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Can earthquake size be controlled by the initial seconds of rupture?

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It has been argued that the dominant period T_p derived from the initial seconds of a seismogram, hence only depending on the initial phases of earthquake rupture, seems to scale with the final size of the earthquake. In the light of classical scaling laws of earthquake sources, where the final dimensions of the rupture should control slip and risetime, this poses a problem of causality. By taking a closer look at the energy balance of fracture propagation, however, it can be shown that ruptures starting with a longer risetime have more energy to spend, thus, more chances to overcome barriers and to propagate to large distances. According to this principle the scaling dependence could be reversed, and restated as a size probability depending on initial rupture phases. We propose that T_p is linked to risetime T_r, and test the hypothesis numerically.