work closely with other organizations that can facilitate implementation of activities or to leverage resources. We will

continue working through formal and informal networks to enhance the number of active partners in the GEO E&D program.

*COV Comment: COV sees tremendous opportunity in partnering with the Office of International Science and Engineering, not only with respect to the untapped potential of the GLOBE program, but also to provide geosciences students with international experiences. NSF should support more efforts to expand GLOBE to HBCUs and MSIs. GLOBE's mission is to train K-12 teachers to teach STEM. The HBCUs produce 50 percent of Black teachers. HBCUs + GLOBE = closing the racial achievement gap in STEM. Though data is lacking on TCUs and HSIs teacher training efforts, the COV believes that a concerted effort with all MSIs can help increase teacher training and help close the STEM gap. NSF and GEO should use the GLOBE program to encourage the introduction or expansion of geosciences/earth-sciences into the early stages of K-12, the formative years.*

GEO's Response: GEO agrees with the COV that engaging with NSF's Office of International Science and Engineering regarding how to scale NSF's contribution to the GLOBE program could pave the way for significant impact at the K12 level and with MSIs. GEO will emphasize the possibility of connecting with the GLOBE program in future GEOPATHs solicitations, especially for submitters to the Informal Networks (IN) track. GEO will also be sure to include the GLOBE program during the targeted outreach to MSIs and other education/teaching focused institutions.