


Trotta Francesco

Scientist – CMCC Foundation (Euro-Mediterranean Center on Climate Change)

 francesco.trotta@cmcc.it

 Viale Carlo Berti Pichat 6/2, 40127 Bologna, Italy



Education

- **Ph.D. in Astronomy**
University of Florence, Department of Physics and Astronomy
2009–2012
Thesis: *Constraining Variations of Dust Properties in Circumstellar Disks with mm Observations*
- **M.Sc. in Astrophysics**
University of Bologna, Department of Physics and Astronomy
2004–2008
Thesis: *Magnetohydrodynamic Instability in Accretion Disks*
- **B.Sc. in Astronomy**
University of Bologna, Department of Physics and Astronomy
2001–2004
Thesis: *Extragalactic Jets*

Professional Experience

- **Scientist**
CMCC Foundation – Euro-Mediterranean Center on Climate Change
Bologna, Italy | *October 2022 – Present*
- **Visiting Researcher**
Massachusetts Institute of Technology (MIT), Dept. of Mechanical Engineering
Boston, USA | *July – October 2019*
- **Junior Researcher (RTD-A)**
University of Bologna, Department of Physics and Astronomy
Bologna, Italy | *October 2017 – October 2022*
- **Postdoctoral Research Fellow**
University of Bologna, Department of Physics and Astronomy
Bologna, Italy | *2012 – 2017*

Research Specialization

- Ocean Circulation Modeling
 - Mesoscale and Submesoscale ocean dynamics
 - Applied Statistics
 - Radiative Transfer Modeling in dusty media
-

Academic & Training Activities

- **Lecturer** – *Fundamentals of Fluid Earth Physics* (2021–2025)
Master in Space Mission Science and Design, University of Bologna
 - **Lecturer** – *Numerical Laboratory of the Atmosphere and Ocean* (2021–2022)
M.Sc. in Physics of the Earth System, University of Bologna
 - **Lecturer** – *Structure and Dynamics of Atmosphere and Ocean* (2020)
B.Sc. in Environmental Sciences, University of Bologna
-

International Training Courses

- **COMPASS-PHILIPPINES (UNESCO IOC)** – Manila, March 2025
 - **Cuban Institute of Meteorology** – Havana, July 2022
 - **ETOOFS International Group** – Online, June 2021
(Focus: Ocean Circulation Modeling using the SURF Relocatable Platform)
-

Field Campaigns

- **MREA14 Project** – *Gulf of Taranto* (2014): CTD In-situ ocean data collection
 - **MEDESS-4MS** – *Tuscan Archipelago* (2014): Drifter deployment and sampling
-

Selected Research Projects

- **EDITO Model Lab – European Digital Twin Ocean (H2020)**
2022–Present
CMCC scientific lead responsible for integrating the SURF Relocatable Platform into the Virtual Ocean Model Lab as part of the EDITO-Infra Cloud initiative.
- **IMMERSE – Improving Models for Marine Environment Services (H2020)**
2019–2021
Scientific lead for UNIBO activities, focusing on the coupling of the MEDSLIK-II oil spill model with the NEMO ocean circulation model to simulate and reconstruct the 2002 Prestige oil spill off the coast of Galicia.

- **MARISA – Maritime Integrated Surveillance Awareness (H2020) 2017–2020**

Researcher responsible for analyzing extreme oceanographic events in the Mediterranean and North Sea, and for the development of the Sea Environmental Awareness System to enable anomaly detection and risk assessment through advanced statistical analysis of oceanographic and meteorological data.

- **ENI Forecasting Service Tender 2017**

Researcher responsible for the implementation of high-resolution ocean models across multiple global domains. The models were designed to support offshore oil spill mitigation, operational forecasting, and risk mapping.

- **PON TESSA – Situational Sea Awareness 2012–2016**

Researcher involved in the development of the SURF relocatable ocean modeling platform. Collaborated with CMCC to conduct sub-mesoscale ocean analysis using advanced downscaling techniques, achieving resolutions down to 500 meters in the Gulf of Taranto.

Scientific Output

Total peer-reviewed publications: 19

[ResearchGate Profile](#)

Selected Publications

- **Trotta, F., Federico, I., Pinardi, N., et al.**
A Relocatable Ocean Modeling Platform for Disaster Risk Reduction, Front. Mar. Sci., 2021
<https://doi.org/10.3389/fmars.2021.642815>
- **Sepp Neves, A.A., Pinardi, N., Navarra, A., Trotta, F.**
A General Methodology for Beached Oil Spill Hazard Mapping, Front. Mar. Sci., 2020
<https://doi.org/10.3389/fmars.2020.00065>
- **Lermusiaux, P.F.J., Doshi, M., Kulkarni, C.S., Trotta, F., et al.**
Plastic Pollution in the Coastal Oceans: Characterization and Modeling, IEEE OCEANS, 2019
- **Trotta, F., Pinardi, N., Fenu, E., Grandi, A.**
Submesoscale Circulation in the Gulf of Taranto, Ocean Dynamics, 2017
- **Trotta, F., Fenu, E., Pinardi, N., et al.**
SURF: A Structured and Unstructured Relocatable Ocean Platform for Forecasting, Deep-Sea Res. II, 2016
- **De Dominicis, M., Falchetti, S., Trotta, F., et al.**
A Relocatable Ocean Model in Support of Environmental Emergencies – Costa Concordia Case, Ocean Dynamics, 2014