

# Federica PESSINI

## PERSONAL DATA

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PLACE AND DATE OF BIRTH: Parma, Italy | 16 November 1985  
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## WORK EXPERIENCES

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MAY 2017 - PRESENT	Institute of Anthropic Impact and sustainability in marine Environment - National Research Council (IAS-CNR) Oristano, Italy (ex Institute for Coastal Marine Environment - National Research Council - IAMC-CNR)
Position:	Research fellow
Tasks:	Study of physical oceanography. Author of scientific articles and participation in international conferences
MAY 2014 - DECEMBER 2016	Institute for Coastal Marine Environment - National Research Council (IAMC-CNR) Oristano, Italy
Position:	Research associate
Tasks:	Study of the mesoscale circulation in the Western Mediterranean Sea and detection and tracking of mesoscale eddies on the basis of satellite data and in-situ measurements. Author of scientific articles and participation in international conferences
SEPTEMBER 2013 - JANUARY 2014	Institute for Coastal Marine Environment - National Research Council (IAMC-CNR) Oristano, Italy
Position:	Internship
Tasks:	CAL/VAL and data assimilation of hydrodynamic models for forecast/analyses of the sea. Elements of numerical programming in Unix and Fortran languages and use of the visualization tool Grads. Preparation of in-situ data in OVD format. Participation in oceanographic cruise at sea with data acquisition and implementation of a method for the validation of the results in a real-time mode. Study of methods for CAL/VAL of forecasts/analyses.   Supervisor: Dr. Leopoldo FAZIO
SEPTEMBER 2011 - JULY 2012	Institute of Marine Sciences - National Research Council (ISMAR-CNR) Pozzuolo di Lerici (La Spezia), Italy
Position:	Internship
Tasks:	Simulations with an ocean numerical model (MITgcm) to study the stability of the global thermohaline circulation.   Supervisor: Dr. Marco BIANUCCI

## OTHER EXPERIENCES

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7-12 APRIL 2019	EGU General Assembly 2019
Activity:	Co-convener for the session OS4.1 "Open session on ocean processes and techniques and advances due to new instruments and techniques"
15 FEBRUARY - 15 MARCH 2018	Istituto Scienze Marine - Consiglio Nazionale delle Ricerche (ISMAR-CNR) Venezia, Italy
Activity:	Training
Tasks:	Glider data analysis. Climatological study of the water masses along the Balearic-Sardinia transect based on data from repeated glider missions

4-9 JULY 2015	<b>International Marine Centre (IMC), Oristano, Italy</b>
Activity:	Instructor at the Science Camp
Tasks:	Investigation of the marine litter on two beaches of the Sinis Peninsula in Oristano, Italy. Collection and measurement of sub-sieve grade marine litter; harvesting techniques of sand mixed with marine litter for sieving; sorting of collected materials, survey of size and weight; data analysis and considerations of the health of the beaches under investigation (Marine Strategy Methodology)
17-22 AUGUST 2014	<b>Marine System Institute (MSI), Tallinn, Estonia</b>
Activity:	Instructor at the Summer School Eurofleets2: Practical onboard training course for PhD students on using new technologies for multidisciplinary oceanographic research (Marine System Institute MSI and on board R/V Salme).
Tasks:	Instructor for CTD measurements and data processing including application of Ocean Data View software
26 JUNE - 4 JULY 2014	<b>Institute for Coastal Marine Environment - National Research Council (IAMC-CNR) Oristano, Italy</b>
Activity:	Oceanographic cruise Emso-MedIT 01 (Western Med) on board R/V Urania
Tasks:	CTD and ADCP data acquisition and pre-processing; recovery and deployment of bottom moored oceanographic instruments. Near-real-time validation of CTD data. Acquisition of water samples and analyses of dissolved oxygen and salinity.
15-29 OCTOBER 2013	<b>Institute for Coastal Marine Environment - National Research Council (IAMC-CNR) Oristano, Italy</b>
Activity:	Oceanographic cruise ICHNUSSA 2013 (Western Med) on board R/V Urania
Tasks:	CTD and ADCP data acquisition and pre-processing; recovery and deployment of bottom moored oceanographic instruments. Near-real-time validation of CTD data. Acquisition of water samples and analyses of dissolved oxygen and salinity.
8-25 NOVEMBER 2012	<b>Institute for Coastal Marine Environment - National Research Council (IAMC-CNR) Oristano, Italy</b>
Activity:	Oceanographic cruise EUROFLEETS 2012 (Western Med) on board R/V Urania
Tasks:	CTD and ADCP data acquisition and pre-processing; recovery and deployment of bottom moored oceanographic instruments. Acquisition of water samples and analyses of dissolved oxygen and salinity.

## EDUCATION

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JANUARY 2014 - DECEMBER 2016	<b>University of Tuscia</b>
Title of qualification:	PhD
PhD Course:	Ecology and sustainable management of environmental resources - XXIX cycle
Dissertation:	Detection and tracking of mesoscale eddies in the Algerian Basin from altimetric data and in-situ measurement (GEO12)   Supervisor: Dr. Angelo PERILLI
Name of Institution:	Institute for Coastal Marine Environment - National Research Council (IAMC - CNR) Oristano, Italy

<b>JULY 2012</b>	<b>Università degli Studi di Parma</b> <b>Facoltà di SCIENZE MATEMATICHE FISICHE E NATURALI</b>
Title of qualification:	Master's Degree
Course Name:	Condensed Matter Physics - 20/S
Final Grade:	105/110
Thesis:	Study of the stability of thermohaline circulation and modelling of the dynamics of some variables of interest of the same, with simple non-linear dynamic systems.   Coordinator: Dr. Roberto ALFIERI   Supervisor: Dr. Marco BIANUCCI
Name of Institution:	Institute of Marine Science ISMAR - CNR Pozzuolo di Lerici (SP), Italy
<b>FEBRUARY 2008</b>	<b>Università degli Studi di Parma</b> <b>Facoltà di SCIENZE MATEMATICHE FISICHE E NATURALI</b>
Title of qualification:	Bachelors's Degree
Course Name:	Physics (25 - Classe delle lauree in scienze e tecnologie fisiche D.M. 509/1999)
Final Grade:	98/110
Thesis:	Measurement using a wide-field polariscopia of photoinduced birefringence in films by sol-gel and modelling of the dynamics of the process.   Supervisor: Prof. Pier Paolo LOTTICI

## OTHER SCHOOLS

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<b>SEPTEMBER 2018 - JANUARY 2019</b>	<b>National Research Council (CNR), Italy</b>
Title of qualification:	Certificate of participation in the training course: "Corso base di statistica con elementi di R"
Principal subjects /occupational skills:	Statistics and R elements.
<b>22-26 SEPTEMBER 2014</b>	<b>Institute of Atmospheric Sciences and Climate - National Research Council (ISAC - CNR) Lecce, Italy</b>
Title of qualification:	Certificate of participation in the ISAC - CNR Summer School 2014: "Mediterranean Sea: Models, Observations and Experiments"
Principal subjects /occupational skills:	Physical oceanography of the Mediterranean Sea, Eulerian and Lagrangian properties, marine populations, diagnostic tools of environmental indicators.
<b>APRIL 2013 - JANUARY 2014</b>	<b>Institute for Coastal Marine Environment - National Research Council (IAMC - CNR) Naples, Italy</b>
Title of qualification:	Certificate of participation in the training course of the project OTTIMA (Project PON01-02823 financed by MIUR)
Principal subjects /occupational skills:	Course on computer technology and operational oceanography for maritime security (physical oceanography, statistical data analysis, marine biogeochemistry, data transmission, information systems, maritime transport, oil pollution legislation, coastal monitoring, management of risk assessment, analysis of satellite data, numerical ocean modeling)
<b>8-13 JULY 2013</b>	<b>University of Malta</b>
Title of qualification:	Certificate of participation in the Jerico Summer School - July 2013
Principal subjects /occupational skills:	Technical and theoretical observations relating to weather oceanographic platforms, operational monitoring, numerical modelling and forecasting, control and management of data quality, data assimilation and validation, archiving and dissemination of data

27 JUNE - 6 JULY 2008

SISN SOCIETÀ ITALIANA DI SPETTROSCOPIA NEUTRONICA

Title of qualification:

Certificate of participation in the daily courses on "Techniques of neutron spectroscopy for the study of soft matter"

Principal subjects /occupational skills:

The theoretical session consists of 25 hours of lectures on the techniques of neutron spectroscopy. Experimental session consists of 50 hours of experimental work at the spectrometer BRISP of the ILL (Institut Laue-Langevin) in Grenoble (France)

## LANGUAGES

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ITALIAN:	Mother tongue
ENGLISH:	understanding: INTERMEDIATE writing: INTERMEDIATE speaking: INTERMEDIATE
FRENCH:	understanding: BASIC KNOWLEDGE writing: BEGINNER speaking: BASIC KNOWLEDGE
GERMAN:	understanding: BASIC KNOWLEDGE writing: BASIC KNOWLEDGE speaking: BASIC KNOWLEDGE

## TECHNICAL SKILLS

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CTD, LADCP data acquisition, pre-processing and analysis. Recovery and deployment of bottom moored oceanographic instruments (CTD, ADCP). QC of CTD oxygen and conductivity data acquired with comparison with analysed water samples.

Objective analysis of in-situ data for data assimilation.

Automated algorithm of eddy detection and tracking in Matlab environment.

## COMPUTER SKILLS AND COMPETENCES

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Operation Systems	Windows, Linux, Unix, OSX
Word Processing	Latex, Word
Spreadsheets	Excel
Websites	Joomla
Multimedia (sound, images, video)	Photoshop, Photoshop Lightroom, Avid
Display and graphic processing	Grads, ODV
Programming Languages	C, C++, Matlab, Fortran 70 and 90, R, Shell Linux, Shell scripting
Data acquisition	Software acquisition and processing of Seabird 911 plus (Seasave, Seasoft, SBE Data Processing) and Teledyne ADCP (BBtalk, WinSC)

## PUBLICATIONS

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### Articles

Pessini, F., Y. Cotroneo, A. Olita, R. Sorgente, A. Ribotti, S. Jendersie, and A. Perilli. "Life history of an anticyclonic eddy in the Algerian basin from altimetry data, tracking algorithm and in situ observations." In: *Journal of Marine Systems* 207 (2020), p. 103346. ISSN: 0924-7963. DOI: <https://doi.org/10.1016/j.jmarsys.2020.103346>. URL: <http://www.sciencedirect.com/science/article/pii/S0924796320300427>.

Olita, A., L. Fazioli, C. Tedesco, S. Simeone, A. Cucco, G. Quattrocchi, A. Ribotti, A. Perilli, F. Pessini, and R. Sorgente. "Marine and coastal hazard assessment for three coastal oil rigs." In: *Frontiers in Marine Science* 6.274 (2019). DOI: [10.3389/fmars.2019.274](https://doi.org/10.3389/fmars.2019.274).

- Pessini, F., A. Olita, Y. Cotroneo, and A. Perilli. "Mesoscale eddies in the Algerian Basin: do they differ as a function of their formation site?" In: *Ocean Science* 14 (2018), pp. 669–688. DOI: [10.5194/os-14-669-2018](https://doi.org/10.5194/os-14-669-2018).
- Sorgente, R., C. Tedesco, F. Pessini, M. De Dominicis, R. Gerin, A. Olita, L. Fazioli, A. Di Maio, and A. Ribotti. "Forecast of drifter trajectories using a Rapid Environmental Assessment based on CTD observations". In: *Deep Sea Research Part II Topical Studies in Oceanography* (2016).
- Olita, A., I. Iermano, L. Fazioli, A. Ribotti, C. Tedesco, F. Pessini, and R. Sorgente. "Impact of currents on surface computation and their feedback on coastal dynamics". In: *Ocean Sci* 12 (2015), pp. 1–30.
- Pessini, F., L. Fazioli, and R. Sorgente. "Validazione del sistema di previsione TSCRM mediante osservazioni CTD". In: *RACCOLTA DI CONTRIBUTI SCIENTIFICI Corso di formazione OTTIMA, 6660CP2015*. CNR Solar, 2015, pp. 90–98.
- Marino, I.G., D. Delmonte, F. Pessini, P. P. Lottici, L. Cristofolini, J. García-Macedo, A. Franco, and G. Valverde-Aguilar. "Photoinduced optical retardation in mesostructured dye-doped films investigated by an imaging pump-probe technique". In: *JOSA B* 26.3 (2009), pp. 384–389.

## Abstracts

- Cotroneo, Y., F. Pessini, P. Celentano, G. Aulicino, A. Olita, G. Fusco, G. Budillon, and A. Perilli. "Connectivity study of Western Mediterranean Sea sub-regions through lagrangian statistics applied to eddy tracks". In: *ESA - Living Planet Symposium*. Milano, May 2019.
- Pessini, F., M. Borghini, J. Chiggiato, K. Schroeder, A. Perilli, E. Heslop, J. Tintoré, A. Ribotti, and M.T. Torner. "SMART "Sardinia-Mallorca Repeated Transect: first results from a new glider line in the western Mediterranean Sea". In: *EGU General Assembly 2018*. Vol. 20. EGU2018-16655. Vienna, Apr. 2018.
- Pessini, F., A. Olita, Y. Cotroneo, and A. Perilli. "Mesoscale eddies in the Algerian Basin: formation, translational and energetic characteristics as obtained from 22 years of altimetric satellite data". In: *EGU General Assembly 2018*. Vol. 20. EGU2018-8170. Vienna, Apr. 2018.
- Pessini, F., A. Perilli, and A. Olita. "Anticyclonic eddy energy and pathways in the Algerian Basin (1993-2014)". In: *EGU General Assembly 2016*. Vol. 18. EGU2016-16198-2. Vienna, Apr. 2016.

## Posters

- Pessini, F., M. Borghini, J. Chiggiato, K. Schroeder, A. Perilli, E. Heslop, J. Tintoré, A. Ribotti, and M.T. Torner. "SMART "Sardinia-Mallorca Repeated Transect: first results from a new glider line in the western Mediterranean Sea". In: *European Geosciences Union General Assembly 2018*. Vienna, Apr. 2018.
- Pessini, F., A. Olita, Y. Cotroneo, and A. Perilli. "Mesoscale eddies in the Algerian Basin: formation, translational and energetic characteristics as obtained from 22 years of altimetric satellite data". In: *European Geosciences Union General Assembly 2018*. Vienna, Apr. 2018.
- Pessini, F., A. Perilli, and A. Olita. "Anticyclonic eddy energy and pathways in the Algerian Basin (1993-2014)". In: *European Geosciences Union General Assembly 2016*. Vienna, Apr. 2016.
- C. Abbamondi et al. "Collaborative Knowledge – Building". In: *IMDIS 2013 (International Conference on Marine Data and Information Systems)*. Lucca, Italy, Sept. 2013.

## Reports

- Ribotti, A., F. Antognarelli, A. Satta, M. Avella, R. Avolio, G. Gentile, J. Barton, M. Borghini, A. Dimitrov, D. Dunne, A. Grozdanov, Y. Lassoued, P. Paunovik, F. Pessini, K. Schroeder, and P. Magni. *Procedures of sensors deployment methodology on physical supports/platforms*. Tech. rep. CNR, 2014.
- Sorgente, R., C. Tedesco, A. Ribotti, A. Olita, A. Satta, A. Di Maio, F. Pessini, and L. Fazioli. *Report attività svolta dal gruppo di Oceanografia Operativa di IAMC-CNR di Torregrande (Oristano) nell'ambito delle attività di Search and Rescue (Squalo 2014)*. Tech. rep. IAMC-CNR, 2014.