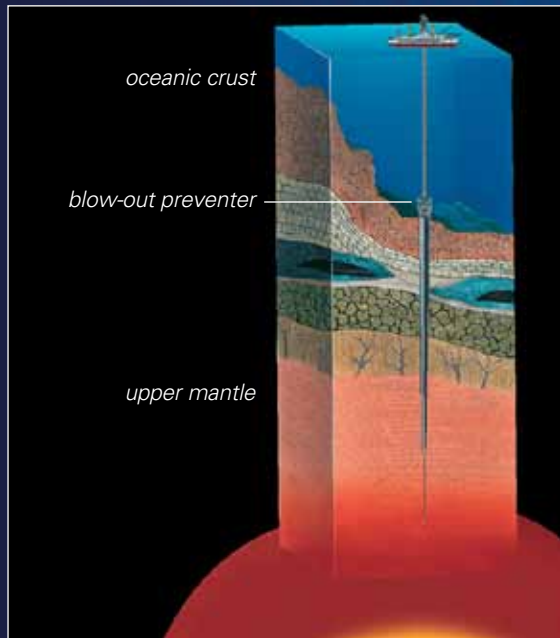


Drilling down Inside the Earth

What's it like inside the Earth? From seismological evidence (mostly from earthquakes), we know the general structure of the Earth's interior. Now, geologists are excited by the first results from the Japanese drilling ship Chikyu.

Chikyu is capable of drilling down through the seabed, where the Earth's crust is thin, and into the mantle beneath. What's more, Chikyu is targeting areas where there is seismic activity. This may reveal more interesting data about the changes which lead up to an earthquake.



Chikyu can drill down through the Earth's crust, into the mantle, to a depth of 7 km below the seabed.

Analysing samples

Long samples or 'cores' are brought back to the surface and examined in a number of ways.



Core samples must be handled carefully to avoid contamination.



Close examination of a core can reveal the presence of microorganisms living deep inside the Earth's crust.



Cores can be studied using a CT X-ray scanner, similar to those used in hospitals.



These microbes were recovered by Chikyu from the Mariana Trench, the deepest point in all the Earth's oceans.



This core shows the exact point where a geological fault lies between two layers of rock.



At sea with Chikyū

The Japanese drilling ship Chikyū is part of an international project to investigate the Earth's crust and mantle.



The view from the top of the tower.



The central drilling tower is over 70 m high. It can raise a load of 1250 tons.



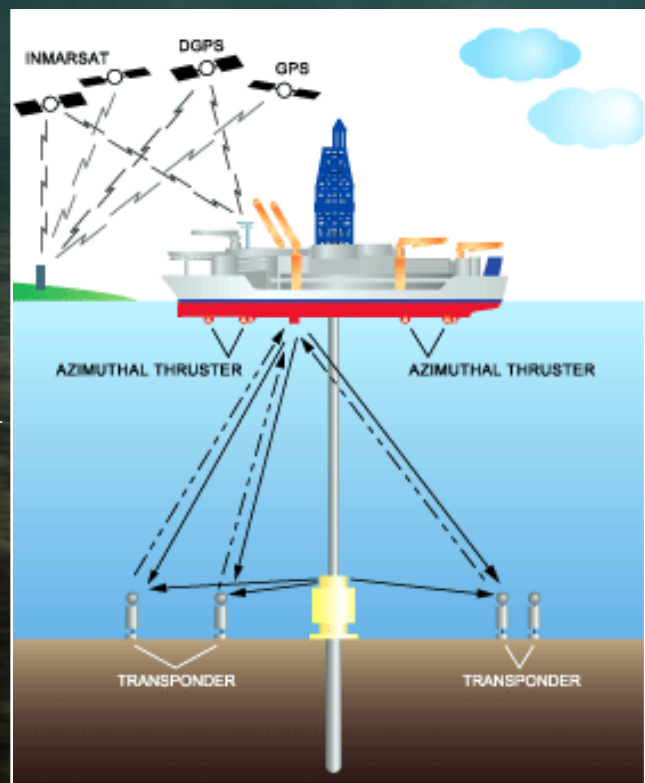
Over 200 people – crew, scientists and engineers – work on Chikyū. They can come and go by helicopter.

The drill pipe is made in sections which can make up a total length of 10 000 m.



The ship's position is monitored using signals from GPS satellites above and from transponders on the seabed.

Thrusters, capable of rotating through 360°, keep the ship in position.



Drill bits capable of boring through solid rock.