

# After the shock

Susan E. Hough and colleagues faced logistical challenges when attempting to deploy portable seismometers in post-earthquake Port-au-Prince.

■ **How did you end up working in Haiti?**

My field work generally involves the deployment of portable seismometers after large earthquakes. So in this case, as in most cases, the field area found me. I had not been involved with any previous research projects in the Caribbean, but the complete absence of seismic monitoring in Haiti provided an especially strong impetus to install portable instruments. I led a four-person field team that was jointly supported by the Office of Foreign Disaster Assistance and the US Geological Survey (USGS).

■ **What was the objective of the work?**

It is almost certain that the city of Port-au-Prince will eventually be hit by more strong earthquakes. Seismologists can't predict earthquakes, but one of the useful things we can do is identify those parts of urban areas that are relatively more (or less) hazardous owing to local geological conditions, a process called microzonation. We installed portable seismometers to improve the detection of aftershocks and determine their location, as well as to investigate the distribution of ground shaking in Port-au-Prince.

■ **Did you encounter any difficulties?**

From the time we received the green light to go ahead, we faced monumental logistical challenges: getting ourselves and a mountain of gear to Haiti; finding even remotely suitable recording sites; recording earthquakes in the midst of a noisy, chaotic urban environment. We did our best to adopt Gene Kranz's motto from the Apollo programme: "Failure is not an option."

■ **Did you learn anything new about your team members?**

The success of the mission relied on us establishing communication and a plan for cooperation with the Haitian Bureau des Mines et de l'Énergie (BME). We didn't know what to expect going in. None of us had any prior contact with Haitian agencies and



SUSAN HOUGH

Jean Robert Altidor explains a seismogram to two of his colleagues from the Cap Haitien office of the BME.

rumours abound that those in Haiti who pursue higher education generally move away, leaving the country with few educated professionals. This was the first myth about Haiti that was busted along the way. Our BME counterparts had no background in seismology, but strong training in geology and engineering. Very quickly they became full partners in the deployment mission and were able to run the instruments for the duration of the deployment, after we had left.

■ **Any highs or lows?**

Our doubts ebbed in stages, but there were a number of moments of triumph. For example, installing the first seismometer in the BME office and one at the Hotel Montana, a site of catastrophic damage during the earthquake. I never imagined that would be possible. When I left on 20 March we had managed to have eight seismic stations installed — a good feeling. However, the instruments were relatively insensitive and were not recording many events. I had fears that we might not record any data. I was in Miami that night when I received an e-mail from Jean Robert Altidor, telling me that an aftershock had been felt in Port-au-Prince. The next day he e-mailed the seismograms to me — we had collected great data. That was the real moment of triumph.

■ **Did the trip give you any ideas for future research projects?**

We hope to help develop a permanent seismic monitoring network in Haiti. In the meantime, with such strong local capabilities, we've been able to leave some of the instruments installed, on longer-term loan from the USGS. It's a long way from portable seismometers in the ground to a functional, sustainable seismic network. It will take years, and the coordinated involvement of a number of agencies inside and outside Haiti. It won't be easy, but I believe it is possible. For Haiti to move towards greater resilience to natural hazards, it will be critical to establish not only technical monitoring capabilities but also a community of earthquake professionals who will be able to work with local officials and stakeholders over the long haul. As Bill Clinton observed, there is reason to hope that, ten years from now, Haiti will not only recover but be better off than before the earthquake. In the midst of devastation there is a moment of opportunity. But we can't forget that it was an opportunity bought dear. Failure is not an option.

*This is the Backstory to the work by Susan E. Hough et al. (doi:10.1038/ngeo988), published in Nature Geoscience.*

