

# **Reservoir Digital Services**





### Aiming to provide customers with first-class digital reservoir services





# **Introduction to Reservoir Digital Services**

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### Digital Core Cuttings Series Technology

- Full-diameter core digital technology
- Core digital analysis technology
- Core 3D Displacement Visualization Technology
- digital cuttings technology



Digital cuttings and logging comprehensive map of well DX-PX



DX-PX well field laboratory



### Full-diameter core digital technology

**Technical principle**: Using digital equipment, the full-diameter core is scanned in the field or in the core library to provide information such as the surface image of the outer core, the internal structure and the oil and gas content.

Features and Benefits : On-site acquisition, lossless, fast, real-time sharing

### **Application scenarios :**

① On-site scanning of key coring wells, real-time sharing, support for rapid decision-making

② Digital core library, cloud management of core assets, non-destructive permanent preservation









Dynamic Stereogram

Core internal structure

cracks and holes

Crack

■hole



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Lossless Digitizer



Lossless permanent preservation, unlimited use, information sharing



## **Digital Core Cuttings Series Technology**

### Core digital analysis technology

**Technical principle :** Use digital equipment (micro-nano CT, scanning electron microscope, etc.) to scan core samples to provide various data results required for core analysis

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**Features and Benefits :** Low sample requirements, non-destructive, fast, scanning multiple data at one time, and repeating experiments infinitely

Equipment : Micro-nano CT scanner, scanning electron microscope

**Application scenarios :** ① Rapid analysis of new well drilling coring, wellbore coring, etc. ② Core analysis of gunpowder core, heavy oil sand and fracture development





### Core 3D Displacement Visualization Technology

**Technical principle** : Combining displacement experiments with CT scanning technology to evaluate the microscopic pore structure changes of cores and the occurrence state of remaining oil in cores before and after displacement by different methods

**Features and Benefits** : Data quantification and visualization of complex experimental processes

Equipment : Micro-nano CT scanner, displacement equipment

**Application scenarios** : Oil and gas fields that need to be developed and adjusted, water locks and other old areas to increase production, gas storage



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Microscopic Pore Structure Changes

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Microscopic residual oil distribution changes





# **Digital Core Cuttings Series Technology**

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### Digital Cuttings Technology

### Equipment :

High precision scanning electron microscope system (SEM)+ energy dispersive spectroscopy (EDS) + automatic mineral analysis system

Analysis Object : Drilling Site Cuttings

### Work Efficiency :

- ✓ 10 minutes to prepare a sample
- ✓ Analyze 9 samples in 2 hours (15 min/sample)

### **Deliver Results** :

- ✓ Lithology, Minerals, Elements and Pore Structure
- ✓ Near real-time physical properties, elastic mechanics parameters, brittleness index, weakness index, etc.

### Main Application :

- ✓ Assisted geosteering during drilling
- Reservoir sensitivity analysis to guide the selection of drilling fluid and fracturing fluid
- Evaluate geological and engineering sweet spots, and optimize completion and fracturing plans



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