

ESD.864 CLASS CASE: OIL SPILL

Oil Spill

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On April 20, 2010, in the Gulf of Mexico, the Deepwater Horizon oil drilling rig exploded. The resulting oil spill, which continued to flow until the following September, became the largest marine oil spill in U.S. history.

A huge effort was mobilized from the science and engineering communities to respond to the accident, in the attempt to stop oil from flowing into the Gulf of Mexico. Scientists and engineers were brought in to address issues such as how much oil was flowing out of the well, what options were available to kill the well and whether they would be effective and feasible, and the extent of contamination. The effort was a collaboration between government, academia, and industry, working closely with decision-makers that were managing the situation in real time.

A number of Science Teams were assembled as part of this effort. These included, among others, an independent Government Led Science Team, a flow-rate technical group, and an oil budget calculator team. Each of these teams performed analyses and provided advice on aspects of the spill control. These teams worked closely with scientists from BP and with decision-makers from the Coast Guard. This work was conducted in the context of continuing oil releases (thus significant time pressure) and a great deal of public, media, and political attention to the issue.

As a group, you should choose a particular aspect of this issue (e.g. the quantification of the rate of flow, or another aspect of similarly narrow scope), and examine how effectively models and assessments were used to inform the decision-making process. This should involve looking in depth at both the models/technical information, their associated uncertainties, and the processes by which this information was organized, collected, communicated, and acted upon (or not). Focus on lessons that might be applicable across the domains of interest to the class.

A key reference to get you started is the special issue which was published in PNAS in August 2012 on the oil spill. One particularly useful article from 'The Oil Spill: A Review of the Science and Engineering' by Marcia McNutt et al., but the rest of the articles in that issue and references therein will give you plenty of information to start with. You are expected and encouraged to do further research on your own.

Remember to follow the general instructions for your memo and presentation.

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