

Interspill 2015 Science Workshops

Bioremediation (SW2)

The workshop was chaired by Nicolas Kalogerakis from Technical University of Crete and two additional presentations were provided by Ronan Jézéquel from Cedre and Svein Ramstad from Sintef.

The biographies of the speakers and their presentations are provided in PDF version.

The workshop was held on Wednesday 25th March at 09:30. The participation was good with between 25 and 30 people attending.

During the debate with the attendance, several interesting issues were raised and in particular the following ones:

- Concerning the potential relation between oil type and bacteria type, specific bacteria degrade specific families of molecules, but oil being a mixture, all types of bacteria coexist, with a more important diversity when the concentration of oil is low, in particular at the end of the biodegradation process;
- Presentations reported mainly laboratory or small scale experiments, but there is some large scale experience of biodegradation, for example the Exxon Valdez accident or tests carried out by Sintef at Svalbard;
- Very few operational use of bioremediation has been reported in the presentations. This would be useful in shallow waters, such as the Wadden sea for instance. A development of the use of that technique in such a situation is one of the objectives, in particular of the KillSpill project which develops products and tools to that end;
- The major limiting factor to the efficiency of bioremediation seems to be the oxygen availability, although other factors can also cause limitations. This is in particular the case if the pollutant to biodegrade is not moving in the environment. In such a situation, it is possible to bring oxygen to the contaminated sediment with adequate chemical substances or tools;
- These limiting factors also apply to bioremediation of contaminated soils. One of the advantages for bioremediation with contaminated soils compared to marine pollutions, including pollution of sediments, is that there is no dilution effect. On the other hand, the fact that soils are mainly solid limits the penetration of bioremediation bacteria;

- The possibility to include bioremediation in the planning of pollution response operations is a difficult question. Bioremediation is a medium to long term effect method with an efficiency varying depending on numerous factors. It can be taken into account only considering an average efficiency over a certain period of time for planning purposes.