



## **Microdeformation experiments on chalk - fluids, fracture and creep**

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Chalks are fine grained aggregates of biogenic calcite that creep and fracture and the deformation is very sensitive to the nature of the fluid present. Close to yield there is a time scale and spatial scale of transition from distributed to localized deformation. This transition is governed by the grain scale mechanism involved - subcritical crack growth, pore collapse, ion exchange in the grain contact, mechanochemical processes and others. We present a microdeformation rig with accurate control of temperature, small strains and the pore fluid. The thin chalk samples are imaged at different scales with a resolution down to 0.5 micrometers. Deformation measurements are performed by digital image correlation. Examples of localized and distributed deformation and effects of rapid change of pore fluid during deformation are presented.