

Minicorer

Developed by: **Alfred-Wegener-Institut für Polar- und Meeresforschung, Bremerhaven,**
Erich Dunker and Dr. Gerhard Kuhn

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Licensee : **Firma Stukenbröker**
Maschinen - und Anlagenbau GmbH
Herwigstr. 31
D-27572 Bremerhaven
Germany
Phone ++471 36003
Telefax ++471 36005

Short Description:

The Minicorer is a small and light weight (80 kg) sediment corer for taking undisturbed samples from the sediment surfaces of miscellaneous aquatic environments. It is easy to handle and simultaneously takes 4 up to 35 cm long cores (\varnothing 6 cm) from the upper sediment layer together with the overlaying in situ bottom water (25 cm long). The weight and the number of cores (2 or 4) may be changed. The fluffy boundary layer between sediment and bottom water is also sampled very accurately because there is no core catcher squeezing the sediment.

The sampling system is nearly identical to the much bigger multiple corer described by Barnett et al. (1984). The triggering mechanism is new, however, and the corer is a smaller design without a large supporting framework. The corer works very reliably. It was used more than 130 times on previous expeditions of the RV "Polarstern". Most samples were taken from the deep ocean floor. Only at 10 % of the stations were no sediments recovered due to hard or very coarse, pebbly sediments. Together with other sediment surface samples, this data set was used for mapping the distribution of different sediment components like clay minerals and for other geological and micropaleontological investigations. The high quality of the cores offers opportunities to take sub-samples on a mm scale. Geochemical investigations were carried out by pushing microprobes into the sediment cores (Eh, pH, conductivity). Early diagenesis and microbiological activities on the sea floor were other fields of interests.

It is a great advantage, and saves additional ship-time, if the Minicorer is operated simultaneously on the wire beneath an other instrument going close to the sea floor. It was most often used hanging 20 m beneath a CTD/water sampler rosette. Bottom was detected by an acoustical pinger that measured the distance between the CTD and Minicorer. Handling of the CTD system is easier, because it is stabilized by the weight of the Minicorer when it passes the water surface. The Minicorer was also used in combination with a Bathysonde and with large water-sample bottles.

The minicorer – as a stand alone system – is a light-weight instrument and easy to handle even by a small hand driven winch from a small boat. Environmental sampling for pollution studies and monitoring in harbors, lakes and shallow estuarine or marine environments will be a perfect field for operation. Due to the high quality of the sediment cores the undisturbed upper layers of the sediment – most strongly influenced by pollution – can be sampled and analyzed in great detail. Four cores are available for different and parallel examination.

- corer for undisturbed sediment surface samples, upper 40 cm long (\varnothing 6 cm)
- up to 4 simultaneous samples
- samples true bottom water (important for geochemical calculations)
- saves ship time if used beneath other equipment
- light-weight corer, easy operation from small boats
- perfect for environmental and pollution studies in harbors, lakes and shallow estuarine or marine environments