

Palaeotsunami magnitude, frequency and source (PMFS) modelling – progress in small steps

The study of contemporary tsunamis is a multi-disciplinary field. Not surprisingly, the same applies to palaeotsunamis. Collation and interpretation of data for palaeotsunamis however, is fraught with difficulties and currently most databases consist almost entirely of geological data. In an increasingly multi-disciplinary field this is severely limiting. We provide three examples of how multi-disciplinary data can be used to determine local, regional, and distantly sourced events. This is quite a remarkable dataset, but it throws up some interesting issues.

To be able to effectively identify regional and distant palaeotsunami sources, we need to be able to compare and contrast between national databases. This can only happen if databases exist and are compatible – for example, are the criteria used for palaeotsunami interpretations consistent? Similarly, to be able to start commenting on the magnitude and frequency of palaeotsunamis from local, regional and distant sources, there need to be regional and national databases to refer to. Surprisingly, this is rarely the case. We highlight this issue with reference to palaeotsunami data from the Pacific Ocean.

Palaeotsunami magnitude, frequency and source (PMFS) modelling can be and has been achieved albeit with some caution. While it is acknowledged that any single palaeotsunami database will never be entirely complete and we may therefore never be fully able to determine the PMFS for any one region, this does not mean that it has no value. Far from it, after all every single historical database is also incomplete and they are however regularly used for probabilistic tsunami hazard modelling.