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Integration of PMCC detector in seismic operational automatic processing chain. Validation on MMAI array.

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The PMCC method (Progressive Multi-Channels Correlation; Cansi, 1995) has been applied to the Mount Meiron array (MMAI station code) with the perspective to improve data processing such as detection and categorization. PMCC algorithm is based on a study of the cross-correlation functions between each stations of the array, which leads to a consistent set of time-delays when a seismic phase is present. The set of time-delays allows calculation of horizontal velocity and azimuth of arrival wavefront.
We show that PMCC detector with a configuration designed for P-wave characteristics allows improving significantly the detection threshold of MMAI array compared to standard seismic-to-noise ratio detectors. lIn addition a comparison of pmcc performance for several International Monitoring System (IMS) to the current array detector used by the International Data Center (IDC) is given. Moreover, the analysis of P-wave parameters gives a first insight to the categorization issue. Statistic approach applied to PMCC results allow identification of seismic sequence and differentiation with independent seismic or noise detections. Categorization is essential to reduce drastically the number of detections, in order to integer PMCC results in operational automatic detection processing chain. We propose also a python routine for uploading pmcc detections into database for storage compatible with CTBTO environment.