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T3.3-P16. Improved Bulletin Generation Using an Iterative Processing Framework

The IDC automatic seismic event bulletin is generated by performing two sequential processing steps: first station processing to find detections, and then network processing to form events. This processing paradigm differs significantly from that applied by human analysts. Analysts bring to bear considerable human intuition acquired during the processing of past events and use that to iteratively reprocess data resulting in a significantly improved bulletin. Our Iterative Processing Framework (IPF) attempts to mimic analyst behavior during automatic bulletin generation. After a first pass through signal detection and signal association, the resulting events are compared to historical information with the goal of identifying expected signals which are missing from the set of signals currently available, or which are present but erroneous in some respect. Waveform data is reprocessed to improve the set of available signal detections and signal association is repeated when changes are made. The process is repeated until stability is achieved. IPF also introduces seismic events detected using waveform correlation into automatic processing prior to signal association, which can significantly reduce the number of signal detections available to confuse the automatic signal associator. We present results comparing IPF to traditional methods.

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