

The main goal of my PhD research is to perform philosophical investigations about causality in seismic models, in order to advance explanations and, hopefully, predictions of seismic phenomena. Indeed, as earthquakes are natural phenomena with negative impacts on society and economy, it is relevant to understand their behaviour. Unfortunately, explanations of some aspects of seismic phenomena are still inconsistent or absent, and reliable predictions of earthquakes so far have been elusive. I suggest that seismological practices and theories can be fairly aided by expanding and enriching the notions of causality implicitly embedded in seismic models.

Causality is indeed a controversial topic in philosophy of science. Nevertheless, most philosophical discussions on causality have neglected the problems of seismology. On the other hand, implicit perspectives on causality, considered to build up several seismic models, are seemingly biased.

My strategy will be to focus on two different accounts of causality: mechanisms and processes. This assessment will be performed in the context of a widely documented, but not quite understood, aspect of seismic behaviour, actually supported by seismic models: fractal behaviour of earthquakes. In other words, I will evaluate how mechanisms and processes account for fractal patterns obtained by computer models. By assessing the role of these accounts of causality in seismic models, and the way in which they could complement each

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other (indeed, one hypothesis is that we might aim for some type of causal pluralism), I expect to enlighten some ways in which seismic modelling might be improved.

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