

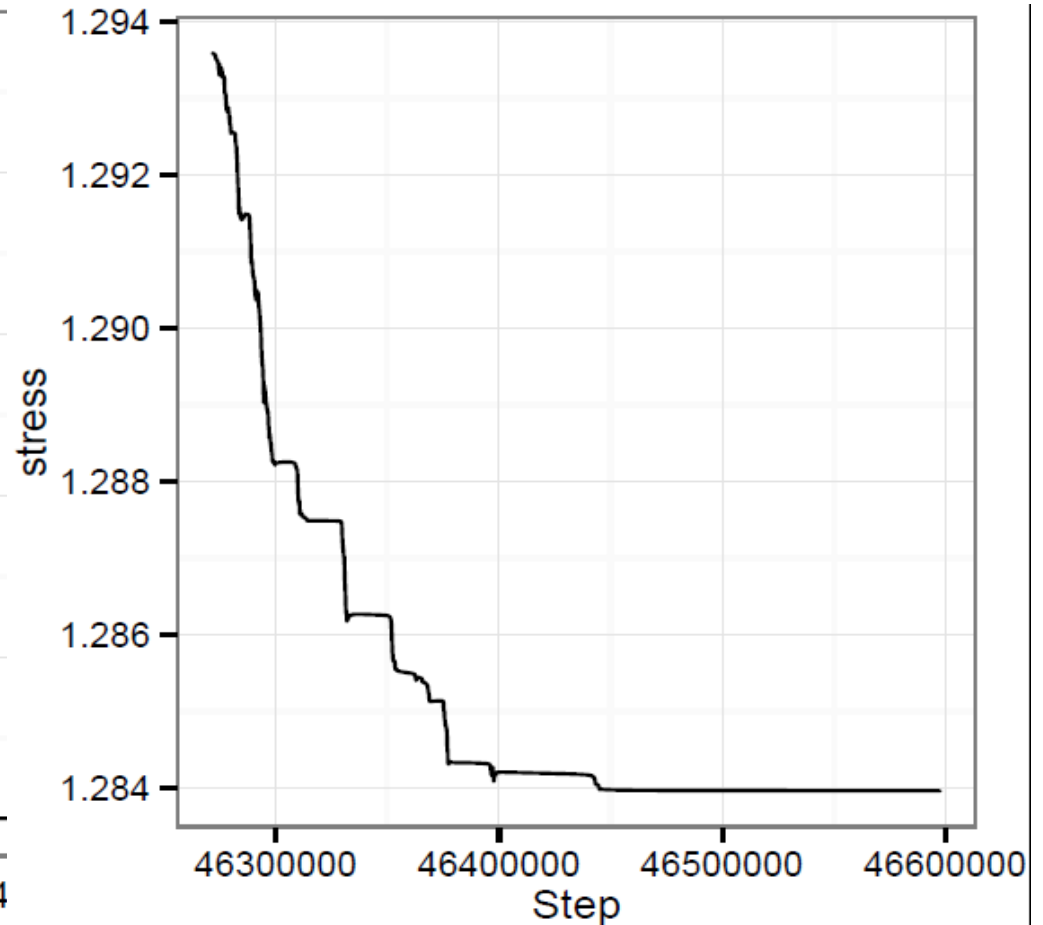
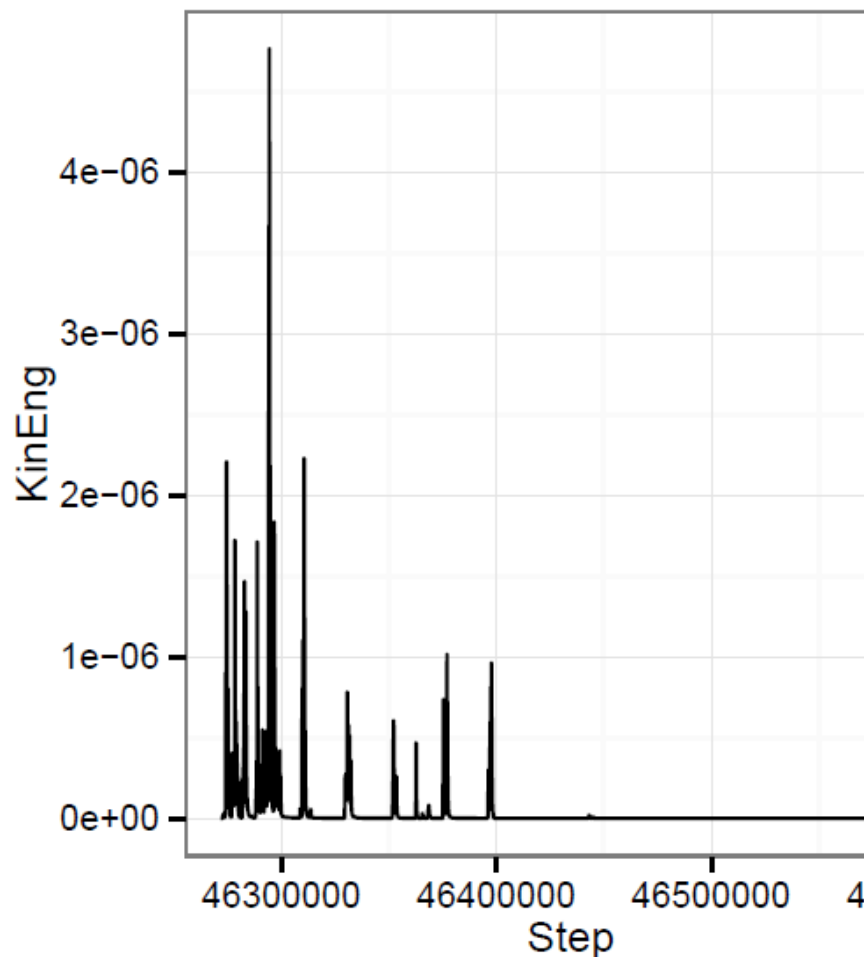
Aftershocks or Part of Single Quake?

For continuous variables, finite rate, finite temperature, finite noise, ... motion never really stops – when is event over?

Aftershocks or Part of Single Quake?

Stop drive - intermittent evolution of single causally connected event

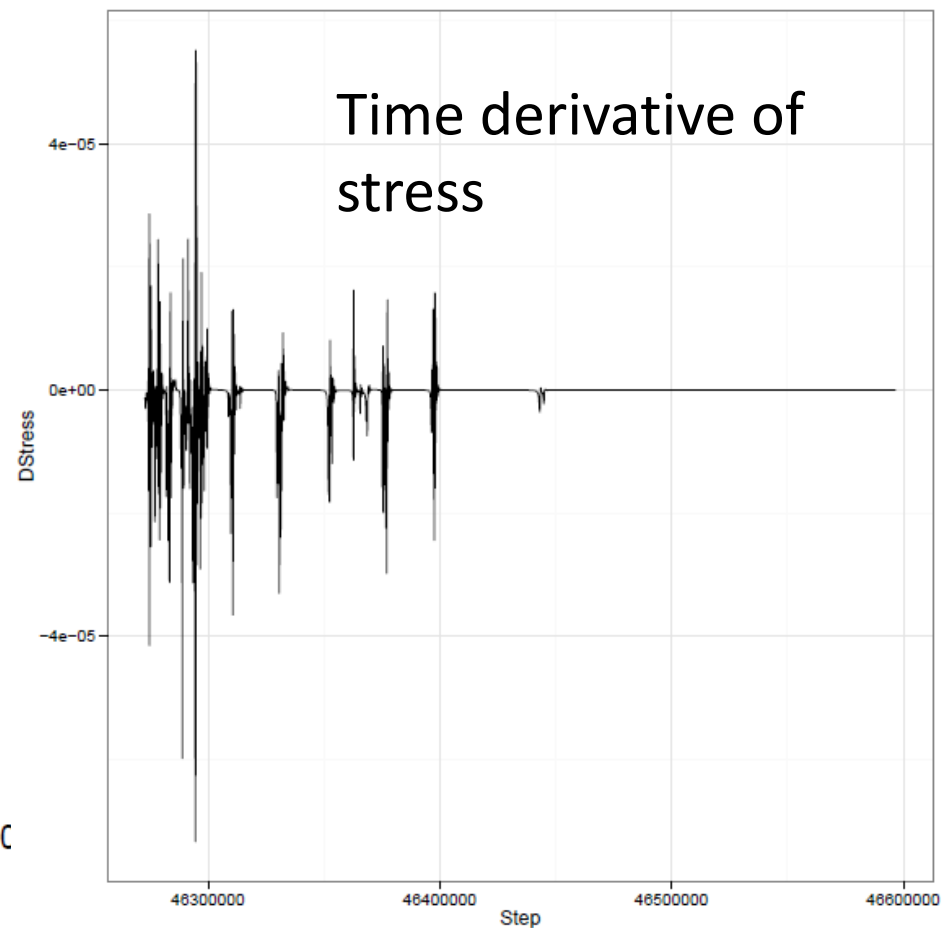
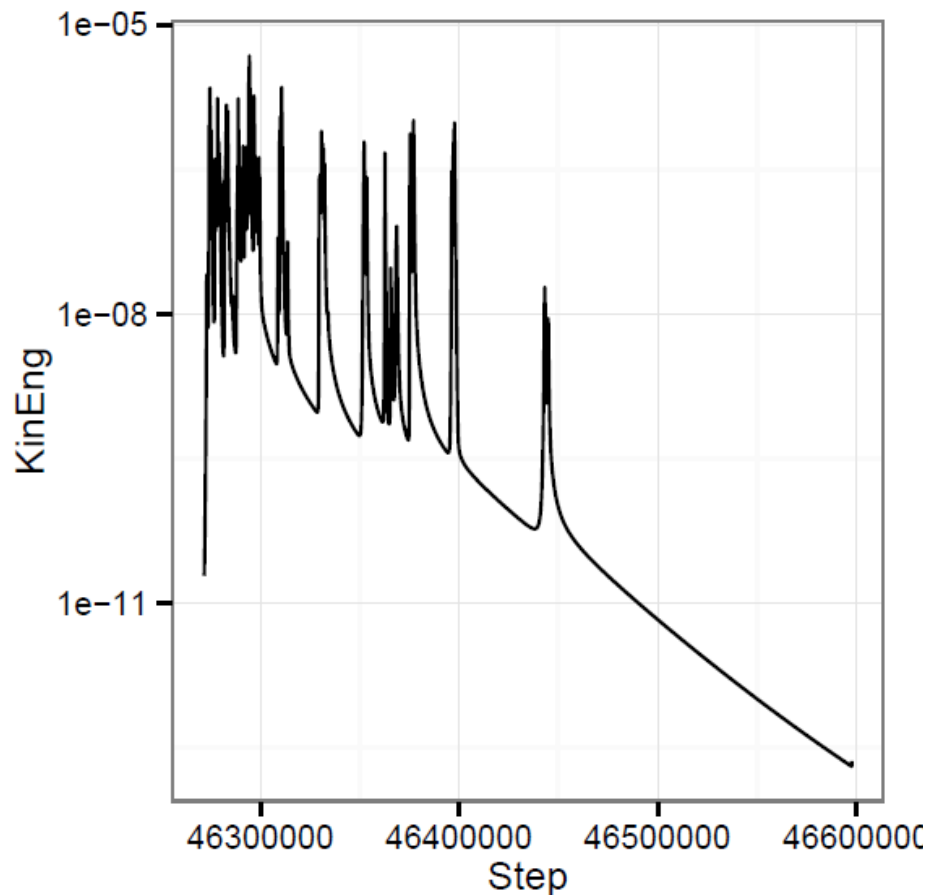
Finite rate – plateau becomes sawtooth.



Aftershocks or Part of Single Quake?

Stop drive - intermittent evolution of single causally connected event

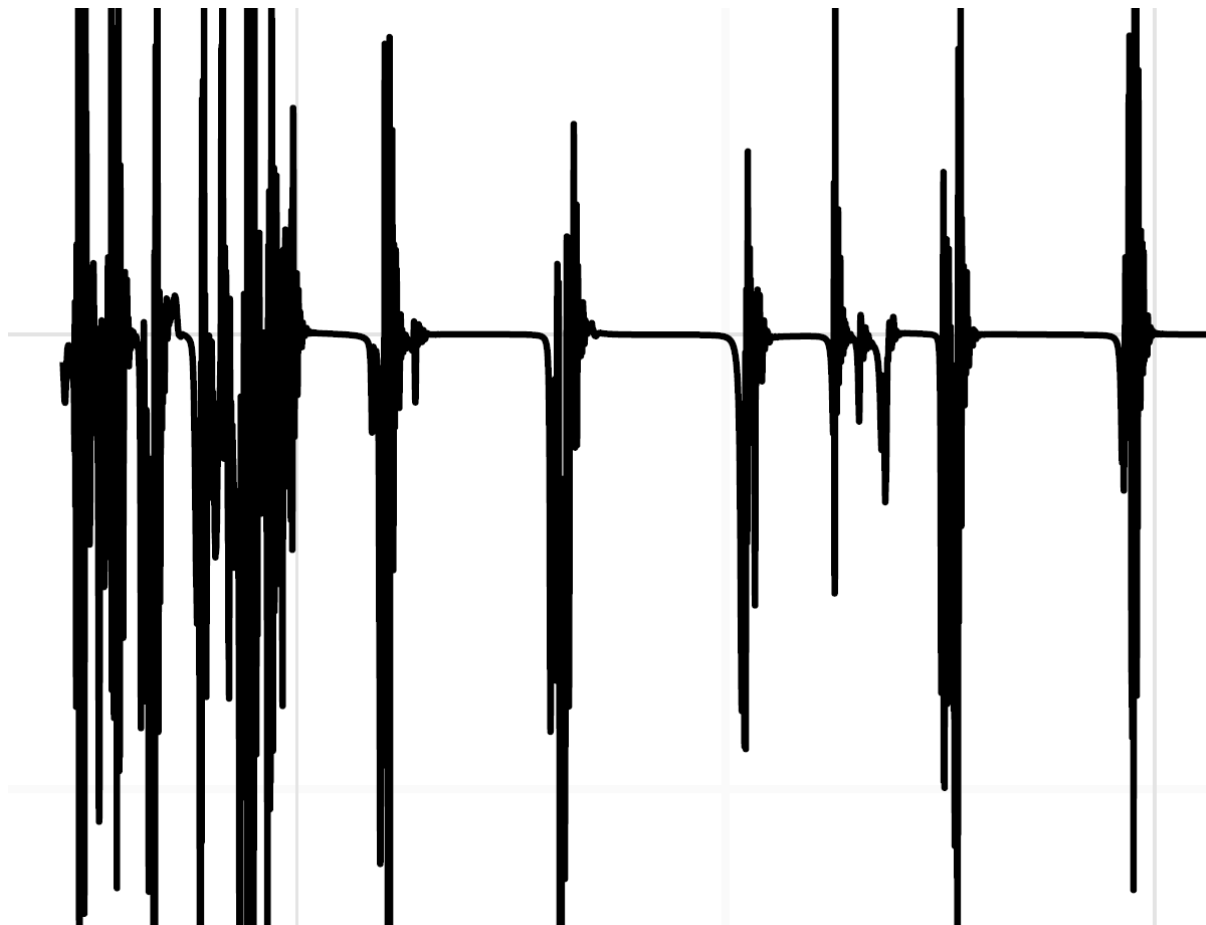
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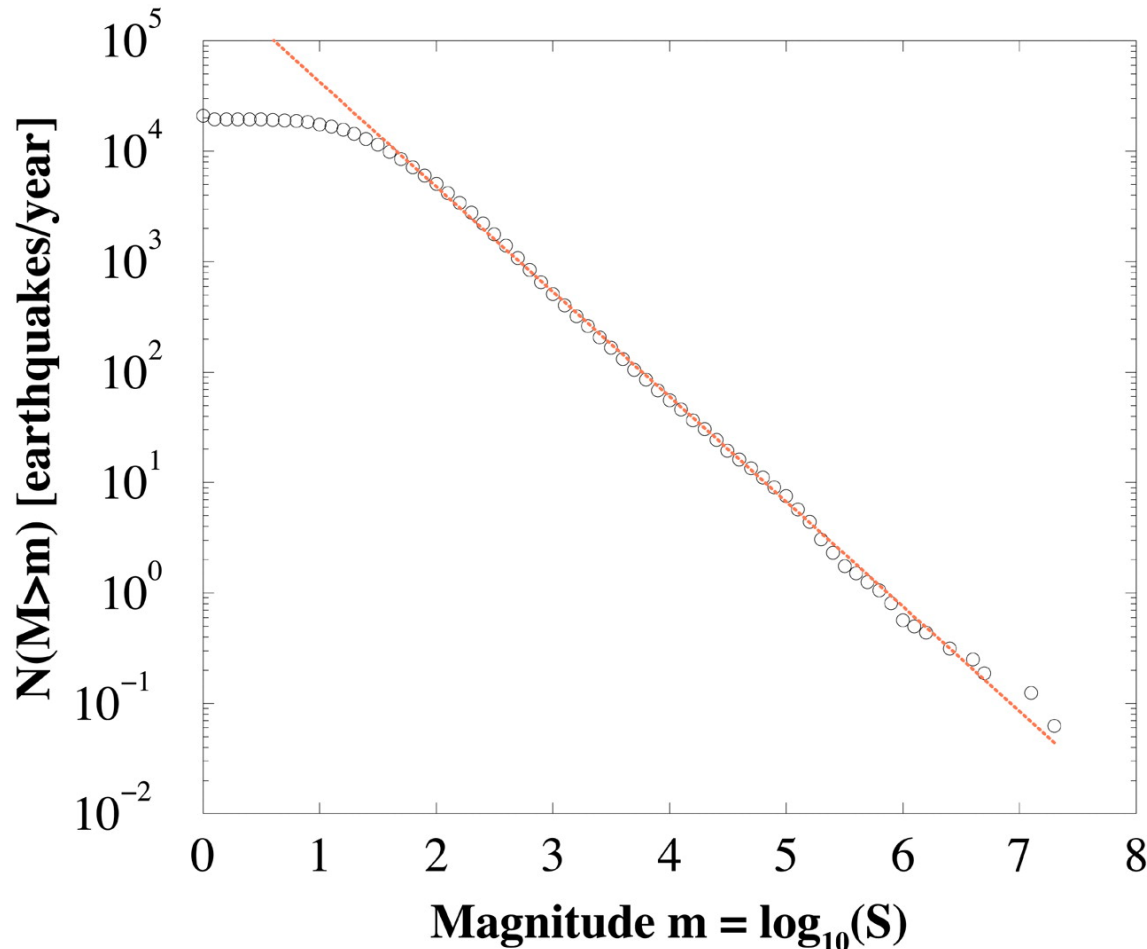
Finite rate – plateau becomes sawtooth.



Time
derivative of
stress

What about earthquakes?

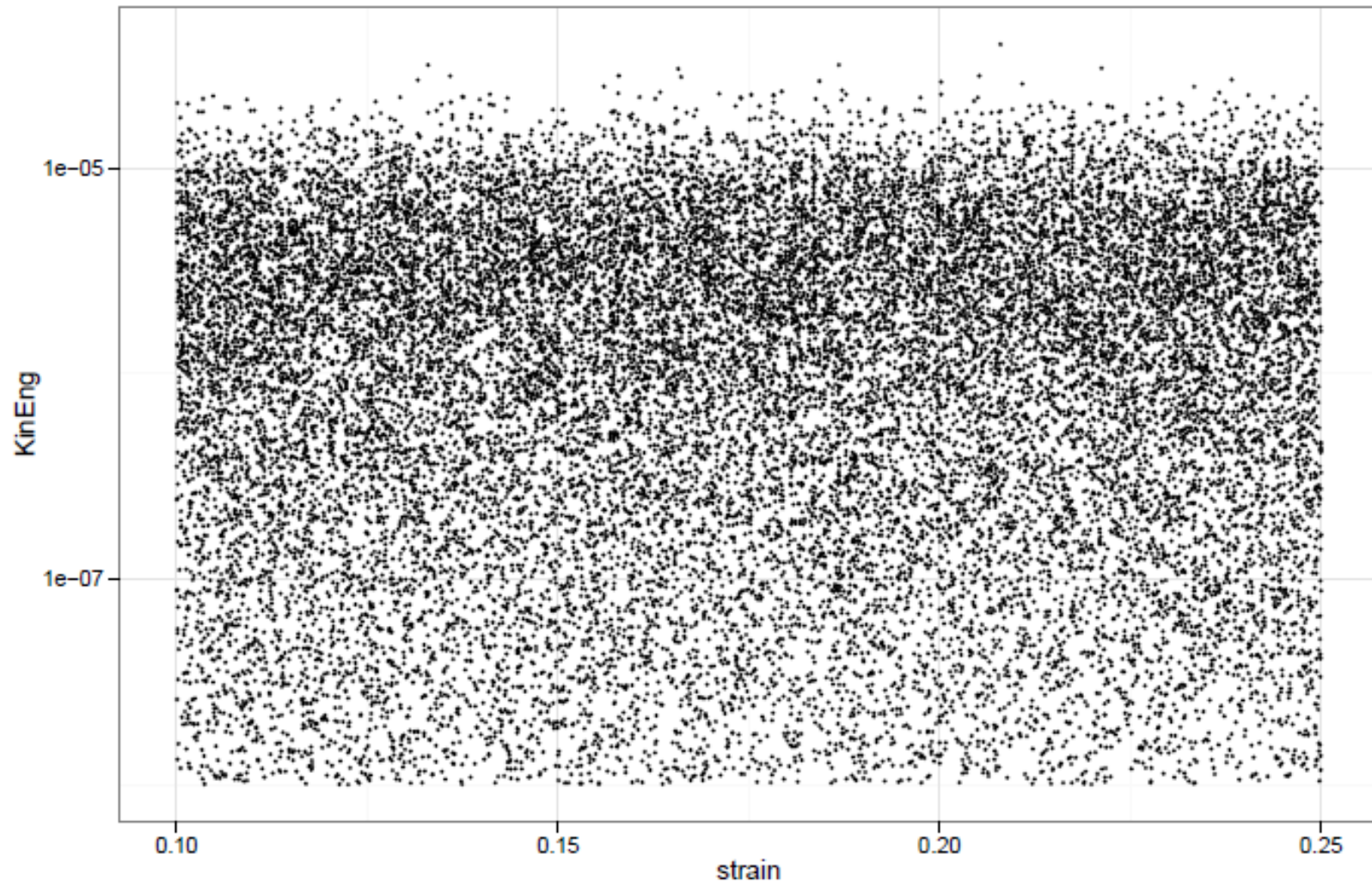
Gutenberg-Richter Law: Power law distribution of event sizes
Corresponds to $N(E) \sim E^{-\tau}$ with $\tau \sim 1.6$



Pure power law
when average over
many fault systems

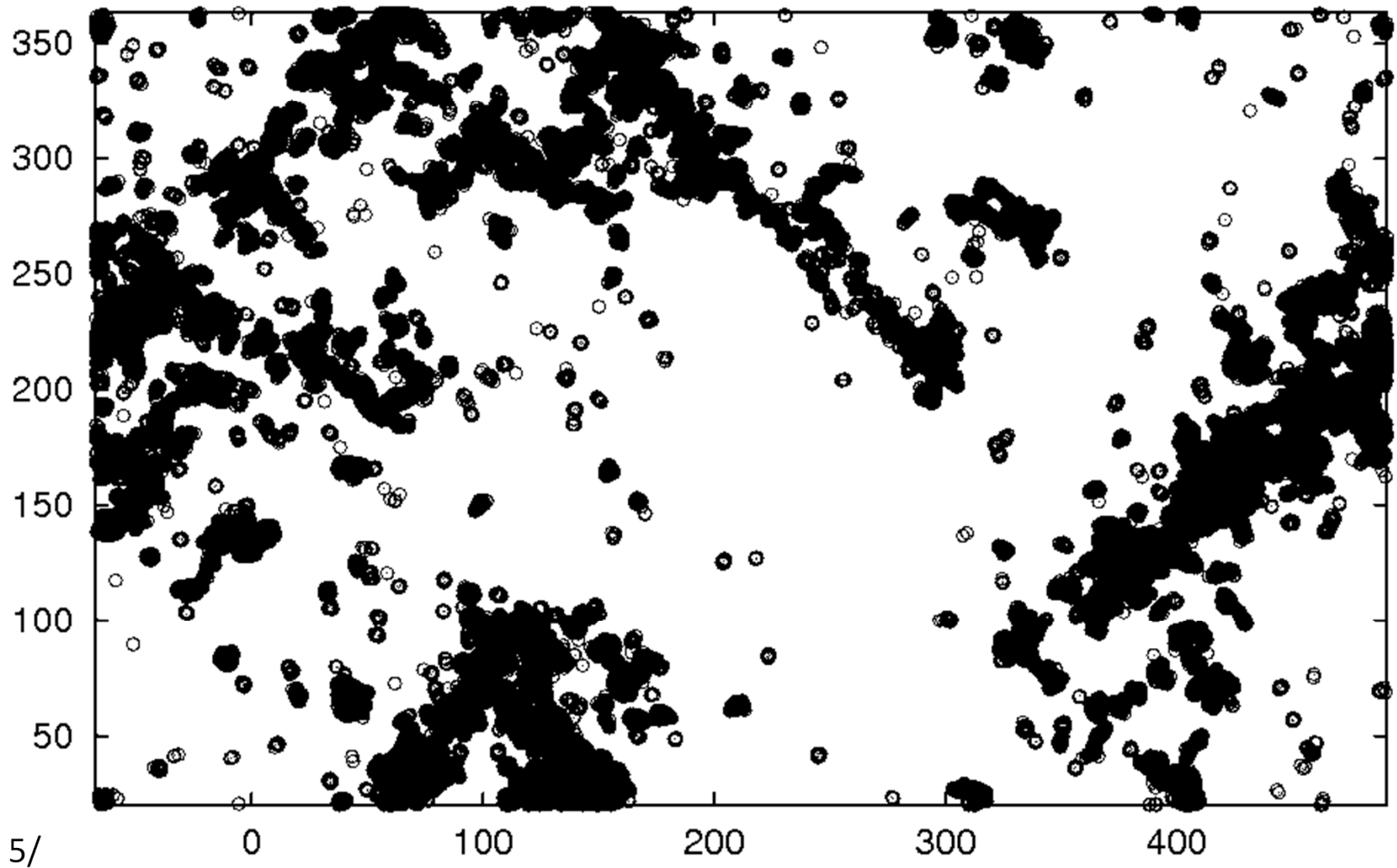
Individual faults
have excess of
large events that is
qualitatively like
our simulations

No Clustering of Avalanches



Plasticity From Same Initial State

Black-underdamped, green-overdamped earthquake,
red-past earthquakes



Rich Event Dynamics

Critically damped system

Total curl

Local kinetic E

