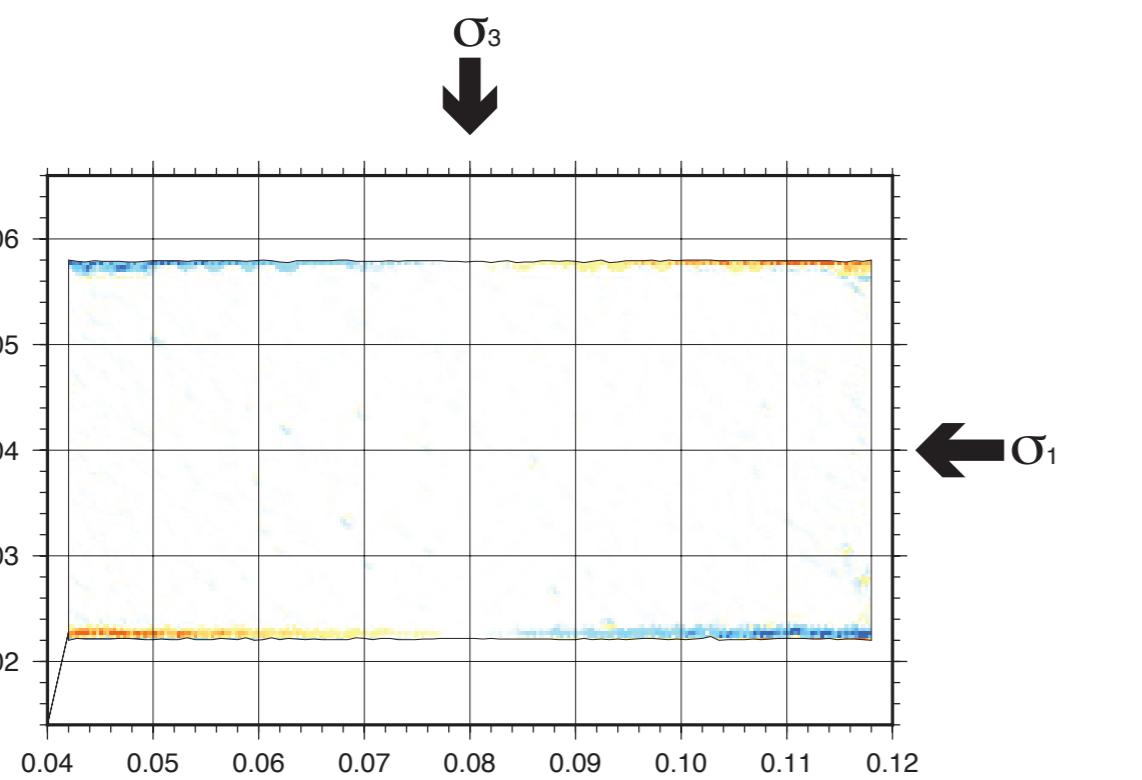


Confining Pressure = 15 MPa

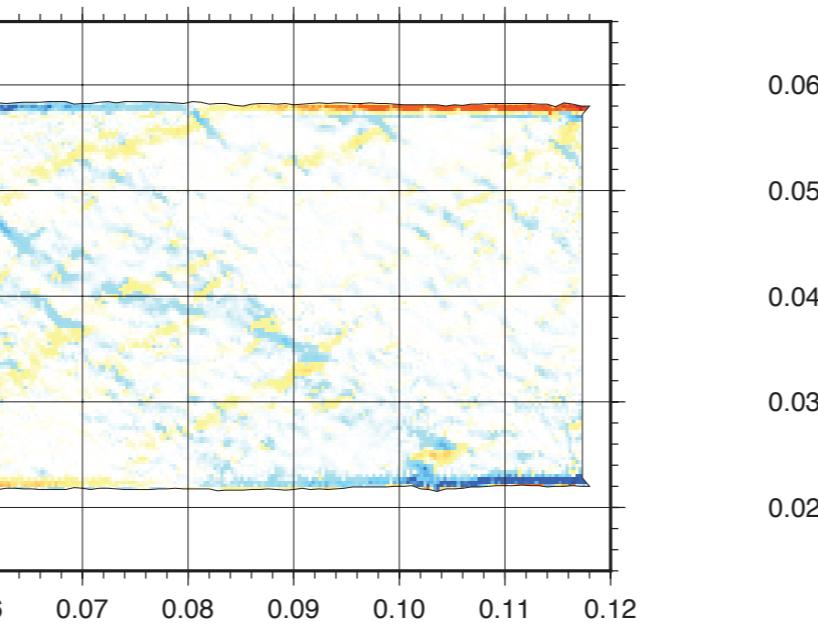
3 cm

a.
1.9 cm
 $\sigma_1 \rightarrow$
 $\sigma_3 \downarrow$

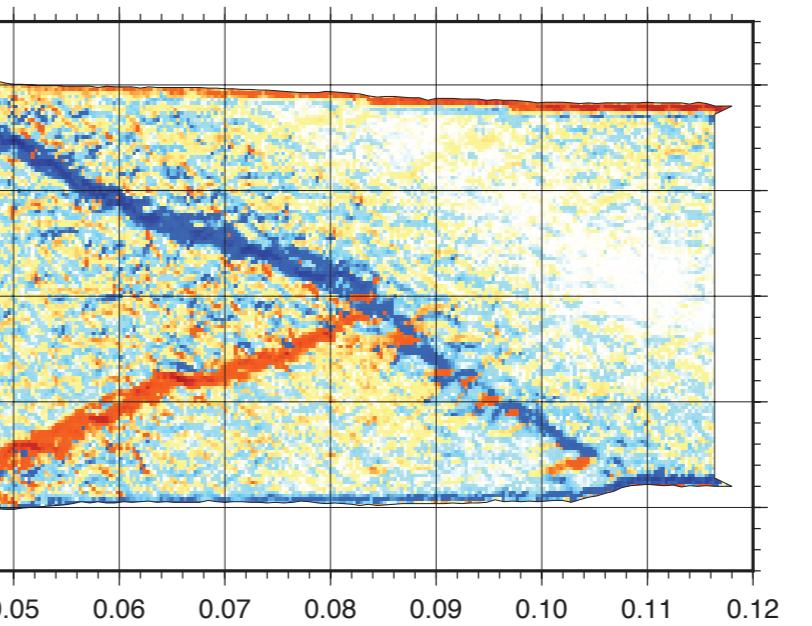
Strain:0.0206



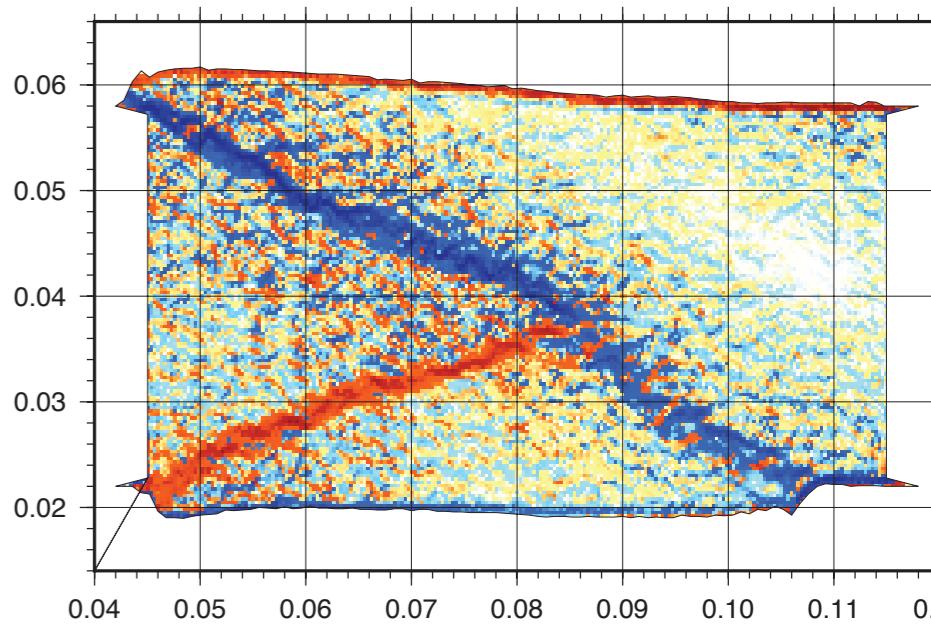
Strain:0.0371



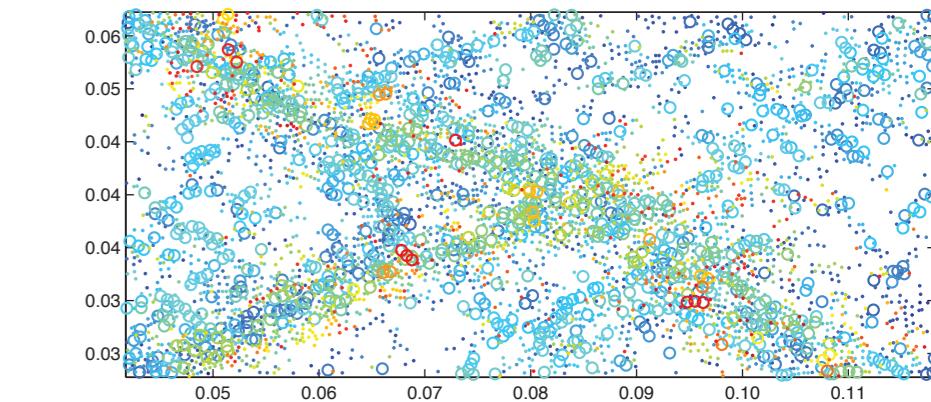
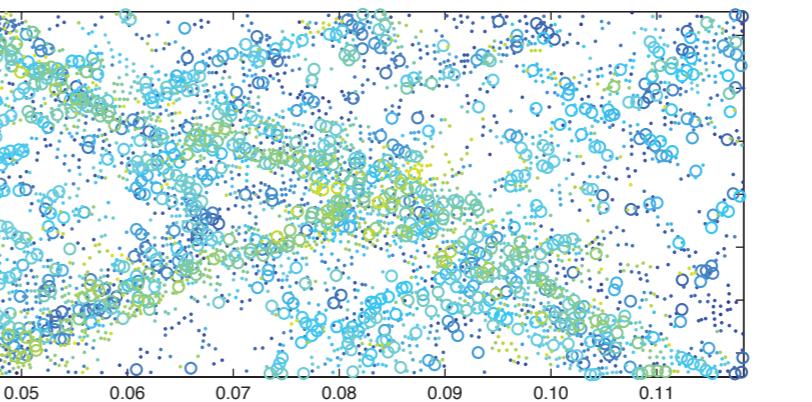
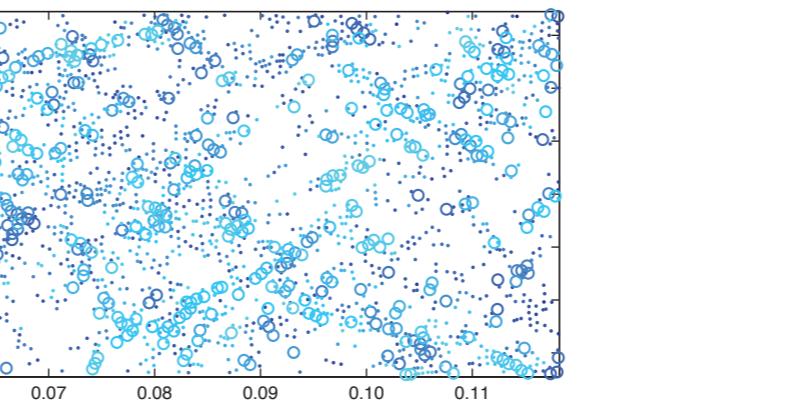
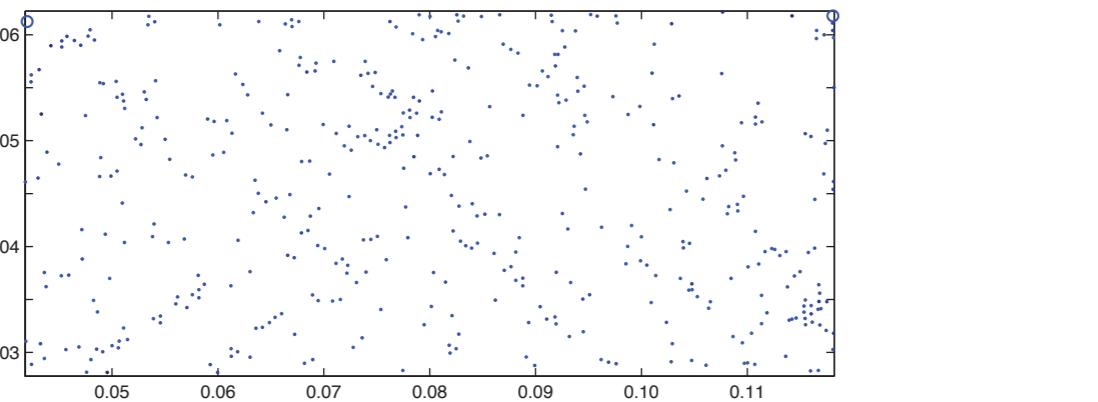
Strain:0.0618



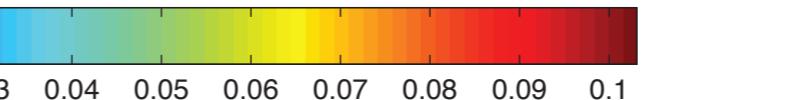
Strain:0.0969



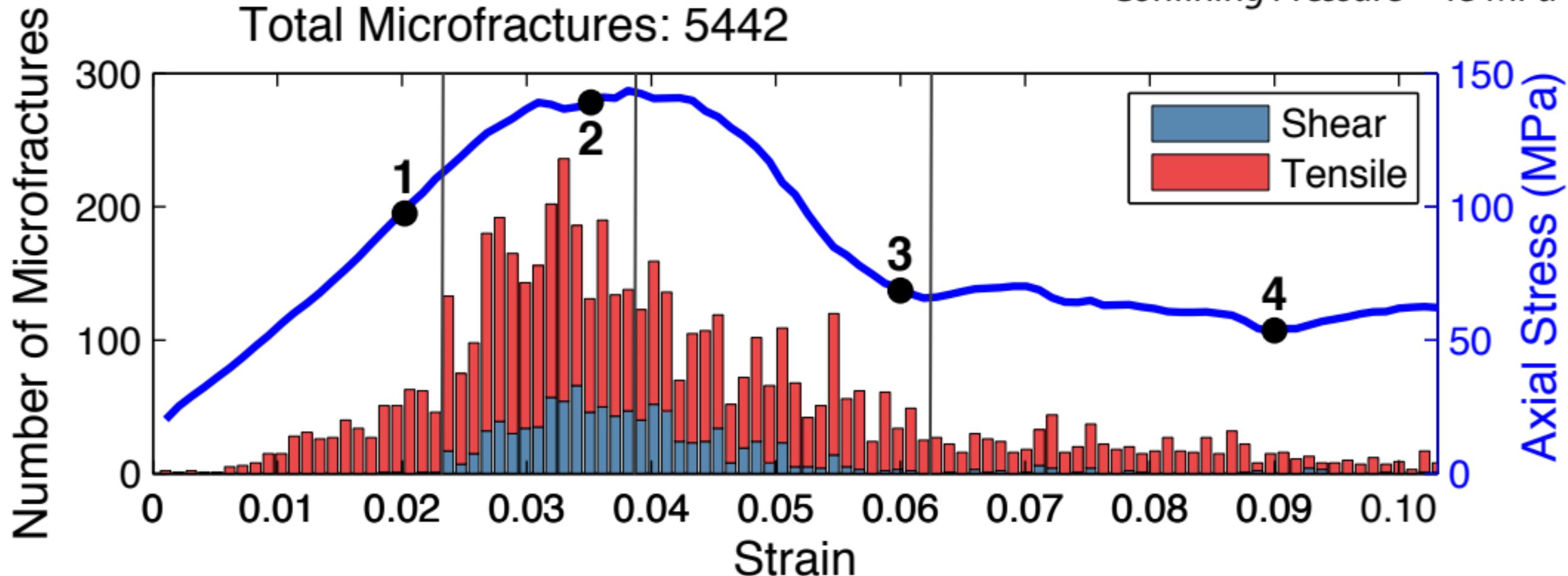
b.

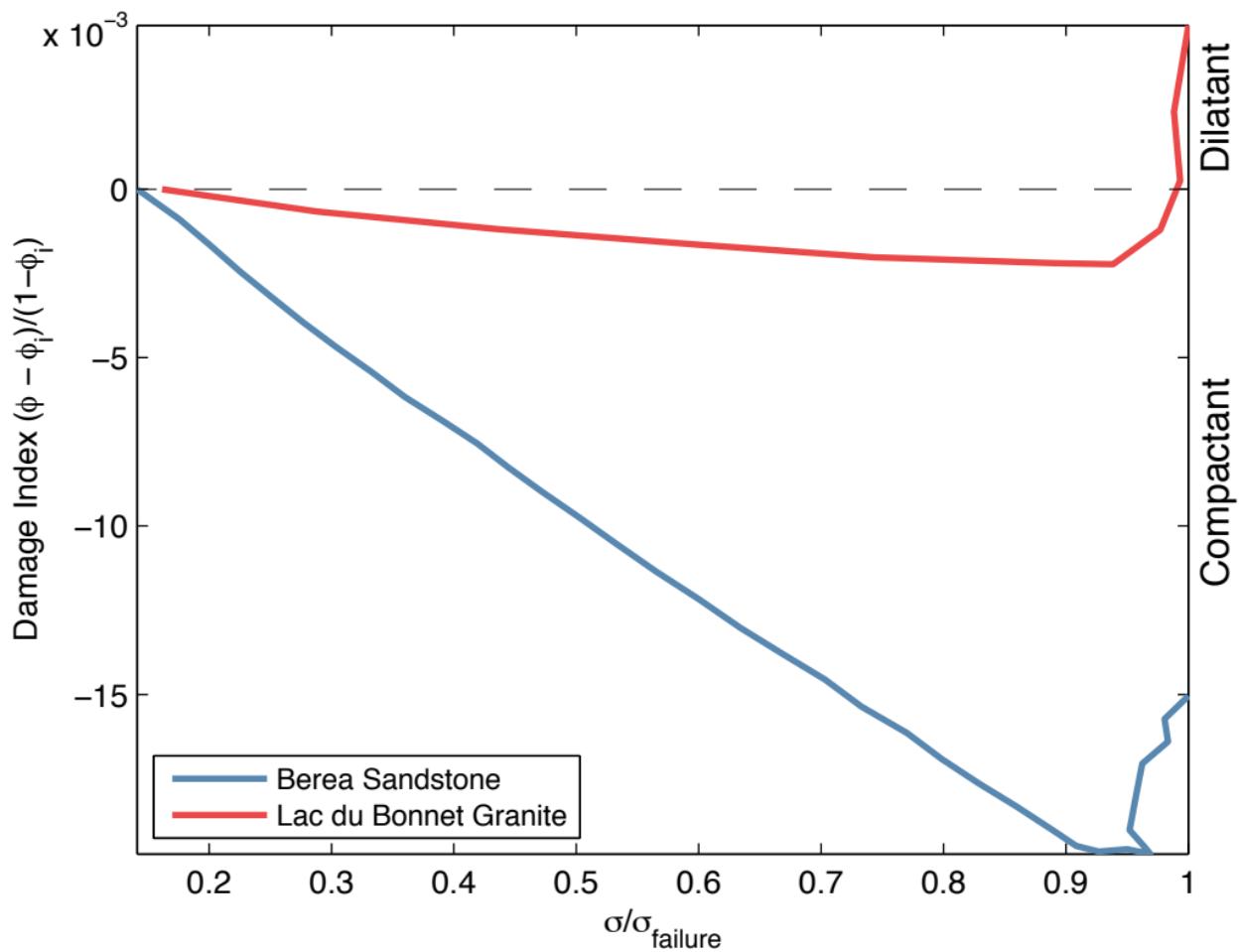


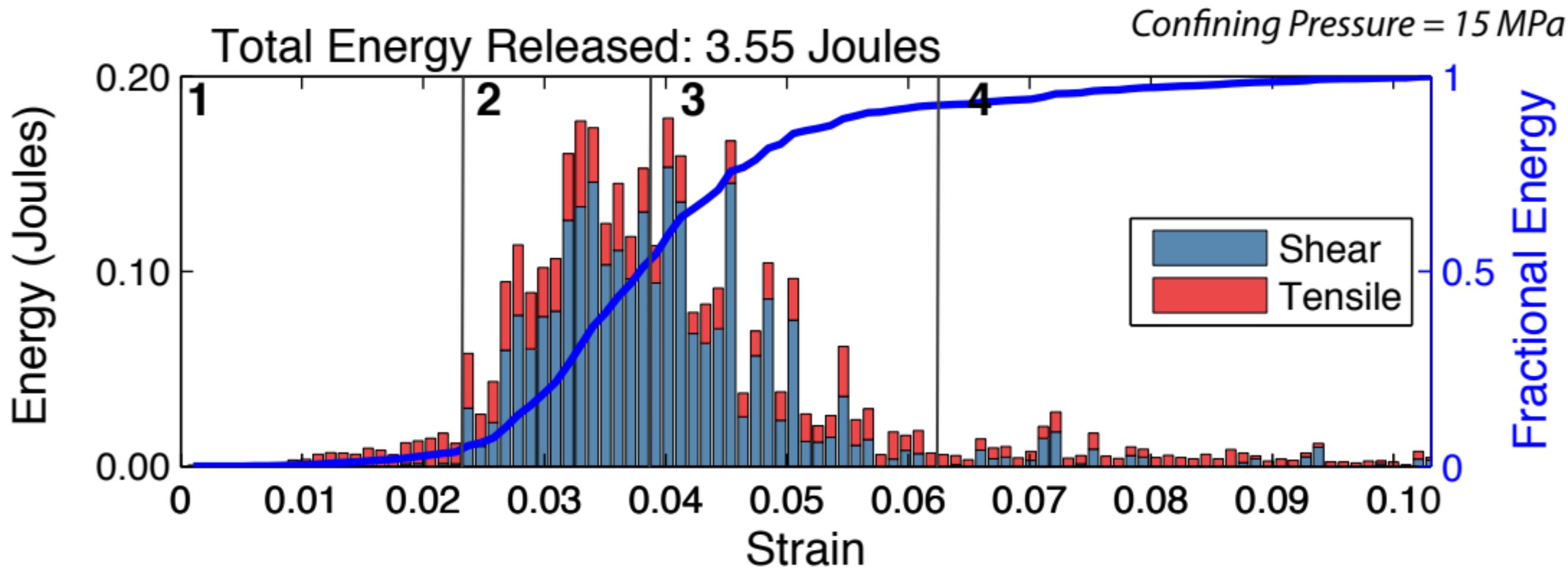
Strain



Confining Pressure = 15 MPa

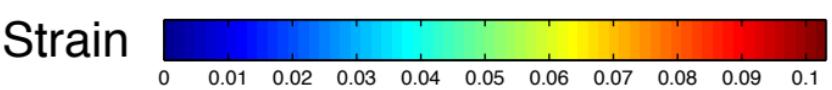
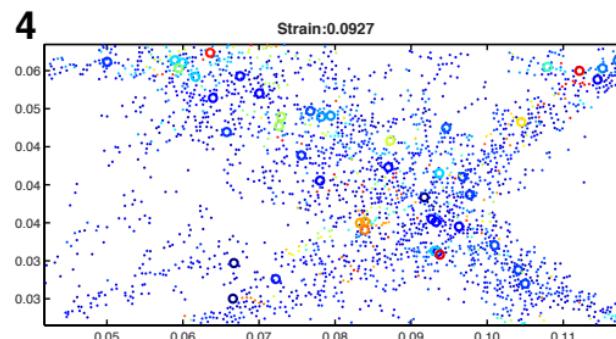
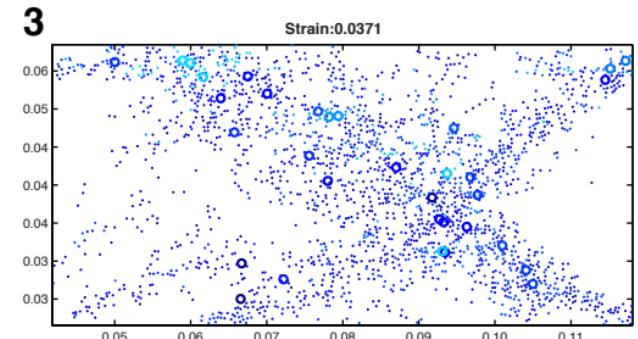
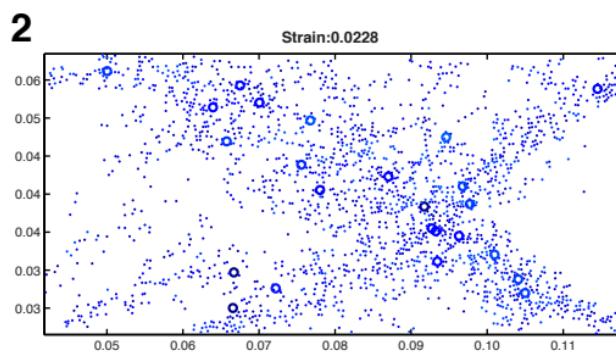
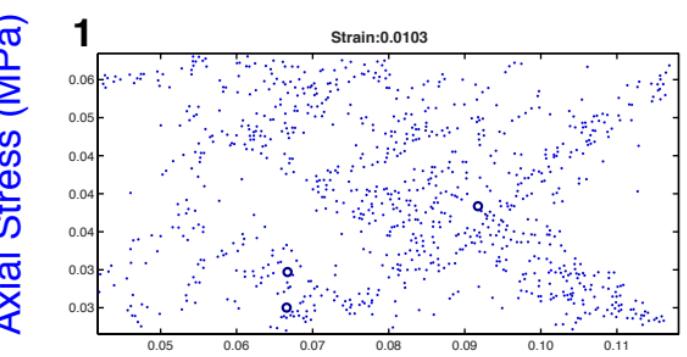
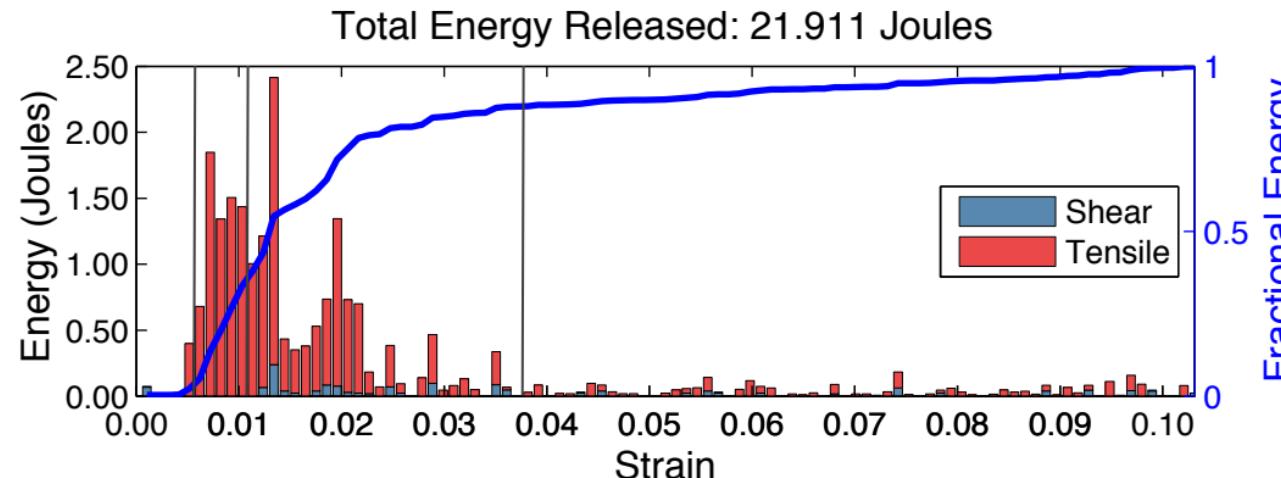
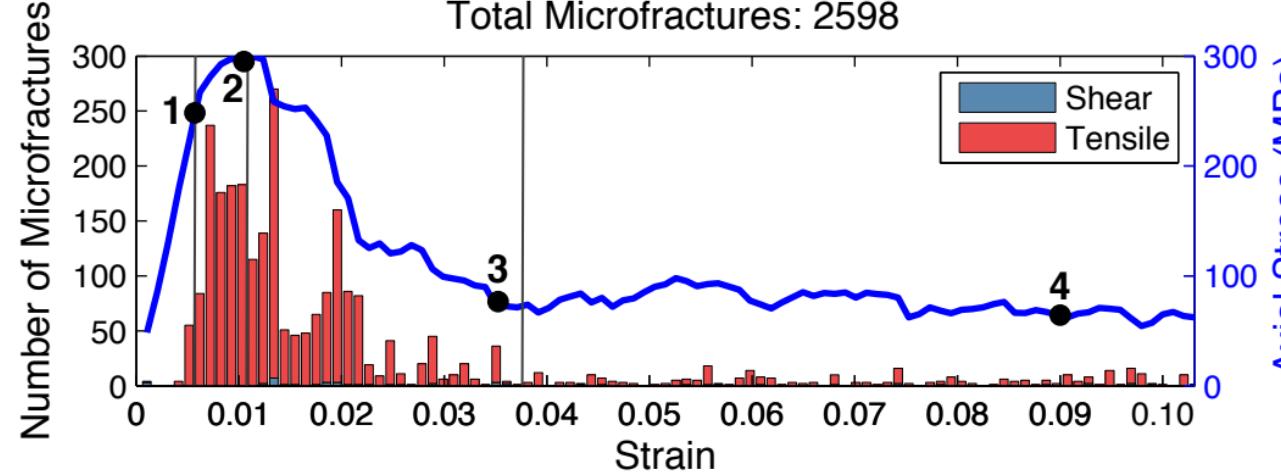


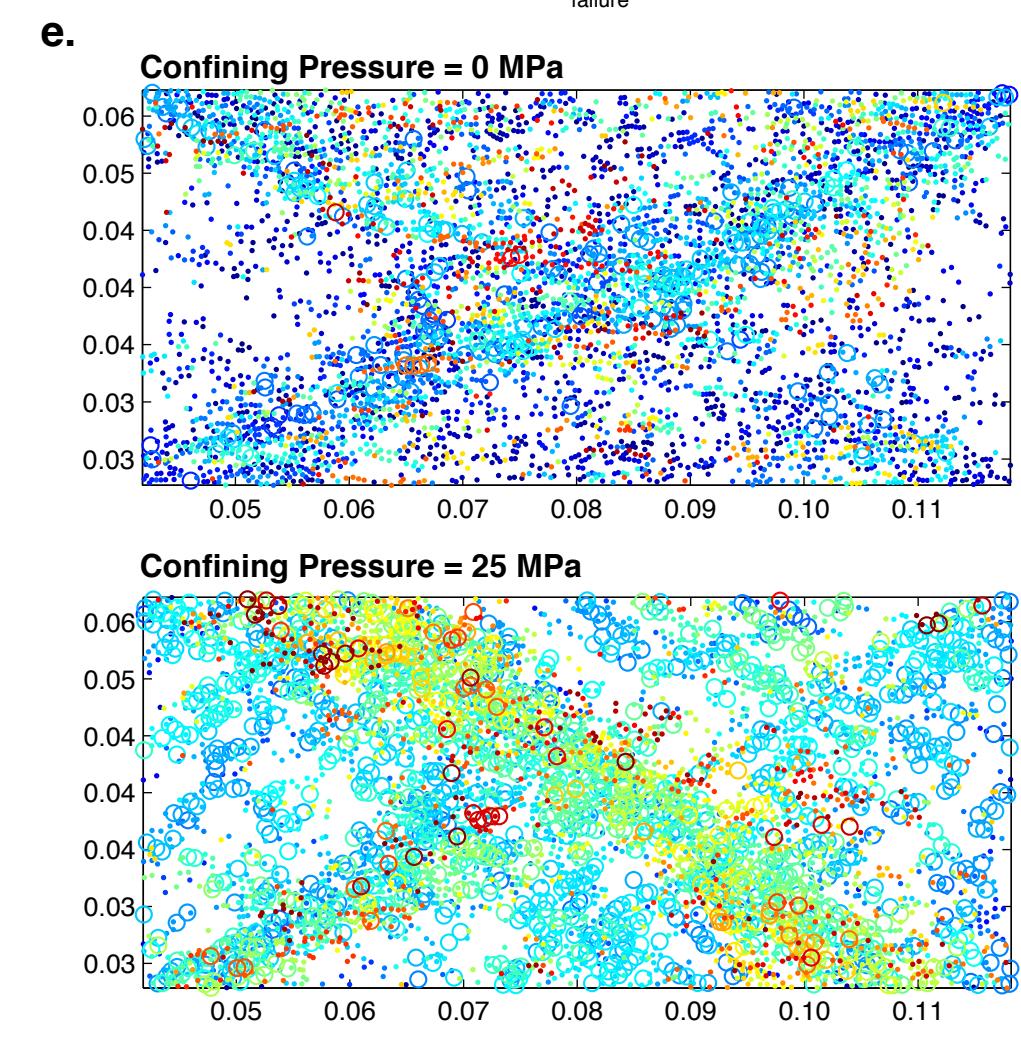
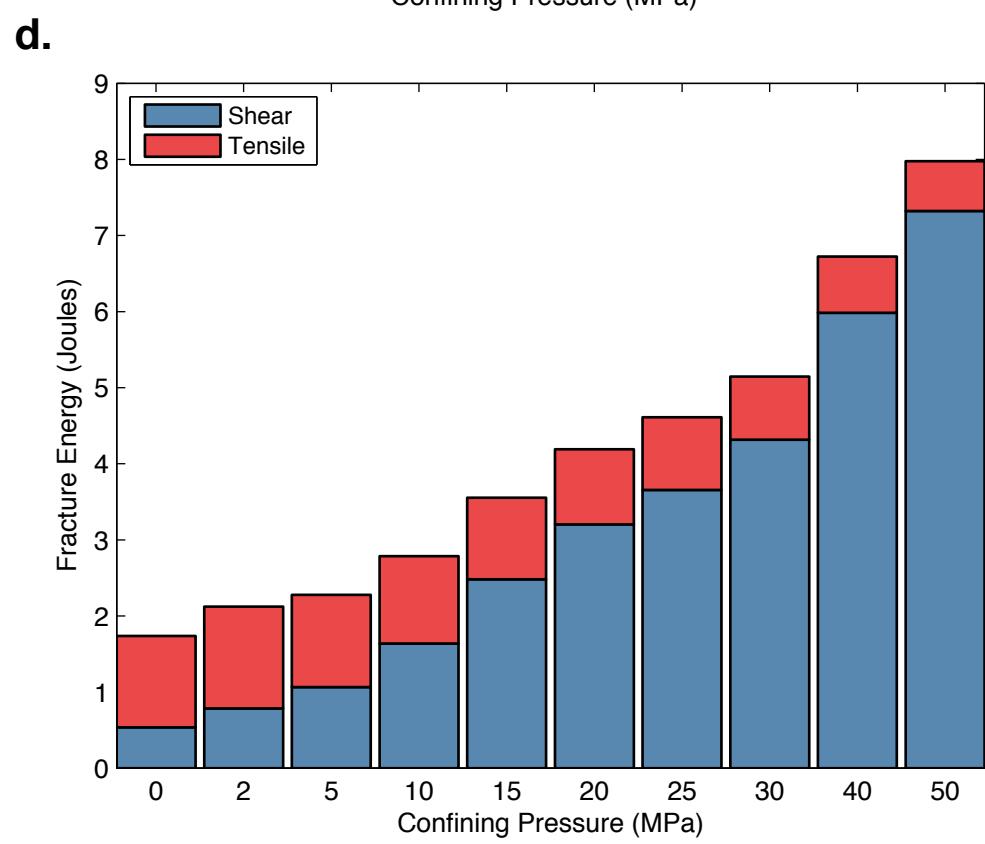
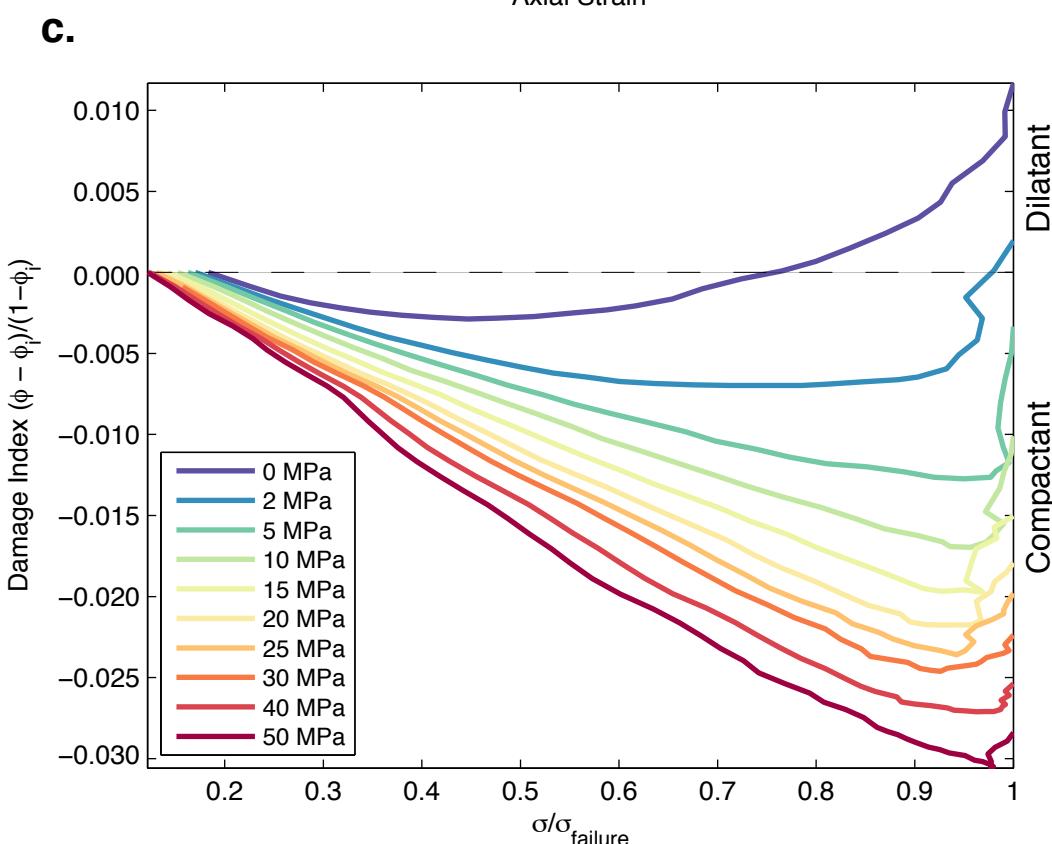
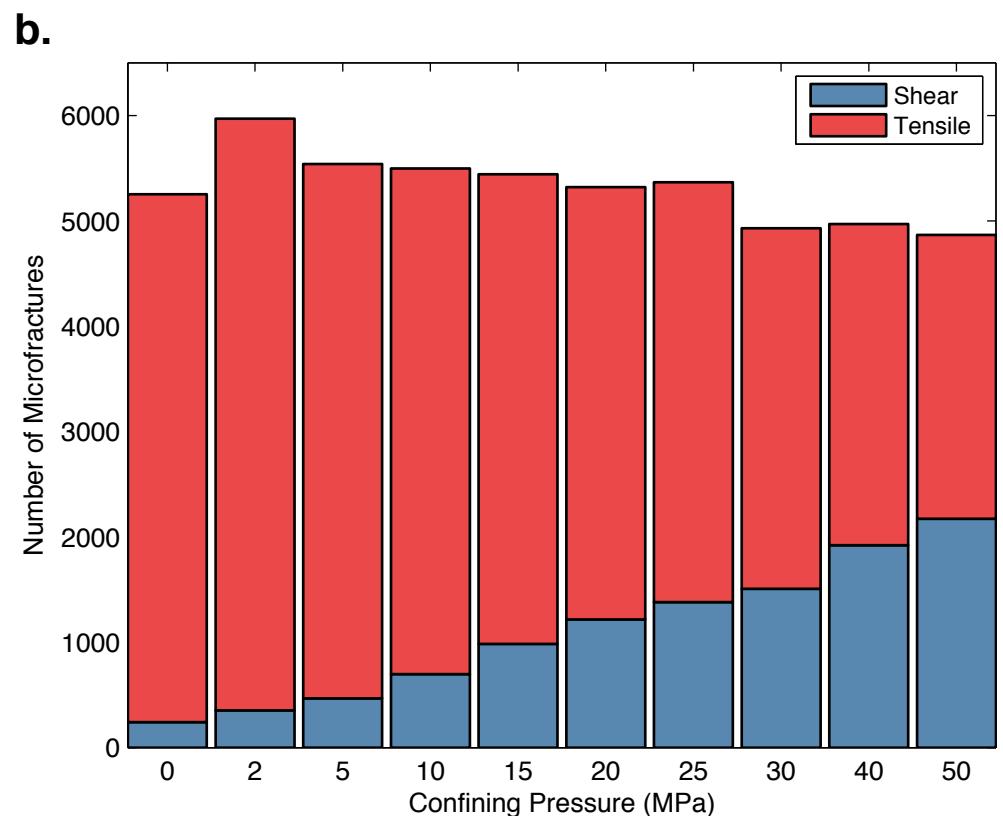
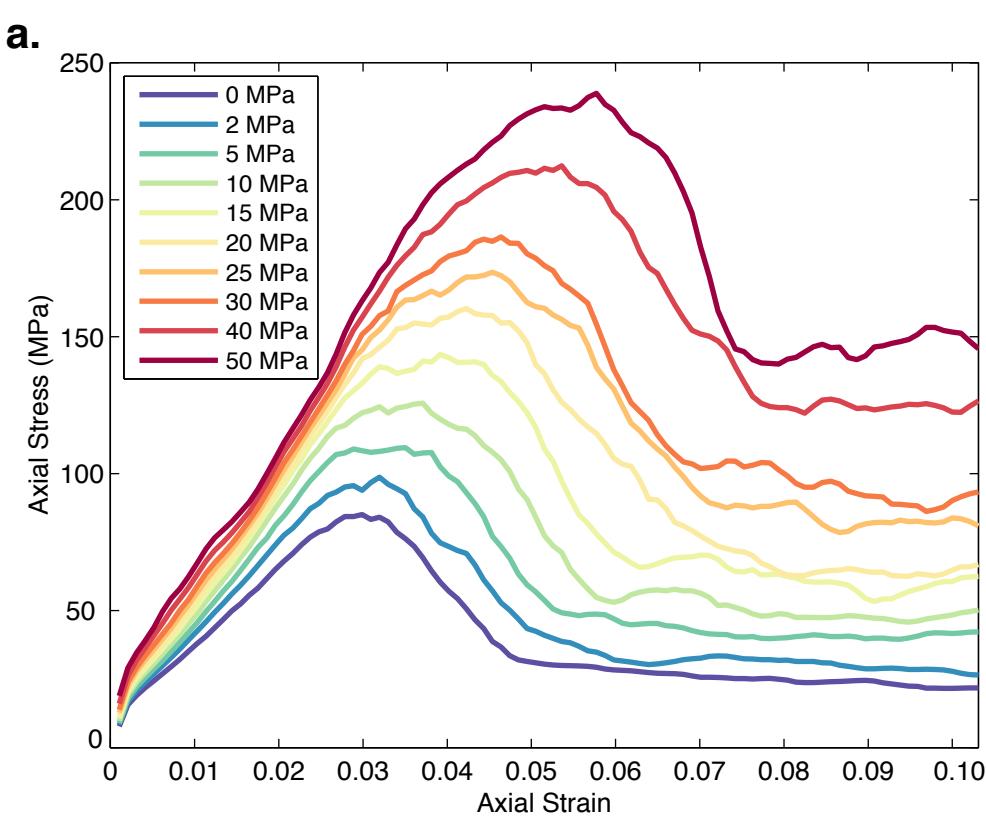


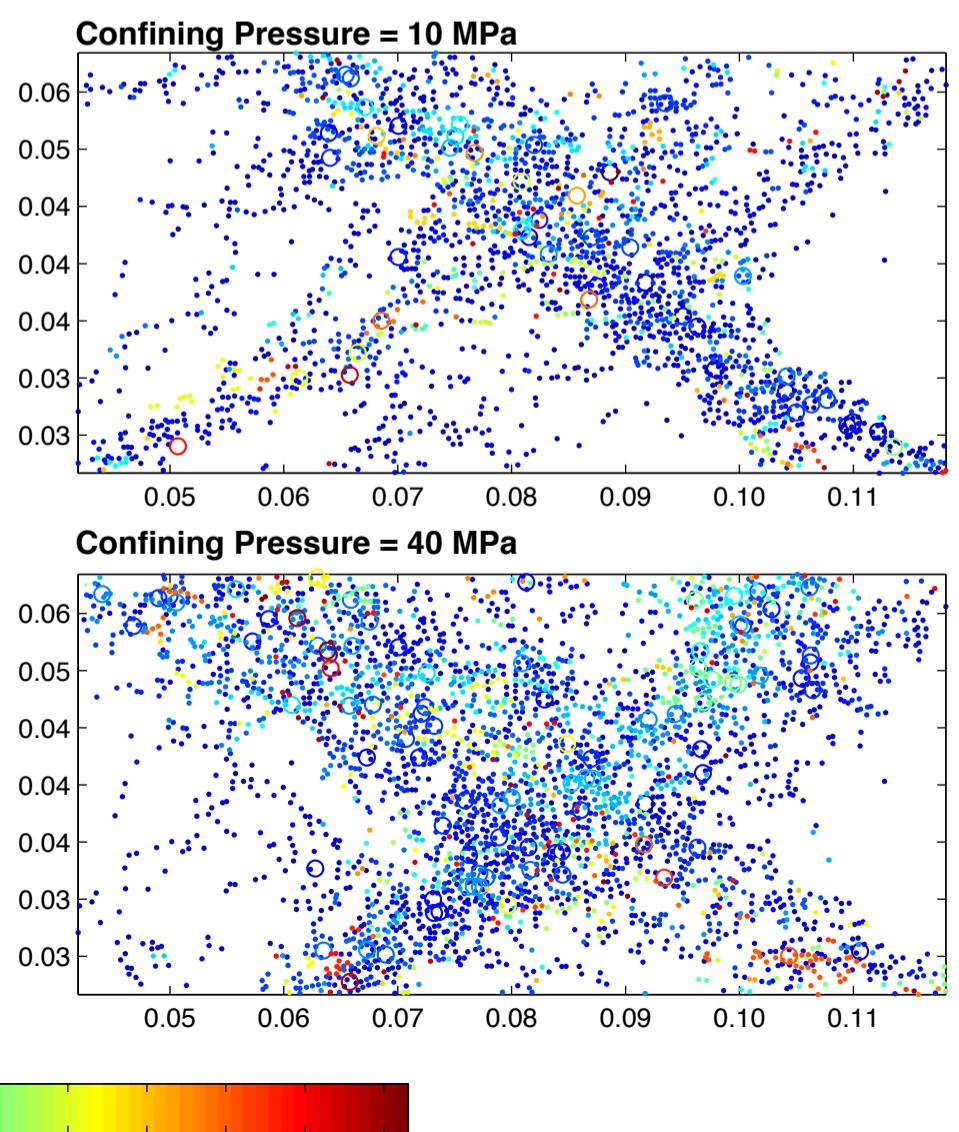
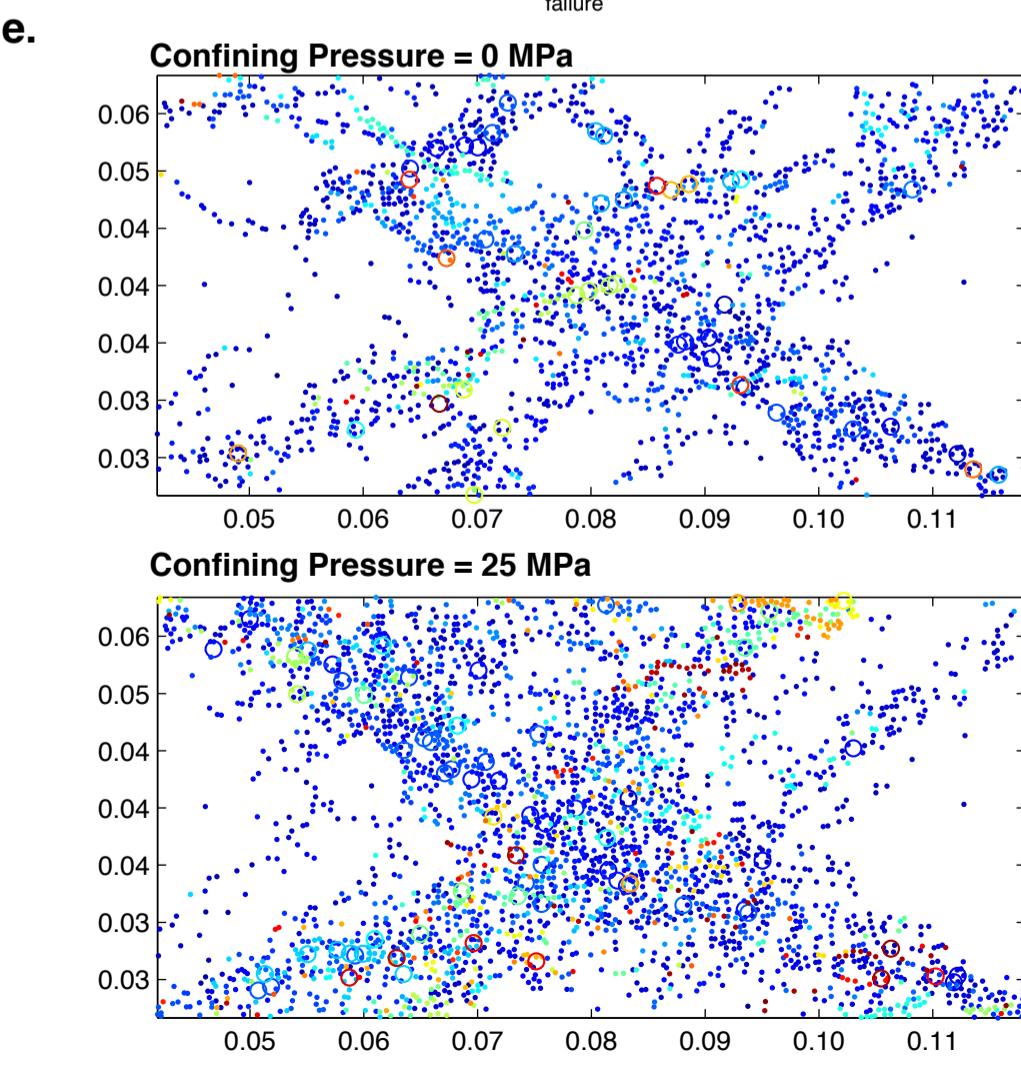
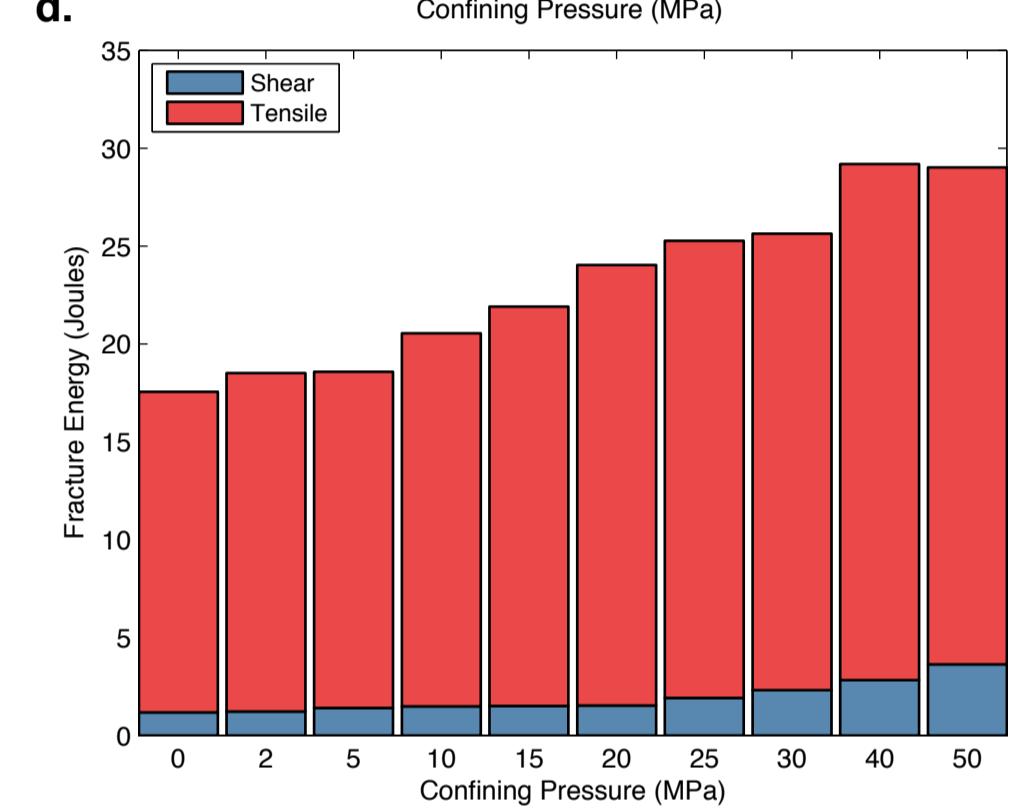
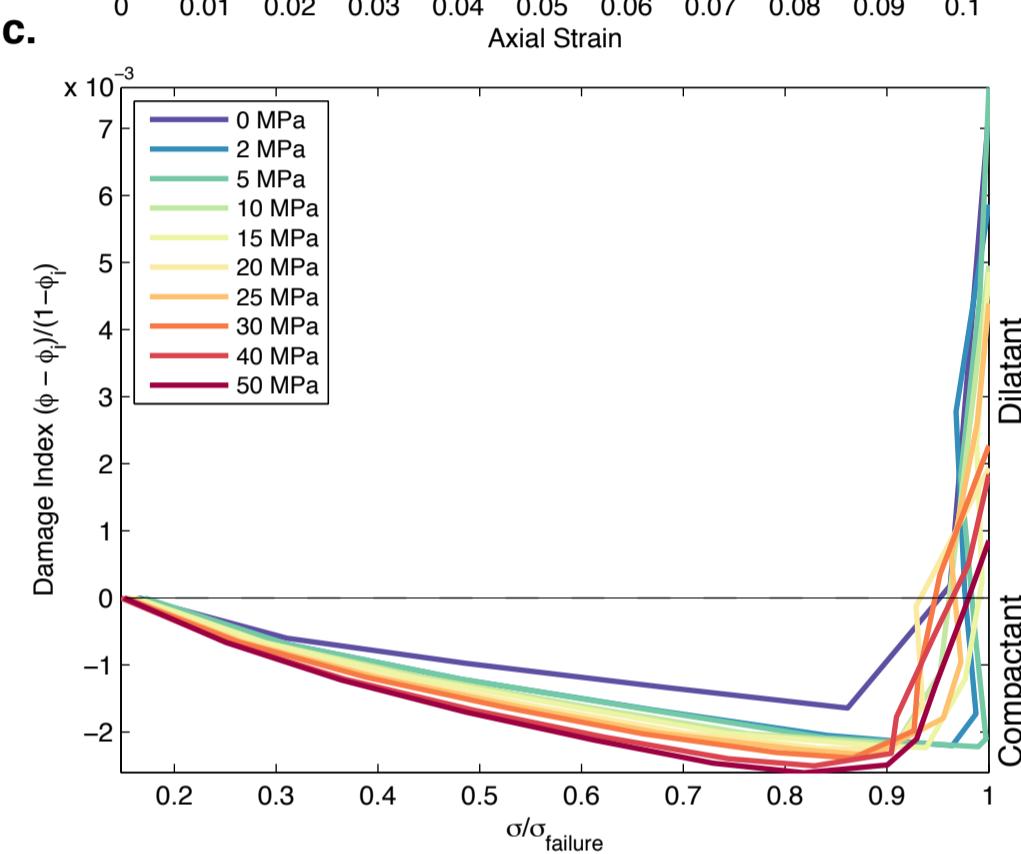
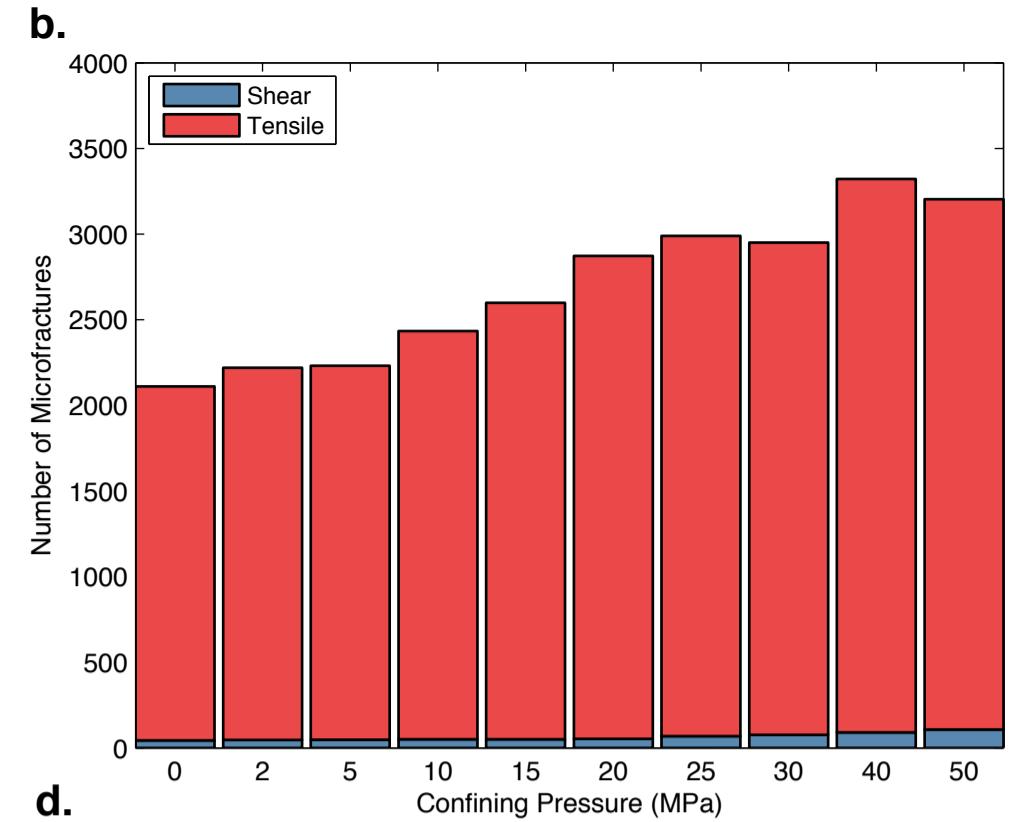
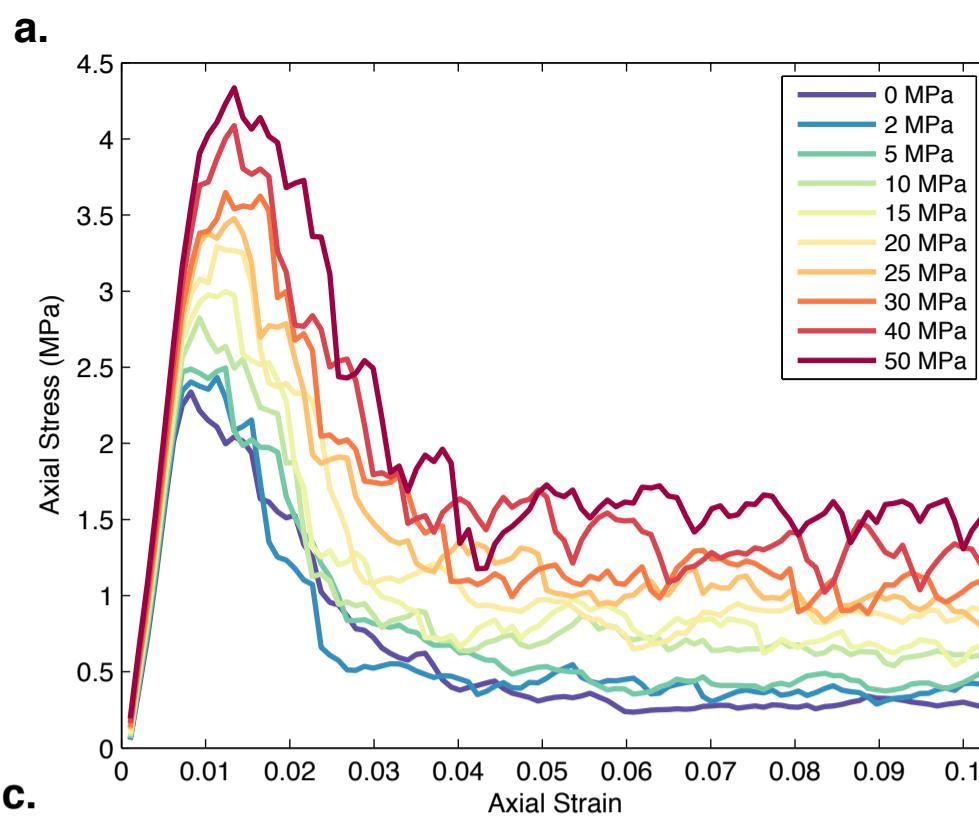


Confining Pressure = 15 MPa

Total Microfractures: 2598

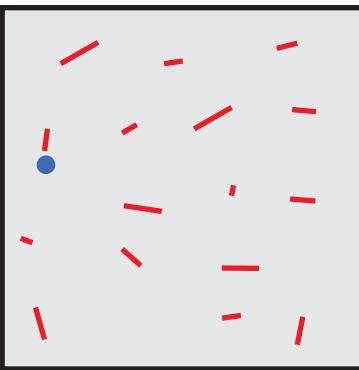




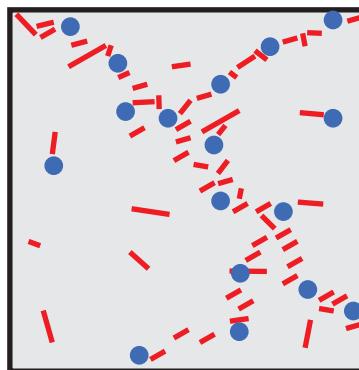




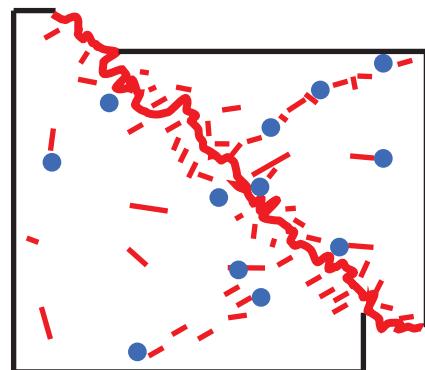
Stage 1: Initialization



Stage 2: Nucleation



Stage 3: Rupture

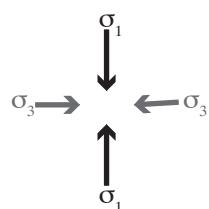


Berea Sandstone

Low Confining Pressure

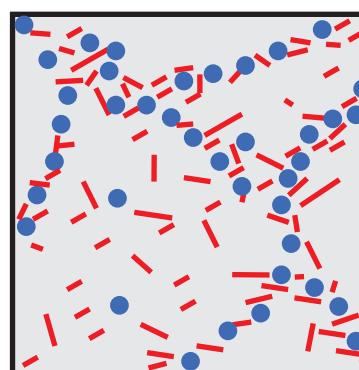
Transition to shear micro-mechanics with increasing Confining Pressure

High Confining Pressure

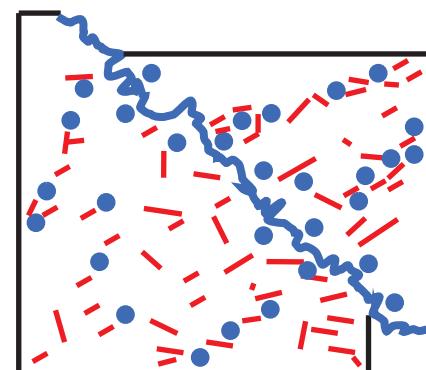


Localization of compactant and dilatant damage

*Damage Index > 0
Dilatant Fracture Zone*



Localization of compactant and dilatant damage

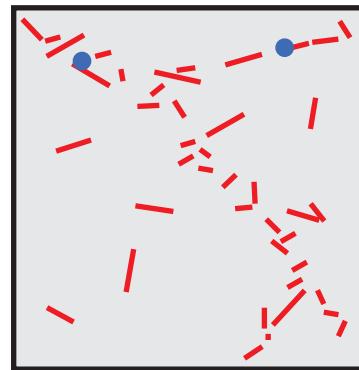


*Damage Index < 0
Compactant Fracture Zone*

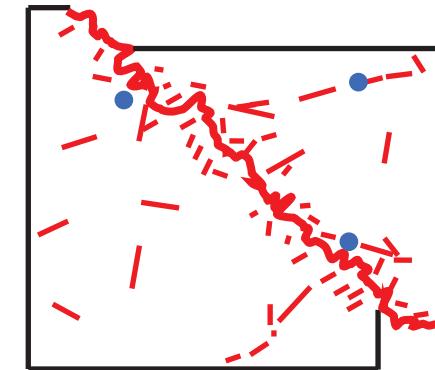
Lac du Bonnet Granite

Low Confining Pressure

Increase in tensile microracking with increasing Confining Pressure

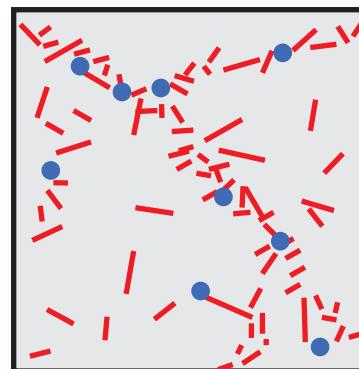
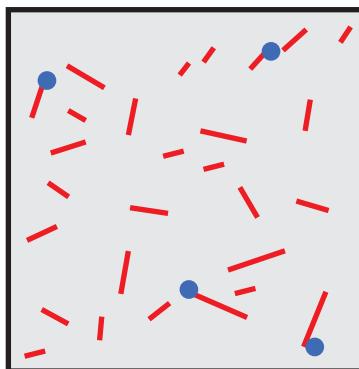


Localization of dilatant damage

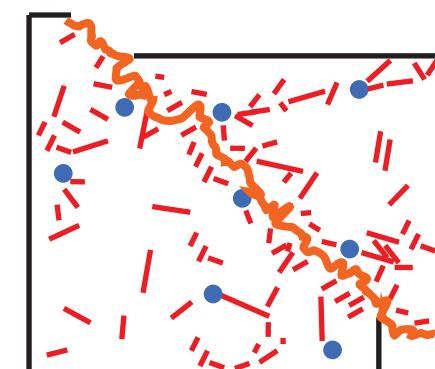


*Damage Index > 0
Dilatant Fracture Zone*

High Confining Pressure



Localization of dilatant damage



Damage Index > 0, but declining Dilatant Fracture Zone