



Shallow drilling in the deep sea: the sea floor drill rig MeBo

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A variety of research targets in marine sciences including the investigation of gas hydrates, slope stability, ore formation and palaeoclimate can be addressed by shallow drilling (30 - 100 m below sea floor) in the deep sea. Standard sampling tools like gravity corer or dredges only allow recovery of fairly short cores from soft sediments or fragments of bedrock lying on the sea surface. Drill ships providing deeper penetration are expensive and typically booked far in advance. Therefore at the Marum Center for Marine Environmental Sciences at the University of Bremen we developed the drill rig MeBo that can be deployed from standard research vessels and is able to drill soft sediments and rocks. The total system consists of the drill rig itself, a winch storing 2500 m umbilical, a launch and recovery system, a control cabin, a workshop and a store for the drill tools. The system is transported within six 20' shipping containers. The drill rig is deployed on the sea floor and controlled from the vessel. Drilling tools for coring the sea floor down to 70 m can be stored on two magazines on the rig. The steel-armoured umbilical is used for lifting, power supply and communication. At present system configuration the MeBo can be deployed in water depths up to 2000 m and was successfully operated on four expeditions since 2005. With the development of the MeBo system a substantial improvement of the sampling possibilities for the marine geosciences was achieved. For shallow drillings the MeBo is a cost effective alternative to the services of drill ships and has the major advantage that the drilling operations are performed from a stable platform independent of any ship movements due to waves, wind or currents. It is world wide the only system available for the marine geosciences, that can reach drilling depths of more than 50 m with a

core diameter of 55 to 80 mm from standard research vessels.