



Southern European Seas: Assessing and Modelling Ecosystem changes



Project no: 036949

Project acronym: SESAME

Project title: **Southern European Seas: Assessing and Modelling Ecosystem changes**

Instrument: Integrated Project

Thematic Priority: 6.3 Global Change and Ecosystems

Subtask

Deliverable 9.2.1

“Scanning of external public domain databases for physical and chemical permanent stations data (time series)”

Volodymyr Myroshnychenko
and
Ali Cemal Gucu

Middle East Technical University
Institute of Marine Sciences

Due date of deliverable: October 30, 2008
Actual Draft submission date: October 20, 2008

Start date of project: November 1, 2006

Duration: 48 months

Organisation name of lead contractor for this deliverable:
Middle East Technical University Institute of Marine Sciences

Project co-funded by the European Commission within the Sixth Framework
Programme (2006-2010)

Dissemination Level

PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

INTRODUCTION

SESAME and WP9 OBJECTIVES

The scientific objectives of SESAME are:

- to assess changes in the SES ecosystems over the last 50 years;
- to assess the current status of the SES ecosystems through analysis of existing and newly collected data at basin scale as well as through model simulations;
- to predict future changes in the SES ecosystems;
- to assess and predict changes in the ability of the SES ecosystems to provide goods and services.

SESAME is organically divided in ten Work Packages (WPs). WP9, to which this deliverable pertains, is devoted to organize the common project database. Its activity is made explicit as follows.

WP9 DESCRIPTION

WP9 overall objectives are: (1) Provide ready access of most SESAME data and information to the SESAME consortium as well as to the international science community, industry, educators, media, and public in a timely manner; (2) Coordinate actions of data and information services; and (3) Implement common standards and effective mechanisms for collection and availability of SESAME related historical data (public domain data and product of WP1), newly collected data (product of WP2 and WP3) and model data (product of WP4-WP6).

Within this context, the project aims to develop three different databases: (i) physical and chemical cruise data (episodic stations, Task 9.1); (ii) physical and chemical data in existing/new permanent stations (time-series; Task 9.2) and (iii) biological data (Task 9.3).

T9.2 Development and compilation of database for physical and chemical permanent stations data (time series)

The task 9.2 aims to copy public domain series type physical and chemical data into SESAME-Series MS SQL database.

SCANNING THE PUBLIC DOMAIN FOR TIME SERIES DATA

A small team scanned the websites of the organizations possessing the permanent station data at the Mediterranean and the Black Sea. The list of scanned websites is presented in Table 1.. In total more than 50 websites were scanned (some of them are not included in the table being irrelevant). As it's cleared up, about 50% of organizations provide just a summary of measurements carried out, not giving access to real data. Other organizations possessing permanent stations publish their real time (RT) or near real time (NRT) data, however only very few of them provide public access to long term data archives. Some of organizations may provide access to such archives under special conditions such as mandatory registration with explanation of purposes of using data and, as a rule, restriction to provide data to third party. These are, for example, following archives:

- Data from oceanographic stations of the Institute of Oceanography and Fisheries, Split, Croatia (supported by Jadran project);
- Data from station "Point B", l'Observatoire Océanologique de Villefranche-sur-Mer, France.

Table 1. List of websites scanned for physical and chemical permanent stations data (time series).

No	Country	Program	Period	Platform Type	Region	Responsible Institute	Link to data page	NTR data	Long term data	Comment
1	Bulgaria	Galata Time series; Galata station	1961	R/V; Meteo, CTD, and tide gauge station	Black Sea	IO BAS	http://www.bgodc.io-bas.bg/	Yes (NRT)	No	Historical oceanographic and bio- data are not publicly available. NRT Meteo, sea T, turbiditi, Chl, wave tide from Galata Station data are available.
2	Croatia	JADRAN Project	1999 -	“Punta Jurana” Meteo-oceanographic station	Northern Adriatic	IOF	http://www.izor.hr/amos/eng/index.htm	Yes	No	Meteo-data including sea water T°C; wave parameters. Graphic representation is available. Registration is required to get access to archive data, but data can't be passed to third party.
3	Croatia	EACE & JADRAN Project	2002 - 2005	“Veli Rat” Meteo-oceanographic station	Northern Adriatic	IOF	http://www.izor.hr/eng/intr o.html	No	No	Meteo-data including sea water T° and S. Graphs are available.
4	France	SO-Rade Programme, SOMLIT Programme	1957, 1995	Plankton station; meteo-hydrological station;	France coastal waters	l'Observatoire Océanologique de Villefranche-sur-Mer	http://www.obs- vlfr.fr/Rade/ndex_a.htm	No	No	Station name: Point B. Some graphs of hydrological parameters are available. For access to data contact Laure MOUSSEAU laure.mousseau@obs- vlfr.fr .
5	France	CYBER / PROOF Programme, Service d'Observation DYFAMED	1991- 2002	CTD and biochemistry station	France coastal waters	l'Observatoire Océanologique de Villefranche-sur-Mer	http://www.obs- vlfr.fr/cd_rom_dmtt/dyf_m ain.htm	No	Yes	
6	Greece	Monitoring, Forecasting and Information system for the	2005	Network of observation buoys	Greek seas	HCMR	http://www.poseidon.ncmr .gr/	Yes	No	

No	Country	Program	Period	Platform Type	Region	Responsible Institute	Link to data page	NTR data	Long term data	Comment
		Greek seas								
7	Italy	International CO2 Network	1992 -	"SARAO" Fixed onshore station	Central Mediterranean	ENEA	http://www.palermo.enea.it/Lampedusa/eng/default.htm	No	No	Atmospheric parameters
8	Italy	MAMBO Project	1998	Meteo-oceanographic buoy	Northern Adriatic	OGS	http://poseidon.ogs.trieste.it/mambo/	Yes	No	Meteo-data including sea water T ⁰ and S.
9	Italy	ODAS Italia 1	1997	Meteo-oceanographic buoy	Ligurian Sea	CNR/ISSIA	http://www.issia.cnr.it/htdcs%20nuovo/home.html	No	No	
10	Italy	Regional meso-network	1993	Meteorological station	Northern Adriatic	ARPA FVG	http://www.osmer.fvg.it/~www/EN/HOME/index.php	Yes	No	Meteo-data
11	Italy	Rete Mareografica Nazionale (RMN)	1968	Tide gauge station	Italian Coastal Water	APAT	http://www.mareografico.it/index.php	Yes	Yes	
13	Italy	Tide gauge, CNR, Trieste	1859	Tide gauge station	Northern Adriatic	CNR/ISMAR Trieste	http://www.ts.ismar.cnr.it/	No	No	
14	Italy	ISMAR/Biologia del Mare station	1992	Meteorological station	Northern Adriatic	CNR/ISMAR Venezia	http://www.ve.ismar.cnr.it/	No	No	
15	Italy	ISMAR / Biologia del Mare mooring	2000	Buoy with current meters and sediment traps	Northern Adriatic	CNR/ISMAR Venezia	http://www.ve.ismar.cnr.it/	No	No	
16	Italy	Coastal Water Monitoring Network	2001	Small shore based craft	Italian Coastal Water	APAT and Regional Administrative Institutions	http://www.minambiente.it/	No	No	
17	Italy	MedGOOS-1	2001	Moored buoy	Thyrrhenian Sea	IMC, Oristano	http://www.imc-it.org/it/index.php	No	No	
18	Italy	MedGOOS-2	200	Moored buoy	Thyrrhenian	IMC, Oristano	http://www.imc-	No	No	

No	Country	Program	Period	Platform Type	Region	Responsible Institute	Link to data page	NTR data	Long term data	Comment
			2		n Sea		it.org/it/index.php			
19	Italy	MedGOOS	2000	CTD station	Thyrrhenian Sea	IMC, Oristano	http://www.imc-it.org/it/index.php	No	No	
20	Italy	CORILA Project	2001	ADCP station	Adriatic Sea		http://www.corila.it/ENCorila.html	No	No	
21	Italy	DOLCEVITA Project	2002	Drifters	Central Mediterranean		http://doga.ogs.trieste.it/doga/sire/dolcevita/index.html	No	No	Drifter data for period 2002-2004. Access restricted.
22	Italy	Tide Gauge Network	1998	Meteo-oceanographic station	Venice Lagoon Northern Adriatic	Comune di Venezia	http://www.comune.venezia.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/1653	No	Yes	Mareograph data for last month at 17 stations
23	Italy	Meteo-marine Stations	1985	Meteo-oceanographic station	Venice Lagoon Northern Adriatic	ARPAV	http://www.arpa.veneto.it/acqua/htm/acque_mc_rm_boe_campo.asp	Graphic	No	ADCP, T, and S data
24	Italy	Meteo-marine Stations	1998	Meteo-oceanographic station	Venice Lagoon Northern Adriatic	Venice Water Authority	-	No	No	
25	Italy	National Meteorological Monitoring Network	1960	Coastal Structure	Italian Coastal Water	Ufficio Generale per la Meteorologia dell'AM	http://www.meteoam.it/modules.php?name=datiTempoReale	No	No	
26	Italy	Regional Meteorological Monitoring Network	1984	Coastal Structure	Northern Adriatic	ARPA Veneto	http://www.arpa.veneto.it/datirete.htm	Yes	No	Meteo-data for last 2 month, including data from some coastal stations. Information is not applicable because there is no data on sea state.
27	Italy	Meteo-hydro-network	1960	Coastal Structure	Northern Adriatic	ARPA Emilia-Romagna	http://www.arpa.emr.it/sim/?mare/boa	Yes	No	Waves data from buoy
28	Italy	Daphne Monitoring Network	1978	CTD station	Northern Adriatic	ARPA Emilia-Romagna, S.O. Daphne	http://www.arpa.emr.it/daphne	No	No	Averaged data on water quality

No	Country	Program	Period	Platform Type	Region	Responsible Institute	Link to data page	NTR data	Long term data	Comment
29	Italy	Monitoring coastal water Nord Sardinia	2000	Meteo-oceanographic buoy, CTD station	Central Mediterranean	Provincia di Sassari	http://ambiente.provincia.sassari.it/monitoraria/	Yes	NA	Atmospheric pollution data since 2006 (not applicable)
30	Italy	Oceanographic Platform "Acqua Alta"	1999	Meteo-oceanographic buoy	Venice Lagoon Northern Adriatic	CNR/ISMAR Venice	http://www.ismar.cnr.it/centraline-meteo/awac/index_e.html	Yes (graphs)	No	Waves, currents
31	Italy	CNR coastal sea-water monitoring network	2003	Meteo-oceanographic buoy, CTD station	Southern Italy Coastal Waters	CNR/ISMAR Messina	http://talas.ist.me.cnr.it/menu-projects.php	No	No	
32	Italy	BOMA/MFStep Project	2004	Multi-parametric meteo-oceanographic deep-sea buoy	Southern Adriatic	OGS	http://doga.ogs.trieste.it/boma_mfstep/e2-m3a.html	No	No	
33	Italy	PALME Project	2003	2 meteo-oceanographic buoys, 2 waveriders byoys, 2 current meters	Northern Adriatic	OGS		No	No	
34	Italy	MareChiara - Long Term Ecological Research	1984	Hydrochemical and plankton station	Italian coastal waters	Stazione Zoologica Anton Dohrn of Naples	http://www.szn.it/SZNWeb/cmd/ShowArchiveItem?TYPE_ID=PROJECTSEARCH&ITEM_ID=7304&LANGUAGE_ID=2	No	No	Request
35	Malta	Bathing Water Monitoring (Physico-Chemical)	2000	Beach/Intertidal zone (human operator)	Ionian Sea	Environment Protection Directorate (MEPA)	-	No	No	
36	Malta	Bathing Water Monitoring (Health)	1991	Beach/Intertidal zone (human operator)	Ionian Sea	Department of Public Health (Environmental Health Branch)	-	No	No	Not applicable (classification of beaches and sites)

No	Country	Program	Period	Platform Type	Region	Responsible Institute	Link to data page	NTR data	Long term data	Comment
37	Montenegro	Sea water bathing monitoring programme	1996	Fixed oceanographic monitoring station	Southern Adriatic	IMB, Montenegro	http://www.ibmk.org/indexe.htm	No	No	
38	Slovenia	ISMO - Information System about the Marine Environment in the Gulf of Trieste	2001	Oceanographic buoy Vida	Northern Adriatic	NIB MBS, SLOVENIA	http://buoy.mbss.org/porta/index.php?option=com_content&task=view&id=13&Itemid=27	Yes	No (only graphs)	Meteo, sea surface and bottom T and S
39	Slovenia	National Monitoring Programme	2001	Meteo-oceanographic coastal station	Northern Adriatic	NIB MBS, SLOVENIA	http://www.mbss.org/porta/index.php?option=com_content&task=view&id=21	Yes	No	Sea surface T and S.
40	Spain	Meteorological Network REMPOR	1992	Automatic weather stations	Spanish Coastal Waters	PdE	http://www.puertos.es/externo/clima/RemPor/index.htm	Yes	No	Marine meteorological data from 30 stations for last 4 days in graphical representation
41	Spain	Deep Sea Network	1990	Multiparameter Buoy	Spanish Coastal Waters	PdE	http://www.puertos.es/en/oceanografia_y_meteorologia/redes_de_medida/index.html	Yes	No	
42	Spain	Coastal Network	1982	Scalar & Directional Wave Buoy	Spanish Coastal Waters	PdE		Yes	No	
43	Spain	Tide Gauge Network	1992	Acoustic Tide Gauge	Spanish Coastal Waters	PdE		Yes	No	
44	Spain	Current Meter Network	1998	Currentmeter Chain	Spanish Coastal Waters	PdE		Yes	No	
45	Spain	Sea Level Network		Floating Tide Gauge	Spanish Coastal Waters	IGN	-	No	No	
46	Spain	Sea Level Network	1943	Floating Tide Gauge	Spanish Coastal Waters	IEO	http://indamar.ieo.es/	Yes	Yes	Sea level data

No	Country	Program	Period	Platform Type	Region	Responsible Institute	Link to data page	NTR data	Long term data	Comment
47	Spain	XIOM – Oceanographic and Meteorological Network	1984	Meteo-oceanographic station	Spanish Coastal Waters	LIM/UPC	-	No	No	
48	Spain	Ecomalaga, Ecobaleares, Ecomurcia, Cirbal	1987	CTD station	Spanish Coastal Waters	IEO	http://indamar.ieo.es/	No	Yes*	CTD data from Ecomalaga program cruises, however these are not permanent stations
49	Network	Monitoring Network System for Systematic sea level measurements in the Mediterranean and Black Sea	1998	27 monitoring stations located in 13 countries	Mediterranean and Black Sea	IOLR	http://medgloss.ocean.org.il/timeseries.asp	Yes (graphs)	NA	Sea level and sea temperature data (data download page is "Temporary not accessible")

Among 49 websites scanned 5 publicly available time series datasets were found and copied for SESAME database. Table 2 contains details of these datasets. Two mentioned above datasets were not copied because of restriction on passing data to third party. The stations included in the SESAME database are presented on Figure 1.



Figure 1. Position of the stations providing long-term data; l'Observatoire Océanologique de Villefranche-sur-Mer (target sign); IEO – Current meter (red squares); IEO – Sea Level (yellow drops); Comune di Venezia (red circles); APAT (white circles).

Table 2. Publicly available datasets of physical and chemical permanent stations data (time series).

No	Dataset	Portal owner	Web Address	Parameters	Period	MBytes	Notes	QC
1	DYFAMED	l'Observatoire Océanologique de Villefranche-sur-Mer, France	http://www.obs-vlfr.fr/cd_rom_dm/dyf_main.htm	Hydrological: T, S, Dens, Dissolved oxygen, *Fluo; Hydrochemical: DO-Winkler, NO ₂ , NO ₃ , PO ₄ , Si, Chl, Alk*, pH*, DOC*, POC*, PON*	1991 - 2002	14	*: parameters were measured during some part of the period	MEDAR QC applied
2	Current meter data from IEO	IEO, Spain	http://indamar.ieo.es/	T, S, current speed and direction time series	1978 1979 1980 1996 1997	18.5		The primary data channel has been screened and quality controlled using IEO procedure QC: date & time, spikes, residual and comparison with neighbourhood stations
3	Sea level data from IEO	IEO, Spain	http://indamar.ieo.es/	Sea level at 4 station	1943 – 2006*	43	*: period depends on station	
4	Venice sea level and meteorological data	Comune di Venezia, Italy	http://www.comune.venezia.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/1653	Sea level and meteorological data (including sea water temperature) at 11 stations	Jul 2008 – Aug 2008	0.5	Only recent data (for last 2 month) are publicly available	ESEAS standards are being applied for the archived data (Garcia et al., 2007)
5	Data from Italian National Tidegauge Network	APAT	http://www.mareografico.it/index.php	Sea surface temperature and hydrometric level data at 26 stations	Jan 2006 – Sep 2008	28.1		ESEAS standards are being applied for the archived data (Garcia et al., 2007)

Table 3. Statistics of measurements at individual stations.

Dataset	Station	Coordinates	Parameter	Period	Frequency	Data counts (profiles)	Volume
DYFAMED Time Series	DYFAMED	43°25'00"N / 07°52'00"E	pressure, salinity, pot. Temp, alkalinity, Total CO ₂ , pHT at 25°C, O ₂	24/01/1991-22/2/2000	~1 month	194 profiles	14 Mb
			PROF., N-NO ₂ , N-NO ₃ , P-PO ₄ , Si-Si(OH) ₄	24/01/1991-15/10/2002	~1 month	117 profiles	
			O ₂ Winkler	01/01/1993-18/03/2002	~1 month	79 profiles	
			Carbon (µg/l), Nitrogen (µg/l)	14/05/1997-20/02/2001	irregular	30 profiles	
			TChl-a	22/10/1990-11/12/2001	~1 month	102 profiles	
Sea level data from IEO	Algecira	36°07'N / 5°26'W	Sea level (m)	01/07/1943-31/12/1950, 01/01/1952-14/04/1956, 21/05/1961-31/12/1978, 01/01/1980-27/09/2002, with some gaps	1 hour	451464	61.776 Kb
	Ceuta	35°54'N / 5°19'W	Sea level (m)	01/03/1944-25/12/2006	1 hour (10 min in 2004)	594638	79.893 Kb
	Mallorca	39°33'N / 2°38'E	Sea level (m)	01/01/1997-31/05/2005	1 hour	88491	12.331 Kb
Venice sea level and meteorological data	Ospedale_al Mare - Lido	45°25'16.76"N / 12°22'57.00"E	Tw (°C)	18/07/2008-18/08/2008	1 hour	744	1.616 Kb
	Murano	45°13'57.14"N / 12°16'50.15"E	Sea level (m), Tw (°C)	18/07/2008-18/08/2008	1 hour	744	
	Burano	45°28'58.94"N / 12°25'03.09"E	Sea level (m), Tw (°C)	18/07/2008-18/08/2008	1 hour	744	
	Laguna Nord Saline	45°29'44.14"N / 12°28'19.10"E	Sea level (m)	18/07/2008-18/08/2008	1 hour	744	

	Chioggia città	45°13'11.92"N / 12°16'46.94"E	Sea level (m)	18/07/2008-18/08/2008	1 hour	744	
	Diga Sud Chioggia	45°13'44.32"N / 12°18'32.82"E	Sea level (m)	18/07/2008-18/08/2008	1 hour	744	
	Diga Nord Malamocco	45°20'03.69"N / 12°20'29.54"E	Sea level (m)	15/07/2008-15/08/2008	1 hour	744	
	Diga Sud Lido	45°25'05.63"N / 12°25'35.59"E	Sea level (m)	15/07/2008-15/08/2008	1 hour	744	
	Piattaforma ISMAR-CNR	45°18'51.29"N / 12°30'29.69"E	Sea level (m)	15/07/2008-15/08/2008	1 hour	744	
	Punta Salute(Canal Grande)	45°25'51.45"N / 12°20'13.39"E	Tw (°C)	18/07/2008-18/08/2008	1 hour	744	
Data from Italian National Tidegauge Network APAT	Ancona	43°37'46"N / 13°30'13"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23746	1.720 Kb
	Bari	41°08'24"N / 16°27'00"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23514	1.703 Kb
	Cagliari	39°12'35"N / 09°06'53"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23713	1.717 Kb
	Carloforte	39°08'37"N / 08°18'29"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23690	1.716 Kb
	Catania	37°29'47"N / 15°05'38"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23550	1.706 Kb
	Civitavecchia	42°05'23"N / 13°06'58"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23614	1.710 Kb
	Crotone	39°04'41"N / 17°08'09"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23306	1.688 Kb
	Genova	44°24'31"N / 08°55'33"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23731	1.718 Kb
	Imperia	43°52'37"N / 08°01'09"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23516	1.703 Kb
	La Spezia	44°05'49"N / 09°51'26"E	Sea level (m)	14/03/2006-30/09/2008	1 hour	24251	1.570 KB
	Lampedusa	35°29'00"N / 12°37'00"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23742	1.953 Kb
	Livorno	43°32'41"N / 10°18'00"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23732	1.718 Kb
	Messina	38°11'21"N / 15°34'04"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23399	1.795 Kb
	Napoli	40°50'23"N / 14°16'09"E	Sea level (m), Tw (°C)	05/01/2006-30/09/2008	1 hour	23618	1.710 Kb
Ortona	42°21'20"N / 14°24'56"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23770	1.721 Kb	

	Otranto	40°08'47"N / 18°29'49"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23770	1.629 Kb
	Palermo	38°07'12"N / 13°22'22"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23572	1.707 Kb
	Palinuro	40°01'35"N / 15°16'00"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23709	1.717 Kb
	Porto Empedocle	37°17'25"N / 13°31'28"E	Sea level (m), Tw (°C)	05/01/2006-30/09/2008	1 hour	23579	1.707 Kb
	Porto Torres	40°50'48"N / 08°24'25"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23485	1.701 Kb
	Ravenna	44°29'48"N / 12°16'48"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23585	1.708 Kb
	Reggio Calabria	38°07'15"N / 15°38'57"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23693	1.715 Kb
	Salerno	40°40'53"N / 14°44'54"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23720	1.717 Kb
	Taranto	40°28'31"N / 17°13'29"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23271	1.685 Kb
	Trieste	45°39'01"N / 13°45'22"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23141	1.676 Kb
	Venezia	45°25'22"N / 12°25'25"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23709	1.716 Kb
	Vieste	41°53'34"N / 16°10'29"E	Sea level (m), Tw (°C)	02/01/2006-30/09/2008	1 hour	23736	1.718 Kb
Current meter data from IEO	FI2919966200506994	39°02'60.00"N / 00°28'54.12"E	T, S, current speed and direction	29/06/1996-13/11/1996	1799 s	17791	18.5 Mb
	FI2919976200306994	39°02'48.12"N / 00°28'59.88"E		01/02/1997-01/07/1997	1 hour	13793	
	FI2919976200609371	39°05'06.00"N / 00°41'42.00"E		03/07/1997-28/01/1998	7198 s	7605	
	FI2919976200309371	39°04'54.12"N / 00°42'29.88"E		05/02/1997-01/07/1997	3599 s	10550	
	FI2919966100111739	39°06'24.12"N / 00°55'48.00"E		16/05/1996-05/10/1996	1799 s	6859	
	FI2919976200412078	39°06'29.88"N / 00°55'48.00"E		05/04/1997-01/07/1997	3601 s	2088	
	FI2919976200312078	39°06'36.00"N / 00°55'59.88"E		31/01/1997-03/04/1997	3598 s	13793	
	FI2919976200306993	39°28'23.88"N / 01°59'42.00"E		03/02/1997-30/06/1997	3602 s	10649	
	FI2919966100106993	39°28'05.88"N / 01°59'53.88"E		15/05/1996-12/06/1996	1800 s	5657	

FI2919966200509427	39°28'12.00"N / 02°00'06.12"E
FI2919966100401529	39°06'18.00"N / 02°07'30.00"E
FI2919966100101529	39°05'35.88"N / 02°08'06.00"E
FI2919976200200010	35°41'30.12"N / 03°00'42.12"W
FI2919976200111uf0	35°41'35.88"N / 03°00'54.00"W
SI291980004933938i	36°40'59.88"N / 04°07'59.88"W
SI2919790049039389	36°41'24.00"N / 04°24'11.88"W
SI2919780048432476	36°36'11.88"N / 04°28'54.12"W
SI2919780048232465	36°27'47.88"N / 04°41'12.12"W
SI2919790048532477	36°25'12.00"N / 04°49'59.88"W
SI2919790048332466	36°28'41.88"N / 04°49'59.88"W
SI2919800048632479	36°16'48.00"N / 05°10'30.00"W
SI2919800049546311	36°18'36.00"N / 05°12'47.88"W

01/07/1996- 19/09/1996	1798 s	10683
27/11/1996- 03071997	3602 s	15722
18/05/1996- 01/09/1996	1800 s	13901
05/11/1997- 20/05/1998	3594 s	23631
12/05/1997- 02/11/1997	1 hour	20856
22/01/1980- 13/03/1980	10 min	7288
29/11/1979- 21/12/1979	10min	3139
09/11/1978- 28/11/1978	5 min	5467
09/11/1978- 28/11/1978	5 min	5384
22/02/1979- 20/03/1979	5 min	12899
22/02/1979- 26/03/1979	5 min	18362
07/05/1980- 02/07/1980	10 min	16215
08/05/1980- 14/06/1980	10 min	10551

VARIABLES

Statistic of measurements at individual stations is presented in Table 3. In total:

- Sea Level is available at 38 stations (more than 1780000 counts);
- Water temperature is available at 50 stations, including 194 profiles at DEFAMED station;
- Salinity is available 23 stations including 194 profiles at DEFAMED station;
- Sea currents are available at 22 stations (more than 250000 counts);
- Chemical parameters are available only at one station – DYFAMED (up to 117 profiles depending on parameter).

DATA FORMATS

Data formats are varying from site to site. Only Current meter data from IEO were presented in MEDAR-MEDATLAS format, which did not require transformation. In other cases data were available either as ASCII text files or as Excel tables having various structure. Data formats were manually converted to ODV time series format according to SESAME requirements.

REFERENCES

Garcia M. J., Gómez B. P., Raicich F., Rickards L., Bradshaw E., Plag H.P. Zhang X, Bye B. L., and Isaksen E. 2007. European Sea Level Monitoring: Implementation of ESEAS Quality Control. Dynamic Planet Monitoring and Understanding a Dynamic Planet with Geodetic and Oceanographic Tools IAG Symposium Cairns, Australia 22–26 August, Volume: 130, 67-70pp.