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On data assimilation within German Indonesian tsunami early warning systems (GI-TEWS)

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Several methods for the retrieval of the initial conditions are available, e.g. Green's function method or adjoint method, the latter has not been still applied to the real case. As a case study the minimum norm inversion of Satake (1987) is tested. Some artificial scenarios are generated as individual tsunami sources along the trench and saved as observed waveform at measurement locations. The only unknown is assumed to be the amplitude of slip on the fault. The Green's function inversion scheme is easy to calculate and resource friendly. As Oritz and Bilham (2003) confirmed the validity of the method, reproduction of the observed waveform with arbitrary, nonunique complexity of seafloor motions (i.e. the slip amount) is possible.