Curriculum Vitae

PERSONAL INFORMATION

Lorenzo Mentaschi

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Date of birth: November 2, 1978

Place of birth: Milan, Italy

Working Experience

June 2021-Today: Assistant Professor (RTD) at University of Bologna.

Since February 2024 RTDb. Until then RTDa.

My research activity reflects my broad scientific interest in ocean and Earth science and statistics, including the non-stationary analysis of the extremes, both monovariate and multivariate, physical and biogeochemical oceanography, coastal flooding, AI modelling of coastal hazard. Additionally, I focus on understanding how climate change influences natural hazards, aiming to develop a comprehensive insight into these interconnected environmental phenomena.

In 2024 I was awarded as a **Highly Cited Researcher** within the **Highly Cited Researchers program by Clarivate**, and as a **top scholar** within the **ScholarGPS** ranking**.**

- Scientific projects:
  - 2025-today: Horizon Europe project *ActFast*, dedicated to aquaculture, where my focus is on assessing the impacts of climate and environmental hazards on aquaculture through the integration of hazard data.
  - 2024-today: EU Interreg ITA-HR project *AdriaClimPlus*. I'm WP leader of WP1, "Advance Scientific Knowledge on climate change and its impacts to support Adriatic basin adaptation". Furthermore, I'm the PI of the UNIBO activities, which involve, among other things, biogeochemical high-resolution modelling, coastal downscaling using AI, and coastal flood modelling.
  - 2021-2023: EU Interreg ITA-HR project *AdriaClim*, where I oversaw the biogeochemical model at Adriatic scale and of the computation of impact indicators for physical and biogeochemical variables.
  - 2023-today: ESA-funded project IRIDE on the development of a high-resolution biogeochemical model at Adriatic scale.
  - 2023-today: Horizon Europe project "Underlying models for the European DIgital Twin Ocean - EDITO-Model Lab".

    - 2021-2023: ESA-funded project EOatSEE, where I'm in charge of flood modelling at the Adriatic Sea focus areas and on the long-term Extreme Value Analysis.
    - 2021-2024: Project RENOVATE, funded by Autorità di Sistema Portuale del Mar Tirreno Centro Settentrionale, on the study of Nature Based Solutions for Climate Adaptation.
- Other scientific contributions
    - Development of a global fully coupled high-resolution dataset of waves and storm surges for studies on coastal impact, in collaboration with the Joint Research Centre of the European Commission (JRC) and Centro Mediterraneo per i Cambiamenti Climatici (CMCC).
    - I actively contribute to the development of the biogeochemical model BFM, being a member of the development team.
    - Collaboration with CMCC on the following research themes:
        - Large-scale modelling of wind waves and storm surges.
        - Impact of climate changes on the dynamics of the Adriatic Sea, with special regard to marine biogeochemistry and wind waves.
        - Coastal downscaling and flood modelling.
        - Development of the Biogeochemical Fluxes Model (BFM) and its implementation.
        - Extreme Value Analysis, stationary and non-stationary, and modelling of joint distributions of the extremes.
    - Collaboration with JRC on the following research themes:
        - Development of a new set of global projections of waves and storm surges based on CMIP6.
        - Analysis of drought based on PESETAIV data.
    - Collaboration with the University of Colorado on automated calibration of biogeochemical models.
- Roles in scientific supervision
    - I coordinate the work of 3 research assistants, working on coastal downscaling and the multivariate analysis of the extremes, involved in the projects AdriaClimPlus, EOatSEE, RENOVATE and EDITO.
    - I'm the scientific supervisor/co-supervisor of 4 PhD students enrolled in the FRONTIERS programme of the University of Bologna, on the following projects:
        - Artificial Intelligence (AI) approaches coastal downscaling of storm surges.
        - Advances in coastal flood modelling with LISFLOOD-FP and machine learning.
        - Merging model and satellite data to produce the best dataset possible of waves and storm surge.
        - Graph Neural Networks for wave and storm surge modelling.
        - Estuarine biogeochemistry, model development and calibration.
    - Past supervised PhD theses:
        - Dos Reis Lopes 2025. Effectiveness of nature-based solutions for coastal inundation: towards a digital twin for coastal management.
        - Campos Caba 2025: Developments in machine learning downscaling for storm surge in the northern Adriatic Sea.

- Teaching activity at the University of Bologna:

- Modelling and Assessing Climate-Related Ocean and Coastal Hazards and Risks, Laurea Magistrale in Analisi e Gestione dell'Ambiente (Master Degree in Environment Analysis and Management), in English language (54 hours in 2023/24 and 2024/25, 46 hours in 2022/23).
- Corso di Struttura e Dinamica dell'Atmosfera e dell'Oceano, Laurea Triennale in Scienze Ambientali (Bachelor Degree Course in Environmental Sciences), module 2, in Italian language (16 hours in 2023/24 and 2024/25, 10 hours in 2022/23, 18 hours in 2021/2022).
- PhD course A060 of the FRONTIERS programme, "Atmospheric and Ocean predictability and forecasting", module on waves (4 hours in 2023, 2024, 2025).

July 2015-May 2021: Research officer at the Joint Research Centre of the European Commission

In this role, I conducted scientific research to support the Climate Adaptation Strategy of the European Commission. My contributions include:

- - Developing new statistical techniques for studying changing climate extremes, including a comprehensive approach for non-stationary Extreme Value Analysis and related copula-based non-stationary joint distributions. These methodologies enabled us to analyze the evolution of hazards such as extreme waves, storm surges, sea level rise, coastal hazards, river runoff, droughts, winds, and heat waves at both European and global scales.
- - Applying my statistical expertise to examine the effects of climate change on coastal risks and inundation.
- - Creating global long-term estimations of the Urban Heat Island effect using the Google Earth Engine, employing a kernel-based approach on satellite data of urban settlements and land surface temperatures.
- - Extensively using dynamic models to project various phenomena under climate change, including waves (WW3 and WWM models), storm surges (schism model), and river runoff (LISFLOOD model).
- - Developing global-scale estimations of coastal erosion and accretion using the Google Earth Engine and Landsat imagery.
- Contributing to international scientific intercomparison groups on the impact of climate changes on waves and coasts (e.g., COWCLIP and CoastMIP).

During this enriching experience, I gained a deep appreciation for the role of science in addressing practical problems and found the impact of our work on policymaking to be highly rewarding. Throughout this period, I authored/coauthored >27 publications in scientific journals.

January 2012 – March 2015: PhD candidate

Course: fluid dynamics and environmental technologies.

University of Genova, Dipartimento di Ingeneria Chimica, Civile e Ambientale (DICCA).

Supervisors: professors Giovanni Besio and Andrea Mazzino.

- Study of wave dynamics and use / development of Wavewatch III model.
- Implementation and validation of wave models in the Mediterranean Sea.
- Development of a high-resolution wave hindcast in the Mediterranean Sea.

- Development of a technique for parameterizing the effects of unresolved obstacles on wave models based on source terms.

Thesis title: Spectral wave modelling: improvements and applications in the Mediterranean Sea.

My activity as a PhD student were carried out in parallel with my full-time jobs as a software developer until 2015, and as a research officer since then.

2003-2015: Software developer

Atomos s.p.a./Sedapta s.r.l.

Via Nizza 35a 17100 Savona, Italy

- I led the development team for the Demand Planning modules, which included tools for sales forecasting using Time Series Analysis and Autoregressive techniques. Model parameters were optimized through minimization of a loss function, with options for Mean Squared Error and Mean Absolute Deviation. Another key component was a highly configurable tool for collaborative sales forecast formulation by sales managers, featuring an editable OLAP cube with customizable statistics and Excel-like formulas. These modules continue to be offered today by SedApta srl.
- I collaborated with customers and users, including major Italian industries such as Gucci, Fendi, Dolce & Gabbana, Riello, and Same-Deutz, to define models and data flows for key Demand Planning projects.
- I participated in defining product specifications for various modules beyond Demand Planning. I made significant contributions to the development of Inventory Planning, Long-term Production Planning, and Plant Scheduling modules.
- I collaborated on the design and implementation of the Atomos library components. Specifically, I coordinated the development of an OLAP cube and other graphical and logical components using an object-oriented architecture, which were subsequently used across all our suite.
- I gained extensive experience in object-oriented software architecture and development across various languages, including Delphi, C++, and C#. This expertise encompasses both desktop and web-based applications.

Sectors: computer science, software engineering, industrial engineering, Supply Chain Management.

September-October 2013: Collaboration with IH Cantabria

In the frame of my PhD course I lived for two months in Santander, Spain, and collaborated with professors Fernando Mendez, Melisa Menendez and their staff. The argument of the collaboration is a new parameterization of unresolved obstacles in wave modelling. After my return to Italy we continued to collaborate. This collaboration resulted in the publication of a paper to Ocean Modelling in December 2014 with title "Parameterization of unresolved obstacles in wave modelling: a source term approach".

Education and training

1998-2003: Degree in Physics

University of Padua, Dipartimento di Fisica (DIFI)

Thesis: “North Atlantic Oscillation and analysis of its dynamics through simplified models on global scale”

Supervisor: Professor Piero Lionello

Personal skills

Mother tongue: Italian

Other languages

- English, fluent written and spoken. Proficient writing skills.
- Russian, good written and spoken. (International certificate of level B1, obtained at the Pushkin institute in Moscow).
- Hungarian, A2 written and spoken.

Soft skills:

- Vast experience in drafting scientific papers and proposals.
- Consolidated experience in presenting scientific content to different public domains (scientific/stakeholders).
- Experience in coordinating and supervising the work of postgraduates and research assistants.
- Experience in teaching.
- Flexibility and capacity to adapt to circumstances and characteristics of my peers. Strong aptitude towards teamworking.

Technical skills

- Excellent knowledge of the python language.
- Excellent knowledge of AI software frameworks, in particular scikit-learn and pytorch.
- Excellent knowledge of the MATLAB language.
- Excellent knowledge of the wave model Wavewatch iii.
- Excellent knowledge of the ocean circulation/wave model SCHISM/WWM.
- Excellent knowledge of the river catchment area model LISFLOOD.
- Excellent knowledge of the flood model LISFLOOD-FP.
- Knowledge of the ocean circulation model NEMO.
- Excellent knowledge of the ocean biogeochemical model BFM.
- Proficient knowledge of the Google Earth Engine, both in Javascript and Python.
- Excellent knowledge of the bash language and of the linux console.
- Strong experience in parallel development in python, MATLAB, Delphi, both multithread and multi-process.
- Strong experience in object-oriented programming.
- Excellent knowledge of the fortran language.
- Knowledge of the C++ language.
- Excellent knowledge of version control systems (git, svn).
- Excellent knowledge of pascal language and Delphi RAD studio.
- Excellent knowledge of relational databases and of SQL language (Oracle, MsSql, Sqlite, Mysql).
- Proficient knowledge of regular expressions.
- Knowledge of Microsoft Visual Studio and c# language.
- Familiarity with netcdf and grib data format.
- Vast experience in using HPC infrastructures.

- Familiarity with storage and elaboration of large output/big data.
- Good knowledge of the Docker virtualization environment.

Publications (peer reviewed)

Tilloy A, Paprotny D, Gomez D, Mentaschi L, Grimaldi S, Feyen L., 2025. Climatic and socioeconomic drivers of changing hydrological extremes in Europe. Under review on Nature Geoscience.

Ghani, Mahmud Hasan, et al., 2025. "Revisited heat budget and probability distributions of turbulent heat fluxes in the Mediterranean Sea." *EGUsphere* 2025 (2025): 1-26. Under review.

Causio S, Shirinov S, Federico I, De Cillis G, Clementi E, Mentaschi L, Coppini G., 2025. Coupling ocean currents and waves for seamless cross-scale modeling during Medicane Ianos. Ocean Science. 2025 Jun 23;21(3):1105-23.

Paprotny D, Vousdoukas MI, Athanasiou P, Mentaschi L, Śledziowski J, Terefenko P, Feyen L., 2025. Sandy coast erosion threatens vital ecosystem services. Under review on Nature Communications.

Lopes IR, Federico I, Vousdoukas M, Perini L, Causio S, Coppini G, Milella M, Pinardi N, Mentaschi L., 2025. Numerical modelling framework for assessing dune effectiveness against coastal inundation. EGUsphere. 2025 May 13;2025:1-30.

Bahmanpour, M.H., Tilloy, A., Vousdoukas, M., Federico, I., Coppini, G., Feyen, L. and Mentaschi, L., 2025. Transformed-Stationary EVA 2.0: A Generalized Framework for Non-Stationary Joint Extremes Analysis. *EGUsphere*, *2025*, pp.1-19.

Benassi F, Pinardi N, Siedlecki SA, Mentaschi L, Bianconcini S, Federico I. Shelf water carbon export from the Atlantic and Pacific Eastern Boundary Upwelling Systems: a satellite-based estimation. Under review on Geophysical Research Letters. 2025 Jun 4.

Borile, F., Pinardi, N., Lyubartsev, V., Ghani, M.H., Navarra, A., Alessandri, J., Clementi, E., Coppini, G., Mentaschi, L., Verri, G. and da Costa, V.S., 2025. The Eastern Mediterranean Sea mean sea level decadal slowdown: the effects of the water budget. *Frontiers in Climate*, *7*, p.1472731.

Shirinov, S., Federico, I., Bonamano, S., Causio, S., Biocca, N., Piermattei, V., Piazzolla, D., Alessandri, J., Mentaschi, L., Coppini, G. and Marcelli, M., 2025. Modeling wave-vegetation interactions: the impact of seagrass flexibility and seasonal variability. *EGUsphere*, *2025*, pp.1-29.

Campos-Caba R, Alessandri J, Camus P, Mazzino A, Ferrari F, Federico I, Vousdoukas M, Tondello M, **Mentaschi L.** Assessing storm surge model performance: what error indicators can measure the model's skill?. Ocean Science. 2024 Nov 25;20(6):1513-26.

da Costa VS, Alessandri J, Verri G, **Mentaschi L**, Guerra R, Pinardi N. Marine climate indicators in the Adriatic Sea. FRONTIERS IN CLIMATE. 2024 Oct 31;6:1-25.

Moulin A, **Mentaschi L**, Clementi E, Verri G, Mercogliano P. Projections of the Adriatic wave conditions under climate changes. Frontiers in Climate. 2024 Jul 17;6:1409237.

Asariotis R, Monioudi IN, Mohos Naray V, Velegrakis AF, Vousdoukas MI, **Mentaschi L**, Feyen L. Climate change and seaports: hazards, impacts and policies and legislation for adaptation. Anthropocene Coasts. 2024 Jun 18;7(1):14.

Lemos G, Bosnic I, Antunes C, Vousdoukas M, **Mentaschi L**, Santo ME, Ferreira V, Soares PM. The future of the Portuguese (SW Europe) most vulnerable coastal areas under climate change–Part II: Future extreme coastal flooding from downscaled bias corrected wave climate projections. Ocean Engineering. 2024 Oct 15;310:118448.

Lemos G, Bosnic I, Antunes C, Vousdoukas M, **Mentaschi L**, Santo ME, Ferreira V, Soares PM. The future of the Portuguese (SW Europe) most vulnerable coastal areas under climate change–Part II: Future extreme coastal flooding from downscaled bias corrected wave climate projections. Ocean Engineering. 2024 Oct 15;310:118448.

Causio S, Federico I, Jansen E, **Mentaschi L**, Ciliberti SA, Coppini G, Lionello P. The Black Sea near-past wave climate and its variability: a hindcast study. Frontiers in Marine Science. 2024 Jun 13;11:1406855.

Verri G, Furnari L, Gunduz M, Senatore A, Santos da Costa V, De Lorenzis A, Fedele G, Manco I, **Mentaschi L**, Clementi E, Coppini G. Climate projections of the Adriatic Sea: role of river release. Frontiers in Climate. 2024 Apr 29;6:1368413.

***Mentaschi**, L., Lovato, T., Butenschon, M., Alessandri, J., Aragao, L., Verri, G., Vichi, M., Pinardi, N. (2024). Projected oligotrophication of the Adriatic marine ecosystems. Frontiers in Climate, 6, 1-16. Doi: 10.3389/fclim.2024.1338374. Q1.

***Mentaschi**, L., Vousdoukas, M., Garcia-Sanchez, G., Fernandez-Montblanc, T., Roland, A., Voukouvalas, E., Federico, I., Abdolali, A., Zhang, Y., J., Feyen, L. (2023). A global unstructured, coupled, high-resolution hindcast of waves and storm surge. FMS. Q1.

Vousdoukas, M., Ranashinge, R., Menendez Fernandez, P., Beck, M., **Mentaschi, L.,** Feyen, L. (2023). Small Island Developing States threatened by rising seas even if 2°C warming goal is achieved. Nature Sustainability. Doi: 10.1038/s41893-023-01230-5. Q1.

Monioudi IN, Velegrakis AF, Chatzistratis D, Vousdoukas MI, Savva C, Wang D, Bove G, **Mentaschi L**, Paprotny D, Morales-Nápoles O, Chatzipavlis AE, Hasiotis T and Manoutsoglou E (2023) Climate change - induced hazards on touristic island beaches: Cyprus, Eastern Mediterranean. Front. Mar. Sci. 10:1188896. doi: 10.3389/fmars.2023.1188896

Dottori, F., **Mentaschi, L.**, Bianchi, A. et al. Cost-effective adaptation strategies to rising river flood risk in Europe. Nat. Clim. Chang. 13, 196–202 (2023). https://doi.org/10.1038/s41558-022-01540-0, Q1.

Erikson, L., Morim, J., Hemer, M., Young, I., Wang, X. L., **Mentaschi, L.,** ... & Webb, A. (2022). Global ocean wave fields show consistent regional trends between 1980 and 2014 in a multi-product ensemble. Communications Earth & Environment, 3(1), 320. Q1.

Steinhausen, Max, Dominik Paprotny, Francesco Dottori, Nivedita Sairam, **Lorenzo Mentaschi**, Lorenzo Alfieri, Stefan Lüdtke, Heidi Kreibich, and Kai Schröter. "Drivers of future fluvial flood risk change for residential buildings in Europe." Global Environmental Change 76 (2022): 102559, Q1.

Morim, J., Erikson, L.H., Hemer, M., Young, I., Wang, X., Mori, N., Shimura, T., Stopa, J., Trenham, C., **Mentaschi**, L. and Gulev, S., 2022. A global ensemble of ocean wave climate statistics from contemporary wave reanalysis and hindcasts. Scientific data, 9(1), p.358. Q1.

Zulian, G., Marando, F., **Mentaschi, L**., Alzetta, C., Wilk, B., & Maes, J. (2022). Green balance in urban areas as an indicator for policy support: a multi-level application. One Ecosystem, 7, e72685.

Vousdoukas, M. I., Clarke, J., Ranasinghe, R., Reimann, L., Khalaf, N., Duong, T. M., …, **Mentaschi, L.**, & Simpson, N. P. (2022). African heritage sites threatened as sea-level rise accelerates. Nature Climate Change, 12(3), 256-262, Q1.

Melet, A., Buontempo, C., Mattiuzzi, M., Salamon, P., Bahurel, P., Breyiannis, G., Burgess, S., Crosnier, L., Le Traon, P.Y., **Mentaschi, L.** and Nicolas, J., 2021. European Copernicus Services to Inform on Sea-Level Rise Adaptation: Current Status and Perspectives. Frontiers in Marine Science, p.1142.

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***Mentaschi L.**, Duveiller G., Zulian G., Corbane C., Pesaresi M., Maes J., Stocchino A., Feyen L. (2021). Global long-term mapping of surface temperature shows intensified intra-city urban heat island extremes. Global Environmental Change (submitted). IF: 10.427, Q1.

Marando, Federica, Mehdi P. Heris, Grazia Zulian, Angel Udías, **Lorenzo Mentaschi**, Nektarios Chrysoulakis, David Parastatidis, and Joachim Maes. "Urban heat island mitigation by green infrastructure in European Functional Urban Areas." Sustainable Cities and Society 77 (2022): 103564, Q1.

Tebaldi C., Ranasinghe R., Vouskoukas M., Rasmussen D., Vega-Westhoff B. Kirezci E., Kopp R, Sriver R., **Mentaschi L.** (2021). Extreme Sea Levels at Different Global Warming Levels. Nature Climate Change (under review). IF: 20.893, Q1.

Morim J., Vitousek S, Erikson L, …, **Mentaschi L.** et al. (2021). Global changes in high-frequency extreme ocean wave events due to anthropogenic warming exceeding 2° C, Environ. Res. Lett. (submitted), Q1.

Naumann G., Cammalleri C., **Mentaschi L.**, Feyen L. (2021). Increasing economic drought impacts in Europe with anthropogenic warming. Nature Climate Changes. IF: 20.893, Q1.

***Mentaschi L.**, Vousdoukas M., Fernandez Montblanc T., Kakoulaki G., Voukouvalas E., Besio G., Salamon P. (2020). Assessment of global wave models on regular and unstructured domains using the Unresolved Obstacles Source Term. Ocean Dynamics. IF: 2.043, Q2.

De Leo F., Besio G., **Mentaschi L.** (2020). Trends and variability of ocean waves under RCP8.5 emission scenario in the Mediterranean Sea. Ocean Dynamics (accepted). IF: 2.043, Q2.

Cammalleri C., Naumann G., **Mentaschi L.**, Bisselink B., Gelati E., De Roo A., Feyen L.(2020). Diverging hydrological drought traits over Europe with global warming. HESS (accepted). 3-y IF: 5.044, Q1.

Morim J. Trenham C., …, **Mentaschi L.** et al. (2020). A global ensemble of ocean wave climate projections from CMIP5-driven models. Nature Scientific Data. IF: 5.541, Q1.

Vousdoukas M., Ranasinghe R., **Mentaschi L.**, Plomaritis T., Panagiotis A., Luijendijk A., Feyen L. (2020). Sandy coastline under threat of erosion. Nature Climate Change. IF: 20.893, Q1.

***Mentaschi L.**, Alfieri L., Dottori F., Bisselink B., De Roo A., Feyen L. (2020). Independence of Future Changes of River Runoff in Europe from the Pathway to Global Warming. Climate. IF: 1.89, Q2.

Vousdoukas M., **Mentaschi L.**, Ciscar J. C., Hinkel J., Ward P., Feyen L. (2020), Economic incentives for raising coastal flood defenses in Europe. Nature Communication. IF: 12.121, Q1.

Fernandez-Montblanc T., Vousdoukas M., **Mentaschi L.**, Ciavola P. (2020). A Pan-European high resolution storm surge hindcast. Environment International. IF: 7.943, Q1.

Marcos M., Rohmer J., Vousdoukas M.I., **Mentaschi L.**, Le Cozannet G., Amores A. (2019). Increased Extreme Coastal Water Levels Due to the Combined Action of Storm Surges and Wind Waves. Geophysical Research Letters. 3-y IF: 4.988, Q1.

Morim J. Hemer M., …, **Mentaschi L.** et al. (2019), Robustness and uncertainties in global multivariate wind-wave climate projections. Nature Climate Change. IF: 20.893, Q1.

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***Mentaschi, L.**, Vousdoukas, M., Pekel, J-F., Voukouvalas, E., Feyen, L. (2018), Global long-term observations of coastal erosion and accretion. Nature Scientific Reports. 3-y IF: 4.558, Q1.

Vousdoukas, M., **Mentaschi, L.**, Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L., Feyen, L. (2018), Global probabilistic projections of extreme sea levels. Nature Communication. IF: 12.121, Q1.

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***Mentaschi, L.**, Kakoulaki, G., Vousdoukas, M., Voukouvalas, M., Feyen, L., Besio, G. (2018), Parameterizing unresolved obstacles with source terms in wave modeling: A real-world application. Ocean Modelling. 3-y IF: 3.715, Q1.

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Dosio, A., **Mentaschi, L.**, Fischer, E. and Wyser, K. (2018). Extreme heat waves under 1.5°C and 2°C global warming. Environ. Res. Lett. 3-y IF: 6.474, Q1.

Vousdoukas M, Buziotas D, Giardino A, Bowver L, **Mentaschi L.**, Voukouvalas E, Feyen L (2018). Understanding epistemic uncertainty in large-scale coastal flood risk assessment for present and future climates. Natural Hazards and Earth System Sciences. 3-y IF: 3.47, Q1.

Neumann, G., Alfieri, L., Wyser, K., **Mentaschi, L.**, Betts, R. A., Carrao, H., Spinoni, J., Vogt J., and Feyen, L. (2018). Global Changes in Drought Conditions Under Different Levels of Warming. Geophys. Res. Lett. 3-y IF: 4.988, Q1.

Monioudi I, Asariotis R, Becker A, Bhat C, Dowding-Gooden D, Esteban M, Feyen L, **Mentaschi L**, Nikolaou A, Nurse L, Phillips W, Smith D, Satoh M, O'Donnell Trotz U, Velegrakis A, Voukouvalas E, Vousdoukas M, Witkop R (2018). Climate change impacts on critical international transportation assets of Caribbean Small Island Developing States (SIDS): the case of Jamaica and Saint Lucia. Regional Environmental Change. 3-y IF: 3.74, Q2.

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***Mentaschi, L.**, M. I. Vousdoukas, E. Voukouvalas, A. Dosio, and L. Feyen (2017), Global changes of extreme coastal wave energy fluxes triggered by intensified teleconnection patterns, Geophys. Res. Lett., 44, 2416–2426. 3-y IF: 4.988, Q1.

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***Mentaschi L.**, Besio G., Cassola F. & Mazzino A. 2015. Performance evaluation of WavewatchIII in the Mediterranean Sea. Ocean modelling,90:82-94. 3-y IF: 3.715, Q1.

Sartini L., **Mentaschi L.** & Besio G. 2015. Comparing different extreme wave analysis model for wave climate assessment along the Italian coast: the case of the Ligurian Sea. Coastal engineering, 100, pp. 37-47. 3-y IF: 4.576, Q1.

***Mentaschi L.**, Besio G., Cassola F. & Mazzino A., 2013. Problems in RMSE-based wave model validations. Ocean modelling, 72, pp. 53-58. 3-y IF: 3.715, Q1.

***Mentaschi L.**, Besio G., Cassola F. & Mazzino A., 2013. Developing and validating a forecast/hindcast system for the Mediterranean Sea. Journal of Coastal Research, SI 65. IF: 0.95, Q2.

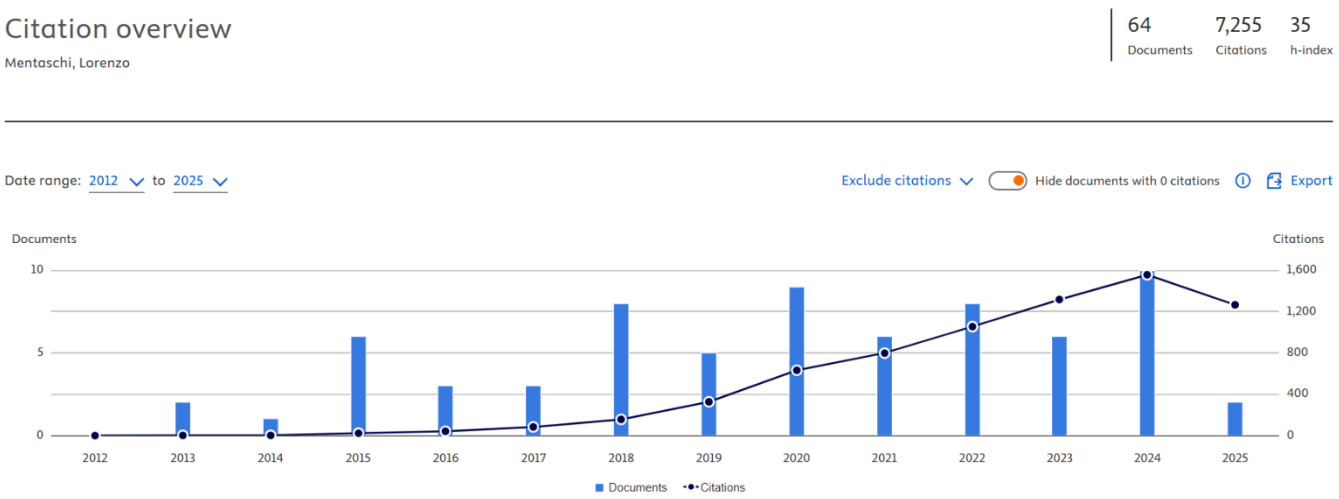

Figure 1: citations overview and h-index graphs from Scopus as of September 11, 2025.

Conferences/workshops

- XXXIII Convegno Nazionale di Idraulica e Costruzioni Idrauliche, IDRA 2012, Brescia, Italy. Presentation: Implementazione e validazione di un modello di previsione e reanalisi del moto ondoso nel Mediterraneo Occidentale. Presented by L.M.
- G3-Giornate Giovani GNRAC, 2012, Ferrara, Italy. Presentation: Implementazione e validazione di un modello di previsione e reanalisi del moto ondoso nel Mediterraneo Occidentale. Presented by L.M.
- European Geoscience Union, 2013, Vienna, Austria. Presentation: Why NRMSE is not completely reliable for forecast/hindcast model test performances. Presented by L.M.
- 13th Wave Workshop, 2013, Banff, Canada. Presentation: Improving wave model validation based on RMSE. Presented by L.M.
- XXXIV Convegno Nazionale di Idraulica e Costruzioni Idrauliche, IDRA 2014, Bari, Italy. Presentation: Un modello di re-analisi del moto ondoso nel Mediterraneo: prestazioni e affidabilità. Presented by L.M.
- European Geoscience Union 2015, Vienna, Austria. Presentation: Parameterization of unresolved obstacles in wave modeling: a source term approach. Presented by L.M.
- Oceans 2015, Genova, Italy. Presentation: A preliminary wave energy exploitation assessment in the Northern Thyrrenian Sea. Presented by L.M.
- 14th Wave Workshop, 2015, Key West, USA. Presentation 1: Source term parameterization of unresolved obstacles in wave modelling: work in progress. Presented by L.M. Presentation 2: Non-stationary Extreme Values Analysis of waves: a simplified approach. Presented by L.M.
- Spring Waves School 2016, Brest, France. Presentation: Parameterization of unresolved obstacles in wave modeling: a source term approach. Presented by L.M.
- 1st Workshop on Waves, Storm Surges and Coastal Hazards, 2017, Liverpool, UK. Presentation: Extreme coastal wave energy fluxes: projected global changes. Presented by L.M.
- The Coordinated Ocean Wave Climate Project (COWCLIP) Meeting, 2017, Liverpool, UK.
- Presentation: LISCoAsT – Large scale Integrated Sea-level and Coastal Assessment Tool. Presented by L.M.
- The Coordinated Ocean Wave Climate Project (COWCLIP) Meeting, Paris, France. Presentation: The effects of changing spatial resolution in global wave models. Presented by L.M.

- 13th Annual International Symposium on Environment, 28-31 May 2018, Athens, Greece. Presentation: Global long-term patterns of coastal erosion and accretion. Presented by L.M.
- 2nd International Workshop on Waves, Storm Surges, and Coastal Hazards 16th International Workshop on Wave Hindcasting and Forecasting, Melbourne, Australia. Presentation: The Unresolved Obstacles Source Term, application cases on regular and triangular meshes. Presented by L.M.
- European Geoscience Union 2020, Vienna, Austria (virtual session). Presentation: On the independence from the emission pathway of the projected changes of river runoff. Presented by L.M.
- European Geoscience Union 2022, Vienna, Austria. Presentation: Daily mapping of global surface temperature reveals intensified local extremes of Surface Urban Heat Island. Presented by L.M.
- AdriaClim workshop, June 2022, Split, Croatia. Abstract title: Development of a High-Resolution Biogeochemical Model For the Adriatic Sea. Presented by L.M.
- Tutela e conservazione degli ecosistemi marini, June 2022, Civitavecchia, Italy. Presentation: Assessing the sensitivity of seagrass landscaping as a nature-based solution in the coastal belt of Emilia Romagna. Presented by L.M.
- AdriaClim & Stream workshop, September 2022, Venice, Italy. *Invited Speaker. Presentation: A high-resolution biogeochemical model for the Adriatic sea, ongoing progresses. Presented by L.M.
- Il programma Copernicus. I servizi europei per la gestione del territorio, February 2023, Bologna. Presentation: I sistemi costieri. Presented by L.M.
- MetMed International Conference, May 2023, Genova. *Invited Speaker. Presentation: Towards a Machine Learning system of Sea Level in the Northern Adriatic. Presented by L.M.
- November 2023. The 18th International workshop on Multi-scale Unstructured mesh numerical Modeling for coastal, shelf and global ocean dynamics 6-9 November 2023, CNR-ISMAR. *Invited Speaker. Presentation: A fully coupled global hindcast of waves and storm surges for coastal applications. Presented by L.M.
- March 2024. ECMWF workshop on high performance computing in meteorology (METOF). I was an invited speaker, and gave a presentation on "Advancements and challenges in Coastal Ocean Downscaling".
- European Geoscience Union 2024, Vienna, Austria. Presentation: Projected extreme oligotrophication of the marine ecosystems of the Adriatic Sea. Presented by L.M.
- The 9th China-Italy Joint Workshop on Ocean Forecasting and Climate Projections, July 2024 Lecce. Presentation: Oligotrophication in the Marine Ecosystems of the Adriatic Sea
- AdriaClimPlus Mid-Term-Meeting, Split, Croatia. Presentation on activity 1.3: training and education events for students.

Teaching experience

- Modelling and Assessing Climate-Related Ocean and Coastal Hazards and Risks, Laurea Magistrale in Analisi e Gestione dell'Ambiente (Master Degree in Environment Analysis and Management), in English language. Academic years 2023/2024 and 2024/2025 (54 hours) and 2022/2023 (46 hours).
- Corso di Struttura e Dinamica dell'Atmosfera e dell'Oceano, Laurea Triennale in Scienze Ambientali (Bachelor Degree Course in Environmental Sciences), module 2, in Italian language. Academic years 2021/2022 (18 hours), 2022/2023 (10 hours), 2023/2024 (16 hours), 2024/2025 (16 hours).
- PhD course A060 of the FRONTIERS programme, "Atmospheric and Ocean predictability and forecasting", module on waves. Academic years 2022/2023, 2023/2024 and 2024/2025. 4 hours.

- Lessons on waves within the course Ocean Science and Engineering, BA course of Maritime science and technology, University of Genova. Academic year 2020/2021. 2 hours.

Best achievements

- In June 2025 I was awarded as a Top Scholar by ScholarGPS.
- In November 2024 I was awarded as a Highly Cited Researcher within the Highly Cited Researchers program by Clarivate.
- In September 2023, I was awarded the role of Senior Assistant Professor at the University of Bologna.
- In 2023, I was awarded the Italian National Scientific Qualification – Abilitazione Scientifica Nazionale as Full Professor (prima fascia), for the competition sector of Geophysics (04/A4).
- In 2022, I was awarded the Italian National Scientific Qualification - Abilitazione Scientifica Nazionale as Associate Professor (seconda fascia), for the competition sector 08/A1, idraulica, idrologia, costruzioni idrauliche e marittime.
- In 2022, I was awarded the Italian National Scientific Qualification - Abilitazione Scientifica Nazionale as Associate Professor (seconda fascia), for the competition sector 02/C1, Astronomia, Astrofisica, Fisica della Terra e dei Pianeti.
- In 2020, I was awarded the Italian National Scientific Qualification - Abilitazione Scientifica Nazionale as Associate Professor (seconda fascia), for the competition sector of Geophysics (04/A4).
- In 2017 we received the JRC Excellence Award as the best scientific research group of the JRC.
- I was awarded a grant by PADI foundation in 2014, for the project "Subscale Wave Modelling".
- I reviewed scientific publications on Nature Reviews Earth and Environment, Earth Future, Nature Scientific Reports, Science of the Total Environment, Geophysical Research Letters, Ocean Modelling, Ocean Dynamics, Limnology and Oceanography, Natural Hazard, Marine Geodesy, Ocean Engineering, Natural Hazard and Earth System Science, Atmosphere, Journal of Marine Science, Coastal Engineering, Journal of Climate, Journal of Hydrology, Frontiers in Marine Science and others.
- At the university of Genova, I implemented the wave component of an operational forecast chain on the Mediterranean Sea which is available online at the address

  http://www3.dicca.unige.it/meteocean/ .

  This service is popular in the Ligurian surfing community.

- I contributed to the implementation of wwiii at the meteorological center of the environmental agency of Liguria district (ARPAL). Results of the operational model are available at the link

  https://servizi-meteoliguria.arpal.gov.it/mare/meteomare.html .

- As a software developer I coordinated the development of the demand planning suite of Atomos group, and personally participated to the implementation of leading projects at some important industrial customers on the Italian panorama (e.g. Same, Gucci, D&G, Fendi). Now this product is used with satisfaction by several industries.
- As a developer at Atomos I participated in defining, engineering and implementing several software components which are now widely used in all Atomos products by hundreds of industrial partners.

Other personal info

I have a deep passion for studying and learning. Over many years, I devoted a significant portion of my leisure time to exploring the intricacies of physics. My collaborative journey began in February 2011 with Professors Andrea Mazzino and Giovanni Besio at the University of Genova, focusing on sea wave dynamics. In 2012, I seized the opportunity to join the PhD program in Fluid Dynamics at the University of Genova, balancing this academic pursuit with my role as a software developer at Atomos. My subsequent positions at the European Commission and the University of Bologna broadened my horizons further, allowing me to delve into multidisciplinary research and modelling in areas vital for policy making, while enhancing my expertise in Earth Sciences. Now, as a scientist, I find my job very fulfilling and continually draw upon my background in Computer Science, finding it very beneficial in my current work.