

Complexity and emergence in marine ecosystems/seascape: Theory, mechanisms and data

Synergy Summer School

30 June – 4 July 2025


AtlantECO
Atlantic Ecosystems Assessment, Forecasting & Sustainability

 **MISSION
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**Consiglio Nazionale
delle Ricerche**

Synergy Summer School 2025 “Seascape”

30 June – 4 July 2025

Overview

Summer school

Title: Complexity and emergence in marine ecosystems/seascape: theory, mechanisms and data

Aim: to stimulate discussions around the most important theoretical and experimental challenges in the context of open ocean seascape ecology. That is, to introduce the ocean fluid dynamics into current theoretical frameworks (community structure, biogeographies, niche concept, effectiveness of the active tracer response, persistence and fitness, possible functional redundancy, stability of the metabolic machinery with respect to species turnover, etc.) and in the design of new multidisciplinary studies.

Key points: community structures and functioning, reactive dynamics, emerging patterns and predictability for pelagic oceanic ecosystems, i.e., ecosystems whose substrate is a fluid.

Format: scientific lectures, interactive workshops, seminars and students' presentations

Dates: 30 June – 4 July 2025

Scientific directors: Daniele Iudicone, Patrizio Mariani, Bruno Buongiorno Nardelli, Meike Vogt, Alejandro Maass

Venue: [Sorriso Thermae Resort & SPA](#)

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WiFi (Hotel): Sorriso Resort - Password: sorriso1234

WiFi (Venue): Direzione - Password: direzione4321

SynSS25 Programme

	Mo 30/06 Ocean dynamics and ecological connectivity	Tu 01/07 Biodiversity concepts and methods	We 02/07 Metabolic Modelling	Th 03/07 Global processes and climate	Fr 04/06 Complex theory for ecology	Sa 05/07
9:00-10:30	Enrico Ser Giacomi The oceans as a fluid	Lucie Bittner Biodiversity: genetics and genomics	Damien Eveillard Ocean microbiomes: The emerging patterns	Meike Vogt Ocean microbiome ecology: concepts	Emanuele Pigani Complex systems	Networking and discussions
10:30-11:00	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>
11:00-12:30	Enrico Ser Giacomi The oceans as a fluid	Lucie Bittner Biodiversity: genetics and genomics	Damien Eveillard Ocean microbiomes: The emerging patterns	Alexandre Schickele Ocean microbiome ecology: concepts	Emanuele Pigani Complex systems	Students' feedback
12:30-14:30	<i>Lunch break</i>	<i>Lunch break</i>	<i>Lunch break</i>	<i>Lunch break</i>	<i>Lunch break</i>	
14:30-16:00	Daniele Iudicone & Maurizio Ribera D'Alcalà Thinking out the box: Open questions in marine science	Workshop/ debate <i>Material provided during the course</i>	Workshop/ debate <i>Material provided during the course</i>	Workshop/ debate <i>Material provided during the course</i>	Bruno Buongiorno Nardelli AI: Tools and concept -	
16:00-16:30	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	
16:30-18:00	Ice breaker: students' presentations/ posters session	Seminar Patrizio Mariani Data driven earth system modeling	Seminar Sabrina Speich	Seminar Naomi Levine (online)	Walk and Talk	

Scientific committee and lecturers

	Last name	First name	Organisation/project	Role	Email address
1	Iudicone	Daniele	SZN/AtlantECO	Host/scientific director/ lecturer	iudicone@szn.it
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4	Maass	Alejandro	University of Chile	Scientific director/ lecturer	amaass@dim.uchile.cl
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9	Ribeira D'Alcalà	Maurizio	SZN/AtlantECO	Lecturer	maurizio@szn.it
10	Bittner	Lucie	Sorbonne University	Lecturer	lucie.bittner@upmc.fr
11	Levine	Naomi	University of Southern California	Lecturer	n.levine@usc.edu
12	Speich	Sabrina	Ecole Normale Supérieure	Lecturer	speich@lmd.ens.fr
13	Solidoro	Cosimo	OGS	Lecturer	csolidoro@ogs.it

Organising committee

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