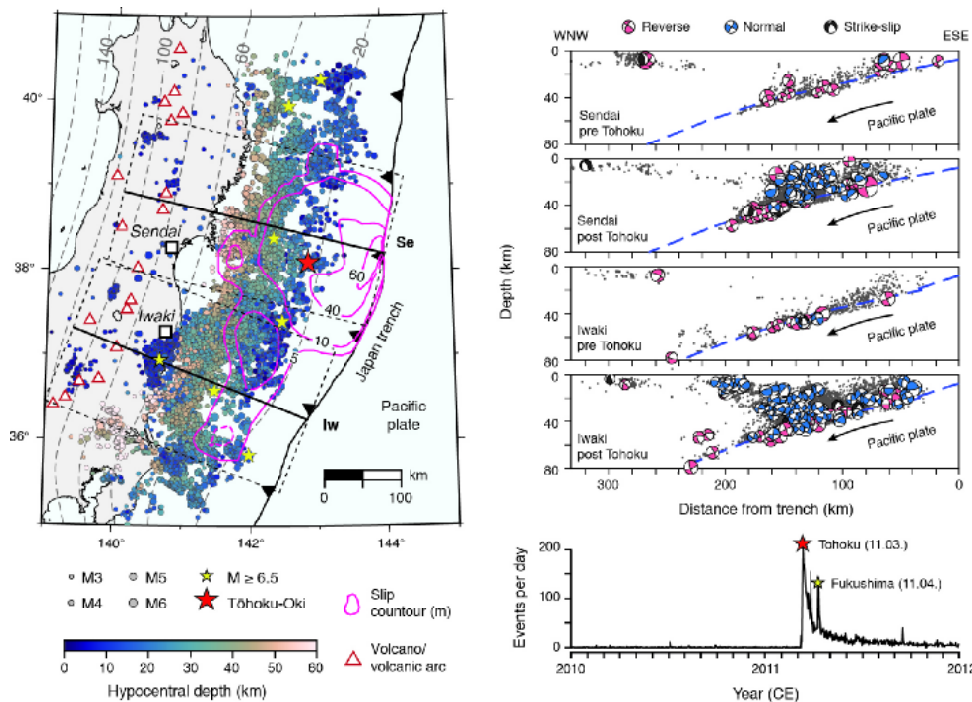




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Conditions for aftershock seismicity after great Tohoku subduction earthquake



Aftershock seismicity of the Tohoku earthquake in the Japanese forearc.

After a great subduction earthquake, seismicity in the forearc overlying the seismogenic plate interface increases and shows a complex spatial distribution. The aftershock seismicity pattern is triggered by stress perturbation due to the megathrust earthquake and depends on the pre-seismic and post-seismic stresses in the forearc. These stresses cannot be measured and are thus unknown, which causes great uncertainties in our understanding of aftershock seismicity. Here I present a simple mechanical approach to determine the pre- and post-seismic stresses from the spatial distribution of aftershocks. Application of this model to the 2011 Mw9 Tohoku earthquake provides new insights into the conditions for aftershock seismicity across the Japanese forearc.