# Accelerating seismicity before large earthquakes and the Stress Accumulation model

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Large earthquakes can be preceded by a period of accelerating seismic activity of moderate-sized earthquakes but this phenomenon has yet to be clearly understood. The recent Stress Accumulation model, based on the concept of elastic rebound, simulates accelerating seismicity from theoretical stress changes during an idealized seismic cycle. In this view, accelerating seismicity is simply the consequence of the decrease, due to loading, of the size of a stress shadow due to a previous earthquake. First, we show that a power-law time-to-failure equation can be expressed as a function of the loading rate on the fault that is going to rupture. We also show that accelerating seismicity occurs preferentially in the stress lobes predicted by the Stress Accumulation model. Second, we present a new methodology to extract accelerating seismicity from background seismicity and new statistics to test the robustness of the extracted accelerating patterns.