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Investigating active deformation of the northern Sumatran Fault using InSAR data

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The Sumatran fault is a major right-lateral fault that accommodates much of the trench-parallel component of the oblique convergence between the Australian/Indian and Sunda plates. The fault stretches the entire length of Sumatra and is located close to several populated cities, posing a seismic threat to local communities. The fault is segmented, but we know little about key seismic hazard parameters such as slip rate and locking depth for most segments. In this study, we are systematically processing ALOS-1 and ALOS-2 InSAR data to produce interferograms that cover the northern portion of the Sumatran fault. Our preliminary results show creep and its lateral extent. Developing a better understanding of fault slip rates, locking depths and creep sections can contribute to evaluating the seismic hazard potential of the northern Sumatran fault.