

Stress changes and the displacement of an out-of-sequence thrust in an accretionary wedge

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The stress state in an accretionary wedge is one of the most important topics in subduction zone, hence fault activities are related to the surrounding stress regime in an accretionary wedge. Many study try to represent the stress state related to the fault activity in the accretionary wedge (e.g. Hashimoto *et al.* 2014; Yamada & Shibamura 2015). However, the measurement of stress in an accretionary wedge remains challenging, especially that of dynamic stress changes due to fault activity. Here we propose the stress changes associate with the displacement of an Out-of-sequence thrusts (OOSTs) by using numerical simulation. In our numerical simulation, the likelihood of fault slip around the OOST is higher before a large slip event than those after the event, suggesting that the OOST was activated during a period of high likelihood of fault slip and that the likelihood of fault slip drops after slip upon the OOST. The stress changes associated with fault activity in the numerical simulation are consistent with those reported for natural OOSTs (Otsubo *et al.* under review).

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