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Integration of Open Source Seismic Waveform Data in the IDC Processing: Case Study for 2011

The effects of adding data from open source seismic stations in the waveform processing system at CTBTO/IDC were explored. About 50 stations, located in the whole world and providing open source waveform data, were selected by following criteria: located in areas less covered by IMS stations; provided continuous data and real-time access; broad-band instrumentation; recording data at least 70 % during 2011; included in various networks. One-year waveform data from BH or HH continuous streams from 14 national or international networks were obtained from IRIS data centre in SEED format. The data were converted to CSS format and OSD database with sensor information and waveforms is created. Most of the instruments are STS-2 and the sampling rate of the data varies from 20 to 100 sps. Additional database tables and parameter files, necessary for processing OSD in the IDC pipeline, were created. The waveforms were processed by the IDC station processing applications DFX and StaPro, on the CTBTO VDEC platform. Further, the detections from OSD and IDC stations and arrays were analysed together by the IDC Global Association network processing software. The origin parameters and their uncertainties are compared to parameters in SEL1 evaluating the potential improvements.

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