

APPLICATION OF HIGH-RESOLUTION SPACE IMAGERY FOR CONTINGENCY PLANNING

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Preparing contingency plans requires estimating both threats and environmental characteristics. At this stage, all useful data must be gathered in a synthetic document, created with cartographic support. Nevertheless, environmental and operational mapping is not economically and technically easy to realize with traditional means, particularly to obtain complete cartography on clear areas or those difficult of access. At present, the new space technology, mainly high-resolution satellite data, offers promise in solving this problem.

Since the launching of the SPOT satellite, 60 × 60 km images from all points of the globe can be taken with a spatial resolution of 10 to 20 m. This tool leads to large-scale cartography (1/50,000 and greater), which is well adapted to coastal and land studies.

The cartography support is realized through digital image processing in IFREMER's laboratories, relying on some other data sources. It allows displaying in a synthetic mode all the following information:

- Coastal lines (high and low tides)
- Coastal units and morphology (e.g., beaches, rocks or reefs, and wet areas) and vegetation inventory (e.g., seaweeds, mangroves, marshlands, and grass)
- Terrigenous drifts
- Coastal bathymetry and nature of the sea floor (in light of turbidity)
- Coastal resources (e.g., marine cultures and reserves, fisheries, ponds, and tourism areas) and sensitive areas

- Hydrographic network
 - Topography
 - Inland occupation (e.g., urbanization, industrialization, agriculture, forests, water surfaces, clear areas)
 - Communication elements (e.g., roads, railways, waterways, stations, harbours, airports)
- Then the basic document can be completed by other data:
- Localization of pollution sources and threatened sensitive areas (to be protected)
 - Lengths or surfaces of coastal units
 - Talweg limits
 - Logistically important area locations (equipment and waste storage)
 - All useful data from climatology and marine hydrology (e.g., temperatures, winds, rainfalls, tides, swell, and currents)
 - Toponymy

The definitive documents are made of compatible size and scale for operational use.

This poster presents images obtained from cartographies of sensitive areas (e.g., marine temperate swamps, mangroves, coral reefs, and aquaculture areas), along with listed operational information needed in contingency planning.

REVISED OFFSHORE OIL SPILL OCCURRENCE RATES FOR THE OUTER CONTINENTAL SHELF

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Before offering offshore oil and gas areas for lease on the Outer Continental Shelf (OCS), the U.S. Department of the Interior (DOI) evaluates the risks of accidental oil spills associated with the production and transportation of estimated oil resources. Oil spill occurrences have been treated through a Poisson process, with a rate proportional to the amount of oil handled. Using U.S. oil production and accident data gathered from several studies on OCS oil spill occurrence rates, the Minerals Management Service made use of a trend analysis to demonstrate a statistically significant decrease in the U.S.

platform spill rate since 1974. This rate has been applied to DOI oil spill modeling efforts since 1981.

The present study has revised the estimated spill rates for both platforms and pipelines using oil production and accident data through 1985. The revision reflects a continuing downward trend of OCS spill occurrences per volume of oil, perhaps owing to advances in offshore technology, safety regulations, and environmental awareness. Periodic reviews are made to ensure that oil spill rates used by DOI reflect current data and analyses.