



MINISTERIO
DE CIENCIA
Y TECNOLOGIA



CMIMA
Pg. Marítim de la Barceloneta 37-49
08003 - Barcelona, Spain
Tel. +34 93 230 95 00
Fax. +34 93 230 95 55
www.utm.csic.es

UTM
UNIDAD DE TECNOLOGÍA MARINA



MINI-AUV FOR COASTAL AND SHALLOW WATER RESSEARCH

OFEGTECH 2010. Kiel Nov. 30th.-Dec 2nd.
Pablo Rodríguez. UTM-CSIC.. Spain

Why we changed from Deep ROV to Shallow AUV?

ACTUAL SCENARIO

- ❑ AUV and ROV were part of the strategic Plan 2010 – 2013
- ❑ Spent one year on preliminary studies but...
- ❑ Not enough fundings / Human Resources for Deep ROV.
- ❑ Oceangoing AUV too expensive (1.5 – 2 MEur)
- ❑ Absolute NO experience on the field

FEASIBLE SCENARIO

- ❑ Small AUV is a reasonable tool for research and introduction on the field.
- ❑ Cheap
- ❑ Easy to deploy.
- ❑ Few Human resources needed.
- ❑ Expandable / Open Architecture.

Cronography

- ❖ Spring 2009 : ROV project abandoned.
- ❖ Late 2009. Call for Marine Infrastructures. 360K Eur.
- ❖ Spring 2010. Contract signed.
- ❖ September 2010. Vehicles delivered. SAT
- ❖ October – December: Technical trials.

- ❖ Expected scientific cruises by summer 2011



Objectives

Survey Vehicle:

1. Field Research as a service to CSIC / Universities
2. Collaboration w/ other public agencies on emergencies (SAR), environmental control (pollution , spills, etc..) .

R+D Vehicle:

1. Workhorse for applied R+D on submarine technology.
2. Field Research as service to CSIC / Universities.

Basic Configuration

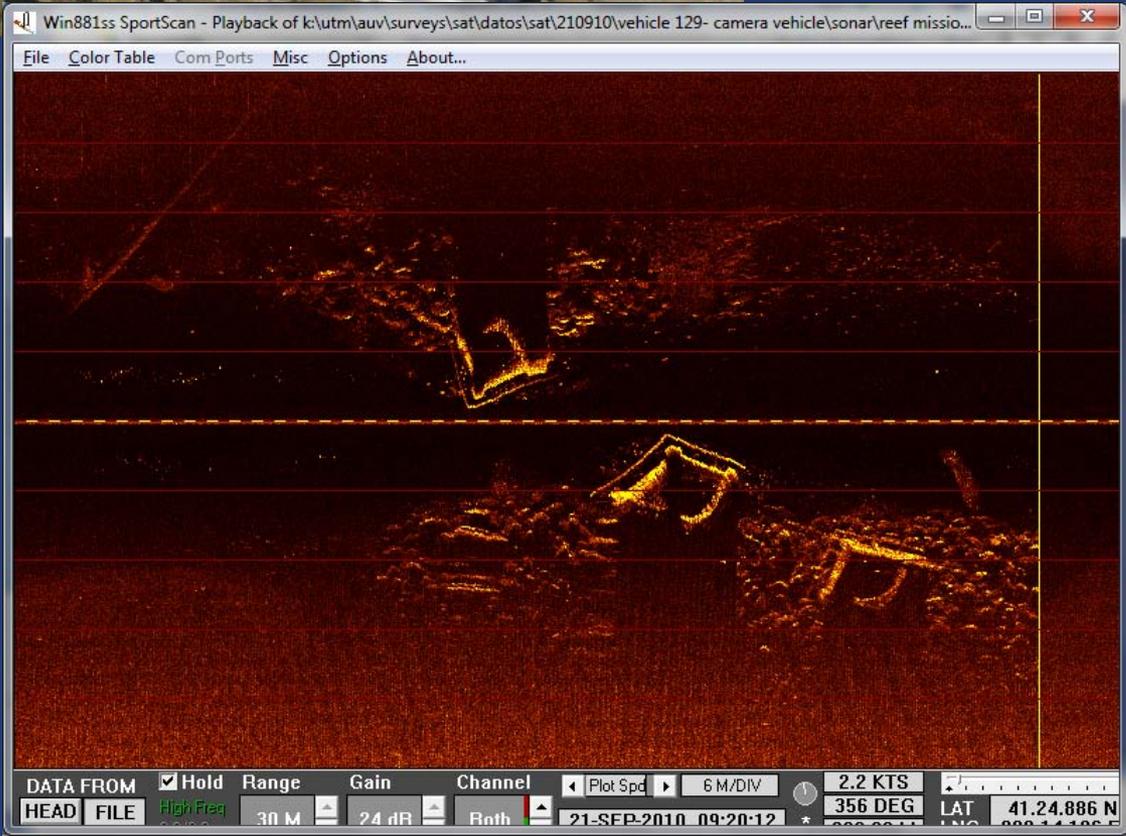
- **Autonomy:** 8 hrs @ 2.5 knots
- **Standard depth rating** 100 m.
- **Extended Payload** (2nd CPU + extra HHDD + external ports + API)
- **Safety tow float.**

Water Quality [WQ] Vehicle:

- DVL + ADCP (10 beams).
- W.Q. multiparameter sonde (CTD, Turbidity, Chlorophyl, DO, pH, ORP)
- Extended Depth rating to 200 m.

Camera [CAM] Vehicle:

- DVL + ADCP (6 beams), Wifi
- Still+video cameras.
- Sidescan (330 / 800 kHz.).



Technical trials and training areas





Upgrades

- Obstacle avoidance !!!
- Thoroughly planning needed !
- 3rd party sensor integration -> Greater accuracy / additional parameters.
(NO_3 , NH_4^+ , hyperspectral, rhodamine, etc)
- Multibeam integration. Status?, users?, models?
- Sensor modularity / interchangeability (vehicle to vehicle).
- Safety (forward looking sonar)
- WHOI modem as USBL.

Summing up...

- ▲ • Small vehicles, ideal as technologic and operational trainer.
- ▼ • Small payload.
- ▲ • Open Architecture -> Payload flexibility
- ▲ • Big potential as scientific platform on coastal environments.
- ▼ • Coastal and shallow water -> Hazardous environments -> Plan, plan and more planning !!



MINISTERIO
DE CIENCIA
Y TECNOLOGIA



CMIMA
Pg. Marítim de la Barceloneta 37-49
08003 - Barcelona, Spain
Tel. +34 93 230 95 00
Fax. +34 93 230 95 55
www.utm.csic.es

UTM
UNIDAD DE TECNOLOGÍA MARINA

Questions ?