Geophysical Research Abstracts
Vol. 20, EGU2018-11356, 2018
EGU General Assembly 2018

A New and Compact Portable Observatory Grade Broadband Seismometer For Direct Bury And Vault Use

Tim Parker, Bruce Townsend, Peter Devanney, and Neil Spriggs
Nanometrics,Kanata, Canada (timparker@nanometrics.ca)

A New and Compact Portable Observatory Grade Broadband Seismometer For Direct Bury And Vault Use

There is 5 years of field data from broadband seismic sensors designed for both direct burial and cased hole applications. These first posthole instruments have been deployed in a wide range of extremely challenging environments such as dynamic ice and snow environments, extreme wet and dry conditions in soils of high clay content, and steep or creeping terrain. In all use cases the direct burial approach has consistently provided high quality data when compared to shallow vault installations. These field experiments demonstrate that while higher tilt tolerance is required for operational outcome certainty in some installations such as deep holes or dynamic glacial environments, the majority of installations can be addressed by a smaller instrument with a narrower tilt range of reduced size and cost. The lessons learned from this real world field data have guided the development of a new smaller, less expensive broadband instrument, the Trillium Horizon. Based on this field data and and user feedback from many direct burial deployments, the Trillium Horizon seismometer has been developed as a simple versatile instrument to span the majority of deployment scenarios and specific use cases including shallow direct bury deployments, traditional piers and problematic wet vault installations. With its small size, robust waterproof case and connector, +/-1.5° tilt range, dual-purpose cable and accessories for both posthole and vault installation, the Trillium Horizon is optimized for usability as well as performance.