

**TRAINING COURSE :**

**Marine Sonar and Seismic Surveys in the INOC Member States  
(15-24 March 2018, Izmir, Turkey)**

**MARINE SONAR AND SEISMIC  
ACTIVITIES IN MOROCCO**

**DR : NATIFY WIDAD**

**Hassan II Agronomic And Veterinary Institute, Rabat-  
MOROCCO**



# MARINE SONAR APPLICATIONS

- Detecting fisheries stocks ( sardine)
- Explore the seabed at depths and in areas not accessible
- The monitoring of red coral deposits
- The exploration of offshore biodiversity
- The monitoring of biodiversity of artificial reefs and marine protected areas
- The monitoring of rocky areas (difficult to access) to better protect fisheries resources and Moroccan marine biodiversity.

# MARINE SONAR ACTIVITIES

## **Missions :**

Monitoring the assessment of the stock index abundance of cephalopods and associated fish.

The study of the demographic structure of cephalopods.

The study of the biology of cephalopods and associated fish.

The estimation of the relative biomass of the octopus.

Mapping of the octopus distribution.



## CHARIF AL IDRISSEI

- Overall length : 41 mètres
- Speed : 12,3 nœuds ;
- Power : 1100 CV ;
- Autonomous : 30 days

# MARINE SONAR ACTIVITIES

The research vessel was delivered in March 2001.

Equipped with a sonar and ensure a wide range of scientific and technical investigations :

- assessment and monitoring of fisheries resources,
- development of maritime maps,
- studies of rocky bottoms and shell beds.

**To provide scientists, managers, professionals and policy makers with accurate data on the marine environment.**



## AL AMIR MOULAY ABDELLAH

- Overall length : 38.5 m
- Gross Tonnage : 298 tonneaux
- Autonomous : 21 jours
- Speed : 10 nœuds

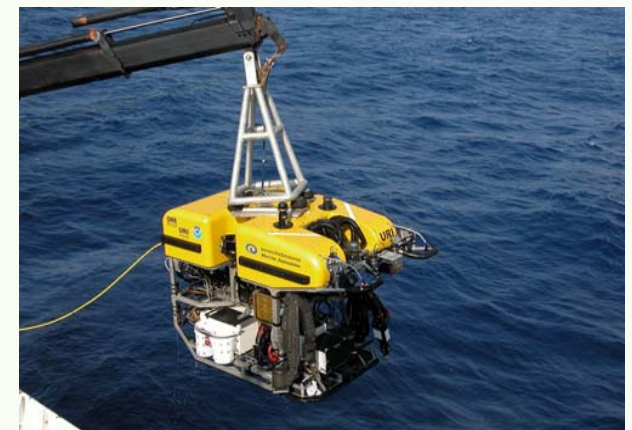
## REMOTELY OPERATED VEHICLE (ROV)

The device  
can reach 300 meters deep.

equipped with a navigation sonar to avoid obstacles  
under water,

positioning system connected to a GPS that can locate  
the craft and accurately determine the GPS coordinates  
of what is filmed by the ROV.

The camera has two laser beams that can accurately  
determine the size of the film elements.



## SIDE SCAN SONAR

- ▶ A preliminary study in Cap Spartel offshore was conducted by the oceanographic ship of the Royal Moroccan using a side scan sonar.
- ▶ The analysis of the profiles sonar made it possible to identify the sedimentary surface, and to determine the distribution of different types of seabed, and to have information on reliefs of the seabed.



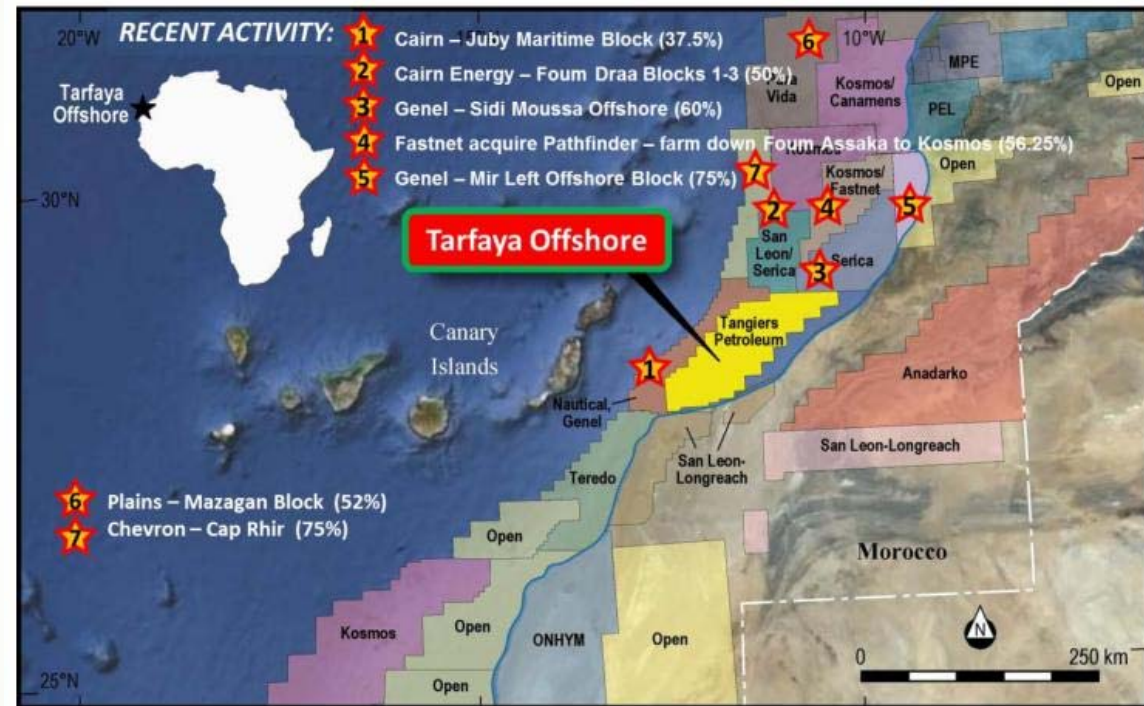
## SEISMIC DATA

Several independent petroleum companies have recently acquired significant interests in many regions in Morocco. For that, 2D and 3D seismic data program has been conducted in different areas.



## EXAMPLE : THE TARFAYA OFFSHORE BLOCK

- ▶ located in an area where a hydrocarbon system associated with jurassic carbonates has already been proven by the cap juby discovery in the 1960s.
- ▶ This fairway is rapidly gaining recognition for its potential to host world-class oil discoveries and several independent petroleum companies have recently acquired significant interests in the region

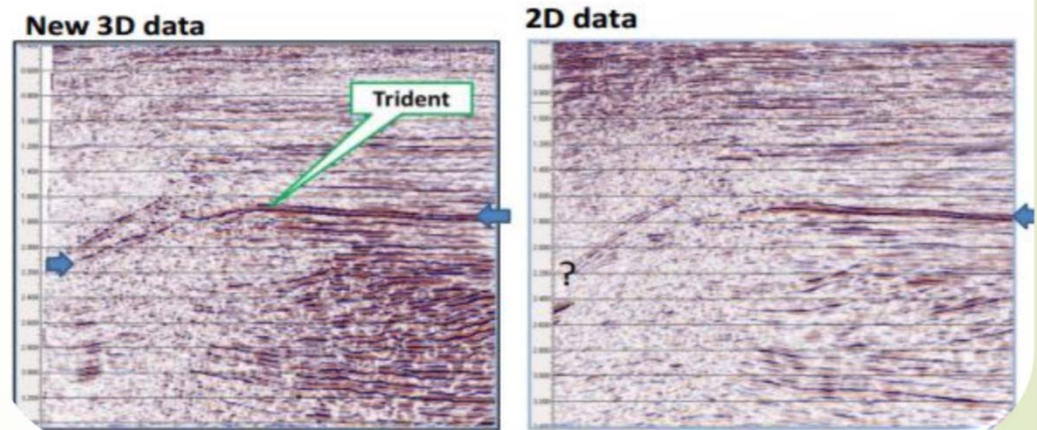




## EXAMPLE : THE TARFAYA OFFSHORE BLOCK

- The seismic data comparison shows one of the lines from the new 3D seismic data set and one of the older (2004) 2D seismic lines from the same location.
- The new 3D data shows much better definition and continuity of the seismic horizon that defines the Trident structure
- With the better definition of the Trident structure provided by the 3D data, Tangiers has re-evaluated the geological chance of success of the well and upgraded it from the previously advised 14% (as independently assessed by Netherland, Sewell and Associates in 2011) to 23%.

### Assaka 3D (2013) vs 2D data (2004)

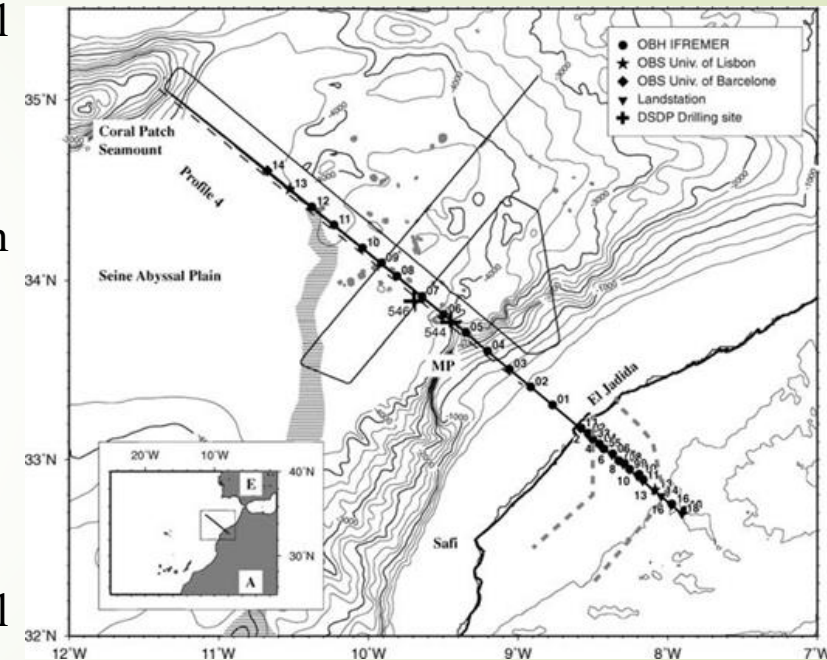


Comparison of new 3D data with previous 2D data (2004)

## The Crustal Structure of the NW-Moroccan Continental Margin From Wide-angle and Reflection Seismic Data.

The SISMAR marine seismic survey acquired over 3000 km of MCS data and 1000 km of wide-angle profiles in order to :

- 1) image the deep structure of the margin.
- 2) characterize the nature of the crust in the transitional domain.
- 3) define the geometry of the syn-rift basins.





**THANK YOU**  
**FOR YOUR ATTENTION**

