Ehsan Sadighrad, PhD

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Summary

POSTDOCTORAL RESEARCHER IN PHYSICAL OCEANOGRAPHY AND OCEAN MODELING

Experience

Nov. 2023 to present	Senior Research Assistant	CMCC FOUNDATION, EURO-MEDITERRANEAN CLIMATE CHANGE CENTRE, BOLOGNA, ITALY Ocean Predictions and Applications Division (OPA) - Participation in COPERNICUS MED CMEMES2 MFC project.
2019 to Nov. 2023.	Postdoctoral Researcher	OCEANOGRAPHY DEPT., INSTITUTE OF MARINE SCIENCES, MIDDLE EAST TECHNICAL UNIVERSITY, ERDEMLI, TURKEY - Main developer of the Black Sea NEMO model in Developing Optimal and Open Research Support for the Black Sea (DOORS) project – Project funded by the European Union No. 101000518. - Main developer of the Marmara Sea NEMO model in Marmara Sea Integrated Modeling System (MARMOD) project. - Participation to BRIDGE-BS project received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101000240. - Participation to MARDES project, responsible for simulation of Marmara Sea general circulation and study the impact of warm discharged water by industrial facilities on the Marmara Sea physics and ecosystem. - Participation to assessing the effect of environmental and biological conditions on a global key species, Antarctic krill via numerical modeling project.

2019 Nov. to Dec.	Visiting Postdoc	ALFRED WEGENER INSTITUTE, HELMHOLTZ CENTER FOR POLAR AND MARINE RESEARCH (AWI), BREMERHAVEN, GERMANY Marine Biogeosciences team - Simulation of Southern Ocean physics with FESOM-REcoM coupled Sea Ice Ocean – Ocean Ecosystem Finite Element Model applying CORE-II and BOLD Meshes.

Education

2013 to 2019	PhD	OCEANOGRAPHY DEPT., INSTITUTE OF MARINE SCIENCES, MIDDLE EAST TECHNICAL UNIVERSITY, ERDEMLI, TURKEY
	PhD thesis	*Investigating Mesoscale Physical Processes for Vertical and Horizontal Transport in the Black Sea with the Implementation of a High-Resolution Circulation Model.* *Supervisor: Prof. Bettina A. Fach*
2016 Jun. to Jul.	Visiting PhD Student	INSTITUTE FOR CROSS-DISCIPLINARY PHYSICS AND COMPLEX SYSTEMS (IFISC), PALMA DE MALLORCA, ISLAS BALEARES, BALEARIC ISLANDS, SPAIN - HYDROGENCONNECT EU project (HYDROdynamic networks, Population GENetics and Oceanic CONNECTivity for the design of Marine Protected Areas in the Mediterranean Sea) – Modeling of the key processes controlling the early-life stages connectivity, by ocean currents to gain insights into the spatial structure of the population and to compare against the current delimitation of fisheries assessment units. Supervisor: Dr. Vincent Rossi
2014 to 2017	Boursier	TUBITAK (Scientific and Technological Research Council of Turkey) project**:** Dredging applications and environmental management of dredged material (DIPTAR) (111G036).
2004 to 2007	MSc	MARINE SCIENCE DEPT., SCIENCE AND RESEARCH BRANCH, AZAD UNIVERSITY, TEHRAN, IRAN

	MSc thesis	*A Two-Layer Model for Thermohaline Circulation between two Deep enclosed Basins.* *Supervisor: Prof. A. A. Bidokhti*
2000 to 2004	BSc	FACULTY OF SCIENCES, URMIA BRANCH, AZAD UNIVERSITY, URMIA, IRAN

- Major in Solid State Physics
- Participation to a research project focused on the use of hyperthermia treatment to target cancerous cells using ultrasound waves, which provided me with hands-on experience in conducting research and analyzing data during my undergraduate studies.

Languages

English	Fluent
Turkish	Intermediate writing level, advanced speaking
Arabic	Basics
Persian	Native Speaker
Azerbaijani	Mother tongue

Computer Skills

Linux	Use of Linux as an operating system at work and at home
MPI	Experience of parallel computing
Fortran	Use of Fortran on super-computers/Linux clusters
MATLAB	Strong experience in pre/post-processing and visualization
Python	Intermediate

Personal Data

Iranian Nationality

Hobbies and Interests

Music	Playing violin
Sports	Team sports (Basketball)

List of Academic Publications (Peer-Reviewed)

- **Sadighrad, E.**, Fach, B. A., Arkin, S. S., Salihoğlu, B., & Hüsrevoğlu, S. (2021). Mesoscale eddies in the Black Sea: Characteristics and kinematic properties in a high-resolution ocean model. ***Journal of Marine Systems,*** *103613. doi.org/10.1016/j.jmarsys.2021.103613*

- Anıl Akpınar, **Ehsan Sadighrad**, Bettina Fach, Sinan Arkın (2022). Eddy-induced cross-shelf exchanges in the Black Sea. ***Remote Sensing,*** *14(19), 4881. doi.org/10.3390/rs14194881*

List of Academic Publications (in progress)

- **Sadighrad, E.,** V. Rossi, E. Ser-Giacomi, E. Hernandez-Garcia, B. Fach, M. Hidalgo (2023). Modelling the early-life stages connectivity of exploited species to better understand the structural complexity of marine population and inform spatial fisheries management (to be submitted in April 2024).

- **Sadighrad, E.,** Fach, B. A., Variability of the Cold Intermediate Layer Induced by Climate Change and the Evolution of Marine Heatwaves in the Black Sea (in preparation).

Conference Papers:

- **Sadighrad, E.,** 2006: "Numerical Modeling of Underwater Ultrasound Imaging Transducer," Oceanology International 2006, London-UK, 2006.
- **Sadighrad, E.,** 2011: "Finite Element Modeling of Surface Layer Circulation in the Caspian Sea," OCEANS '11 MTS/IEEE, 19-22 September 2011, Kona-US., 2011.
- **Sadighrad, E.,** S. Tuğrul, B. Salihoğlu, 2015: "Modeling of Dredged Material Disposal: Mersin Bay Case Study," MEDCOAST 15, 06-10 October 2015, Varna-Bulgaria, 2015.
- **Sadighrad, E.,** S. Arkın, B. Fach, B. Salihoğlu, 2016: "Developing a Data Assimilation System for a Hydrodynamic Model of the Black Sea," Turkey Marine Sciences Conference, 31 May – 3 June 2016, Ankara-Turkey, 2016
- Tutak, B., **E. Sadighrad,** S. Tuğrul, L. Tolun 2016: "Sensitivity Analysis of Factors Affecting the Dumping of Dredge Material," Turkey Marine Sciences Conference, 31 May – 3 June 2016, Ankara-Turkey, 2016.
- Yücel, N., S. Tuğrul, İ. Akçay, Ş. Başduvar, **E. Sadighrad,** D. Tezcan, H. Örek, 2016: "Determination of Dumping Sites Criteria in Mediterranean Coastal Waters: Iskenderun and Mersin Bay Applications," Turkey Marine Sciences Conference, 31 May – 3 June 2016, Ankara-Turkey, 2016.
- Baris Salihoglu, Sinan Arkin, Ekin Akoglu, Bettina Fach, **Ehsan Sadigrhad,** 2017: Evolution of Black Sea fish stocks under changing environmental and climatic conditions,"5th Advances in Marine Ecosystem Modelling Research Symposium", 03-06 July 2017, Plymouth-UK.
- Rossi, V., **E. Sadighrad,** E. Sergia-Comi, E. Hernandez-Garcia, B. Fach, M. Haidalgo, 2018: "Modelling early-life stages connectivity to better understand marine population structure and inform fisheries management," Fourth International Marine Connectivity (iMarCo) Conference in Heraklion, Crete, Greece - 8 to 9th October 2018.
- Rossi, V., **E. Sadighrad,** E. Sergia-Comi, M. Haidalgo, B. Fach, E. Hernandez-Garcia, 2018: "Modelling the connectivity of early-life stages for exploited species: a new approach for the delimitation of fishery assessment units in the Mediterranean Sea," Ocean Sciences Meeting 2018, Portland, Oregon, USA, 11-16 Feb.

- **Sadighrad, E.**, S. S. Arkin, B. A. Fach, B. Salihoglu: "The role of physical processes in the exchange between the shelf and the deep Black Sea," III. National Marine Sciences Conference, 9-12 May 2018, Izmir-Turkey, 2018.
- Bettina Fach, **Ehsan Sadighrad,** Bulut Cagdas, Ozgur Gurses, Judith Hauk, Ralph Timmemrmann, Claudia Wekerle. Modeling connectivity vs local retention of Antarctic krill in the Lazarev Sea (2021). Integrating Climate and Ecosystem Dynamics (ICED) workshop, 17-21 May 2021.
- **Ehsan Sadighrad,** Bettina Fach, Sinan Arkin, Baris Salihoğlu, Sinan Hüsrevoğlu (2021). Modelling the impact of mesoscale eddies on water mass transport in the Black Sea. AMEMR 2021 Virtual Conference, 12-15 July 2021, Plymouth-UK.
- Bulut Cagdas, Bettina Fach, **Ehsan Sadighrad,** Ozgur Gurses, Judith Hauck, Ralph Timmermann, Claudia Wekerle (2021). Modelling the connectivity of Antarctic krill (Euphausia superba) in the Lazarev Sea. AMEMR 2021 Virtual Conference, 12-15 July 2021, Plymouth-UK.