AmeriGEO

Report to the Program Board, February 2023

In 2022, AmeriGEO focused its efforts on strengthening the capacities of the National GEOS through collaboration with GEO Program activities. The most significant contributions were:

1. Support to PeruGEO during the Ventanilla Oil Spill in Peru. AmeriGEO and the "Collaboration for Oil Satellite Tracking in the Américas" (COSTA) Program.
2. LACI (Latin America and Caribbean Initiative)
3. Implementation of the GEOGloWS ECMWF streamflow forecast service led by the joint NASA and USAID SERVIR program, in the hydromet services of Colombia, Ecuador, Peru, Dominican Republic, and the Disaster organization in Brazil.
4. Academic Outreach and Capacity development Activities - (AmeriGEO-Labs4DRR) or **(Red LABOT)**
5. AmeriGEO Week 2022, *"Human Migration in Focus: Earth Observations for Resilience and Equitable Development."*

1. **Support to PeruGEO during the Ventanilla Oil Spill in Peru**

   The Ventanilla Oil Spill provided an opportunity for AmeriGEO to mobilize the international community in response to the disaster in Peru. The United States activated the International Charter Space and Major Disasters on behalf of Peru. As part of the satellite resources provided through the Charter, there was an important contribution of Radarsat images from Canada. GeoPathways Latin America also assisted the Peruvian Ministry of Housing and Sanitation with developing surveys for public feedback on the spill's effects on coastal communities. The U.S. National Oceanic and Atmospheric Administration (NOAA) provided technical assistance in the oil spill tracking to the Space Agency of Peru (CONIDA). From this experience, one of the most important outcomes was identifying a significant gap in Latin America's lack of Oil Spill surveillance capacities.

   Since 2009, NOAA's Satellite Analysis Branch (SAB) has established a 24/7 marine pollution satellite program to monitor marine oil spills in the U.S. Exclusive Economic Zone (EEZ) almost in real-time. As a result of the NOAA-CONIDA collaboration, a coordinated effort between NOAA's-SAB and AmeriGEO was decided to pursue regional capacity for oil spill surveillance through a new regional effort, "The Collaboration for Oil Satellite Tracking in the Américas" **(COSTA**) Program. The Program was launched during AmeriGEO Week 2022 in Asuncion, Paraguay. COSTA seeks to establish and increase the capacity in the countries so that, with internal autonomy, each country monitors its national ZEE. NOAA provides training and technical assistance seeking the production of standardized reports and products so that, through mutual support, the region knows, in near real-time, the state of spills along their coast and oceans. Peru and Mexico will finish the operational training in February 2023. Training will start in March for Colombia (DIMAR) and CEPREDENAC in Central America in March 2023.

2. **LACI (Latin America and Caribbean Initiative)**
   LACI is a collaborative effort between the U.S. Global Change Research Program (USGCRP) and U.S. Group on Earth Observations (USGEO) and regional partners, including **AmeriGEO** and the Inter-American Institute (IAI) for Global Change Research. Its overarching vision is to provide opportunities for partnerships between Caribbean, Latin American, and North American countries to enhance capacity for climate risk and vulnerability assessments that would support local and regional decision-making in response to climate change impacts. LACI is grounded in co-design with the following anticipated overarching activities: partnership building and fostering, peer-to-peer learning and training, and data synthesis and analysis. The proposed activities will help participants across career stages expand their knowledge of assessment practices and protocols while building meaningful relationships across geographic, disciplinary, and institutional borders. Representatives from 14 countries (Argentina, Brazil, Canada, Chile, Colombia, Ecuador, El Salvador, Jamaica, Mexico, Panama, Paraguay, Peru, Uruguay, & USA) participated in regional scoping and partnership-building activities. In workshops held in May and August of 2022, LACI participants identified countries' visions and needs for a climate-resilient future, existing capacities, and steps forward toward pilot development.
   After a webinar in September aimed to support volunteers representing interested countries in developing their concept notes, these were submitted for review by the selection committee. In February, the committee will finalize pilot themes and establish working groups to identify potential pilot activities (based on the synergies across the concepts) and outline strategies for co-designing the activities with the concepts' Point of Contact (PoC).

3. **Implementation and use of the GEOGloWS ECMWF streamflow forecast service in the region.** Through the SERVIR Program, a joint development Initiative between NASA and the U.S. Agency for International Development (USAID), the GEOGloWS-ECMWF forecast service was adopted and implemented as the authoritative data by hydromet services in Ecuador, Colombia, Peru, Brazil, Dominican Republic, and Central America.
   In addition to these efforts, SERVIR has been working on a project supported by NatGeo and Microsoft to forecast algal blooms in Lake Atitlan, Guatemala. Their analysis determined that a critical variable explaining algal bloom formations in Lake Atitlan was runoff. To fulfill the water quality forecast's spatial and temporal requirements, downscaled runoff data from the GEOGloWS ECMWF streamflow forecast was used to drive the forecast in Lake Atitlan. This tool leverages the power of Artificial Intelligence (AI) and satellite remote sensing to inform authorities and decision-makers about when algal blooms are expected so that preventive measures can be enforced. The operational service was launched on September 2022 by the local lake authority (AMSCLAE), the research institute in the Atitlan basin (CEA-UVG), and the SERVIR team.

4. **Academic Outreach and Capacity development Activities.**
   In 2022, AmeriGEO's Disasters Working Group led the creation of a Network of Earth Observation Laboratories for Disaster Risk Reduction (AmeriGEO-Labs4DRR) or **(Red LABOT)** RedLabot. This academic network significantly contributes to AmeriGEO's efforts in

supporting resilience in the region, strengthening the integration of capacities, and promoting multidisciplinary collaboration for the use of EO in disaster risk reduction. (AmeriGEO-Labs4DRR) brings together 17 Universities from 14 Countries and 265 Participants, and has carried out 15 training workshops and webinars on Cloud Computing. In 2022, many projects were co-developed with GEO member country organizations for wildfires in Paraguay and Volcanoes in Ecuador, Guatemala, Honduras, and Panama. The AmeriGEO-Labs4DRR have begun to expand their work to thematic areas outside of disaster to include Carbon Cycle analyses (Nicaragua), biodiversity, ecosystems, and health (Paraguay and Colombia.) AmeriGEO disaster Working Group supported the second National Earth Observations Forum in Panama and the AmeriGEO week 2022 with a Risk Assessment Workshop with 25 Participants.

5. **AmeriGEO Week "Human Migration in Focus: Earth Observations for Resilience and Equitable Development."**
   AmeriGEO Week 2022 was hosted from August 15 - 19 by the National GEO Organization, the Space Agency of Paraguay. Their interest was for the event to be focused on the impact of climate change on migrant communities and the use of EO for resilience and equitable development. AmeriGEO established collaboration with the International Organization for Migration (IOM) and continues working to established future joint activities in the region. The event was hosted in a hybrid format with bilingual translation (English/Spanish) at the Universidad Americana. AmeriGEO Week was supported by GEO member countries and partners in the region, including SICA, Red Clara, Amazon, and others.

   Requirements and gaps identified by the Community throughout the week are as follows:

   i. Major Challenges

   1. Lack of access to real-time information and technology to monitor and observe.
   2. Lack of access to high-resolution data and Infrastructure.
   3. Lack of comprehensive lines of research and applications in our academic institutions.
   4. No clear approach to collaboration between developed and developing countries.
   5. Establishment of National GEOs without a political structure
   6. Too many international efforts for local capacity without plans for long-term sustainability. These international efforts also lack coordination with already existing efforts, sometimes with duplication.

   ii. Role of AmeriGEO to achieve Carbon neutrality

   1. To develop an Analisis Ready Data (ARD) Strategy for the region.
   2. To work under national policy guidelines such as the National Adaptation Plans (NAPs), to promote the development and implementation of Early Warning Services that allow government organizations to respond to disasters, deforestation, wildfires, and of course, the issues of human mobilization, mainly to the urban areas.
   3. Continue and increase the capacity development activities with open solutions, empowering the region with human capacity to respond to the demand.