Replacing a Seismic Network

Puerto Rico

When Hurricane Maria struck Puerto Rico in September 2017 the high-end category 4 hurricane brought with it high-speed winds and torrential rains, which resulted in catastrophic damage to the island. One of its consequences was severe damage to Puerto Rico's seismic monitoring system, which is used to detect, process and investigate the seismic activity in the region of Puerto Rico and the greater Caribbean region.

CUSTOMER

The United States Geological Survey (USGS)

www.usgs.gov

PROJECT

Replacing Puerto Rico's Seismic Network (Equipment Repair and Replacement)

INSTRUMENTATION

Trillium 120 posthole seismometers, Titan accelerometers, Centaur digital recorders

CHALLENGES

Given that the island is in a seismically active region, which also puts it at risk for tsunami damage, the seismic monitoring network needed to be replaced quickly. The existing system had been an assortment of equipment from various providers, with some instruments dating back as far as 30 years. The United States Geological Survey (USGS) stepped in to assist with sourcing the replacement system and ensuring that the new equipment would bring Puerto Rico's seismic monitoring program up to industry standards. USGS approached Nanometrics directly with the project as the two organizations have worked closely on numerous projects and have a standing 5-year offer agreement. USGS has also previously validated all of the Nanometrics instrumentation that would be required for a robust and reliable national seismic network.

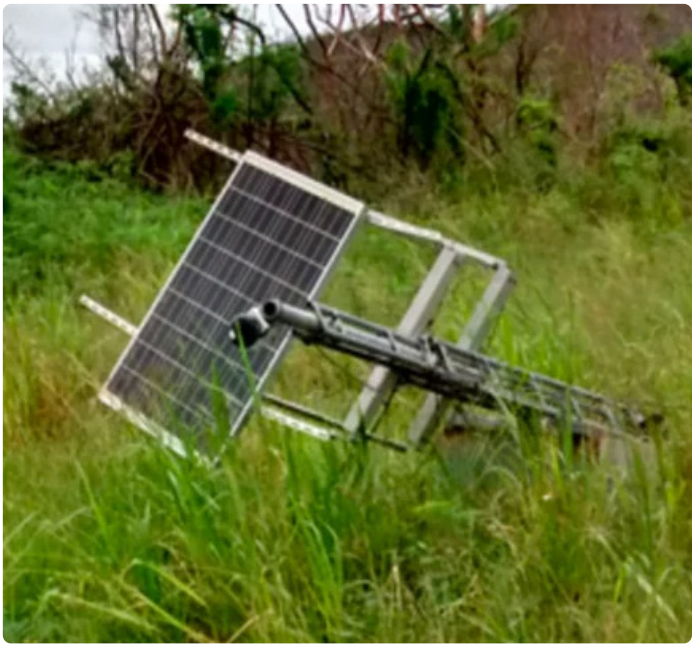
Trillium 120 posthole seismometers

Titan accelerometers

Centaur digital recorders

SOLUTION

Puerto Rico required a 28 station seismic network made up of Trillium 120 posthole broadband seismometers for measuring weak motion, Titan accelerometers for monitoring free-field strong motion, and 6-channel Centaur digital recorders. As the previous network had been critically damaged and was no longer operational, the requested delivery time was within 30 days, about 5 times faster than an order of this size would normally take to complete. Given the urgency of the request, Nanometrics' sales, logistics, and production teams quickly found solutions to various challenges and were able to turnaround the entire network in just 30 days.



This older seismic station, from the previous 30-year-old network, was critically damaged during the heavy ground motion Puerto Rico experienced during the earthquake of September 2017.

RESULTS

Nanometrics' instrumentation is designed with manufacturability, quality and scalability in mind. Because the company's production team is cross-trained on all product assemblies and have a world-class supply chain that is thoroughly vetted to ensure consistent quality, Nanometrics was uniquely-poised to meet such a tight time line. All Nanometrics products undergo complete testing during the manufacturing process to ensure that the instrumentation meet the extremely high standards on which the company has built its global reputation.

Nanometrics was proud to be able to work with the USGS and rapidly respond to Puerto Rico's recovery needs. Puerto Rico now has a new, completely integrated, world-class seismic monitoring network and the information gathered from this network will be used for public safety, education, and scientific research.

