

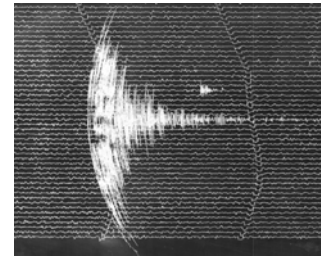
HVO's Pilot Project to Archive Legacy Seismic Data

More than 400,000 paper and smoke drum seismic records covering nearly 100 years of earthquakes and volcanic events in Hawai'i are housed at HVO. These records, which contain a wealth of information on the seismic characterization of eruptive sequences and tectonic activity, are rapidly deteriorating due to age. Through year-end funding from the USGS Records Management Program Data Rescue Initiative, HVO is now in the process of preserving these records using modern digital media.



Project goals include developing a systematic procedure for each step in the process of scanning a seismic record and entering it into an electronic database with proper labeling, station documentation, start/stop times, and other metadata. Many of the records are fragile smoke drum recordings, so guidelines for handling these delicate documents have been established as part of the procedure.

Left: A portion of the nearly 3,500 boxes containing over 400,000 seismic records housed at HVO. Right: Earthquake on a scanned smoke drum record.



Approximately 30,000 seismic records of large Hawaiian earthquakes, significant eruptive episodes, and teleseismic events have been identified. The first data capture targets are a tractable subset of these records, which includes Mauna Loa eruptive sequences and large earthquakes and their subsequent aftershock sequences. Twelve Mauna Loa eruptive sequences have been monitored by HVO seismic recorders. Preserving the total eruption duration for each of these episodes will entail scanning about 4,000 seismic records, creating a valuable database for seismic characterization of Mauna Loa eruptions. Eight Hawaiian earthquakes larger than magnitude 6 have been recorded by HVO seismic recorders. Electronic capture of these events and their aftershocks will aid our understanding of future seismic hazards in Hawai'i.

HVO secured Ernie Olsen, a student from the University of Hawai'i at Hilo, to work on the project through a student services contract. In only eight months, Ernie has scanned an impressive 9,740 paper and smoke drum records and created a catalog of our current inventory. Scanned records are entered into an electronic database that is searchable using a Web browsing interface for easy access. Due to bandwidth constraints, the scanned images—huge files!—are currently available only internally at HVO.

The hard work completed in this pilot project will enable HVO to plan and implement future preservation actions for a wealth of seismic data.



Ernie Olsen scanning a smoke drum record at HVO's basement scanning center.