ID: Type: **Poster**

T4.1-P08. Developing new waveform-fetching schemes for the CTBTO link to the ISC database services

The International Seismological Centre (ISC) offers a special visualization interface of its database to State Parties of the Comprehensive-Test-Ban-Treaty (CTBT). One of its scopes is the visualization of the waveform availability of non-IMS (International Monitoring System) stations that refer to the events of the International Data Centre - Reviewed Event Bulletin (IDC-REB). A problem often encountered when downloading and processing is the lack of distinction between station waveforms with clear seismic signal and those dominated by noise. To overcome this difficulty, we developed new probabilistic seismic station selection schemes based on (i) station, and (ii) event capability detection maps. The maps are built from mb1 body-wave magnitude detection threshold estimates, based on the IDC-REB that uses stations in the epicentral distance range 2°-105°. To assess their efficiency, we compare the results of a waveform-fetching algorithm by using the two selection schemes mentioned above. We find no significant differences for events with mb1<4.2, whereas larger events (4.2≤mb1≤4.8) show that the algorithm based on the event detection map systematically filters out stations at long epicentral distances that are less likely to record seismic signal, and fills in gaps due to lack of detection threshold estimates up to 40° in epicentral distance.

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Track Classification: 4. Performance Optimization