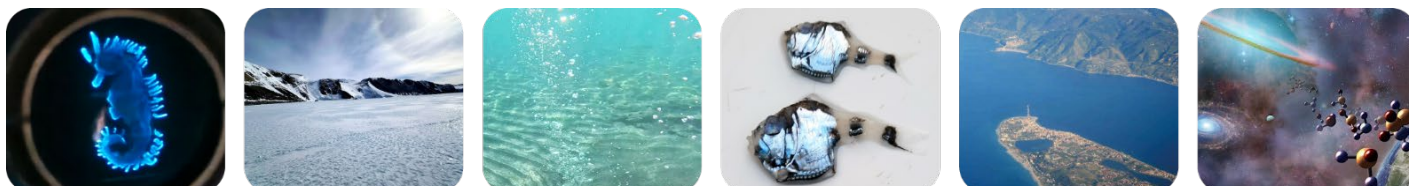




Second International Summer School on the Study of Extreme Environments through Integrated Approaches



ISS-SEEA

September 22nd-25th 2025

SZN - Sicily Marine Centre, Messina (Italy)

Program

Day 1_ September 22, 2025

Are our seas going to become extreme?

14:00 – 14:30

Registration of participants

14:30-14:45

Welcome by the Organizing Committee and description of the Summer School events

14:45-15:00 - Teresa Romeo

Welcome and Introductory Comments

Session 1: *How our blue world is becoming extreme*

Chairs: Teresa Romeo and Cristina Pedà

15:00 – 15:45 - Gianluca Lazzaro (INGV)

Continuous monitoring of marine volcanic activities and hydrothermal systems

15:45 – 16:30 - Giorgio Riccobene (INFN)

Innovative technologies for deep-sea exploration

Session 2: *The Straits of Messina: extremes and hotspots of ecological value*

Chair: Teresa Romeo and Cristina Pedà

16:30-17:15 - Pasquale Castagno (UNIME)

Challenges of marine research in a world going to extremes

17:15-18:00 - Cristina Pedà (SZN, Sicily Marine Centre)

Transfer of plastic items across the trophic web of the Straits of Messina: the role of mesopelagic fish

Day 2_September 23, 2025

Deep Environment

Session 1: *Deep-sea organisms: challenges and adaptations*

Chairs: Pietro Battaglia and Pierpaolo Consoli

09:00-09:45 - Pietro Battaglia (SZN, Sicily Marine Centre)

Pelagic deep fish: general adaptations, vertical distribution and ecology

09:45-10:15 - Coffee break

10:15-12:30 - Emanuele Asciutto, Ludovica De Vincenzis, Luca Pagano, Calogero Fontana, Chiara Bacchiani (SZN, Sicily Marine Centre)

Practical session for the observation of deep-sea organisms

12:30-14:00 - Lunch break

14:00-14:45 Danila Cuccu (UniCA)

Adaptive Morphology and Reproduction in Deep-Sea Cephalopods

14:45-15:30 Pierpaolo Consoli (SZN, Sicily Marine Centre)

Impacts of marine litter on deep-sea species and habitats

15:30-15:45 - Coffee break

Session 2: *Innovative tools for sampling and observation of deep environments*

Chairs: Pietro Battaglia and Carmen Rizzo

15:45- 16:30 - Vittoria Dias (SZN, Sicily Marine Centre)

Bioluminescent bacteria from deep-sea organisms

16:30 – 17:15 - Francesco Fabiano (SZN, Sicily Marine Centre)

Microbial ecology approach of deep marine seamounts

17:15– 18:15 - Antonio Giova, Ludovica De Vincenzis (SZN, Sicily Marine Centre)

Practical session on the methodology used for deep-sea biodiversity and habitat monitoring through Remotely Operated Vehicles (ROVs) and OFOP software

18:15-18:45 - Round table and crossed interaction

Day 3_September 24, 2025

Cold Environments

Session 1: *Biotechnology exploration in cold and polar environments*

Chairs: Carmen Rizzo and Chiara Lauritano

09:00-09:45 - Alessandro Ciro Rappazzo, Maria Papale (CNR-ISP Messina)

Enrichment, isolation and characterization of heavy-metal tolerant bacteria from polar lacustrine sediments

09:45-10:30 - Chiara Lauritano, Eleonora Montuori (SZN, Napoli)

Drugs from the sea: examples of bioactivities from extreme environments

10:30 – 10:45 - Coffee break

10:45 – 12:15 - David Tovar, Maria Angelica Leal (UNAL)

Extremophile Microorganisms and Extreme Environments: Pillars for Formulating Hypotheses on Potential Habitability on Mars

12:15-13:00 - Poster Session

13:00-14:00 - Lunch break

Session 2: *The study of sensitive cold environments*

Chairs: Cristina Pedà and Carmen Rizzo

14:00-14:45 - Virginia Sciacca (CNR-ISP, Messina)

Bioacoustics in polar environments

14:45-15:30 - Warren Cairns (CNR-ISP, Venezia)

Workflows for sample collection and detection of mercury in polar and mountainous regions. Potential pitfalls and how to avoid them

15:30-15:45 - Coffee break

15:45-16:30 - Manuel Bensi (OGS)

Polar oceanography: technological challenges for understanding ocean dynamics

16:30 – 17:15 - Maria Saggiomo (SZN, Napoli)

Antarctic Phytoplankton: Diversity, Ecology, and Adaptations in a Changing Environment

17:15-18:15 - Speed dating between ECRs and senior researchers

19:30 - Social Event

Day 4_September 25, 2025

Hydrothermal vents, anoxic basins, meromictic lakes

Session 1: *Different perspectives in the study of extreme environments*

Chairs: Teresa Romeo and Daniela Pica

09:00-09:45 - Michail M. Yakimov (CNR-ISP, Messina)

(CNR-ISP, Messina) Anoxic environments

09:45-10:30 - Teresa Romeo (SZN, Sicily Marine Centre)

Marine infrastructures to study hydrothermal vents

10:30-10:45 - Coffee break

10:45-13:00 - Practical tools for the exploration of microbial communities in extreme environments and biotechnology from marine sources

Rosario Calogero, Eleonora Tinto (SZN, Sicily Marine Centre), Alessandro Coppola (SZN, Napoli)

Part I: extraction procedure and biotechnological applications

Erika Arcadi, Francesco Fabiano (SZN, Sicily Marine Centre)

Part II: biodiversity and cultivation tools for isolates from anoxic habitats, bioaerosol, bioluminescent communities

13:00-14:00 - Lunch break

Session 2: *Innovative Approaches in New Ecosystems, Aquatic and Extreme Environments*

Chairs: Carmen Rizzo and Chiara Giommi

14:00- 14:45 - Chiara Giommi (SZN, Calabria Marine Centre-CRIMAC)

An integrated approach to monitoring the climate change effects in the Faro Lake (Messina) as an area of concern for mussel farming activities

14:45-15:30 - Daniela Pica (SZN, Calabria Marine Centre-CRIMAC)

Integrate approaches to investigate deep-sea benthic species and their evolution: the case study of stylasterid corals

15:30-15:45 - Coffee Break

15:45-16:30 – Francesco Caruso (SZN, Napoli)

Bioacoustics investigation in extreme environments

16:30-18:00 - Francesco Smedile, Gina La Spada (CNR-ISP, Messina)

Practical session on metabarcoding data gathering, handling, analysis and interpretation

N.B. The outlined program is subject to modification.

