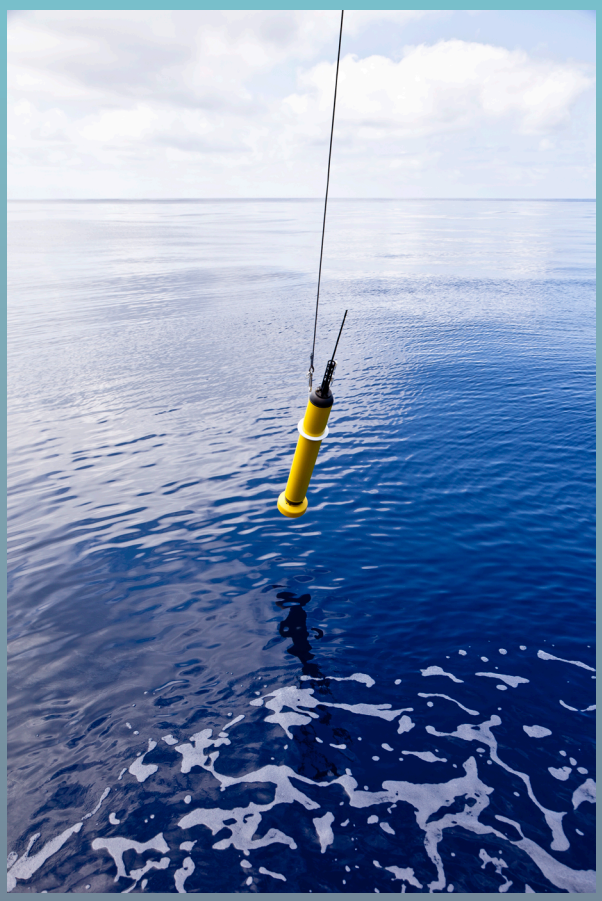
SOCIB NEWSLETTER

Meteotsunamis: "Researchers from SOCIB, IMEDEA, AEMET and the University of Rutgers, developed a new numerical model for predicting meteotsunamis"

Researchers from SOCIB, IMEDEA, AEMET and the University of Rutgers, developed a new numerical model for predicting meteotsunamis. It is the first time that a numerical study of this phenomenon throughout its life cycle has been performed. The combination of atmospheric and ocean numerical models will provide a powerful predictive tool.

Meteotsunamis are oceanic waves that possess tsunami-like characteristics but are meteorological in origin. In the western Mediterranean, travelling atmospheric pressure oscillations generate these long oceanic surface waves that can become amplified and produce strong seiche oscillations inside harbors. They analyze a June 2006 meteotsunami event in Ciutadella harbor (Menorca Island, Spain), studying numerically the phenomenon during its full life cycle, from the early atmospheric stages to the atmosphere-ocean resonant phase and the final highly amplified harbor oscillation. The Weather Research Forecast (WRF) atmospheric model adequately reproduces the development of a convective nucleus and also reproduces the induced atmospheric pressure oscillations moving at a speed of 27 m/s. The oceanic response is studied using the Regional Ocean Modeling System (ROMS), forced by the WRF pressure field. It shows an inverse barometer wave front in the open ocean progressively amplified through resonant interactions in the different shelf and coastal regions. The predictive capability of this new WRF/ROMS modeling approach is then discussed in the scientific article.



Bluefin Tuna: "SOCIB, TMOOS and IEO are working on a model to predict the spawning areas and larval survival rates of bluefin tuna in the Balearic Sea"

A scientific team has embarked for four days aboard the research vessel "Odón de Buen" for carrying out the first of a series of hydrographic and planktonic campaigns that will be developed throughout this year, in order to collect the necessary data for parameterization and validation of models to predict the location of the spawning areas of bluefin tuna (Thunnus thynnus) in the Balearic Sea and larval survival rates.

To characterize the environmental scenarios

in these areas, researchers have sampled a number of locations in two areas from the Pitiusas and Cabrera, as defined previously by analysis of satellite images provided by scientists from the TMOOS and SOCIB. The work consisted in obtaining hydrographic data and biological samples in areas of confluence of Mediterranean surface waters and Atlantic waters, which taking into account the results of previous studies are more likely to find tuna larvae to determine gradients of abundance of bluefin tuna larvae related to the distribution of these waters.

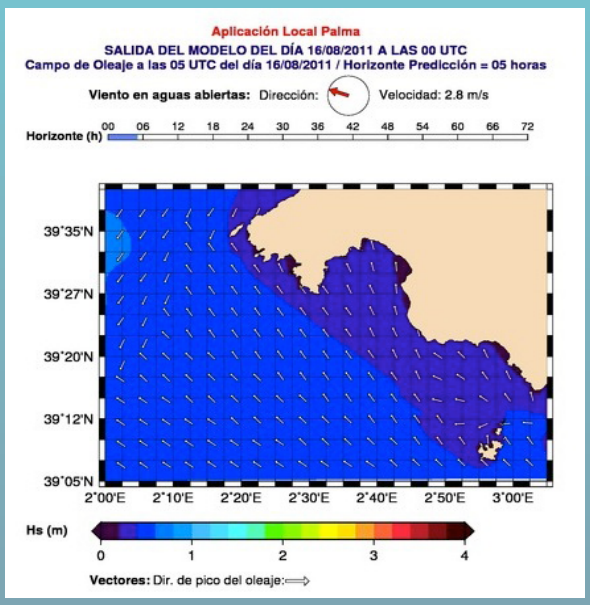
This action is part of the research project "Sustainable use of marine living resources: the impact of the variability of the Mediterranean on reproduction and population dynamics of bluefin tuna (the acronym BlueFin)", this project is the result of a specific collaboration agreement between the IEO and the Coastal Observing System in the Balearic Islands(SOCIB), a Singular Scientific and Technological Infrastructure (ICTS) located in the Balearic Islands.

The BlueFin project, which will last until 2014, also involved researchers from the Department of Marine Technology, Operational Oceanography and Sustainability (TMOOS) from the IMEDEA (UIB-CSIC), has as main goal the development of operational models for predicting the location of the area for tuna reproduction and estimate the recruitment level of bluefin tuna taking into account variations in larval survival rates derived from changes in environmental scenarios.

Wave Forecasting: "SOCIB presented at the Port Authority of the Balearic Islands the wave forecasting system for the Port of Palma and southern Mallorca"

SOCIB has implemented a high-resolution wave forecasting model for the Port of Palma and southern Mallorca area, in conjunction with "Puertos del Estado" and within the framework of the cooperation agreement signed by both entities.

This system provides wave prediction with a 72 hours horizon and is updated twice daily. This model is forced by wind forecasts from the HIRLAM model provided by the AEMET and the deep ocean Mediterranean wave model from "Puertos del Estado". This system also includes a validation procedure with near real-time measurements registered by the oceanographic buoys located at Enderrocat and Dragonera. This application is part of the Local Wave Forecast System at the Port Authorities (SAPO) and in this particular case the system implemented by SOCIB is focused on the Port of Palma, belonging to the Port Authority of the Balearic Islands.



Over the coming months, SOCIB plans to increase the domain of the wave forecast to cover the Balearic Islands coastline and complemented with the predictions of surface currents and even reaching the bathing areas.

Ocean Modeling: "Lionel Renault attended the Gordon Research Conference on Coastal Ocean Modeling, held in South Hadley, Massachusetts"

Lionel Renault, from the modeling facility, attended the Gordon Research Conference on Coastal Ocean Modeling, held in South Hadley, Massachusetts June 26 - July 1. The Gordon Research Conference on Coastal Ocean Modeling brings together researchers who are established leaders in the field, as well as mid-career and young scientists actively working on simulating physical and bio-geochemical processes in the coastal ocean. In this session themes were Estuarine Dynamics, Applied Ice Modeling, Regional Impacts of Climate Change, Ecosystem Dynamics, Ocean Forecast Systems, Advances in Numerical Algorithms, Bio-Optics and Mesoscale Processes.

Lionel Renault, presented two posters: (1) on Meteotsnunamis (Rissaga) studies in hte Balearic Sea and (2) coupling betwen atmosphere and ocean during extreme weather events.

Research Infrastructures: "The future of the 21st Century Ocean. Marine Sciences and European Research Infrastructures", international symposium at Brest, France

Joaquín Tintoré was invited to participate in a round table, where SOCIB was presented. Also, a poster describing the major advances of SOCIB glider Facility (Labs, Objectives, Scientific Results, Operational Results, Data Management, Outreach and Publications) prepared by Simón Ruiz was presented.

Research Infrastructures (RI), corresponding to the long term needs of the European research communities in marine science, are listed by the European Commission in the ESFRI (European Strategic Forum for Research Infrastructures) Roadmap or within the Integrated Infrastructure Initiatives (I3) of the Framework Program 7.

Rethinking Mallorca's Seafront: "Lluís Gómez was invited to join as jury member at an international academic architecture, design and city-planning contest"

Lluís Gómez-Pujol from the Marine-Terrestrial Beach Monitoring Facility (SOCIB) will join the "Rethinking Mallorca's Seafront" jury contest in order to evaluate the integration of the beach and coastal physical processes in sea front planning-design proposals, attending to the experience on Cala Millor and Platja de Palma coastal variability and morphodynamic studies.

The topic of the contest is "Rethinking Mallorca's Seafront" and is organized in conjunction with 6th Conference of the International Forum on Urbanism on January 2012 (TOURBANISM) hosted by the Catalonian Polytechnic University (UPC, Barcelona).

Integrated Coastal Zone Management: "Amy Diedrich was an invited speaker at the International Workshop in New Practice of Participative Planning to face new Environmental, Economic and Territorial Challenges held on 13 – 14 June in Valencia, Spain"

The objective of the seminar, which was organized by Joaquín Farinós from the Department of Geography at the University of Valencia, was to convene selected experts in the field of sustainable territorial planning and science for environmental policy so they could share their experiences with each other and with students from the University. Amy Diedrich was invited to present a seminar on "Bridging the Science Policy Gap – The Design and Implementation of a System of Indicators for ICZM in the Balearic Islands" (see attached file). The meeting was also attended by, among others, prominent academics such as Patsy Healy, Andreas Faludi, Simin Davoudi, and Jose María Pascual Esteve.