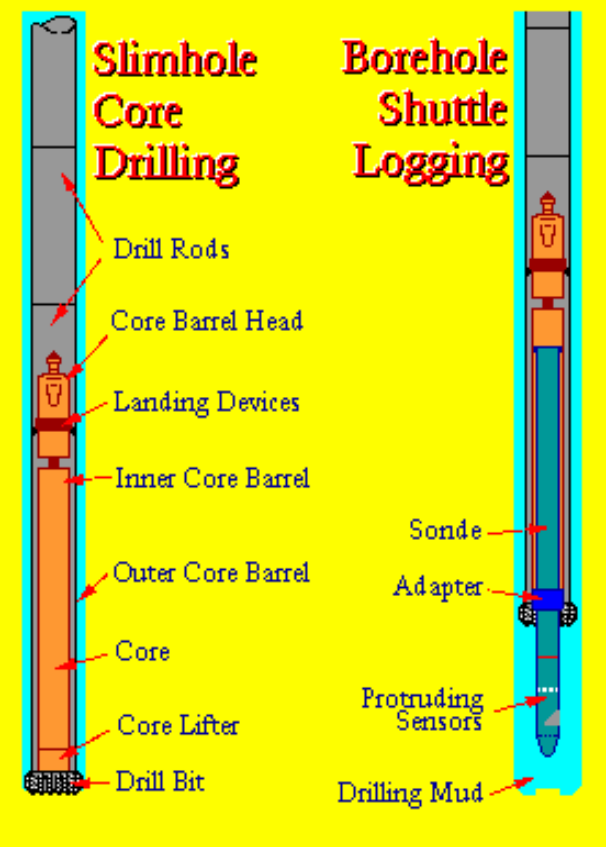
Borehole Shuttle Principle

DMT downhole tool

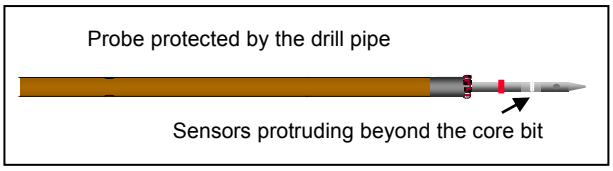
A self-contained, cable less logging sonde equipped with large semiconductor memory is guided to the bottom of the borehole through the drill string of a diamond core drill, using or replacing the inner core barrel as a carrier. When this assembly, called Borehole Shuttle, is pumped down, it positions itself in the outer core barrel. The sensors of the sonde, depending on the type of Borehole Shuttle, protrude the coring bit or are fully protected within the rods.
By pulling the drill string out of hole the logging interval is covered. The Borehole Shuttle detects uphole movement and collects and stores the data with precise time information. A depth recorder measures the length on the rig and stores this depth related information with precise time information.
After the Borehole Shuttle is pulled out of the remaining drill string by means of an overshot device or cable the information data is read out of the sonde and merged with the depth information from the depth recorder.



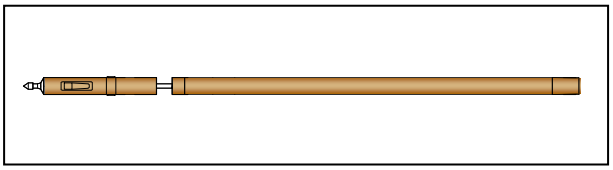
Shuttle principle

Advantages of Borehole Shuttle Logging

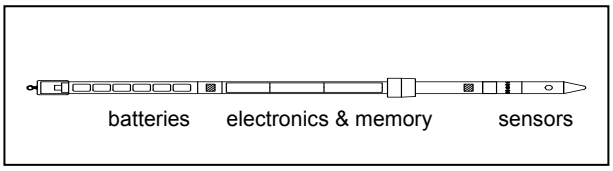
- Trip time is used to take measurements in a cost effective manner
- Sonde mobility is possible for all borehole deflection angles, and is safe in non stable borehole sections
- There is no risk of loosing a sonde, because it remains depending on the type of sensors either partially or completely within the drill string
- Mud flushing and rotation of the drill string is possible every time
- Logging interrupts the drilling progress only slightly. It can be done efficiently during each roundtrip, checktrip, or after a core run
- The tensile strength of the drill string, compared to a logging cable, is excellent to operate high resolution measurements
- Synchronisation of depth and data acquisition is highly reliable and precise



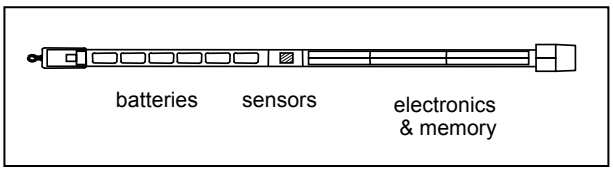
Probe protection



Inner core barrel



Sectional view of sonde protruding the bit



Sectional view of sonde fully inside the drill string

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