



## **DTWT (Dispersive Tsunami Wave Tool): a new tool for computing the complete dispersion of tsunami travel time.**

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We present a tool for computing the complete arrival times of the dispersed wave-train of a tsunami. The calculus is made using the exact formulation of the tsunami dispersion (and without approximations), at any desired periods between one hour or more (concerning the gravity waves propagation) until 10s (the highly dispersed mode).

The computation of the travel times is based on the a summation of the necessary time for a tsunami to cross all the elementary blocs of a grid of bathymetry following a path between the source and receiver at a given period. In addition the source dimensions and the focal mechanism are taken into account to adjust the minimum travel time to the different possible points of emission of the source.

A possible application of this tool is to forecast the arrival time of late arrivals of tsunami waves that could produce the resonance of some bays and sites at higher frequencies than the gravity mode.

The theoretical arrival times are compared to the observed ones and to the results obtained by TTT (P. Wessel, 2009) and the ones obtained by numerical simulations.

### References:

Wessel, P. (2009). Analysis of observed and predicted tsunami travel times for the Pacific and Indian oceans. *Pure Appl. Geophys.*, 166:301-324.