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Continuous assessing of the Reviewed Event Bulletin with waveform cross correlation

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The Reviewed Event Bulletin (REB) of the IDC includes more than 550,000 events with associated seismic and infrasound phases. Continuous comparison of the event hypotheses tested as REB events during routine interactive analysis with these historical events allows for significant improvement of the REB consistency. We use the method of waveform cross correlation (WCC) for assessment of the similarity between events on station-by-station basis. A list of master-events (MEs) for the WCC currently includes ~450,000 REB events with high and intermediate quality of waveforms templates. For automatic event hypotheses, only MEs within 15 degrees are used. To corroborate a daily REB, which includes events reviewed after automatic processing and those added manually, we also test all these events for similarity with MEs within 5 degrees. Two instances of the WCC-based assessment implemented: (1) automatic dual REB-based comparison with the historical REB events, and (2) an interactive spot check aimed at specific area, time period, event characteristics, stations, etc. The latter can be used as a tool for the IDC interactive review, as well as an instrument for the Special Studies and Expert Technical Analysis conducted under State's Party and PTS, or On-Site Inspection request.

Primary author: ROZHKOV, Mikhail (CTBTO)

Presenter: ROZHKOV, Mikhail (CTBTO)

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