

2017 European OBS Technical Workshop

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UTM-CSIC OBSs park overview

Antoni Bermúdez, David Pina
OBSs Department
UTM-CSIC



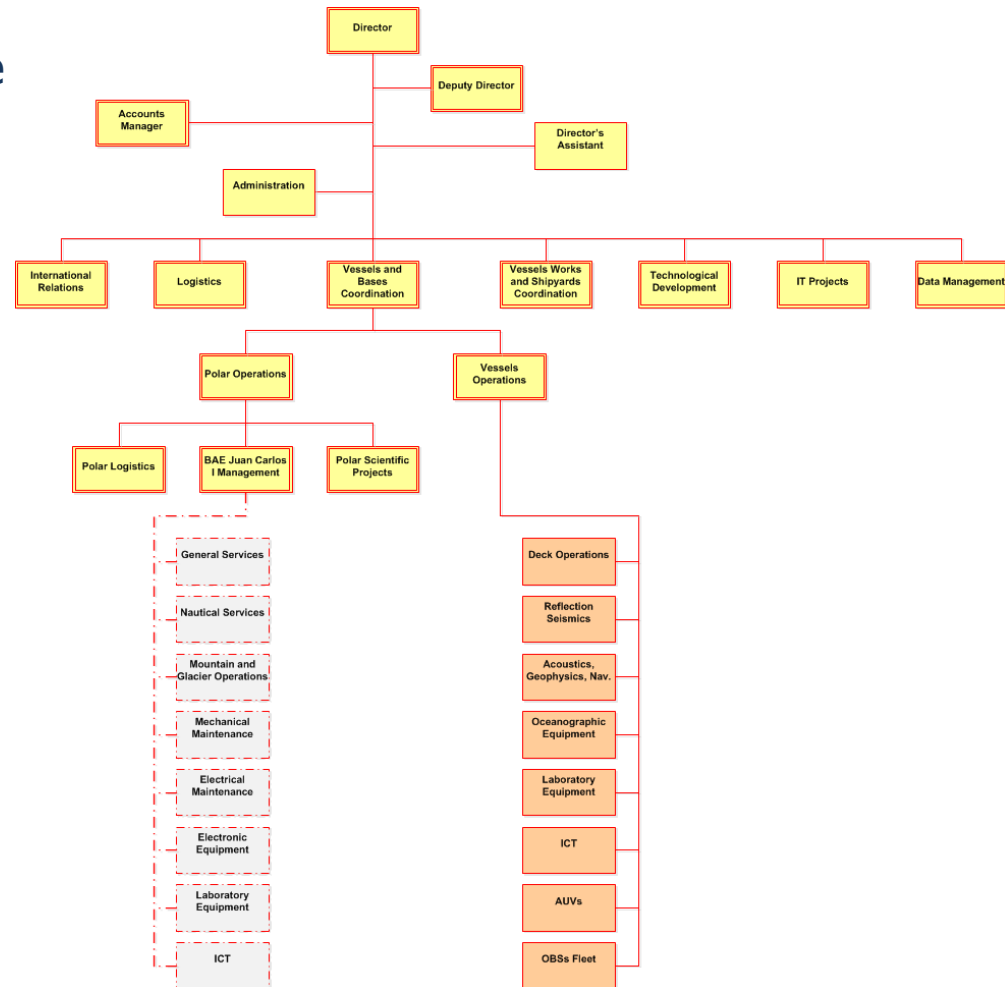
UTM-CSIC overview

- The UTM is an institution from CSIC that provides technological services to the Spanish marine and polar scientific community
- UTM-CSIC gives support to 4 oceanographic vessels (B/O Sarmiento de Gamboa, B/O García del Cid, B/O Mytilus and BIO Hespérides), and the Spanish polar bases in Antarctica (BAE Juan Carlos I and BAE Gabriel de Castilla), and other Spanish scientific vessels



UTM-CSIC organization

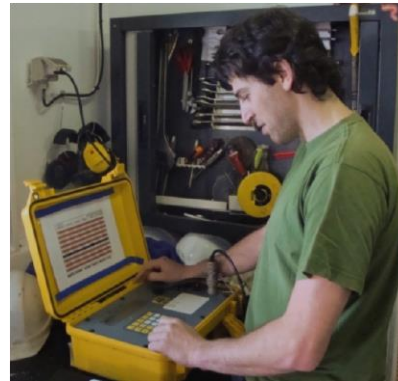
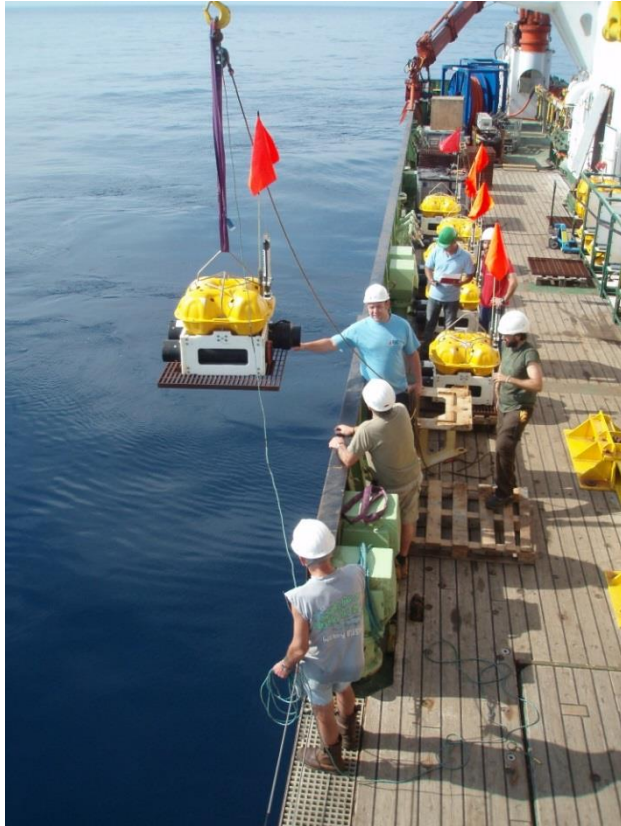
- Regular staff of around 60 people
- The OBSs Department is one of the technical departments
- UTM-CSIC is member of: IRSO, INMARTECH, ERVO, OFEG, OFEG Tech, EUROFLEETS



OBSs Department

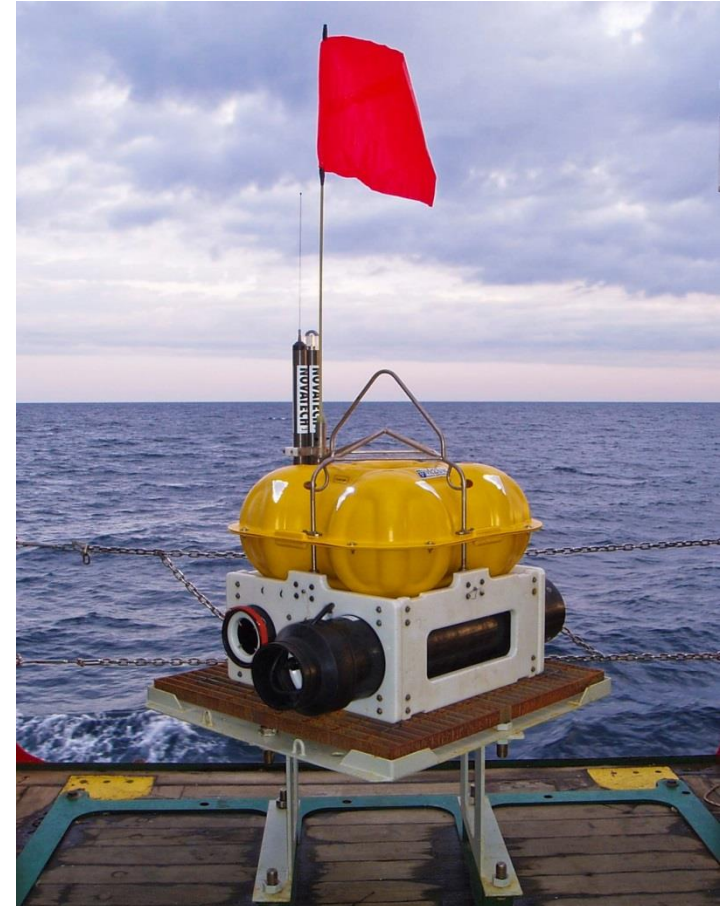
- Currently there are 4 people in the UTM-CSIC's OBSs Department
- 3 people on board at scientific cruises
- Occasionally some support from scientists and other UTM-CSIC departments
- Between 20 and 4 years of experience with OBSs
- Training in Telecommunications, Electronics, Physics and Economics
- Usual tasks:
 - Managing the OBSs pool
 - Maintenance, repair and overhauling of instruments
 - Material procurement for the pool experiments (expendables, spare parts, inventoried investments)
 - Technical support on scientific cruises
 - Technical advice for planning experiments
 - Technical improvements and developments
 - Support to other UTM-CSIC departments on vessels and polar stations

OBSs personnel



OBSs park overview













- UTM-CSIC purchased 17 OBSs LC SP 4x4 from IGPP-SIO-UCSD in 2007 for renewing the existing OBSs pool (miniDOBSs - University of Cambridge)
- Widely used instruments (OBSIP, INSU-IPGP, OBIC)
- Modular equipments based on portable aluminum cylinders
- External geophone over the anchor weight
- More focused on active cruises and short period experiments
- MoU with IGPP-SIO-UCSD for new developments and improvements
- So far 214 equipments have been deployed in 12 cruises (4 passive surveys)
- 1 OBS was not recovered in the Tyrrhenian Sea (07/2015)



Technical features (LC SP 4x4)

Dimensions	914 mm x 660 mm x 965 mm
Weight (ballast included)	125 kg
Typical deployment depth	1000 - 5000 m
Typical autonomy	Up to 6 months
Clock	Seascan TCXO [0.02 - 0.05 ppm]
ADC	Up to 4 channels, Crystal CS5321 Delta-Sigma (24 bit)
Sampling rate	1 - 4000 samples/s
Memory	3 CompactFlash cards
Sensors	Geophone (3 components): Sercel L-28 [4.5 Hz natural frequency] Hydrophone: HighTech HTI-90-U [0.05 – 2500 Hz]
Release system	EdgeTech BART board and 2 redundant IGPP electrolytic circuits
Flotation system	McLane Research Laboratories G8800 (4 x 12" floats) Additional buoyancy: Flotation Technologies syntactic foam blocks
Location aids	Novatech flash light, Novatech VHF beacon and flag
Batteries	Acquisition system: Lithium (primary cells) Release system and location aids: Alkalines (primary cells)

Last OBSs cruises (LC SP 4x4)

CRUISE	OCEAN/SEA	TYPE	VESSEL	Deployments	Recoveries	DATES
CALIBRA-DOS	 Atlantic O.	Active	B/O Sarmiento de Gamboa	17	17	08/2008
NEAREST-SEIS	 Atlantic O.	Active	BIO Hespérides	18	18	10/2008
CARIBENORTE	 Caribbean S.	Active	GC-109 Orión	16	16	04/2009
MEDOC	 Mediterranean	Active	B/O Sarmiento de Gamboa	25	25	04/2010
NORCARIBE	 Caribbean S.	Active	GC-109 Orión B/O Sarmiento de Gamboa	20	20	11-12/2013
TSUJAL	 Pacific O.	Active	RRS James Cook	32	32	02-03/2014
TOMOETNA MED-SUV	 Mediterranean	Active	B/O Sarmiento de Gamboa	15	15	06-07-2014
GEOMARGEN-3 Deployment	 Atlantic O.	Passive	B/O García del Cid	17	-	10/2014
GEOMARGEN-3 Recovery	 Atlantic O.	Passive	B/O García del Cid	-	17	02/2015
CHIANTI	 Mediterranean	Active	B/O Sarmiento de Gamboa	44	43	06-07/2015
JGAP2016 TSUJALP Depl.	 Pacific O.	Passive	B/O El Puma	10	-	04/2016
JGAP2016–Leg2, TSUJALP Rec.	 Pacific O.	Passive	B/O El Puma	-	10	11/2016
TOTAL				214	213	

OBSs cruises map



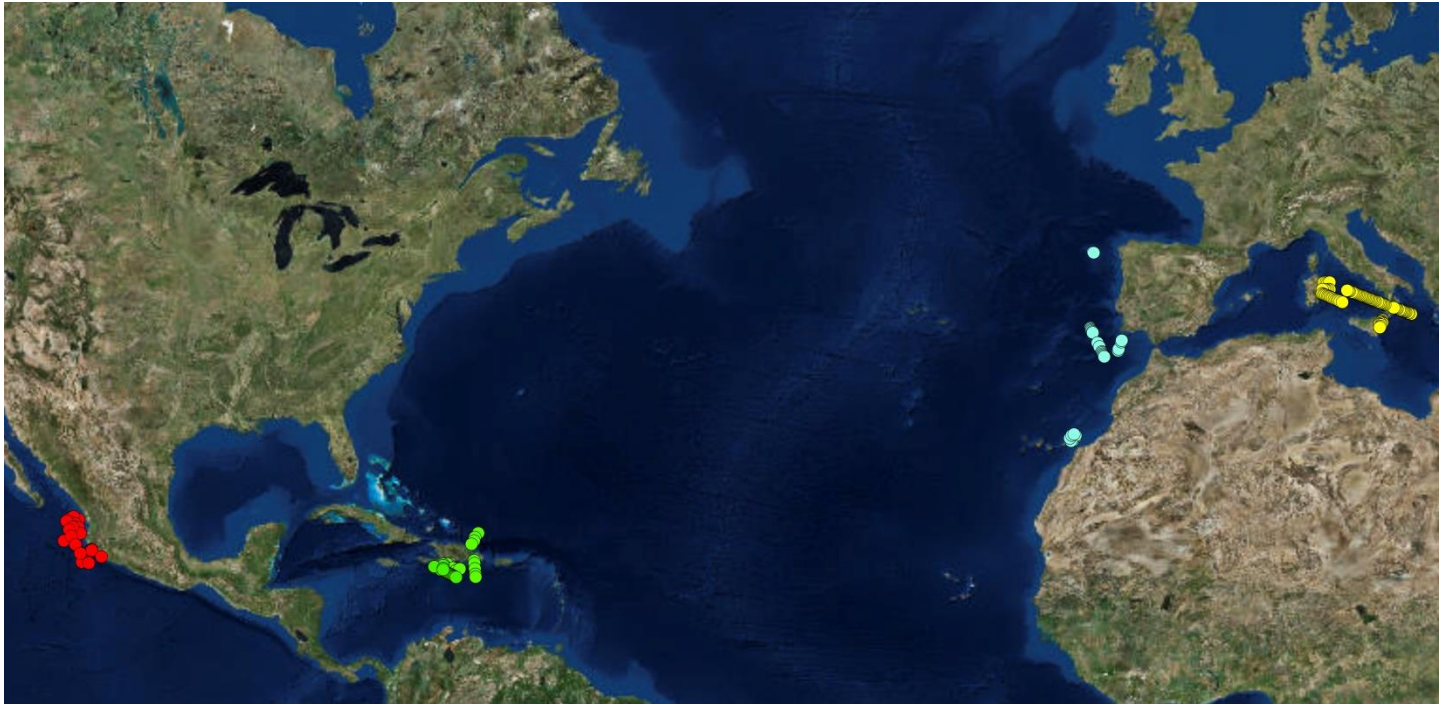
CRUISES:

- CALIBRA-DOS
- NEAREST-SEIS
- CARIBENORTE
- MEDOC
- NORCARIBE
- TSUJAL
- TOMOETNA
- MED-SUV
- GEOMARGEN-3
(Passive)
- CHIANTI
- TSUJAL PASIVA
(Passive)

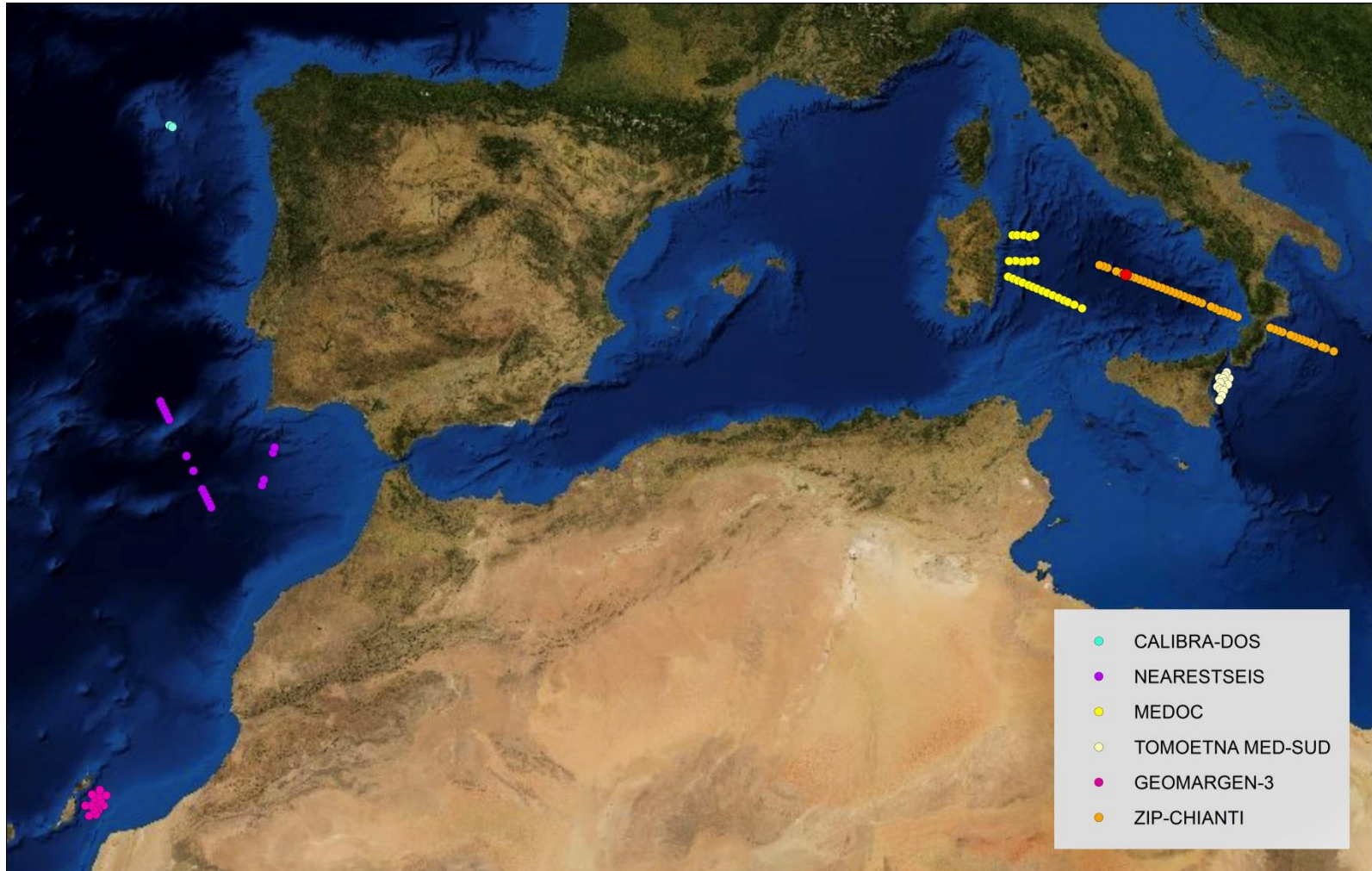
Cruise locations

CRUISES:

- CALIBRA-DOS
- NEAREST-SEIS
- CARIBENORTE
- MEDOC
- NORCARIBE
- TSUJAL
- TOMOETNA
- MED-SUV
- GEOMARGEN-3
(Passiva)
- CHIANTI
- TSUJAL PASIVA
(Passiva)



Cruises in Europe and Africa

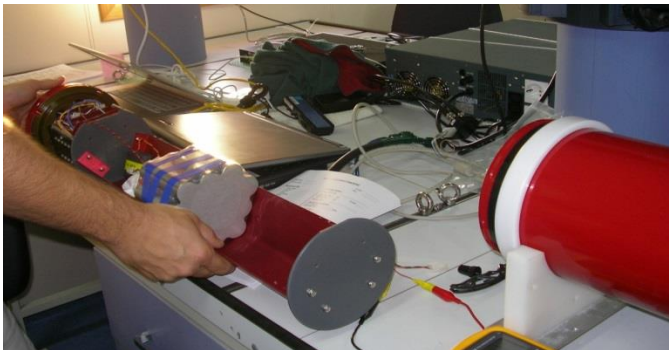


Cruises in America



Collaboration with other institutions

- Spain: ICM-CSIC, ICTJA-CSIC, ICREA, UCM, UGR, ROA, REPSOL Investigaciones Petroleras
- Italy: INGV, ISMAR-CNR
- France: UBO-IUEM/CNRS, UPMC, GéoAzur, Ifremer
- Germany: Geomar
- Portugal: IDL UL
- United Kingdom: OBIC
- United States: USGS/WHOI
- Mexico: SISVOC-UDG, UNAM, CICESE, CAT-SEMAR, IOP-SEMAR
- Dominican Republic: UASD, MEM





Thank you for your attention