

The Benefit of Using Higher Sampled Regional Seismic Data for Determining Cepstral Depths of Shallow Events

During the GSETT-3 experiment and early days of the CTBT, discussions were held regarding the appropriate specifications for the primary and auxiliary seismic stations. Communications cost and digital storage availability were two of the reasons for specifying the relatively low rate of 40 samples per second (sps) for the collection and storage of seismic data. In fact several of the legacy array stations were allowed to remain at 20 sps. Since that time a number of non International Monitoring Stations (IMS) have increased sampling rates to as high as 100 sps, and even 200 sps. One example is the open Chinese station MDJ which has witnessed a number of recent events. In this paper, we present results from the processing of synthetic data, and MDJ data at two sample rates, 40 sps, and 100 sps for two recent events. In this processing, we compute the spectra, together with the Power and Complex Cepstrums for the two sample rates, and study the results obtained from the processing of the Complex Cepstrums. Our results indicate that better depth and yield information can be obtained from the higher sampled data. The metrics used in this evaluation are also discussed in this paper.

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Track Classification: 3. Advances in sensors, networks and processing