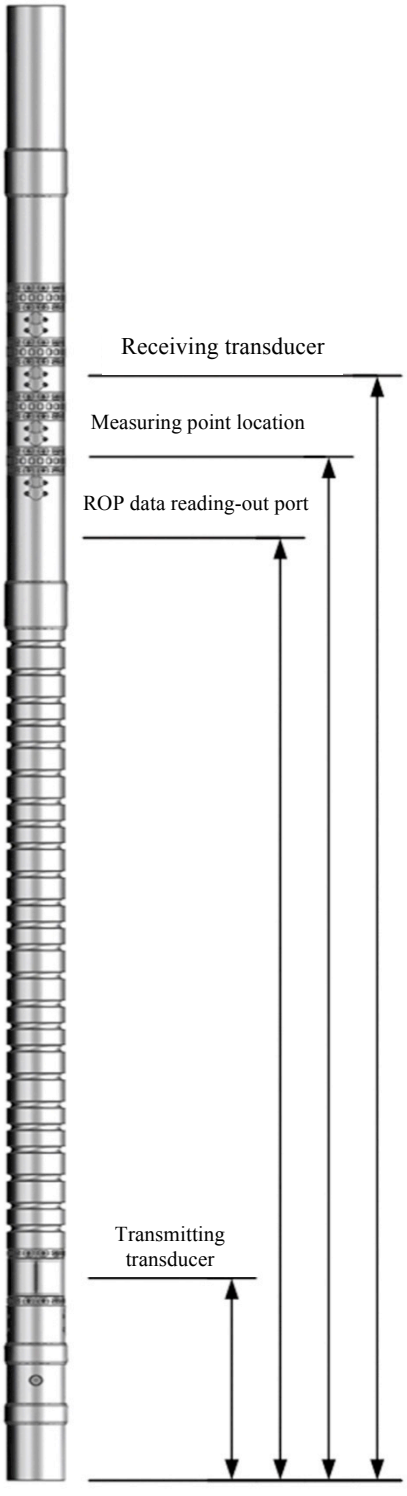
◆ Array acoustic logging tool while drilling (MAST)

MAST is a LWD tool, and adopts the mode that the monopole transducer sends signals and four array receivers receives such signals. Such tool could collect the monopole full wave signals of the formation in real time, and send the extracted time differences to the ground in real time via downhole waveform real-time processing program. The measured waveform is saved in the memory of the instrument, which can be used for waveform data processing and analysis at later stage. Such instrument could measure the P-wave time differences of the formation in real time, and could also provide S-wave time differences measurements in hard formation.

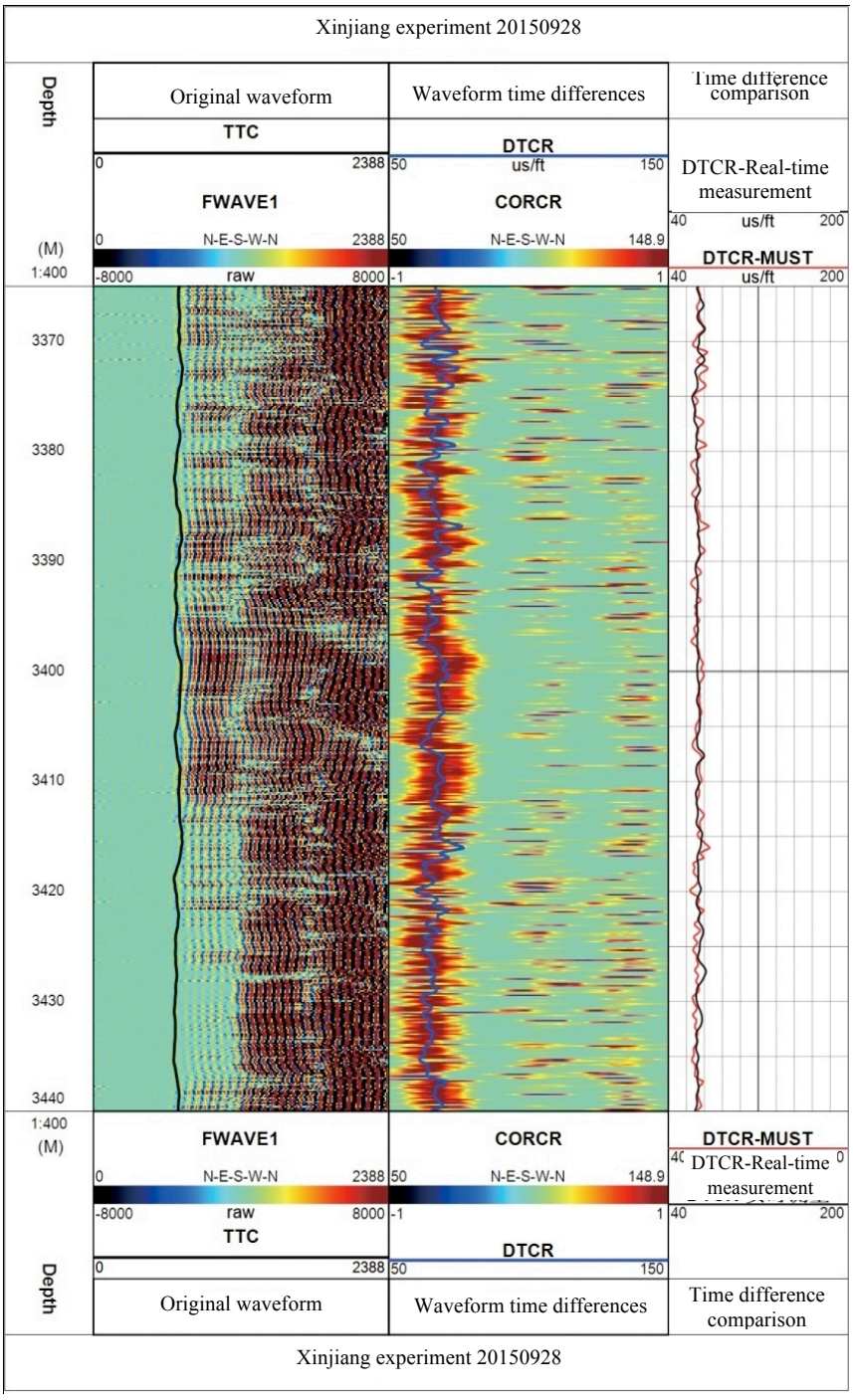
- Integrated application evaluation
  - Lithology identification
  - Porosity calculation and rock mechanical parameters calculation
  - Borehole stability prediction, gas layer identification
  - Real-time formation pressure prediction
  - Composite seismic records, detect the drilling position in real time
  - Compare and check if there are better safety for logging
  - Better real-time performance could reduce the drilling risks effectively.

- Instrument parameters
  - Maximum outer diameter of instrument: 6.75″
  - Buckle type: 5-1/2 FH Box / 5-1/2 FH Box
  - Maximum working temperature: 150℃
  - Maximum working pressure: 20,000 psi
  - Applicable displacement: 225～650 gpm
  - Applicable borehole size: 8.5～9.875″
  - Applicable impact: ≤500g@1ms half sine

- Measurement of P-wave time differences
  - Detection system: 1 sending X 4 receiving (with spacing of 8 inches),
    Sound insulation effect of drilling collar>30 dB
  - Transmitting transducer: single pole, bandwidth of 1.5～20 kHZ
  - Receiving transducer: single pole, bandwidth of 500 Hz～23 kHz
  - Measuring range: 40～150 us/ft
  - Measurement accuracy: ±2 us/ft



- Longitudinal resolution: 8″ (vertical formation)

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