

Foreshocks immediately before the starting of earthquakes

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There are many studies describing foreshock activities to understand earthquake initiation process.

On the other hand, few researches remarks on activity immediately before the starting of earthquakes.

For example, Tape et al. (2018) shows simultaneous activity of small earthquakes and very-low-frequency event (VLFE) within 20 seconds before Mw3.7 earthquake in Alaska and discuss the relationship between these events and nucleation process.

In this research, we have visually inspected waveform of shallow crustal earthquakes from 2003 to 2019 with magnitude greater than 3.5 (depth < 15km), in Japan.

From this exploration, we find out that foreshocks occurred immediately before some mainshocks within about 30 seconds.

After detection, we plan to precisely relocate the foreshock and mainshock events applying a double-differential algorithm and discuss the relationship between them.