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RECOVERY OF DIGITAL WAVEFORM DATA FOR EASTERN PUERTO RICO AND THE VIRGIN ISLANDS

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Abstract

Puerto Rico and the U. S. Virgin Islands have a high level of seismic activity, resulting from their location along the boundary between the North America and Caribbean tectonic plates. A felt seismic event occurs about once per month, with several large and damaging earthquakes having occurred during the

last 50 years. The region has a 20-year history of digital recordings of local and regional earthquakes from two local networks. Thousands

of records exist from small to moderate events, at small-to-regional distances. Many digital waveforms from 1979-1983 recorded by an LDEO-run seismic network in eastern Puerto Rico and east in to the Virgin Islands exist and are stored at LDEO. Data come from 17 well-calibrated stations, 11 of which were in eastern Puerto Rico and the Virgin Islands, 6 were 3-component station, one was broadband and one had a displacement response.

In this project, we recovered seismic station digital waveforms for the time period 1979 - 1983, and permanently archived the recovered data on modem media (CD, DLT tape) at UPR-Mayaguez and Lamont as well as submission of that data, reformatted to AH format, to the IRSI DMC. The recovery will allow incorporation of these data into the current NEHRP ground motion relations development, and will allow many other analyses. In particular, the recovered data can be used to address topics of current interest concerning calibration of a moment magnitude scale, and improvement of earthquake locations, velocity models and focal mechanisms by use of waveforms to determine P/SV ratios. With termination of this project, a major portion of the effort needed to rescue the catalog/bulletin and waveforms data from the seismic network that have monitored seismic activity for the US Territories in the Caribbean will be complete.