



Danish high technology revolutionizes the cleanup process after oil disasters

Help in Case of Oil Disasters

Oil accidents prompt Danish industries and research to cooperate on new ground breaking sonar technology. For the first time ever it will be possible to get a detailed picture of oil in the water column and on the sea floor. The technology will be able to prevent fatal environmental disasters caused by oil extraction – as recently seen in the Gulf of Mexico – in areas such as Greenland.

Danish National Advanced Technology Foundation

A consortium comprised of RESON A/S and Center for Energy Resources Engineering at The Technical University of Denmark (DTU-CERE) has received the acceptance of a project under the Danish National Advanced Technology Foundation (Højteknologifonden). The project deals with the use of advanced sonar technology for the detection of oil in sea water. A reliable detection and mapping of oil in sea water will have a revolutionary effect on the recovery efficiency in the wake of an oil accident – for the benefit of the fishery, the coastal areas, and the environment in general.

The accident with the oil rig Deepwater Horizon in the Gulf of Mexico was one of the biggest oil disasters in history. More than 4.9 million barrels of crude oil spilled into the ocean. Following concentrated efforts an estimated 0.8 million barrels have been collected. More than 4 million barrels of crude oil have never been collected. In 1979 a similar accident occurred in Mexico when a total of approx. 3.0 Mio barrels of crude oil poured into the ocean. Only a small part of the oil was recovered with the consequence that marine life more than 30 years later is still affected. Contrary to earlier theories, after the Deepwater Horizon accident the oil is also present in great volumes below the surface. This may in part be contributable to the use of dispersing agents (which make the oil sink and mix with water) in connection with the recovery process, but a lot indicates that we have a limited knowledge about deep-water oil leaks, as was the case with Deepwater Horizon.

FACTS

RESON


PURPOSE	Oil detection in sea water by e.g. oil disasters
SOLUTION	CERE DTU Chemical Engineering will develop a model of oil-contaminated sea water. Based on this model RESON develops a new sonar
PROJECT SUPPORT	Danish National Advanced Technology Foundation: 10,2 MDKK RESON and DTU: 7,3 MDKK



Offshore oil rig with huge leakage

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The Nature of Greenland could be in danger

Today, new oil deposits are often found on deep waters. In September, the Scottish firm Cairn Energy and Nunoil found an oil deposit west of Greenland on about 500 meters' depth. An oil leak in Arctic regions will most likely have even greater catastrophic consequences than is presently seen in the Gulf of Mexico. The oil find in Greenlandic waters increases the necessity for efficient methods of detecting oil in the water column in order to enable an early and effective recovery in the case of an oil spill. There are currently no methods to efficiently map oil in the water column or on the seafloor. An anonymous representative of a leading recovery company states: "During the recovery of oil spills recovery rates vary greatly; in very successful operations the rate may be as high as 98%, but in more complicated scenarios with submerged oil the recovery rate is very low, with 10% typically being considered very successful. An efficient technology as the suggested sonar technology will improve the recovery rates immensely, as it addresses one of the key challenges of cleanup operations, localizing the oil."

Scope of the Research

The goal of the project, to begin on 1st February 2011, is to develop an efficient method of imaging oil in the water column, enabling recovery companies to remove as much oil as possible after a leakage. During the course of the project CERE DTU Chemical Engineering will develop a model of oil-contaminated sea water; based on this model RESON A/S will in collaboration with CERE DTU Informatics Base method, which based on sonar technology can perform a reliable detection and consequently mapping of the oil-contaminated areas.

Recovery companies are positive

RESON A/S is communicating with a couple of the most successful recovery companies, Cashmann Industries (recovered approx. 75% of the oil after the Deepwater Horizon incident) and Marine Pollution Control (more than 40 years' experience in the oil recovery field, incl. recovery after the Exxon Valdez incident). Both companies believe that an effective detection of oil in the water column will revolutionize the recovery efficiency. The cooperation is a continuation of RESON's already considerable efforts in the area which include a close cooperation with the US Coast Guard during the last couple of years. In Denmark RESON A/S is known for hydrophones for use in areas such as marine biology. Internationally, RESON A/S is known for advanced sonar technology with a wide range of applications for harbor surveys, the offshore industry, and hydrography in general. "We are today a leader in the field of detecting elements in the water column, even at great depths, through the use of advanced sonar technology. Through this development project – funded by the Danish National Advanced Technology Foundation (Højteknologifonden) – we will give Denmark a central location on the map as the leading nation in detection of oil in the water column and we will consequently be able to revolutionize the recovery efficiency after oil disasters," says Kim Lehmann, CEO in RESON.

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For more details visit www.reson.com or contact your local RESON Office.

¹ » There's a shocking amount of oil in the deep water, relative to what you see in the surface water. There's a tremendous amount of oil in multiple layers, three or four or five layers deep in the water column,« said professor Samantha Joye, biologist at University of Georgia, to the New York Times.

² » With a blowout in Greenland as the one seen in the Gulf, in the worst case it may not be possible to drill a relief well to reduce the leakage until the next summer season. So we are potentially looking at a whole year of leakage without any means of intervention,« said Peter Wadhams, professor in Oceanography at Cambridge University in England.