



How to show the existence of water in seismic catalogues?

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Fluids, such as water and/or magma are often involved in the rupture process of tectonic or volcanic processes. It can be deduced by seismic imaging techniques (i.e attenuation, V_p/V_s , scattering), source analysis (e.g. moment tensor inversion) or Coulomb stress changes but also more simply using earthquake catalogues. Specific scaling laws such as the Gutenberg-Richter law or Omori law may be used to indirectly deduce the existence of fluids in regions where seismic rupture occur. For example high b-values or break in the slope of frequency-magnitude relation and the respect (or not) of Omori law may characterize the presence of fluids. We show a few examples in tectonic and volcanic contexts.