



The NetVISA automatic association tool. Next generation software testing and performance under realistic conditions.

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The CTBTO's International Data Centre is in the process of developing the next generation software to perform the automatic association step. The NetVISA software uses a Bayesian approach with a forward physical model using probabilistic representations of the propagation, station capabilities, background seismicity, noise detection statistics, and coda phase statistics. The software has been in development for a few years and is now reaching the stage where it is being tested in a realistic operational context. An interactive module has been developed where the NetVISA automatic events that are in addition to the Global Association (GA) results are presented to the analysts. We report on a series of tests where the results are examined and evaluated by seasoned analysts. Consistent with the statistics previously reported (Arora et al., 2013), the first test shows that the software is able to enhance analysis work by providing additional event hypothesis for consideration by analysts. A test on a three-day data set was performed and showed that the system found 42 additional real events out of 116 examined, including 6 that pass the criterion for the Reviewed Event Bulletin of the IDC. The software was functional in a realistic, real-time mode, during the occurrence of the fourth nuclear test claimed by the Democratic People's Republic of Korea on January 6th, 2016. Confirming a previous statistical observation, the software found more associated stations (51, including 35 primary stations) than GA (36, including 26 primary stations) for this event.

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