Supplement of Nonlin. Processes Geophys., 28, 379–407, 2021
https://doi.org/10.5194/npg-28-379-2021-supplement

Nonlinear Processes in Geophysics
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EGU

Supplement of

Inhomogeneous precursor characteristics of rock with prefabricated cracks before fracture and its implication for earthquake monitoring

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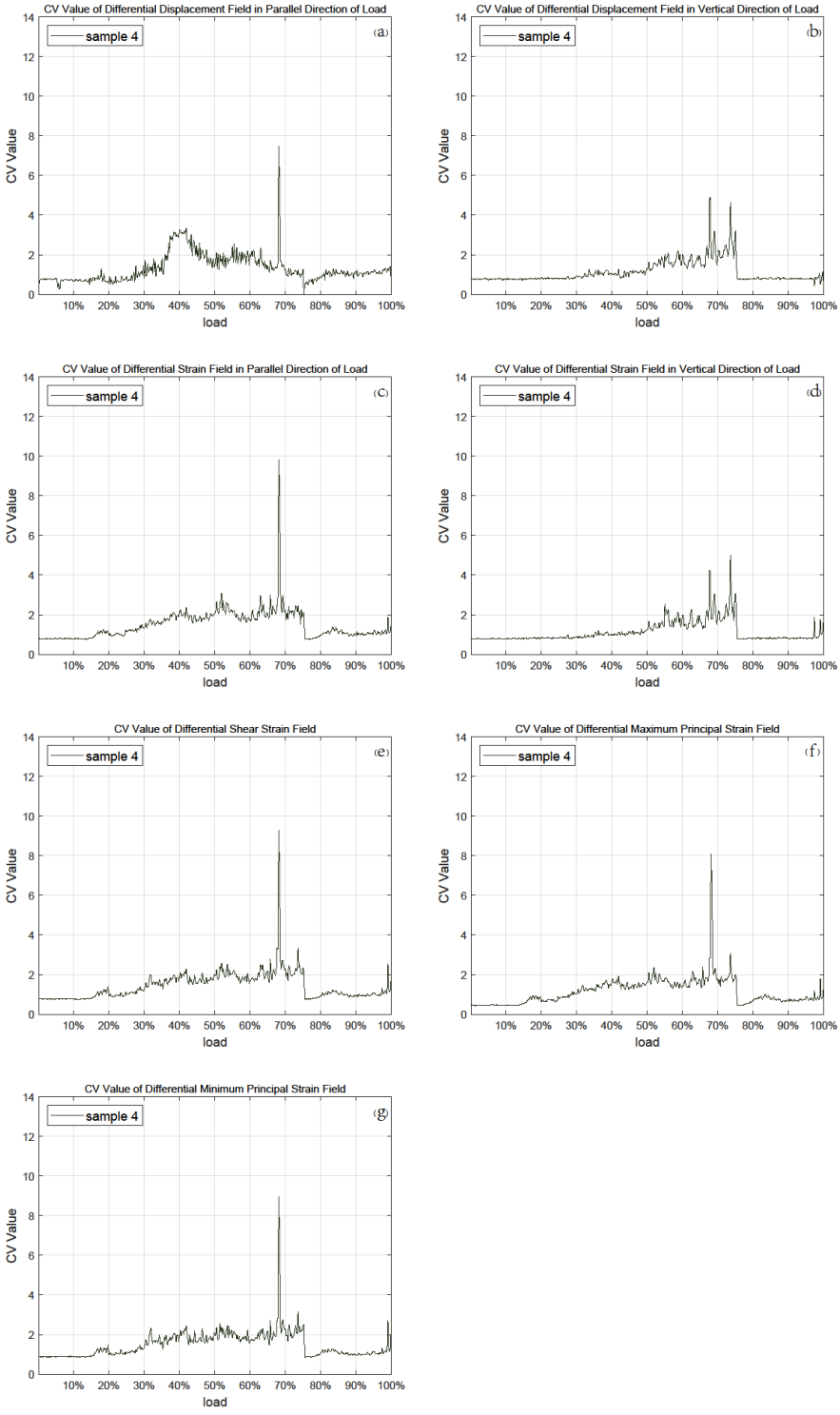

Figure S1. CV images of sample 4

Subfigures represent the CV of various physical quantities.

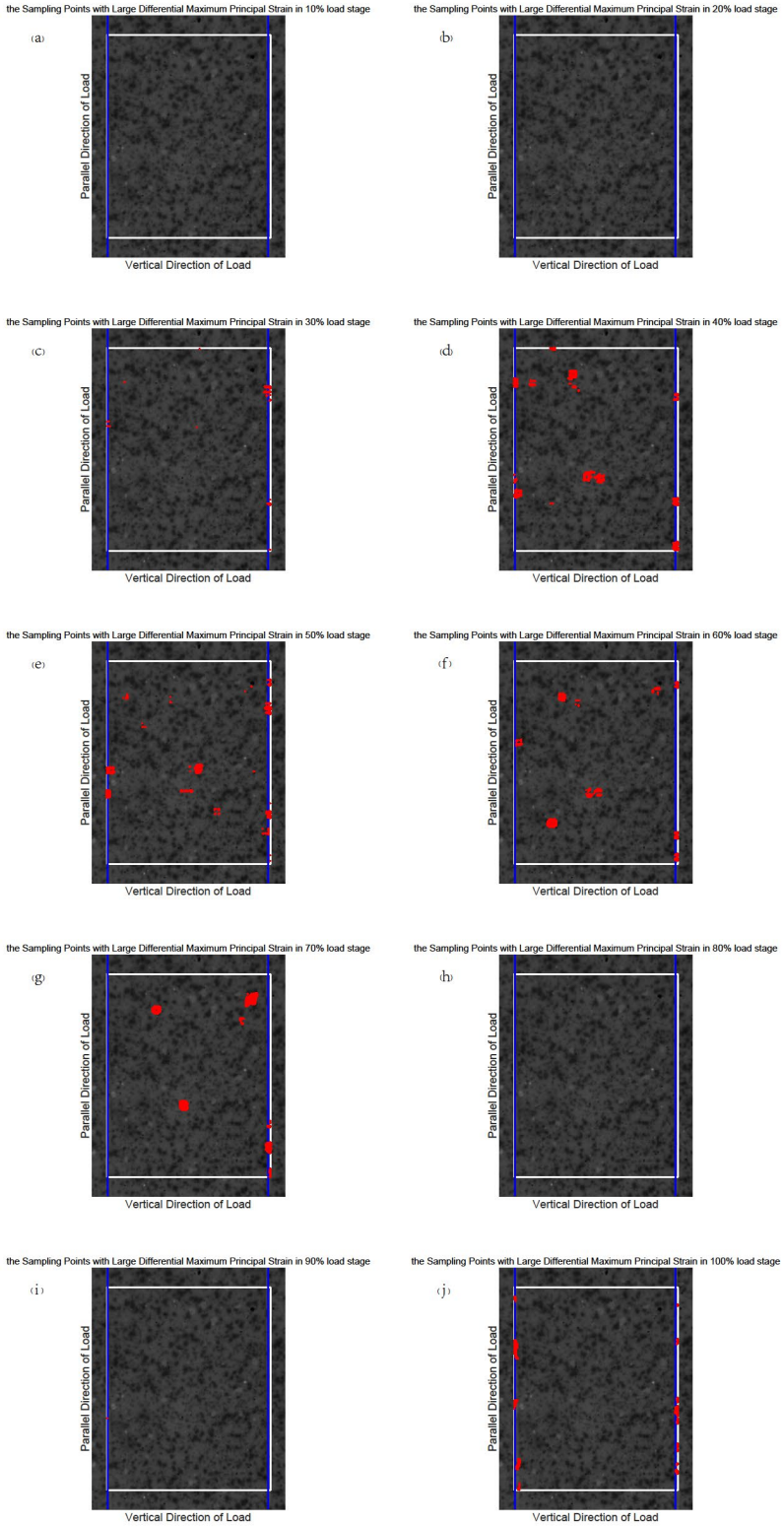

Figure S2. The position of the sampling points with large differential maximum principal strain for sample 4

The blue lines indicate the prefabricated cracks. Each figure shows the observational area of sample 4 in the experiments. The area enclosed by the white rectangle is the calculation domain and its size is constant in different loading stages. The red points represent the sampling points with large differential maximum principal strain that satisfy the judgment condition as the load increases (from a to j).

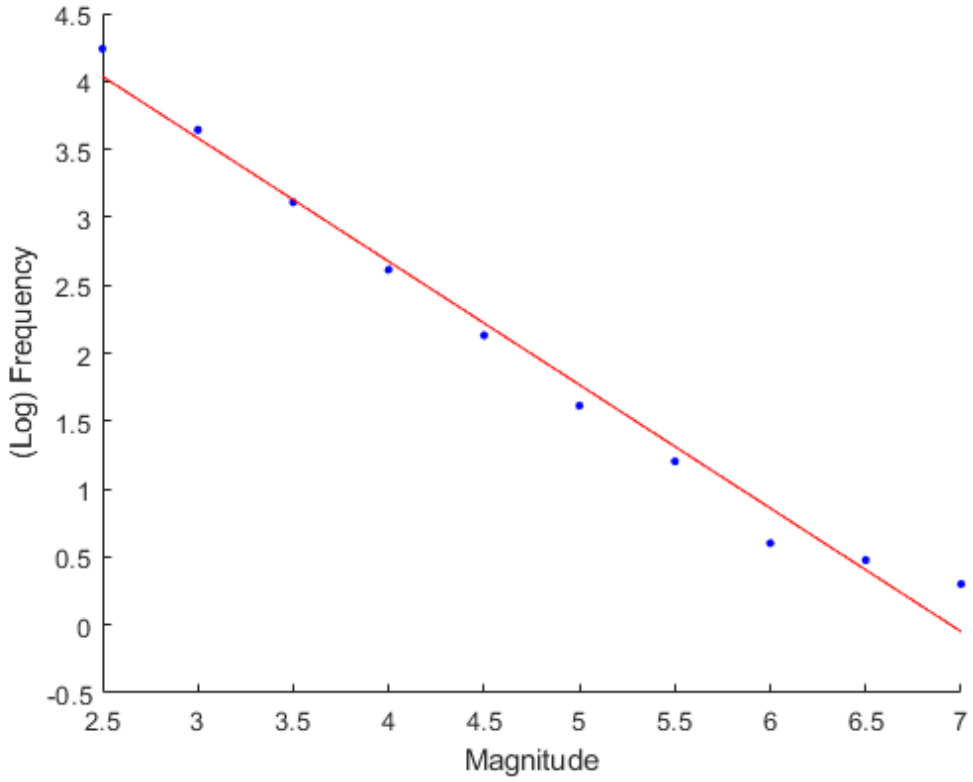

Figure S3. Diagram of magnitude and frequency

The relationship between the magnitude and frequency is close to linear, which follows the law of G-R. There is a small uplift when the magnitude larger than 6, which is normal in this area. Note that there exists an offset between the frequency of magnitude smaller than 2.5 and the linear value of fit, which may indicate an incompleteness of the seismic catalogue when the magnitude below 2.5. Therefore, we decide to choose magnitude of 2.5 and above for the completeness of catalogue.

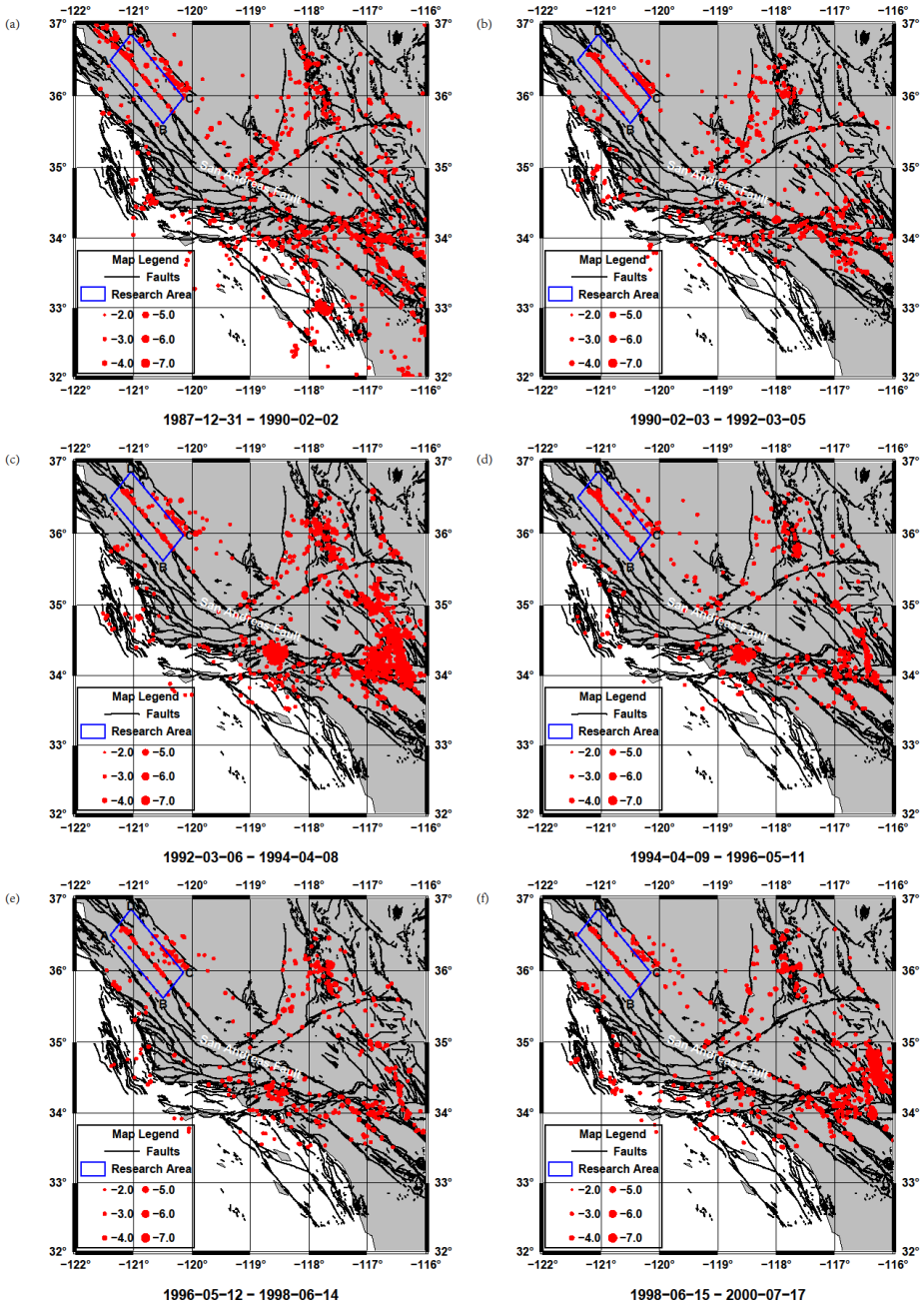

Figure S4. The seismicity of the research area and surrounding area in a seismic cycle

The red points indicate the epicenters of earthquakes in the corresponding time. The location of the San Andreas Fault and the epicenter of the Parkfield earthquake are indicated on the map by white and blue fonts, respectively. The corresponding time is shown under each image. Subfigures represent seismicity of corresponding time.

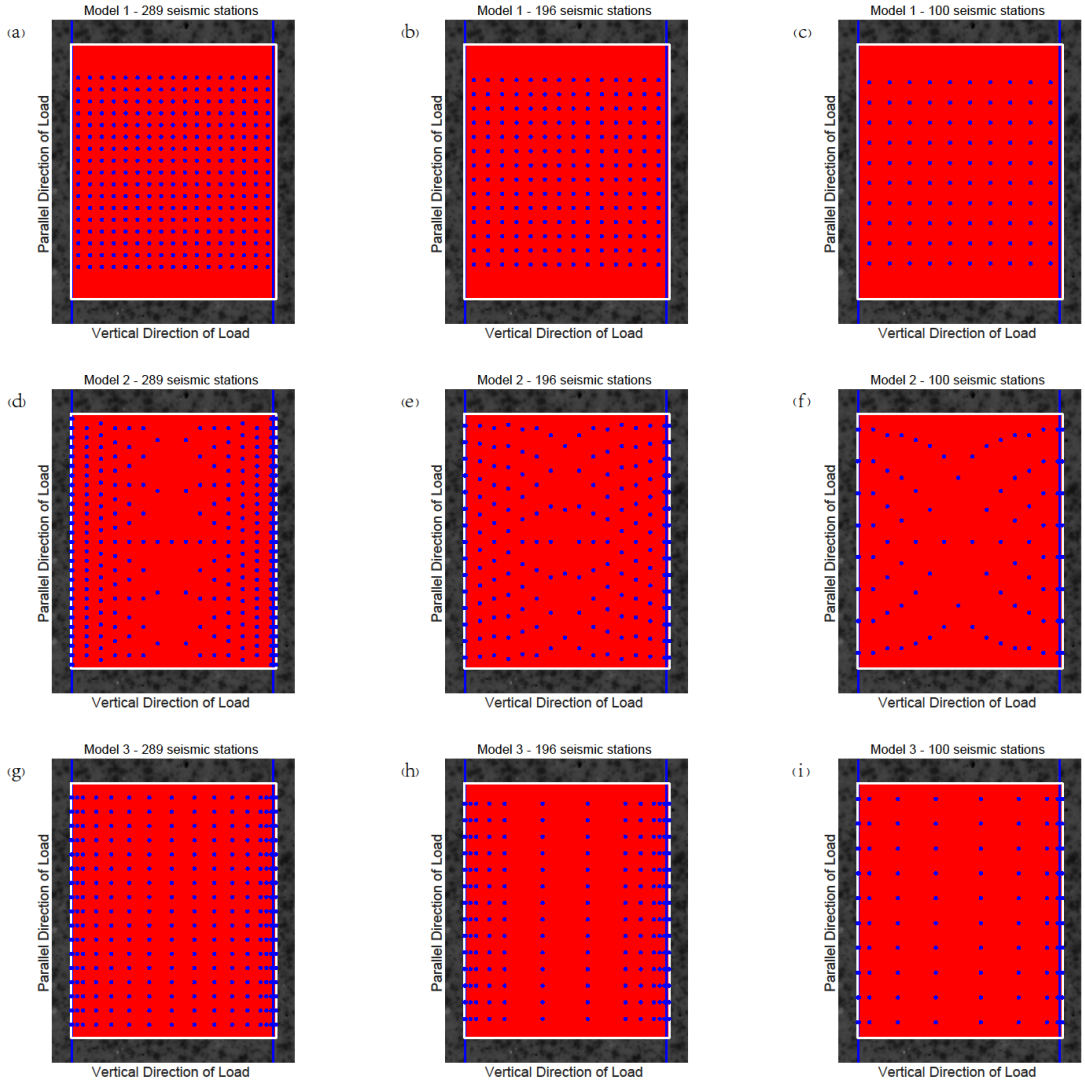

Figure S5. Three kinds of seismic monitoring models with different numbers of seismic monitoring stations

Each figure shows the observational area of sample 4. The blue lines indicate the prefabricated cracks. The area enclosed by the white rectangle is the calculation area. The red points in the calculation area represent all the sampling points while the blue points indicate the limited sampling points (seismic monitoring station) in different models. The horizontal axis is perpendicular to the direction of load and the vertical axis is parallel to the direction of loading. Subfigures represent various models with different numbers of seismic seismic monitoring stations.