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challenge of quantitative comparison and quality assessment of IDC waveform bulletins

The issue of comparing different catalogs and identifying identical events in the waveform catalogs is of great importance. In the context of CTBT, this issue is important in several situations. Firstly, in assessment the quality of Reviewed Event Bulletin (REB) and automatic waveform products of IDC versus different baseline catalogs. Secondly, in comparison the results of National Data Centers (NDCs) with IDC and evaluating the degree of consistency of these results to each other. Thirdly, in evaluating performance of new analyzing algorithms, like NetVISA, in comparison with national seismic catalogs, as baseline catalogs. In all of these cases, it is very important to use one unified procedure as a unique basis of comparison, otherwise, it is not logical to compare results of different studies. So far, different criteria have been used by different researchers to identify identical events in different catalogs. Diversity of these criteria indicates diversity of results and notices the caution for judgment amount the results of different studies. In this paper, it is intended to propose a unified method of comparison among different catalogs. It is also intended to use magnitude of events, as another parameter of comparison, in the process of evaluating quality of different catalogs.

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