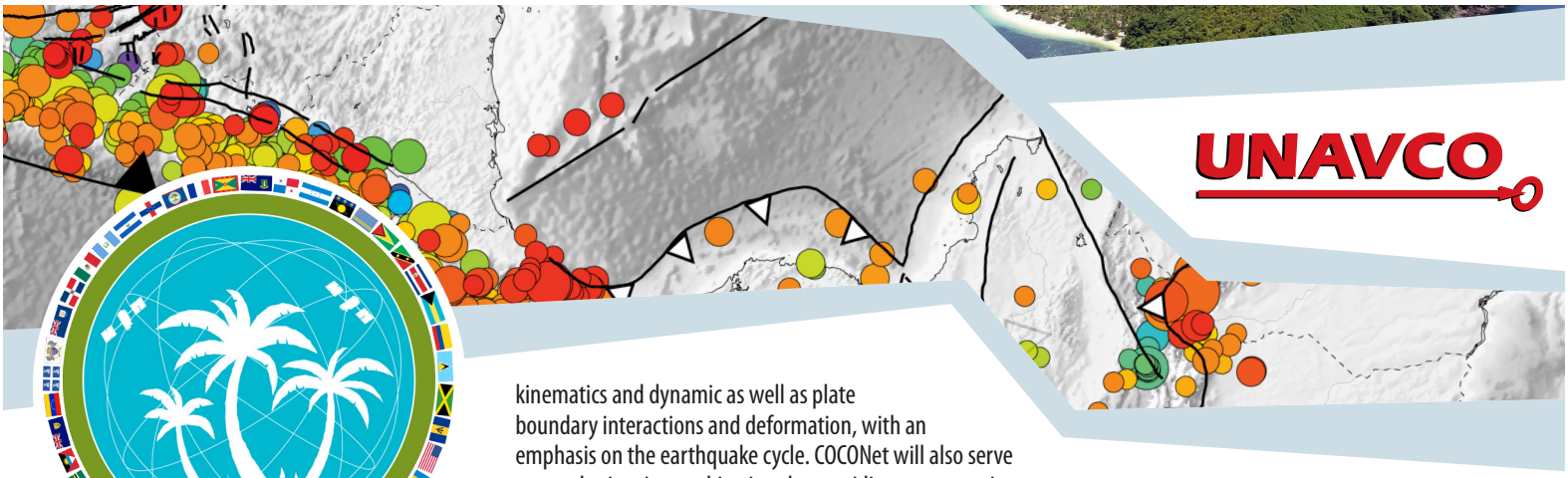


UNAVCO

COCONet

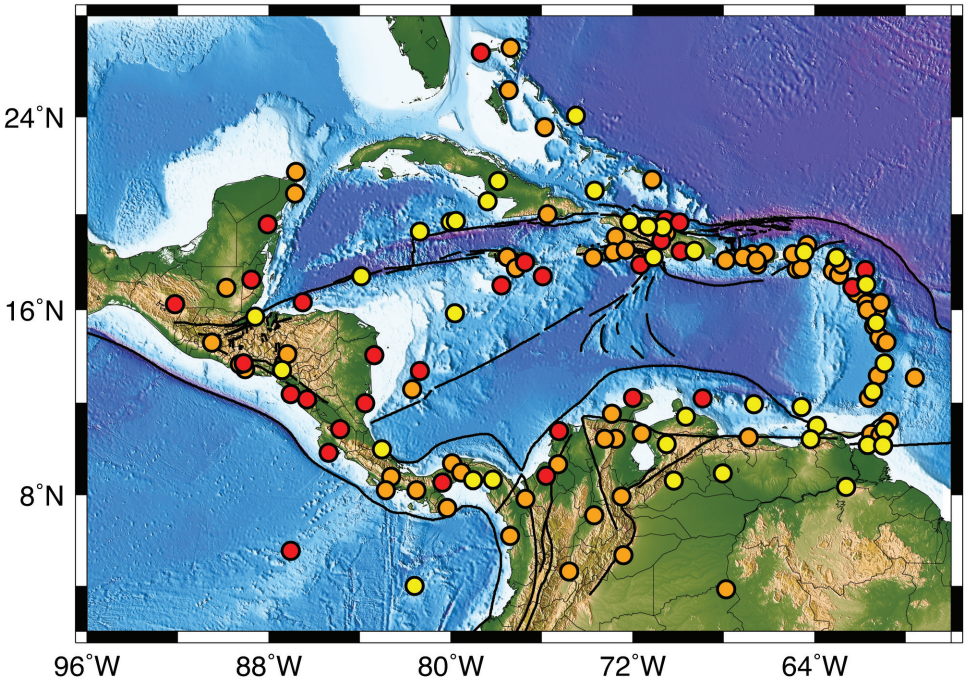
CONTINUOUSLY OPERATING CARIBBEAN GPS OBSERVATIONAL NETWORK

WHAT IS COCONet?

The beauty and diversity of the Caribbean region result from geological and atmospheric processes that also pose serious threats to the large population within reach of seismic faults, hurricanes tracks, or sea-level change. The capacity to understand, prepare for, adapt to, and in some cases predict these natural hazards requires Earth observations on both large and small scales. The COCONet (Continuously Operating Caribbean GPS Observational Network) project was funded by the National Science Foundation (NSF) with the aim of developing a large-scale geodetic and atmospheric infrastructure in the Caribbean that will form the backbone for a broad range of geoscience and atmospheric investigations and enable research on process-oriented science questions with direct relevance to geohazards. COCONet will provide free, high-quality, low-latency, open-format data and data products for researchers, educators, students, and the private sector. Data will be used by US and international scientists to study earth processes, for example plate kinematics and dynamic as well as plate boundary interactions and deformation, with an emphasis on the earthquake cycle. COCONet will also serve atmospheric science objectives by providing more precise estimates of tropospheric water vapor and enabling better forecast of the dynamics of airborne moisture associated with the yearly Caribbean hurricane cycle.

WHO IS UNAVCO?

COCONet will be installed and maintained by UNAVCO, a Colorado-based non-profit membership-governed consortium that operates GPS networks worldwide. UNAVCO recently completed the installation of the EarthScope Plate Boundary Observatory in the United States, which included the construction of over 875 new GPS stations distributed over the entire country. UNAVCO was funded by the U.S. National Science Foundation to lead the construction, operation, and maintenance of COCONet.



COCONet Station Status December 2012

- new + refurbished sites, **completed**
- new + refurbished sites, **to be completed**
- existing sites from collaborating institutions (data to be archived)

COCONet will establish a network of over 45 new continuous GPS (cGPS) and meteorology stations, refurbish an additional 21 stations, and archive data from more than 60 cGPS stations that are already or will soon be in operation by participating organizations.

2012 COCONet Data and Research Workshop October 24-26, 2012 Tulum, Yucatán, Mexico

For a complete list of international partnerships, visit **coconet.unavco.org**

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UNAVCO

COCONet DATA

GPS and meteorological data will be relayed via an internet connection to the UNAVCO Data Center located in Boulder, Colorado. The raw GPS and meteorological data will be archived and available for download by anyone. We will also seek out seismic/GPS Network operators and government agencies in the Caribbean region to be local hosts for the GPS and weather data products. Data from COCONet stations will be available via FTP and through UNAVCO's data portal. For more info, please visit: **coconet.unavco.org**

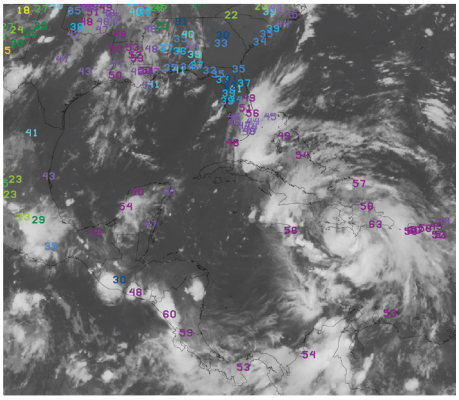
CAPACITY BUILDING

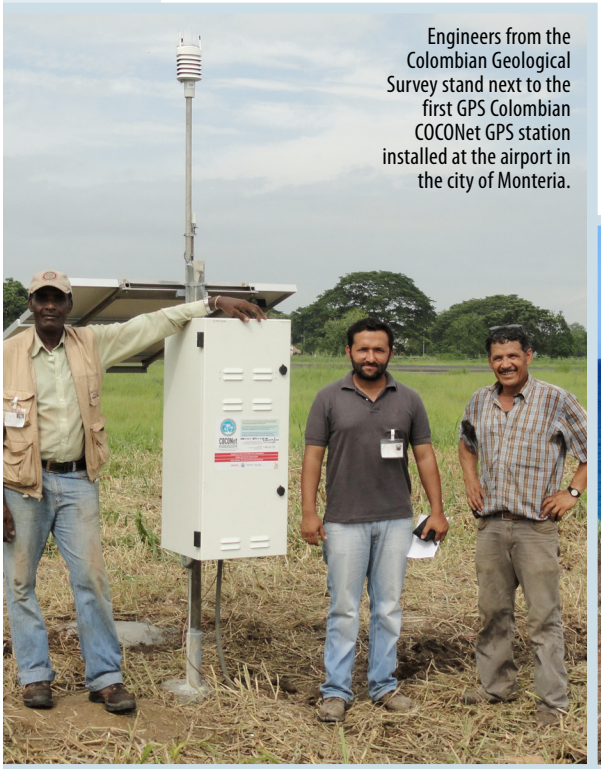
One theme of the project is the need to build scientific partnerships to nurture a new generation of researchers in the region. Knowledge flow from COCONet activities should work in multiple directions – from and among Caribbean nations as well as between all of the project's international stakeholders. Mechanisms for promoting intellectual exchange include traditional opportunities such as bringing students from the Caribbean to North America for advanced training or graduate school as well as fostering the development of Caribbean training centers, bidirectional science exchanges, and field campaigns, which include partners from across the Americas. COSMIC/UCAR has recently received funding from the National Science Foundation to conduct a short-course on atmospheric processes of Latin America and the Caribbean. This short course will foster a community of scientists who are interested in regional atmospheric processes, and is a way to introduce these researchers to COCONet. This two-week short short-course is tentatively scheduled for either May or June of 2013 in Cartagena, Colombia. Dr. Pete La Femina of Penn State has also received funding from NSF to conduct a short course on volcanic and tectonic processes of Latin America and the Caribbean. This short course is scheduled to occur in May or June of 2013 in Managua, Nicaragua.

PROJECT HIGHLIGHTS

Three significant geophysical events were captured by COCONet infrastructure in 2012. Hurricane Issac moved through the Caribbean in late August, the Mw7.3 earthquake occurred offshore El Salvador and Nicaragua on August 27, and the larger Mw7.6 earthquake rocked the Nicoya Peninsula in Costa Rica on September 5. For the Nicoya, Costa Rica earthquake, high-rate (1Hz) GPS observations were used to generate a geodetically determined finite fault model and coseimic displacementgram. In the case of Hurricane Issac, surface meteorological observations obtained from COCONet sensors were used to estimate precipitable water vapor in the atmosphere. These are examples of geohazards that the new COCONet resources are designed to study over the next several years.

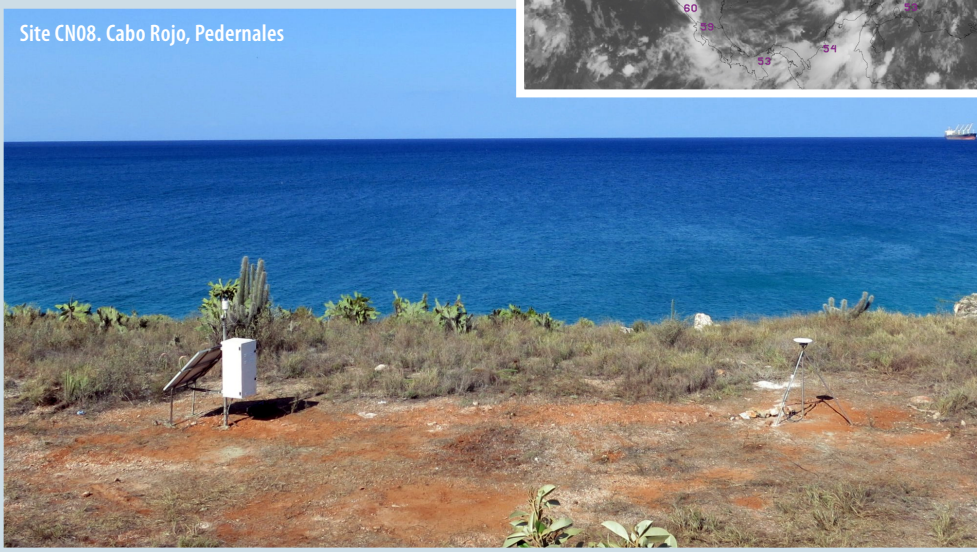
Hurricane Isaac, 2012.





Engineers from the Colombian Geological Survey stand next to the first GPS Colombian COCONet GPS station installed at the airport in the city of Monteria.

Site CN08. Cabo Rojo, Pedernales



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