

SMART4ENV

Enhancing the Scientific Capacity of
TUBITAK MAM in the Field of Smart
Environmental Technologies for
Climate Change Challenges

4th

SMART4ENV

WINTER SCHOOL & WORKSHOP

27-31 January 2025

Ancona, Italy

DICEA¹



DIPARTIMENTO INGEGNERIA
CIVILE EDILE ARCHITETTURA
19122-23127 PESCELLENZA



Registration



ONLINE



REMOTE



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General Objective of the Winter School and Workshop

The winter school and workshop activities under the Smart4env project are part of work package 2, entitled **“Upscaling the capacity of ERs and ESRs”** and correspond to tasks 2.3 (Winter school) and 2.4 (Smart Environmental Solutions workshops for research community), respectively.

The main objectives of the winter school and workshop are:

- To increase development of human resources and consolidate a critical and coherence mass of ERs and ESRs to achieve project aims and build capacity of scientific staff on targeted SES research addressing selected key knowledge and research gaps.
- To concretize the value and impact of R&I activity for societal challenges.
- To maximize the impact of research, enabling the value of results to be potentially wider than original focus, align with the overall Twinning aims and guarantee further recruit of expert ESRs, so that expertise will remain in the country.
- To create research development paths for ERs and ESRs to increase their scientific capacities and values.
- Increase researchers' knowledge of specific SES topics and improve their knowledge of SES applications.

Target Audience Expected and Reached

The expected target audience for the winter school is 15 participants (face-to-face and online) and 25 people at the workshop.

The target audience is expected to be PhD students, but undergraduate and postgraduate students and interested groups are welcome.

Professionals Involved in the Program

The research professors responsible for the lectures organized for the winter school and workshop are part of the Università Politecnica delle Marche (UNIVPM), from the following departments: Materials Science and Engineering, Environment and Urban Planning (SIMAU) and the Department of Civil Engineering, Construction and Architecture (DICEA).

Method of Developing Activities

The scheduled activities will include pre-programmed technical visits, lectures in the auditorium, technical discussions and practical activities (in the laboratory and software simulations).

Evaluations

At the end of the winter school and workshop, participants will have to fill in an evaluation questionnaire about the meeting. The main lines of evaluation are: identification of the area of research/specialization, evaluation of the physical infrastructure, logistics, content and didactics used in the meeting, as well as the expected results.

The questionnaire will be sent by e-mail to each participant.

Online registration

Students and researchers who are interested in participating in the winter school should register to the Google Form provided at the following link: [Here](#)

Links for remote participation

Links have been provided for remote participation to the winter school and workshop sessions. The link is [Here](#)

Meeting ID: 881 0881 6578

Pass code: 5ICqMa



WINTER SCHOOL AGENDA

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WINTER SCHOOL SCHEDULE

Consequences of climate change addressed through SES applied to water and wastewater management for increased resiliency and efficiency, and IT solutions or current/circulation models for coastal management

Day 1 – WASTEWATER FIELD: R&D&I projects

10:00-10:15	Registration	Knowledge/skills transferred to the TUBITAK team	Responsible
10:15-10:45	Welcome & UNIVPM Presentation (Presentation on water and wastewater management and host institution experiences, R&D&I projects and achievements)	Present the projects developed by the University, as well as the physical, organizational and teaching structure. To share studies developed and/or under development, presenting results that can be used to solve specific and/or real situations. Opportunity to establish future partnerships.	Prof. Francesco Fatone/Anna Laura Eusebi
10:45-11:15	Icebreaker activity Introduction of TUBITAK TEAM and other participants		Participants
11:15-11:30	Coffee Break		
11:30-13:00	Session 1: Risk assessment for water reuse: general presentation of the methodology and full-scale case studies	Present the methodology used to evaluate and analyze the reuse of treated wastewater, as well as case studies.	Prof. Massimiliano Sgroi/ Alessia Foglia
13:00-14.30	Light Lunch		
14:30-15:00	Session 2: New technological solutions for emerging contaminants removal (Promiscues; Bluelakes)	Sharing <u>good</u> management practices and disseminating the circular economy in order to protect the environment from emerging compounds such as microplastics and chemical products. How to manage these compounds in the environment (groundwater, sediments and soils), in ETEs and ETAs.	Prof. Massimiliano Sgroi/Francesco Fatone



WINTER SCHOOL AGENDA

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15:00-15:30	Session 3: R&D&I activities on urban - industrial water smart symbiosis (Aquaspice and Ultimate Project)	Share methodology, management tools and case studies on water process optimization (e.g. process water reuse) within industries with the aim of creating economic value and environmental sustainability.	Prof. Massimiliano Sgroi/Francesco Fatone
15:30-16:30	Session 4: Carbon footprint methodology and case studies applied to drinking water, sewage and wastewater treatment sectors	Develop knowledge of the methodology used to assess the carbon footprint of water treatment plants, sewage pipes and wastewater treatment plants with the aim of reducing energy and greenhouse gas emissions and promoting sustainability. Experiences will also be shared with case studies.	Prof. Anna Laura Eusebi

Day 2 - WASTEWATER Field: Technical visit and lab activities

10:00-10:15	Registration	Knowledge/skills transferred to the TUBITAK team	Responsible
10:30-13:00	Session 1: Technical visit of the Jesi pilot hall and Jesi wastewater treatment plants (including full-scale nature based solutions)	Sharing theoretical and practical knowledge about the process of treating backwash water, about the technology and methodology adopted, sharing experiences.	Prof. Massimiliano Sgroi Prof. Anna Laura Eusebi
13:00-14:30	Light lunch		
14:30-15:15	Session 2: Lab visit (Sanitary engineering) and practical activity: Respirometric tests	In the practical class it will be possible to see how to operate the instrument, how to evaluate biological activity in activated sludge, check and understand which parameters are important for monitoring, and how to interpret the results.	Dott. Alessia Foglia Daniele Caterino Federica Simonetti
15:15-16:00	Session 3: Lab visit (Smart water lab) and practical activity: Fluorescence and UV Laboratory	Know the instruments used to analyze the physical-chemical parameters of water, the importance of each parameter analyzed and how to interpret their values. With the fluorescence an UV test it will be possible to witness the operation of the instruments, how to prepare samples for analysis, identify whether a sample contains organic compounds, how to interpret the results obtained.	Dott. Alessia Foglia Daniele Caterino Federica Simonetti
16:00-16:15	Coffee break and closure of the day		

WINTER SCHOOL AGENDA

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Day 3 – Coastal protection and resilience under the threat of climate change

10:00-10:15	Registration	Knowledge/skills transferred to the TUBITAK Team	Responsible
10:15-11:15	Session 1: Impact of climate change on the coastal area of the Marche Region (The ADRIACLIM project)	Evaluating physical and economic indicators for current and future scenarios and their use to assess the effect of climate change of coastal regions.	Prof. Maurizio Brocchini
11:15-11:30	Coffee break		
11:45-13:00	Session 2: Detailed impact assessment of coastal flooding perimeters (CASCADE project) And hydraulic risk in coasts and estuaries in the framework of climate change.	Evaluating flooding perimeters to evaluate vulnerability of coastal communities; understanding possible factors of hydraulic risk in coasts and estuaries; providing technical and conceptual tools for the hydraulic risk assessment and its future projection in consideration of climate change.	Dr. Lorenzo Melito
13:00-14:30	Light lunch		

WORKSHOP SCHEDULE

Providing successful examples about eco-innovations to deliver digital and circular transition in urban and industrial water cycles and coastal management

DAY 1 – WATER and WASTEWATER

10:00-10:15	Welcome and short introduction: Objectives of the Workshop	Responsible
10:15-11:15	Session 1: Experiences, projects and achievements on SES opportunities and technologies for the improvement of wastewater management and reuse, including risk assessment and digital solutions	Prof. Massimiliano Sgroi/ Francesco Fatone
11:15-11:30	Coffee break	
11:30-13:00	Round table and discussion on the case studies related to wastewater	
13:00-14:30	Lunch time	
14:30 -16:30	Session 2: Theory of modelling wastewater treatment plants: using of Biowin and West softwares. Exercises and examples.	Prof. Alessia Foglia/ Dott. Ali Hydar

WINTER SCHOOL AGENDA

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DAY 2 – COASTAL

10:00–10:15	Welcome and short introduction: Objectives of the Workshop	Responsible
10:15–11:15	Session 1 : Technical presentation: The potential of Numerical Modelling: Simulated Coastal Hydrodynamics and Flooding (Part 1)	Dott. Lorenzo Melito
11:15–11:30	Coffee break	
11:30–13:00	Round table and discussion on the case studies related to wastewater	
13:00–14:30	Lunch time	
14:30 –16:30	Session 2: Technical presentation: The potential of Numerical Modelling: Simulated Coastal Hydrodynamics and Flooding (Part 2)	Dott. Lorenzo Melito



Francesco Fatone



Maurizio Brocchini



Lorenzo Melito



Federica Simonetti



Anna Laura Euseb



Alessia Foglia



Ali Hydar



Daniele Caterino



Massimiliano Sgroi



How to get to the university?!



[Link](#)



PN: 07143321



[Link](#)

Contact details

[Anna Laura Eusebi](#)

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[Maurizio Brocchini](#)

[Lorenzo Melito](#)



Meeting location

Faculty of Engineering -
Marche Polytechnic
University Via Brece
Bianche - Monte Dago
- 60131 - Ancona (IT)

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