that room choose to locate themselves and telephone, VHF, and facsimile communications. Once a location is chosen by the team, the perspective can be changed only in a time frame realistically representing the time it would normally take to actually make such a change. For example, the helicopter workstation (at-scene 6) perspective would change based upon the chosen speed of the helicopter, its altitude, and the direction of view.

**The resource module.** The resource module, contains data bank lists of equipment, material and other resources available to the response. Computer stations provide data on the resources available and maintain an inventory of remaining resources as they are used. The resource module also furnishes telephonic links to the command center and at-scene rooms through which the simulation role players communicate or are communicated with by the students.

**The oil spill module.** The oil spill module (OSM) is composed of a series of interrelated computer models which determine the movement and behavior of the spilled oil and keep a running inventory of the amount of oil spilled, oil recovered, daily response costs and other relevant data.

**The navigation modules.** The heart of the simulation is the trained simulator operating staff (instructors) who man three navigation modules. These modules provide the instructors with an overview (birds-eye) of the waterway with the navigational and environmental landmarks indicated and, through telephonic or VHF link, provide communication with the operational elements (operations chief and strike teams) and the resource module. The navigation modules provide the means by which the teams can access resources and deploy, navigate, and operate equipment in response to the spill. This module also supplies the capability of altering wind and current forces acting on the spill, for freezing the response to review actions or re-orient the response, and to memorize activities to specific points in the response so that response can be backed down and rerun from a particular point.

**The command center.** The command center (the operational command center for the spill response) houses the vessel owner's representative (the QI) and his SMT (Figure 1). The center is provided with status boards and other equipment necessary to its function. It is connected to the operational component of the response team (the operations chief and the strike teams) and, through the resource module, to spill response resources, government officials, the media and the public through telephones, facsimile and VHF.

## Conclusion

The CMEPS Oil Spill Response Management Simulator is proving itself to be an invaluable tool in supporting training of those charged with responding to oil spills under the requirements of OPA 90. It enables the center to test the reception by the students of the materials with which they have been trained, and at the same time, gives the students the opportunity to practice learned skills in the most realistic environment short of an actual spill.

With augmentation and refinement, the simulator promises increased realism and expanded scope of application, including remote-site training and drills, support of actual spill response operations, proofing of spill response and contingency plans, and development of new and improved spill response management techniques and technologies.

## Author

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# EMERGENCY RESPONSE ACTIVITIES AT CEDRE

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**ABSTRACT:** *French response capabilities in case of accidental water pollution are based on CEDRE's expertise in mitigation of both oil and chemical spills in marine and inland waters. As an association under the Ministry of the Environment, CEDRE acts for national organizations (such as the French Navy or Civil Security) or for private companies (oil and shipping companies). Its help can be provided from a distance (by phone/fax) or on the scene of the operation.*

Hazard risk assessment and evaluation of the extent and duration of water or air pollution require models and databanks allowing such an appraisal. CEDRE has selected a few complementary databanks and models that have been proven through experimental spillages of chemicals at sea.

- Data banks are composed of CCINFO system (3 CD ROMs), Chembank system, ECDIN, and IRPTC databanks.
- Models are composed of EPI and CHEMS (vapor dispersion), Explosion, Transpill, and Eurospill (slick spreading), Spill (dilution in river), and Chemspill (dilution in the water column at sea).
- Resident data contains information such as stockpile locations, addresses, and a list of approved dispersants.

## Emergency preparedness

CEDRE is contributing to the updating of national contingency plans (both for sea and for the shoreline) and is under contract to provide technical assistance to oil companies (including Esso and Elf-Aquitaine). In this framework, CEDRE also acts within the OPA 90 as a technical expert for emergency countermeasures and for required drills.

In addition, CEDRE is a member of the EEC and REMPEC (Mediterranean states) task forces in case of accidental water pollution.

## Some recent interventions

- United Arab Emirates: Following the *Seki* collision where 16,000 tons of oil was released at sea, CEDRE was present on scene on behalf of ITOPF to advise on beach pollution cleanup.
- Spain: Economic damage assessment of pollution following the shipwreck of the *Aegean Sea* at La Coruña was carried out. An evaluation was made of compensation (on behalf of FIPOL) to be paid to fishermen and fish farmers.

- Italy and France: As a member of the EEC task force, CEDRE was on the scene for the sea and beach cleaning operations after the *Haven* pollution. CEDRE also acted on behalf of the French Navy and land authorities for beach cleaning on the French Riviera and during pollution response operations at sea.
- Turkey: As a member of the Mediterranean Assistance Unit, follow-up and technical advice concerning cleaning operations following the collision and fire on board the tanker *Nassia* in the Bosphorus was provided.

## Author

Roger Kantin, was appointed head of the Emergency Response Service of CEDRE, the French accidental water pollution center, in 1990. Michel Albrecht, Joseph Blanc, and Claudine Le Mut-Tiercelin belong to the Emergency Response Service. The four people are in charge of CEDRE's around-the-clock operational advisory capabilities.

# MMS GULF REGION GIS DATABASE FOR OIL SPILL CONTINGENCY PLANNING

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**ABSTRACT:** *The Minerals Management Service (MMS) established the Coastal Marine Institute (CMI) at Louisiana State University as part of the Center for Coastal, Energy, and Environmental Resources to promote environmental research related to the oil, gas, and mining industries. One of the primary initiatives of CMI is to create an environmental information program to support government and industry oil spill contingency planning needs to fulfill the requirements of the Oil Pollution Act of 1990 and MMS compliance regulations. The MMS Gulf Region geographical information system (GIS) database will contain critical information about the location and character of environmental resources, infrastructure, and administrative boundaries that occur within the coastal region of the U.S. Northern Gulf of Mexico. Information needed to support the program will be collected from state and federal resource agencies, industry, and other data providers.*

Accurate, current information and base maps are essential to successful oil spill contingency planning and environmental analysis in the Gulf of Mexico (GOM). The GOM coastal zone will face an increasing risk of a major oil spill striking the shoreline over the next decade as oil imports continue to increase and domestic oil and gas activities continue. The GOM will be one of the few regions in the United States where offshore oil and gas leasing will continue to pose new environmental challenges in the future. The environmental pressures on the coasts and waters of the Gulf of Mexico will continue to accelerate as population increases present greater demands for resources. Environmental data are therefore crucial to the accurate assessment of risks posed to these resources by the exploration, production, and transport of hydrocarbons in the GOM, and to the development of adequate oil spill contingency plans. In addition, conflicts in response actions and damage assessments can be minimized by developing needed data sets in cooperation with both government and industry. Over the past five years, government and industry have debated the accuracy and resolution of information on resources at risk used in oil spill contingency planning. All parties to the regulatory process agree on the need to develop a common system to distribute environmental information that meets the regulatory requirements and needs of both government and industry. The objective of the Minerals Management Service (MMS) Gulf Region geographical information system (GIS) database is to create and manage mutually agreed-upon data sets for use by government and industry in meeting oil spill contingency planning and environmental analysis requirements.

The Regional Technical Working Group (RTWG) of the MMS Gulf Region also recognizes the importance of accurate environmental data and the need to establish an information center to support oil spill contingency planning and GIS environmental analysis by government and industry. In 1992 the RTWG nominated a project to develop a regional center for oil spill contingency planning and environmental analysis (Regional Study No. GOM-A008). This project was ranked in the top five projects for the 1993 Regional Study Plan of the Environmental Studies Program. In addition, the Oil Pollution Act of 1990 and Executive Order 12777 have mandated a greater role for the MMS in oil spill contingency planning and environmental analysis.

## Discussion

The MMS Gulf Region GIS database project will develop an information system for oil spill contingency planning and environmental analysis to support the requirements of government and industry. Vast amounts of environmental, infrastructure, and administrative and political information will be required to support the intended activities. To compile and manage such a complex data set, it will be necessary to use the advanced spatial data management capabilities of (GIS) technology, which enables users to map critical information with geographic positional accuracy. More important, however, a GIS provides a highly efficient framework for storing, retrieving, and analyzing both the maps and associated databases of information used to describe the maps.

GIS technology also provides a mechanism for maintaining spatial data in dynamic environments and enables the power of spatial associations to be more fully realized. By utilizing this advanced technology,