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The Ligurian Cluster for Marine Technologies (DLTM): matching local research and industrial needs on oceanographic data.

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DLTM is the Ligurian Region (north Italy) cluster of Centre of Excellence (CoE) in waterborne technologies, that involves about 120 enterprises – of which, more than 100 SMEs –, the University of Genoa, all the main National Research Centres dealing with maritime and marine technologies established in Liguria (CNR, INGV, ENEA-UTMAR), the NATO Undersea Research Centre (NURC) and the Experimental Centre of the Italian Navy (CSSN), the Bank, the Port Authority and the Chamber of Commerce of the city of La Spezia.

Following its mission, DLTM has recently established three Collaborative Research Laboratories focused on:
1. Computational Fluid dynamics (CFD_Lab)
2. High Performance Computing (HPC_Lab)
3. Monitoring and Analysis of Marine Ecosystems (MARE_Lab).

The main role of them is to improve the relationships among the research centres and the enterprises, encouraging a systematic networking approach and sharing of knowledge, data, services, tools and human resources.

Two of the key objectives of Lab_MARE are the establishment of:
- an integrated system of observation and sea forecasting;
- a Regional Marine Instrument Centre (RMIC) for oceanographic and metereological instruments (assembled using 'shared' tools and facilities).

Besides, an important and innovative research project has been recently submitted to the Italian Ministry for Education, University and Research (MIUR). This project, in agreement with the European Directives (COM2009 (544)), is aimed to develop a Management Information System (MIS) for oceanographic and meteorological data in the Mediterranean Sea.

The availability of adequate HPC inside DLTM is, of course, an important asset for achieving useful results; for example, the Regional Ocean Modeling System (ROMS) model is currently running on a high-resolution mesh on the cluster to simulate and reproduce the circulation within the Ligurian Sea. ROMS outputs will have broad and multidisciplinary impacts because ocean circulation affects the dispersion of different substances like oil spills and other pollutants but also sediments, nutrients and larvae. This could be an important tool for the environmental preservation, prevention and remediation, by placing the bases for the integrated management of the ocean.