



Project

Delivered in-situ observations for Cal/Val activities in WP9.5

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GLOSSARY AND ABBREVIATIONS

SL	Sea level
T	Temperature
S	Salinity
U,V	Zonal and meridional currents
Chl	Chlorophyll

I INTRODUCTION

After the MyO WP9 Cal/Val meeting in Bologna 15-16 September 2009, an electronic questionnaire was sent to the collaborating institutes regarding the in-situ observations they had offered to put at disposal for the validation of the Med_MFC external products. Starting in January 2010, in-situ observations were manually downloaded from the partners, and as of May 2010 the daily downloading procedure is fully operational. The observations are stored in a common database and compared to the Med_MFC-Currents forecasts and analyses on-line (the web page is updated daily with new observations and model values) at:

<http://gnoo.bo.ingv.it/myocean/calval>

A summary of the collected information from each WP9.5 partner is provided below. Appendix A presents a map showing the locations of all in-situ observations that are presently being downloaded operationally.

II LIST OF PARTNERS (ALPHABETICAL ORDER)

1. CNR-ISSIA, Italy.
2. CNR-ISMAR, Italy.
3. CSIC, Spain.
4. HCMR, Greece.
5. IFREMER, France.
6. IMS-METU, Turkey.
7. IOLR, Israel.
8. ISPRA, Italy.
9. NIB-MBS, Slovenia.
10. OC-UCY, Cyprus.
11. OGS, Italy.
12. Puertos del Estado, Spain.
13. UMT-IOI-POU, Malta.

III IN-SITU DATA DELIVERY

III.1 CNR-ISSIA

Contact person: Sara Pensieri.

Type of platform: 1 moored buoy.

Table 1: CNR-ISSIA's buoy.

Name	Lon	Lat	Depth [m]	WMO
ODAS (W1M3A)	E 09°06'42"	N 43°49'35"	1200	61010

Location: The Ligurian Sea.

Variable and sensor depths:

T at 0m,-6m,-12m,-20m,-28m,-36m,-135m,-190m,-235m,-350m,-550m,-950m.
Conductivity sensors (S) at -6m,-20m,-36m,-135m,-190m,-350m,-550m,-950m.

Frequency: Snapshots every 3 hours, delivered in NRT.

Quality control: Comparison with WMO thresholds.

Access: No S data, T only at 6 and 29 m. Daily operational download over FTP.

Format: Ascii.

Link: <http://www.odas.ge.issia.cnr.it>

Status: OK.

MedPortal access: No.

III.2 CNR-ISMAR

Contact person: Mariangela Ravaioli.

Type of platform: 1 moored buoy, S1.

Table 2: CNR-ISMAR's buoy

Name	Lon	Lat	Depth [m]
S1	E 12°27'26"	N 44°44'35"	22.5

Location: The Adriatic Sea.

Variables and sensor depths:

Meteo at: +2.6m (air temperature, atmospheric pressure, wind speed and direction, relative humidity, net-wave radiation).

Sensors of U&V, T, S pH, Dissolved Oxygen, Fluorescence, Turbidity at: -1.6m.

Sensors of Waves, U&V, T, S, Dissolved Oxygen at: -22 m.

Frequency: Snapshots every 30 min, delivered in NRT.

Quality control: Automatic quality control algorithms. Suspected data are flagged and left in the data system. Comparison with local climatology.

Access: No delivery.

Format: -

Link: <http://s1.bo.ismar.cnr.it>

Status: Out of order since July 2009.

MedPortal access: No.

III.3 CSIC

Contact person: Joaquin Tintore and Guillermo Vizoso.

Type of platform: 2 moored buoys.

Table 3: CSIC's buoys.

Name	Lon	Lat	Depth [m]
Enderrocat	E 02°42'02"	N 39°29'49"	30
Cabrera	E 02°57'59"	N 39°13'28"	70

Location: The Western Mediterranean (Balearic Sea).

Variables and sensor depths:

Enderrocat:

T at -1m, -3m, -5m, -7m, -9m, -10m, -13m, -15m, -17m, 19m.

S at -10m.

U&V at -1m, -9m, -19m.

Chl-a at -12m.

Turbidity at -10m.

Cabrera:

T at -1m, -3m, -5m, -7m, -9m, -10m, -11m, -13m, -15m, -17m, -19m, -20m.

S at -10m.

U&V at -1m, -9m, -19m.

Chl-a at -12m.

Turbidity at -10m.

Frequency: Snapshots every 10 min, delivered in NRT.

Quality control: Range check (sensor max. range and physical expected range), spike test, gradient test, frozen test. There is a flag list for each variable that marks the quality of the data following the ARGO RTQC recommendations.

Access: Daily operational download over thredds.

Format: NetCDF.

Link: <http://imedea.uib-csic.es/tmoos/boyas/>

Status: Cabrera out of order since November 2010.

MedPortal access: Not this data, however, CSIC will provide glider data through the Med-portal (sections at the Balearic Channel performed every 3-4 months) starting in November 2010. Ibiza and Mallorca Channel cross-sections will be performed with higher frequency.

III.4 HCMR

Contact person: Leonidas Perivoliotis and Dimitris Kassis.

Type of platform: 10 moored Poseidon buoys:

Table 4: HCMR's Poseidon buoys.

Name	Buoy type	Lon	Lat	D [m]
Zakynthos	Seawatch (SW) buoy	E 20°36'13"	N 37°56'48"	313
Santorini	SW buoy	E 25°29'46"	N 38°58'13"	314
Mykonos	SW buoy	E 25°27'29"	N 37°30'36"	138
Lesvos	SW buoy	E 25°48'46"	N 39°09'28"	121
Athos	SW buoy	E 24°43'12"	N 39°57'50"	212
Pylos	WaveScan-SW buoy	E 21°35'45"	N 36°49'31"	1681
E1-M3A	WaveScan-SW buoy	E 24°55'12"	N 35°46'42"	1440
Skyros	SW buoy	E 24°27'34"	N 39°06'21"	117
Kalamata	SW buoy	E 22°05'44"	N 36°58'19"	340
Saronikos	SW buoy	E 23°33'49"	N 37°36'02"	211

Location: The Aegan Sea.

Variables and sensor depths: T, S, U&V, waves, fluorescence, turbidity, meteorological parameters.

Athos: Sensors at -1m, -20m, -50m, -75m, -100m.

Pylos: Sensors at -1m, -20m, -50m, -75m, -100m, -250m, -400m, -500m.

E1M3A: Sensors at -1m, -20m, -50m, -75m, -100m, -250m, -400m, -600m, -1000m.

The remaining 7 buoys have sensors only at -3m.

Frequency: 10-min averages every 3 hours, delivered in NRT.

Quality control: The near real time data undergo data quality control procedures that have been established during the previous European projects MFSTEP and MERSEA. Several tests and specific flags are attributed to data which fail or pass some numerical checks. These tests are based on some pre-assigned principles. Firstly, values must vary between certain bounds which are determined by the instrument measure range and the regional climatology. Furthermore, values may vary with a maximum rate of change (within a specific timeframe) and that has to do mainly with the threshold it is applied upon each measured parameter. To check the correct functioning of sensors over time, data have to pass the stationarity test that shows whether values are stuck and recur in continuant measurements.

Access: Daily operational download over FTP.

Format: NetCDF.

Link: <http://www.poseidon.hcmr.gr>

Status: OK.

MedPortal access: Yes.

III.5 IFREMER

Contact person: Ivane Pairaud.

Type of platform: 1 moored buoy, MESURHO.

Table 5: IFREMER's buoy.

Name	Lon	Lat	Depth [m]	WMO
Mesurho	E 04°51'57"	N 43°19'08"	20	61284

Location: The mouth of Rhone.

Variables and sensor depths: T and S at -3m

Frequency: 30-min snapshots, delivered in NRT.

Quality control: Automatic real-time QC from Coriolis (flags) for T and S.

Access: Daily operational download over FTP.

Format: Ascii.

Link: <http://www.ifremer.fr/medicis/EN/projets/mesurho.html>

Status: Mesurho out of order since 23/08/2010.

MedPortal access: No.

III.6 IMS-METU

Contact person: Emin Oszoy.

Type of platform: 2 tide gauges.

Location: -

Variables and sensor depths: SL and barometric pressure.

Frequency: 15 min snapshots.

Quality control: -

Proposed data: 2 tide gauges.

Access: No delivery.

Format: -

Link: -

Status: Tide gauges not yet calibrated, no FTP access.

MedPortal access: No.

III.7 IOLR

Contact person: Dov Rosen and Ron Goldman.

Type of platform: 1 bottom-mounted ADCP.

Table 7: IOLR's ADCP.

Name	Lon	Lat	Depth [m]
Hadera	E 34°51'46"	N 32°28'14"	27

Location: Off the Israelian coast.

Variables and sensor depths:

U&V at -4.9m, -5.4m, -5.9m, -6.4m, -6.9m, -7.4m, -7.9m, -8.4m, -8.9m, -9.4m, -9.9m, -10.4m, -10.9m, -11.4m, -11.9m, -12.4m, -12.9m, -13.4m, -13.9m, -14.4m, -14.9m, -15.4m, -15.9m, -16.4m, -16.9m, -17.4m, -17.9m, -18.4m, -18.9m, -19.4m, -19.9m, -20.4m, -20.9m, -21.4m, -21.9m, -22.4m, -22.9m, -23.4m, -23.9m.

Frequency: 1-hour averages of U&V, delivered in NRT.

Quality control: No quality control.

Access: Daily operational download over FTP.

Format: Ascii.

Link: <http://www.ocean.org.il/MainPageEng.asp>

Status: OK.

MedPortal access: No.

III.8 ISPRA

Contact person: Gabriele Nardone (RON) and Sara Morucci (RMN).

Type of platform: 15 moored buoys and 6 tide gauges.

Table 8: ISPRA's buoys and tide gauges.

Name	Lon	Lat	D [m]	WMO
Moored buoys				
Alghero	E 08°06'24"	N 40°32'54"	80	61213
Ancona	E 13°43'09"	N 43°49'30"	70	61218
Cagliari	E 09°24'17"	N 39°06'54"	200	61221
Catania	E 15°08'48"	N 37°26'23"	70	61207
Siniscola	E 09°53'30"	N 40°37'00"	120	61212
Cetraro	E 15°55'00"	N 39°27'02"	100	61211
Civitavecchia	E 11°41'21"	N 42°07'59"	50	61216
Obs!! New position 13/07/2010	E 11°33'14"	N 42°14'41"		
Crotone	E 17°13'11"	N 39°01'24"	80	61210
La Spezia	E 09°49'40"	N 43°55'45"	80	61219
Mazara	E 12°31'59"	N 37°31'05"	90	61208
Ortona	E 14°32'09"	N 42°24'24"	70	61217
Palermo	E 13°19'59"	N 38°15'29"	100	61209
Ponza	E 12°56'59"	N 40°52'00"	100	61214
Venezia	E 12°31'00"	N 45°20'00"	20	61220
Monopoli	E 17°22'40"	N 40°58'30"	80	61215
TIDE GAUGES:				
Carloforte	E 08°18'34"	N 39°08'52"	5 to 10	
Imperia	E 08°01'07"	N 43°52'42"	5 to 10	
Napoli	E 14°16'09"	N 40°50'29"	5 to 10	
Otranto	E 18°29'49"	N 40°08'49"	5 to 10	
Trieste	E 13°45'28"	N 45°38'57"	5 to 10	
Venezia	E 12°25'35"	N 45°25'05"	5 to 10	

Location: Along the Italian coast, Sardinia and Sicily.

Variables and sensor depths: T (buoys) and SL (tide gauges) at 0m.

Frequency: 30-min averages of SL and T, delivered in NRT.

Quality control: No quality control.

Access: Daily operational download over FTP.

Format: Ascii.

Link: <http://www.mareografico.it/>

Status: OK.

MedPortal access: No.

III.9 NIB-MBS

Contact person: Vlado Malacic and Boris Petelin.

Type of platform: 1 moored buoy.

Table 9: NIB-MBS's buoy.

Name	Lon	Lat	Depth [m]
Vida	E 13°33'01"	N 45°32'55"	22

Location: In the gulf of Trieste, the Adriatic Sea.

Variables and sensor depths:

T at -3m.

S at -3m.

U&V at -2m, -3m, -4m, -5m, -6m, -7m, -8m, -9m, -10m, -11m, -12m, -13m, -14m, -15m, -16m, -17m, -18m, -19m, -20m.

Frequency: 1-hr averages, delivered in NRT.

Quality control: Quality control of the meteorological data (wind, air temperature and humidity) according to: 1) Manual of Quality Control Procedures for Validation of Oceanographic Data, 1993. UNESCO, IOC. Manuals and Guides, 26, 436 pp. 2) 2) Guide to Meteorological Instruments and Methods of Observation, 1983, WMO 8, p. 6.7-6.8.

Access: Daily operational download over FTP.

Format: Ascii.

Link: http://buoy.mbss.org/portal/index.php?option=com_content&task=view&id=104&Itemid=46

Status: OK.

MedPortal access: No.

III.10 OC-UCY

Contact person: Daniel Hayes.

Type of platform: 1 moored buoy and 1 tide gauge, glider missions.

Name	Lon	Lat	Depth [m]
MedGOOS-3	E 32°07'59"	N 33°41'54"	2600
Paphos	E 32°24'29"	N 34°45'18"	3

Location: The Levantine basin and off the Cyprus coast.

Variables and sensor depths:

1 Glider mission in the Levantine in November 2009.

MedGOOS-3:

T at -14m, -19m, -24m, -29m, -34m.

S at -14m, -19m, -24m, -29m, -34m.

Paphos:

T at -3m.

SL at 0m.

Frequency: 30min snapshots (MedGOOS3) and 1-hr averages (Paphos), delivered in NRT.

Quality control: Quality control by range checks on salinity (MedGOOS3). Visual inspection (operationally) and software range for Delayed Time (Paphos).

Access: Daily operational download over FTP.

Format: Ascii.

Link: <http://www.oceanography.ucy.ac.cy/cycofos/ocean-observatory.html>

Status: MedGOOS-3 down for maintenance since 16/09/2010.

MedPortal access: No.

III.11 OGS

Contact person: Giulio Notarstefano and Manuel Bensi.

Type of platform: 5 Argo floats, and 1 moored buoy.

Table 11: OGS's buoy.

Name	Lon	Lat
E2M3A	E 17°39.89'	N 41°16.59'

Location: The Mediterranean Sea (Argo), and the Adriatic Sea (E2M3A).

Variables and sensor depths: T and S profiles (0-700m), float coordinates.

Frequency: Argo positions and profiles every 5 days, delivered in NRT. E2M3A delivered in DT (Nov2006-Oct2009).

Quality control: Quality flags.

Access: Daily operational download (Argo) over HTTP.

Format: NetCDF (Argo), and ascii (E2M3A).

Link: http://doga.ogs.trieste.it/boma_mfstep/index.html

Status: No NRT access of E2M3A data due to technical problems with data transfer on the buoy.

MedPortal access: Yes, drifters.

The following data was proposed for validation in wp9.5 but has not been accessible:

11 drifters: snapshots every hour of T delivered in NRT. Instead we got Argo data (not independent insitu), the contact person and P-M Poulain have been notified.

III.12 Puertos del Estado

Contact person: Marcos Garcia.

Type of platform: 8 (+8 in the Atlantic) moored buoys and 15 tide gauges.

Table 11: Puertos del Estado's buoys and tide gauges. Alboran and Algeciras missing.

Name	Buoy type	Lon	Lat	D [m]	WMO
Moored buoys:					
Gran Canaria		W 15°48'36"	N 28°11'24"		13130
Tenerife	SeaWatch	W 16°34'47"	N 28°00'00"		13131
Dragonera	WaveScan	E 02°06'06"	N 39°33'17"	135	61430
Bilbao	Seawatch	W 03°02'24"	N 43°37'48"		62024
Cabo de Penas	Seawatch	W 06°10'11"	N 43°43'47"		62025
Villano-Sisargas	Seawatch	W 09°12'36"	N 43°29'24"		62083
Tarragona	Seawatch	E 01°28'05"	N 40°41'02"	688	61280
Valencia	Seawatch	E 00°12'16"	N 39°30'57"	260	61281
Estaca de Bares	Seawatch	W 07°37'12"	N 44°03'36"		62082
Cabo Silleiro	Seawatch	W 09°24'00"	N 42°07'00"		62084
Cadiz	Seawatch	W 06°57'36"	N 36°28'47"		62085
Cabo de Palos	Seawatch	W 00°19'28"	N 37°39'04"	230	61417
Cabo de Gata	Seawatch	W 02°20'23"	N 36°34'12"	536	61198
Mahon	WaveScan	E 04°25'11"	N 39°43'47"	300	61197
Cabo Begur	WaveScan	E 03°38'42"	N 41°54'53"	1200	61196
Tide gauges:					
Alcudia		E 03°08'21"	N 39°50'04"		
Almeria		W 02°28'41"	N 36°49'47"		
Barcelona		E 02°09'48"	N 41°20'30"		
Formentera		E 01°25'08"	N 38°44'04"		
Gandia		W 00°09'06"	N 38°59'44"		
Ibiza		E 01°26'58"	N 38°54'39"		
Mahon		E 04°16'14"	N 39°53'35"		
Malaga		W 04°24'51"	N 36°42'50"		
Melilla		W 02°55'41"	N 35°17'26"		
Motril		W 03°31'24"	N 36°43'11"		
P. de Mallorca		E 02°38'15"	N 39°33'37"		
Sagunto		W 00°12'21"	N 39°38'02"		
Tarifa		W 05°36'12"	N 36°00'23"		
Valencia		W 00°18'39"	N 39°26'30"		

Location: Along the Spanish coast, the Canarie and the Balearic Islands.

Variables and sensor depths: T, S and U&V at -3m (buoys), SL at 0m (tide gauges).

Frequency: 1-hr averages, delivered in NRT.

Quality control: Quality control by range check, spike detection and interpolation, as well as stationarity test (only for tide gauge data).

Access: Daily operational download over FTP. TG from MedPortal, MB directly from Puertos.

Format: NetCDF.

Link: <http://www.puertos.es>

http://www.puertos.es/es/oceanografia_y_meteorologia/redes_de_medida/index.html

Status: OK.

MedPortal access: Yes, Mediterranean buoys and tidegauges.

III.13 UMT-IOI-POU

Contact person: Aldo Drago.

Type of platform: 1 moored buoy (and 1 meteo-station).

Name	Lon	Lat	Depth [m]
Portomaso	E 14°29'41"	N 35°55'17"	3

Location: Malta.

Variables and sensor depths: T at -3m, SL at 0m.

Frequency: 1-hr averages, delivered in NRT.

Quality control: No NRT quality control.

Access: Daily operational download over FTP.

Format: Ascii.

Link: <http://www.capemalta.net/pounit/levmalta.php>

Status: OK.

MedPortal access: No.

Work will be done on the Marsaxlokk station (meteo) at a later stage. Aldo will keep us informed.

IV APPENDIX A:

Site map over in-situ observations in WP9.5



Figure 1: Moored in-situ stations in the Mediterranean Sea.