

Services & Products

Core Petrology & Fracture Study

Lithology, composition, texture, and fractures

- Maps detailed lithologic facies (composition, texture) and associated fractures along the core
- Combines thin section, SEM, and XRD mineralogy with core logs (scratch, gamma) and imaging (CT, UV, white light)

Cuttings Petrology & Fracture Study

Mineralogy, texture, and fracture types

- Maps petrology facies (mineralogy, texture) and associated fracture types along the well
- Combines thin section, SEM, XRD mineralogy, and micro-CT with well logs (LWD, gamma, drilling data) and image logs

Petrology & Mechanical Behavior

Composition, texture, and fracture types

- Correlates rock composition (mineralogy, organic matter) and texture with observed mechanical behavior (fracture, deformation)
- Integrates thin section, SEM, XRD mineralogy, and micro-CT with geomechanics lab data

Petrology & Geochemistry

Composition, microtexture, and paragenesis

- Correlates rock composition (mineralogy, organic matter) and texture with observed fluid-rock interaction (dissolution, scales)
- Integrates thin section, SEM, and XRD mineralogy with geochemistry lab data

Petrology & Reservoir Geology

Composition, texture, deposition, and diagenesis

- Correlates well-scale petrology facies of several wells with reservoir geological model
- Integrates thin section, SEM, and XRD mineralogy with well logs and sequence strat

About Us

GeoTechnical Rock Lab LLC is a technology company that uses petrology skills for scientific integration and interpretation of rock-related data sets.

The company is based in North Salt Lake, Utah (USA), and has affiliations in Houston, Texas (USA) and Nairobi, Kenya (East Africa). It collaborates with various universities, research institutions, labs, and experts in USA, Africa, and Europe.

Main Areas of Focus:

Oil & Gas Reservoir Rocks:

- Well Site Data:

Cuttings petrology used together with drilling (surface) mechanical parameters, LWD, mud and gas logs, etc.

- Rock Lab Measurements:

Cuttings, sidewall plugs, and core petrology combined with lab data sets including XRD mineralogy, geochemistry-TOC, geomechanics, and petrophysics.

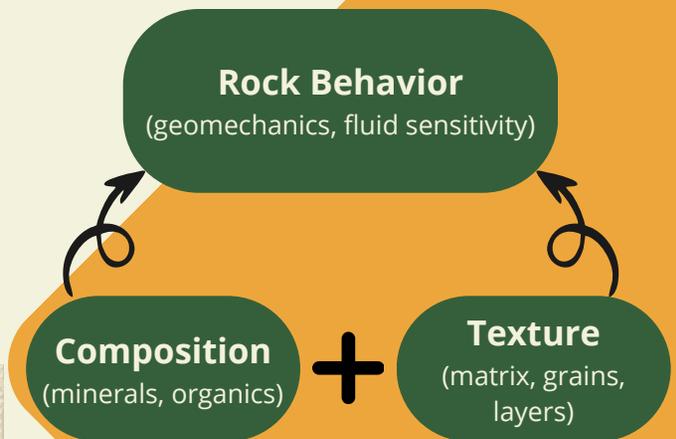
Outcrop Geology:

- Basin Scale Exploration:

Outcrop petrology facies data combined with satellite-based multi-spectral data and high-resolution drone imaging.

- Site Stratigraphy:

Detailed petrology used for stratigraphic correlation and sediment provenance

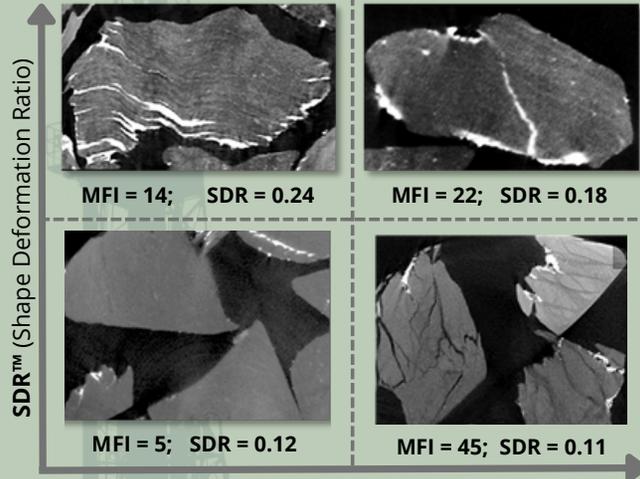


Mapping Rock Heterogeneity

Integrating Cuttings with Core and Well Data

Cuttings Deformation Index (CDI)TM

Cuttings MicroCT CDITM

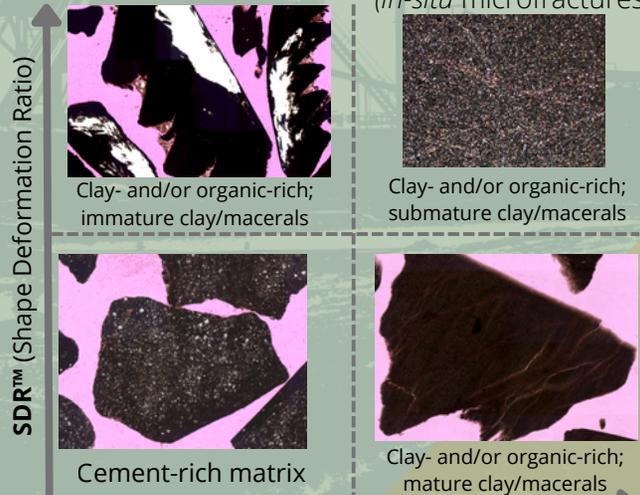


MFITM (Matrix Fracturing Index)

Correlating rock **composition** and **texture** to **mechanical behavior**

Thin sections CDITM

(*in-situ* microfractures)



MFITM (Matrix Fracturing Index)

Petrology

- Reveals composition, texture, and evidence for rock behavior
- Good for rock types correlation from small samples (cuttings, plugs) to core scale
- Cuttings composition and drilling-induced 'mechanical behavior' correlated to well logs (e.g., gamma, LWD) and drilling data
- Cuttings-based petrology facies correlated to reservoir scale geology using well logs

Composition

- Chemical components
- Forms: minerals, oxides, elements, and organic materials/compounds
- Tools: XRD, TOC, XRF, EDX, well logs
- Quantitative and bulk (per sample or depth)

Texture

- Shape, size, orientation, alignment, and organization of minerals, organics and pores
- Forms: matrix, macerals, grains/fossils, veins, layers, laminae, interbeds, etc.
- Tools: photography, microscopy, image logs
- Qualitative and spatial (2D, 3D)

Rock Behavior

- Mechanical or chemical response of rock to the drilling process or laboratory testing
- Forms: fracturing, other types of physical deformation, dissolution, swelling, etc.
- Tools: thin section, XRM, nanoindentation, core 'scratch' test, drilling data (mechanical)
- Semi-quantitative, spatial / per location

Contact Us



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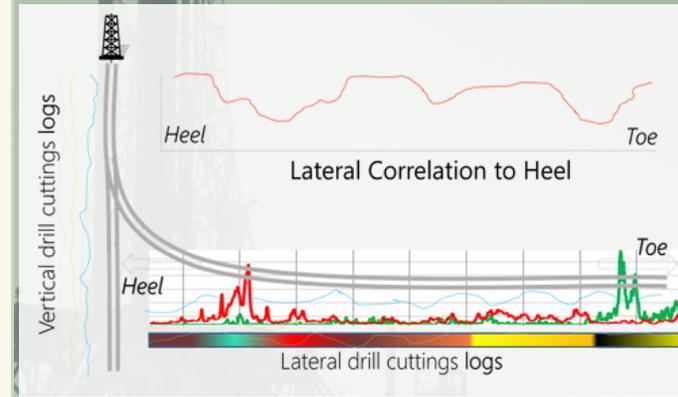
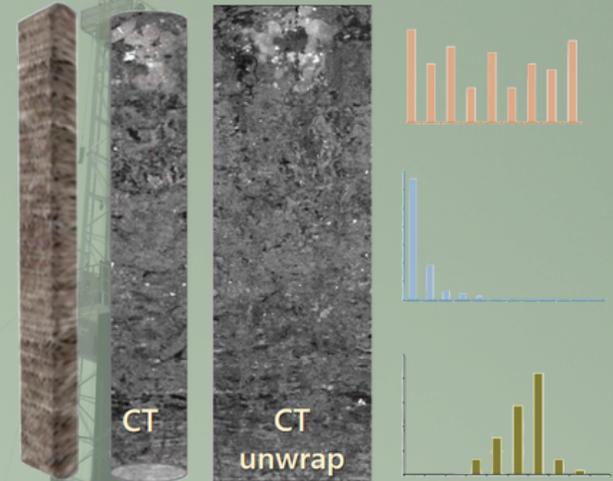
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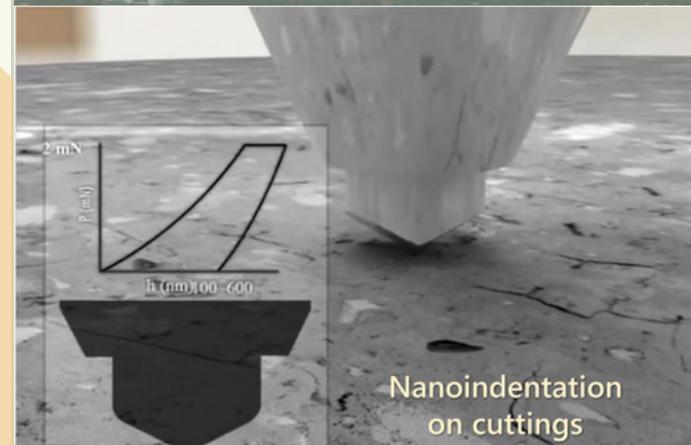
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Core Scale Rock Heterogeneity



Mapping to the well level using cuttings petrology, LWD and drilling data

Sample Scale Rock Heterogeneity



Nanoindentation on cuttings

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