"Riser Drilling" vs. "Riserless Drilling"

Riser drilling

Riserless drilling







Seawater circulation

Riser pipe

Drill pipe

Recovery of cuttings and drilling mud on *Chikyu*

BOP: Blow Out Preventer

O Drilling depth limits

Riser drilling : The best way to drill deep well is by using "Riser drilling". This "closed-circuit" method allows better borehole cleaning, control of drilling mud conditioning, control of down hole pressures, and enables the drilling of deeper wells.

Riserless drilling : This is a standard method allowing rapid drilling of multiple wells in a short time; however, it has limits to how deep a hole can be drilled.



Riser drilling : The rock "cuttings", resulting from the boring action of the drill bit must be removed from the borehole to drill deeper – otherwise the borehole becomes clogged and drilling cannot continue. Cuttings are recovered on Chikyu with the drilling mud through the riser pipe and are used as geological samples. The drilling mud is reused after filtering and adjusting the rheology of the mud.

Drill pipe

Sea floor Casing pipe Drilling mud and cuttings flowing up between the riser pipe and drill pipe

Open hole

Drill bit

Riserless drilling : Cuttings are pumped out of the borehole by seawater onto the seafloor; neither they nor the seawater-based drilling mud are recovered on Chikyu.

B Drill pipe & Riser pipe

Riser drilling : This method uses the riser pipe as an "extension" of the well from the seafloor back to Chikyu. The drill pipe runs down into the borehole inside this riser pipe, so that the drilling mud and cuttings can be recovered on *Chikyu*.





Riserless drilling : This method uses only drill pipe and the drill bit to drill a new well or borehole.

