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### **“Real time observations and services to be supplied for oil spill forecasting in the Barents Sea”**

Fugro OCEANOR have almost 30 years experience in collecting metocean data in the Barents Sea.

Measurements in the Barents Sea started at Tromsøflaket in 1976 and have been extended over the years to include several strategic locations within the Norwegian sector. Current, wave and meteorological data were collected at these locations using metocean buoys and instrumentation deployed under the sea ice. In the 1990's Fugro OCEANOR extended the measurement campaign to Russian waters in the Barents Sea. Measurements have been conducted at the Shtockman field for more than five years using the Fugro OCEANOR SEAWATCH multi-sensor buoy.

We will outline some of the challenges of conducting measurements in such extreme environmental conditions. Results of the measurements and a selection of interesting metocean events will be presented. We have also developed a system for forecasting currents and ice drift and we will show some examples from the Barents Sea

Environmental data are also essential in order to predict the drift and spreading of oil spills, both in real time and for oil spill contingency planning studies.

During an oil spill accident, an operational oil spill model is essential. Such models require weather predictions as well as current observations of wind, waves and currents. The observations are both used for improving the predictions (so-called data assimilation) and quality controlling the weather predictions. Long term oil spill predictions (over several days) are run to study the likelihood of a given spill reaching sensitive areas with, for example, fish farms, spawning areas and seabird colonies. In addition, buoy measurements at the oil spill site, combined with algorithms to predict the short term variations in the currents and oil drift (typically 12 hours), are used for localising oil protection booms. This is especially important during night time.