

Role of 'Event Definition Criteria' in Compromising the Improvement of CTBTO Seismic Data Processing

Events in the CTBTO Reviewed Event Bulletin must satisfy 'event definition criteria' (REB-EDC). For seismic events these specify location-defining signals at a minimum of three IMS primary seismic stations, and a minimum score representing the number and type of location-defining parameters. Additional signal quality checks serve as 'implied' REB-EDC. EDC were introduced at the prototype International Data Centre (pIDC) in the mid 1990s, where their main purpose was to limit the burden of interactive analysis; they were inherited by IDC and became enshrined in its draft Operational Manual. They have not been reviewed in more than 15 years of operational experience. REB-EDC are not based upon location uncertainty or any other indicator of event quality or size. Following work presented at SandT2011, it is argued that any REB-EDC should be based solely upon event quality indicators, and should be applied as a final filter with no prior account taken of them during processing or analyst review. These two steps are necessary to avoid systemic impediments to the improvement of data processing: first to prevent the existing REB-EDC being used in performance indicators for current or proposed event-building algorithms, and secondly to exclude spurious constraints from the event-building process.

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