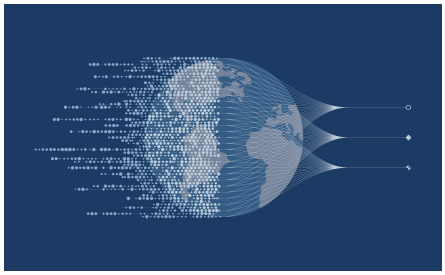

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in seismometer electrical calibration: A case study preparing for a station recapitalization

Seismometer electrical calibration at IMS stations has long been depended upon to ensure the accuracy of seismometer performance. At best, electrical calibrations provide confidence that the seismometer performance has not changed since the time of installation. However, as an absolute measure, electrical calibrations may not result in a sufficiently accurate or traceable measure of seismometer performance, even when accounting for the manufacturer provided response models. As an example, we consider the instrumentation configuration for the planned recapitalization of the primary seismic station PS47, NVAR. The NVAR array is comprised of multiple elements with short-period Geotech GS13 seismometers in boreholes and recorded on Geotech Smart24 digitizers. The plan is to replace the Smart24 data recorder with a high-gain Nanometrics Centaur digitizer. Here we show the results from a primary traceable calibration of a GS13 seismometer from NVAR to validate the nominal response, confirm the influence of the digitizer replacement on the seismometer performance, and quantify the impact of these changes on the electrical calibration.

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