ID: Type: **Poster**

Identification of Repeated Industrial Seismicity in the Reviewed Event Bulletin

The Reviewed Event Bulletin (REB) produced by the IDC (International Data Center) of the CTBTO includes thousands of industrial explosions detected by the primary seismic network of the International monitoring system every year. According to the CTBTO's monitoring mandate, these events represent background noise, which demands human and computer resources for interactive and automatic processing, possibly increasing the overall detection threshold. Most of these blasts are repeated events generating similar signals. Using an extended set of signals from the Aitik and Kiruna mines in Sweden measured at the closest IMS array stations ARCES, FINES, NOA, and HFS, we develop a method of automatic event formation and identification based on waveform cross-correlation (WCC). Real-time automatic processing includes signal detection and characterization, local association of the detected arrivals with seismic events, relative location and magnitude estimation. A prototype pipeline is currently being tested at the IDC. We present select results of detection, relative location and mine identification obtained since January 1, 2017. Worldwide, there are tens of mines with hundreds of events per year, which are present in the REB. The developed method can reduce the overall IDC analysts' workload by several percentage points, saving time and resources for comprehensive monitoring.

Primary author: YEDLIN, Matthew (University of British Columbia)

Presenter: YEDLIN, Matthew (University of British Columbia)

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