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computation of MSVMAX magnitude at the French National Data Center

One robust and rapid discriminant between tectonic and treaty-relevant events is based on the discrepancy between seismic wave magnitudes: the surface wave magnitude (MS) and the body-wave magnitude (mb). A better alternative is to consider the MSVMAX, a frequency varying MS between 8 and 40 s period. Such approach opens up the limited frequency range and helps improve event detectability and characterization. Studies led the French National Data Center to develop and implement an operational tool to calculate the MSVMAX on Rayleigh and Love waves. Such tool is now running in an automatic mode and quickly returns magnitude information for events within a region of interest. This operational software is being used to process seismic data from different networks and sensor types, select time windows of interest based on the wave propagation according to an Earth velocity model, and apply several tests (azimuth and wave polarization) before providing a weighted MSVMAX value. It can also access a seismic database, which makes it a very valuable tool. We present this newly designed operational tool with illustrations on selected events of interest. Its high value for event discrimination is shown and the goodness of available discrimination laws is discussed.

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