



Testing for the ‘predictability’ of dynamically triggered earthquakes in The Geysers geothermal field

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The Geysers geothermal field is well known for being susceptible to dynamic triggering of earthquakes by large distant earthquakes, owing to the introduction of fluids for energy production. Yet, it is unknown if dynamic triggering of earthquakes is ‘predictable’ or whether dynamic triggering could lead to a potential hazard for energy production. In this paper, our goal is to investigate the characteristics of triggering and the physical conditions that promote triggering to determine whether or not triggering is in anyway foreseeable. We find that, at present, triggering in The Geysers is not easily ‘predictable’ in terms of when and where based on observable physical conditions. However, triggered earthquake magnitude positively correlates with peak imparted dynamic stress, and larger dynamic stresses tend to trigger sequences similar to mainshock-aftershock sequences. Thus, we may be able to ‘predict’ what size earthquakes to expect at The Geysers following a large distant earthquake.