



Spreading and deposition of drill cuttings in the Barents Sea – Plans of the Barents Sea drill cuttings research initiative (BARCUT) project

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The increasing petroleum exploration activity in the Barents Sea will lead to increased release of drill cuttings onto the ocean bottom in the future. Drilling mud consists of both drilling fluid with contaminants and fine sediments. This increasing discharge of drill cuttings provides a need for further knowledge of ocean current transportation of both contaminants and fine sediment particles (clay and silt), their impact on microfauna and the prediction of their accumulation areas.

The main object is to study the current status of the sediments and microfauna exposed to different types of drill cuttings in the proximity of drilled exploration wells. Detailed objectives are: 1) To identify the main physical and geochemical characteristics of the sediments near the drilled wells including main areas for drill cutting accumulation and the influence of ocean currents on sediments and drill cuttings; 2) To identify the influence of drill cutting discharge on benthic foraminifera; 3) Monitoring and prediction of future spreading, accumulation and distribution of drill cutting related pollutants.

We have conducted two field sampling campaigns, and in total visited seven drilling sites, ranging in age from recently drilled (in 2015) to nearly 30 years since abandonment. In this project, we study mainly push cores taken with a remote operated underwater vehicle (ROV) in the close proximity of exploration wells in the SW Barents Sea. We will determine the modern sedimentation rates based on the ^{210}Pb dating method. We analyze sediment grain-size, heavy metal and polyaromatic hydrocarbon (PAH) contents. Additionally analysis on benthic foraminifera, smectite clay minerals and the total organic carbon (TOC) content will be performed.