

Embracing Diversity and Inspiring Communities: The CIELO-G Program's Path to Geoscience Transformation



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Abstract

The Community-driven Inclusive Excellence and Leadership Opportunities in the Geosciences (CIELO-G) project is funded through the NSF's Cultural Transformation in the Geoscience Community (CTGC) program and is dedicated to the transformation of the geoscience community's culture by building conscious and organic connections with a broader local community. Its main objectives include assembling a diverse research team of graduate students and postdoctoral scholars tackling climate change and Earth system issues, offering training and collaborative learning opportunities to local educators, promoting diversity within the geoscience profession, and inspiring underprivileged communities to participate in field activities. To achieve its goals, CIELO-G has adopted the Collective Impact model, building on existing efforts and institutional changes at The University of Texas at El Paso. CIELO-G establishes cohorts that integrate community research and engagement, providing professional development, and cultivating an innovative, inclusive, and responsible culture among its members. We create cohorts of 6-8 graduate students, 6-8 high school and community college educators, 2-3 postdoctoral fellows, and 6-8 faculty research mentors, with integrated efforts for community research with 5 local non-government organizations. Together, we design and execute geoscience research projects that combine 4 essential elements: 1) a basic science question addressing climate change and Earth system science issues impacting our Paso del Norte Region (west Texas, southern New Mexico, and northern Mexico), 2) research which results may lead to implementation of practical solutions for the community, 3) socially relevant outcomes driving substantial changes of awareness towards the importance of geosciences in the community, and 4) strong community engagement leading to sustainable geoscience learning ecosystem in the region. We also work closely with community partners to develop and execute local public events integrating geoscience with the community. The work presented here will introduce all the CIELO-G aspects mentioned and will provide examples of the current cohorts' ongoing projects and synergies, while highlighting the challenges and opportunities created by the project in its initial phase.

Introduction

The CIELO-G program serves as a catalyst for transformative change. Through dynamic partnerships with local educators and community stakeholders, our aim is to seamlessly bridge academia with community, fostering a geoscience collective that is diverse, equitable, and deeply impactful. This collaborative endeavor is dedicated to cultivating a future where the geosciences thrive with inclusivity and vibrancy.



You can find our contact information by scanning the QR code.

Objectives

Modeling Inclusivity

- Serving as a national model for geosciences culture transformation.
- Leading the way towards a diverse, equitable, inclusive, and accessible geoscience community.

Central Approach

- Emphasis on Collective Impact as a central strategy.
- Commitment of diverse actors to a common agenda for solving specific problems.

Impact

- Striving for profound and long-lasting transformation.
- Fostering leadership and opportunities in the geosciences field.

Collective Impact Strategies

Collective Impact refers to the collaborative and coordinated efforts of diverse stakeholders—graduate geoscience students, local educators, and community partners—working together with a shared agenda to address specific challenges and drive positive and lasting change in the geoscience community. It emphasizes a unified approach to achieve common objectives and create meaningful impact.

Empowering Future Geoscientists

- CIELO-G proudly supports the education of 8 graduate geoscience students and 2 post-docs, providing them with opportunities to bridge academia and community engagement.
- These students are at the forefront of scientific research at UTEP, actively conducting studies that directly impact the community.



One Support System

In addition to its core objectives, CIELO-G serves as a vital support system for both graduate geoscience students and our valued community partners, educators, and the greater community.

For Students: CIELO-G takes pride in not only funding the education of eight graduate geoscience students but also providing a robust support system. We offer mentorship, guidance, and a collaborative community, recognizing the importance of holistic support for their educational journey. Beyond academic endeavors, we aim to nurture personal and professional growth, creating a platform where students can thrive.

For Community Partners & Educators: Collaboration with community partners and educators is not just about projects; it's about building lasting relationships. CIELO-G acknowledges and responds to the unique needs of our community partners, ensuring that the collaboration is mutually beneficial. We serve as a responsive support system, working closely to address challenges, explore opportunities, and collectively contribute to positive change within the geoscience community and the broader local community.



Classroom Integration

We facilitate impactful partnerships between graduate geoscience students and local educators, enabling these students to share their geoscience research with classrooms, fostering a direct connection between scientific exploration and education.



Collaborative Impact Initiatives

Through a series of educational community events, our graduate geoscience students share their expertise with diverse audiences. These initiatives aim to demystify geoscience concepts, spark interest, and foster a sense of environmental stewardship within the community. Our outreach efforts seek not only to disseminate knowledge but also to build enduring relationships that enhance the quality of life within our localities.



Current Progress

We are currently immersed in a phase of active progress, channeling our efforts into impactful research, expansive community outreach, and strategic partnerships. Our graduate geoscience students are at the forefront of research, contributing directly to the community's benefit. Simultaneously, our outreach initiatives with local educators and classrooms are fostering meaningful connections. Collaborative partnerships with community stakeholders continue to thrive, demonstrating our commitment to making a lasting impact through the fusion of research, outreach, and community engagement.



Our Quarterly Community Meetings provide a platform for effective communication among community partners. Regular updates, sharing of information, and coordination help ensure that all stakeholders are on the same page regarding program goals, progress, and challenges.

The Educator and Fellow Summer Retreat holds paramount importance in cultivating a positive and collaborative learning environment. This retreat serves as a valuable opportunity for professional development, team building, and strategic planning.



Our fellows and post-docs are actively shaping the local research landscape with their dynamic and insightful projects. Their research initiatives range from exploring geological formations, investigating local seismicity, to understanding roof albedos and their impact on the environment, contributing valuable insights to both academic discourse and practical applications within our community.

Our fellows translate advanced geoscience research into engaging classroom lessons, using dynamic presentations and interactive methods to inspire curiosity and deepen students' appreciation of geoscience. Our two cohorts, each consisting of four student-educator pairings, exemplify the impactful synergy between our fellows and local educators.



Through events and collaborative projects, we strive to make geoscience accessible and relevant, fostering a shared understanding of our environment and its significance within the broader community. We have participated and helped organize 12 outreach events this year.

Future Goals

- We hope to strengthen the community-driven aspect of research by involving local community members in identifying research priorities and actively participating in data collection or analysis.
- Engage in advocacy efforts to influence local policies that align with the program's goals, ensuring a supportive environment for geoscience education and community impact.
- Develop methodologies for assessing the long-term impact of the program on the local community, including both educational outcomes and tangible positive changes resulting from geoscience initiatives.
- Develop and share educational resources related to geoscience that can be utilized by educators, students, and community members, contributing to a wider dissemination of knowledge.

Community Partners

