

ID21- INTEGRATING DATA FROM VESSEL MONITORING SYSTEM AND FISH LANDINGS IN MEDITERRANEAN SMALL FLEETS, USING A POSTGRESQL DATABASE WITH POSTGIS EXTENSION.

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Abstract – Geospatial technologies represent an advance in knowledge of marine ecosystems, allowing approach the study of the potential effect of world fishing fleets and their dynamics. Nevertheless, their application to fisheries biology is very recent and its use is generalizing when the ICES (International Council for the Exploration of the Sea) proposed one methodology to study fisheries and their impact in Atlantic Ocean ecosystems in the 2008 year. This procedure is based on the use of position data from the "blue boxes" (VMS-Vessel Monitoring System), mandatory since 2006 due to a European regulation, and it's present in most fishing boats. The junction of the VMS, fishing logbooks and landings data enables us to obtain among others results, maps of fishing effort, behaviour of fishing fleet and precise

location of fishing grounds at the European waters. However, its design is made for large trawlers and longliners, and extensive Atlantic areas. This fact makes impossible its application for the study of the fleet and fisheries in Mediterranean waters. Because, the boats are much smaller, have lower mobility and they work in small fishing areas. The aim of this work has been to develop and apply a methodology (ICES based) to study fishing effort on species of commercial interest in Catalan coast, using scripting PL/SQL procedures of PostgreSQL system database with PostGIS extension.

Keywords – Geospatial, PostgreSQL, PostGIS, Vessel Monitoring System, landings, fishing effort, Mediterranean Sea.

ID22- FIRST AUV AND ROV INVESTIGATION OF SEISMOGENIC FAULTS IN THE ALBORAN SEA (WESTERN MEDITERRANEAN)

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Abstract – In May-June 2015 we carried out the SHAKE cruise on board the RV "Sarmiento de Gamboa" the first in situ investigation using state-of-the-art underwater vehicles, the AUVs "AsterX" and "IdefX" (IFREMER, France) and the ROV "Max Rover" (HCMR, Greece). Here we present how these vehicles helped us to achieve our main goals to survey active seismogenic faults and associated structures of the Eastern Alboran Sea (Western Mediterranean).

Keywords – micro-bathymetry, AUV sub-bottom profiles, ROV high-resolution video-imaging, ROV sampling.

I. INTRODUCTION

The SHAKE cruise consisted in a 30-day investigation using state-of-the-art underwater vehicles (AUV and ROV) to survey active seismogenic faults of the Eastern Alboran Sea. These fault systems have been well characterized during previous national and European projects. In the frame of the Spanish project SHAKE we had shiptime on the RV "Sarmiento de Gamboa" to carry out an ultra-high resolution marine geophysical investigation of active faults and associated processes.

The first part of the cruise (Leg 1: 23 April-13 May 2015) was devoted to acoustic seafloor investigation (i.e. micro-bathymetry, sub-bottom profiler) to search for surface ruptures and on-fault / near-fault co-seismic seafloor deformation using the AUVs "AsterX" and "IdefX" (IFREMER, France) (Fig. 1) obtained in the frame of an OFEG exchange. The second part of the cruise (Leg 2: 16 May to 22 May), was focused to a direct visual seafloor exploration and sampling of selected sites (i.e. scarps related to earthquake ruptures, fluid venting and associated habitats) using the ROV "Max Rover" (HCMR, Greece) (Fig. 2) in the frame of the IRIS project granted within EuroFleets-2.

II. OBJECTIVES

The main objective of the SHAKE project was the in situ characterization of the following fault systems: the Carboneras Fault, North-South Faults, Djibouti Fault, Al-Idrissi Fault and Yusuf Fault [1, 2]. Additional surveys were dedicated to spe-

cific studies on seamounts, such as Cabliers Bank [3], to investigate deep-sea habitats associated to the active structures. To achieve such a high-degree of resolution we used cutting-edge techniques that allow a cm-resolution in surface mapping and profiling, and high-resolution video imaging.



Fig 1. AUV IdefX (IFREMER, France) navigating at sea surface.

The specific objectives were threefold: 1) Obtaining fault offsets using the AUVs AsterX and IdefX. The goal is to carry out a fault-scarp profiling and surface mapping of co-seismic scarps and seafloor ruptures associated to recent earthquakes; 2) Identification and dating of earthquake seafloor ruptures using the ROV Max Rover. The aim is to identify recent earthquake ruptures associated to the active faults, and to obtain single event co-seismic slip; and 3) Evaluation of fluid circulation and characterization of associated benthic habitats. Using the AUV and ROV we also investigated the occurrence of fluid flow escape processes and associated habitats.