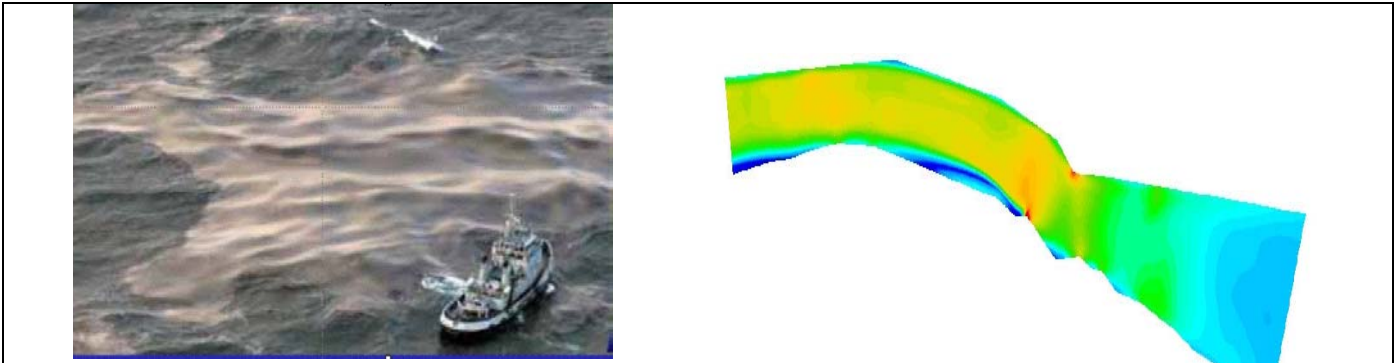


## OIL SLICK DISPERSION



The 3D modelling tool **fluidyn-FLOWOIL** is one of the modules of **fluidyn-FLOWCOAST** software series. This software series has been specially developed to numerically simulate surface water flows in three dimensions.

**fluidyn-FLOWOIL** has been designed to tackle problems due to water currents and oil slick propagation in sea and coastal waters: gulfs, estuaries....

### FEATURES

- **Hydrodynamics:** Navier-Stokes equations with hydrostatic pressure hypothesis
- **Effect of tides, wind, density variations** (salinity and temperature effects), Coriolis forces
- **Different Turbulence Models**
- **Water Quality:** Advection - Diffusion effects with different chemical processes
- **Sediment Transport:** Suspended and stream transport
- **Morphological Model:** Calculation of bathymetric changes linked to sediment transport
- **Oil slick Movement:** Flow mechanisms (inertia, viscosity, surface tension), evaporation, dissolution
- **User-friendly Graphical Interface**
- **3D Curvilinear Mesh Generator**

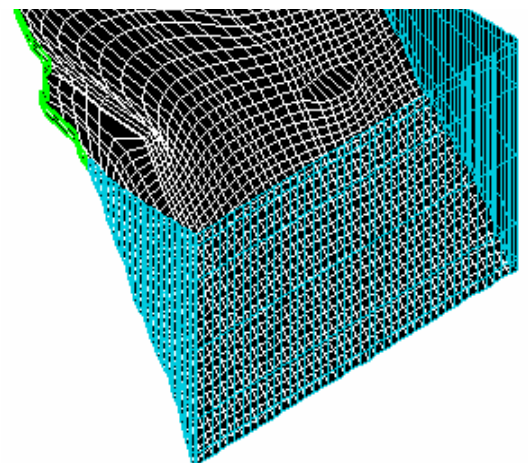
### APPLICATIONS

- Coastal Hydraulics: dikes / seawalls, gulfs, etc....
- Oil slick propagation
- Dispersion of thermal plume

**fluidyn-FLOWOIL** studies oil slick dispersion taking into account a large number of phenomena: spread, division and emulsification of the slick, wind influence at the water surface and evaporation.

During the simulation, this model can monitor the evolution of pollution and easily compare different situations with the help of the multi - window facility.

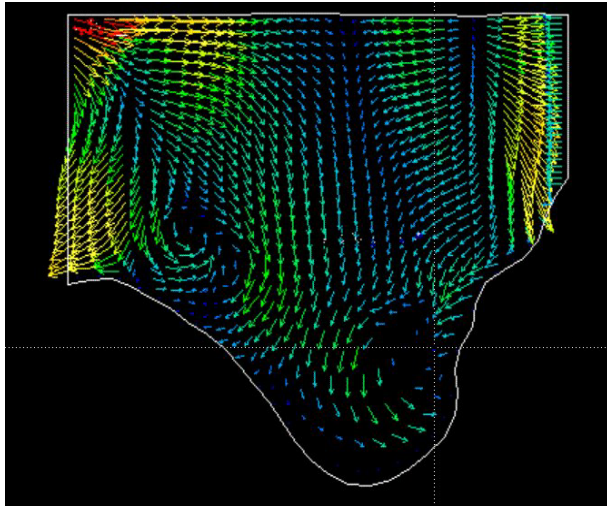
This software can also be used for the study of oil pollution in rivers.



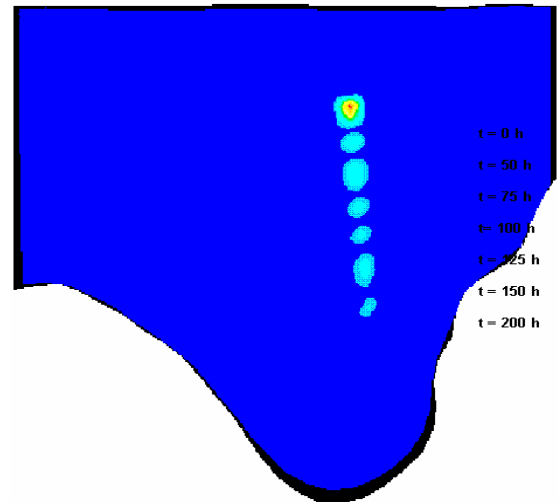
3D Mesh of a coastal gulf

**fluidyn- FLOWOIL** considers all flow parameters (velocity, pressure, turbulence....) as well as the parameters related to the oil slick (concentration...).

The results can be visualised either in graphical or in curve forms. The contours, iso-contours and iso-surfaces can be displayed in all three spatial planes and in three dimensions on the bitmap background.



Velocity Field



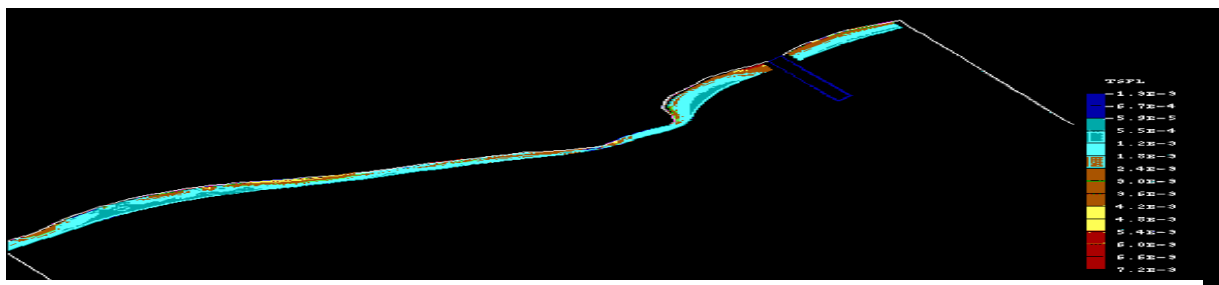
Oil slick dispersion

The user friendly interface of **fluidyn-*FLOWOIL*** and the pre and post processor functions can be coupled with other modules of the **fluidyn- FLOWCOAST** series.

**fluidyn-*FLOWSED*** provides solution to the rapidly increasing problems of sediment transport. In fact, littoral or river water management requires an accurate study of erosion and deposits. The software monitors the cohesive and non-cohesive sediments, suspended or moving sediments. During the computation, a morphological sub-module evolves the geometry of the bed with respect to a sediment map of each zone.

This software can be used for impact studies, littoral pollution studies, preventive measures for flood risks and studies in accordance with current regulations.

The main users are the environmental consultancy firms, the industries (petroleum industries), the administration and local pollution control authorities...



Evolution of a coast after the development of a roadstead

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