



# Autosub6000 MK2 a new deep diving AUV for UK marine science

Dr Alex Phillips Head of Marine Autonomous Systems Development  
Autonomous Systems Research Showcase and Networking Event 25/7/16



National  
Oceanography Centre  
NATURAL ENVIRONMENT RESEARCH COUNCIL

[noc.ac.uk](http://noc.ac.uk)

**NERC** SCIENCE OF THE  
ENVIRONMENT

# AUTOSUB 6000 MK1

Launch And Recovery System  
Has been fitted to many ships from 18.5 m upwards

5.5 m, 0.9 m diameter 1800 kg

Acoustic  
Telemetry and  
Tracking System

Lithium Polymer  
Rechargeable  
Batteries.  
28 hour, 150 km

Precision Navigation  
(FOG INS + DVL)  
Drift <1 m per 1km

Collision Avoidance  
System

AUTOSUB 6000  
www.nodc.gov.au  
National Oceanographic Centre  
Do Not Grasp or Support Here

ADCP, 300 kHz  
Current Profiler

Sub Bottom Profiler –  
Edgetech  
2 – 16 kHz

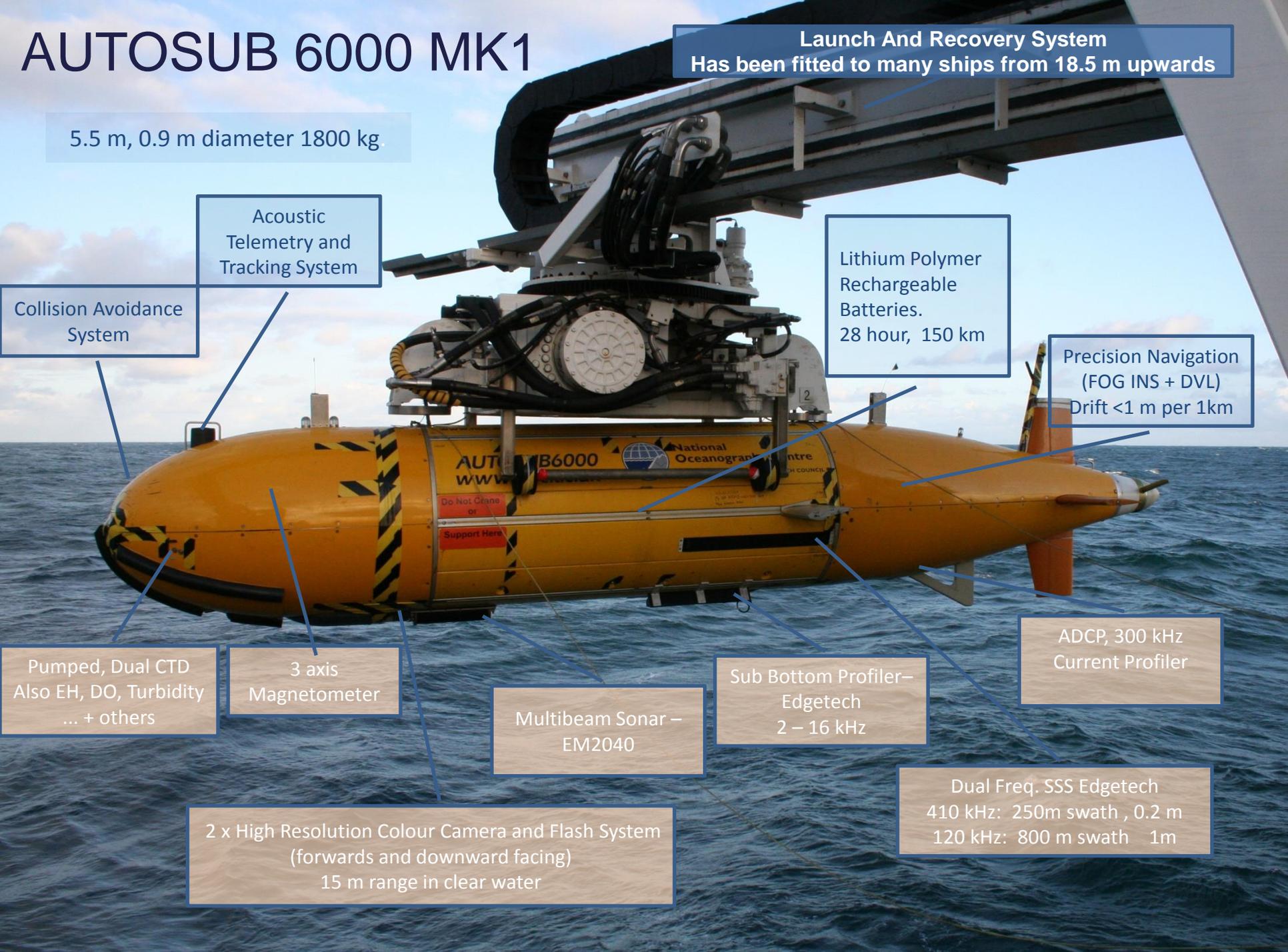
Multibeam Sonar –  
EM2040

Dual Freq. SSS Edgetech  
410 kHz: 250m swath , 0.2 m  
120 kHz: 800 m swath 1m

3 axis  
Magnetometer

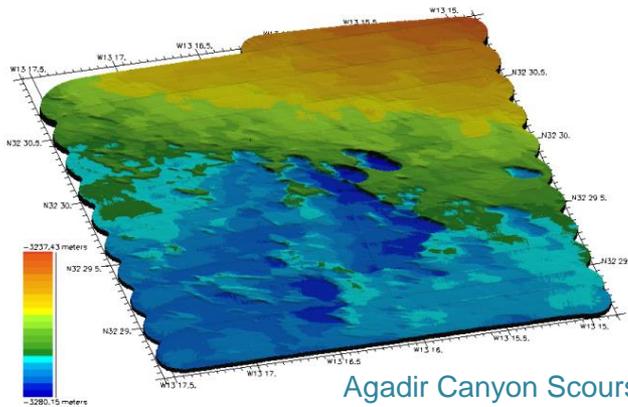
2 x High Resolution Colour Camera and Flash System  
(forwards and downward facing)  
15 m range in clear water

Pumped, Dual CTD  
Also EH, DO, Turbidity  
... + others



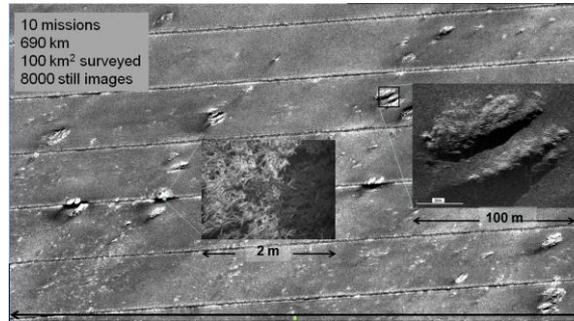
# Results From High Powered AUV's Missions

## Bathymetric Surveys



Agadir Canyon Scours  
Cruise JC027 [2008]  
Altitude 50 – 100m

## Sidescan Surveys



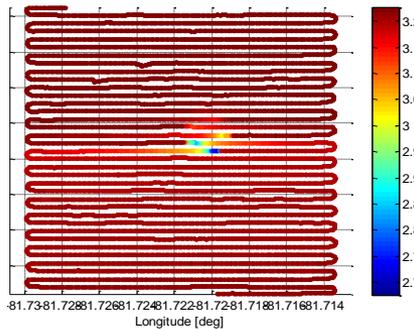
Darwin Mounds (Rockall)  
Cruise JC060 [2011]  
Altitude 15 – 50 m

## Photographic Surveys

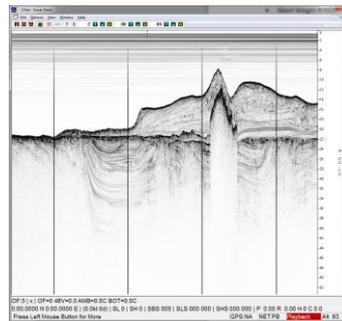


Celtic Sea  
Cruise DY008 [2014]  
Altitude 2.2m

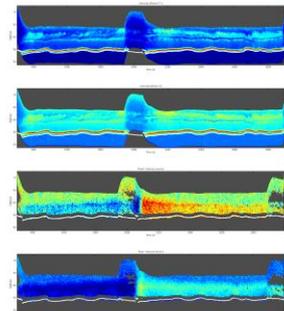
## Other Sensors



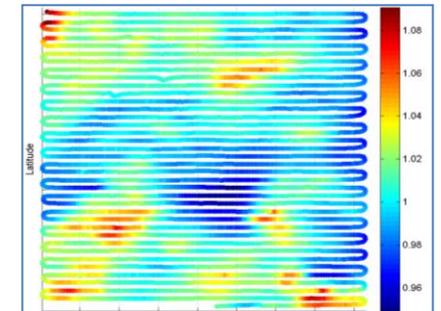
EH signal from JC44



Sub bottom profiler data  
Pelagia 2013



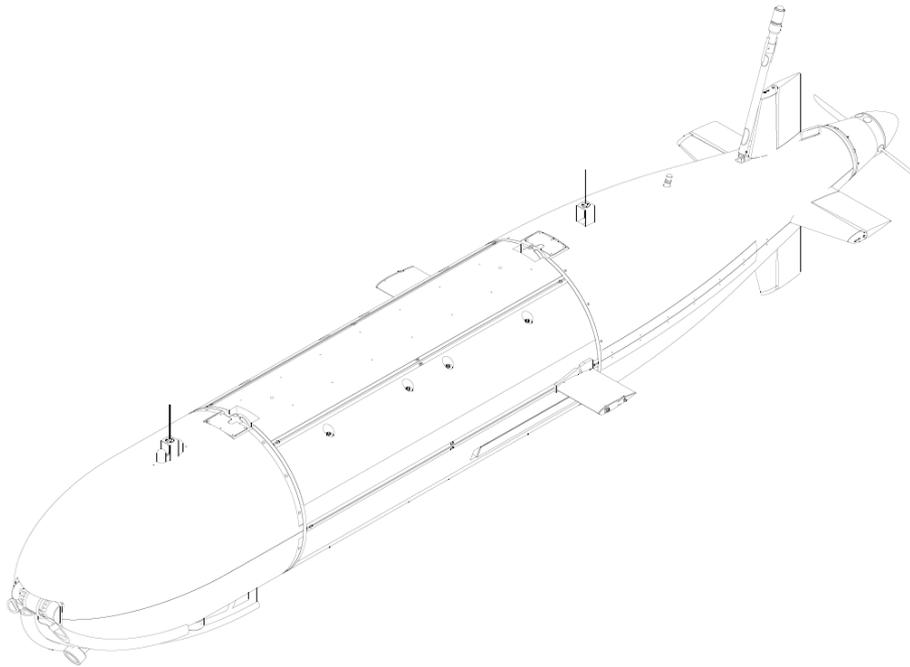
ADCP data  
Pelagia 2013



Magnetometer total field  
(normalised) JC44

# Autosub6000 MK2 Development Programme

Circa £3M programme funded as part of a five year NERC capital grant for Marine Autonomous Systems



## Programme goals

- Develop an upgraded Autosub6000 with a complementary payload to Autosub6000 MK1
- Vehicle to replace Autosub 3

## New Systems

- New onboard control and autonomy system
- Improved obstacle avoidance system for camera surveys
- New topside control
- Under ice configuration

## New Sensors

- Synthetic Aperture Sonar
- Underwater LIDAR
- Stereo Photography

## Timeframes

- Engineering Trials 2018
- Available for Science 2020

