

Online event



THE MEDITERRANEAN: SCIENTIFIC EXPERTISE FOR DECISION-MAKERS

Climate and environmental research
to support sustainable development goals

PROGRAM

Conference animated by **Mathieu Rouault**, science journalist.

The conference is entirely online. During some breaks, virtual rooms are available to participants for networking purposes.

All speeches are in French, with simultaneous interpretation in English.

Monday 16 November

08:45 – 09:00 Connection of the participants

09:00 – 10:00 OPENING SESSION

Opening of the conference by **Cyril Moulin**, Director of MISTRALS

Welcome speeches by the organizers

- **Thierry Lavoux**, President of Plan Bleu
- **Alain Schuhl**, Chief Research Officer of CNRS
- **Eric Berton**, President of Aix-Marseille University
- **Aurélie Biancarelli-Lopes**, Deputy Mayor of Marseille in charge of research, student life and higher education

Round Table: role of science-policy interface in decision-making

- **Grammenos Mastrojeni**, Deputy Secretary General of the Union for the Mediterranean, in charge of Energy and Climate Action
- **Gaetano Leone**, Coordinator of the UN Mediterranean Action Plan
- **Karim Amellal**, Ambassador for the Mediterranean
- **Alain Perea**, Vice-President, Parliamentary Assembly of the Mediterranean

10:00 BREAK

10:15 – 12:40 CLIMATE, ENVIRONMENT AND SOCIETIES SESSION

- 10:15 **Insights from the historical and paleo records of storms and floods**
Marie-Alexandrine Sicre (CNRS, LOCEAN), **Laurent Dezileau**
(Université de Caen-Normandie, M2C)
- 10:35 **Past socio-ecological systems: complexity of local socio-environmental dynamics and rapid climate change**
Laurent Lespez (Université Paris Est-Créteil, LGP)
- 10:45 **Drop of sediment transport to the sea by the large wadis of the Maghreb: impacts of the dams and environmental consequences**
Gil Mahé (IRD, HSM)
- 10:55 **Mediterranean agroecosystems and agrodiversity: the case of past and present dynamics of the Sicilian islands**
Claudia Speciale (National Institute of Geophysics and Volcanology)
- 11:05 **SACOLEVE: spatial and temporal adaptation of a traditional Mediterranean fishery facing regional change: combining history and ecology to study past, present and future of sponge harvesting**
Thierry Perez (CNRS, IMBE)
- 11:15 Exchange with the public (15')
- 11:30 BREAK
- 11:45 Round table (40') :
- **Fabrice Bernard**, Europe and International Delegate, *Conservatoire du Littoral* (coastal protection agency)
 - **Taoufik Souami**, Professor at *Laboratoire Techniques Territoires Sociétés* (Laboratory of Technics Territories Societies)
 - **Bernard Valero**, Ambassador, Director General of *AViTeM* (agency for sustainable Mediterranean cities and territories)

Exchange with the public (15')

12:40 – 13:30 BREAK & NETWORKING

Virtual rooms are available to participants during the break for networking purposes

13:30 – 14:30 POSTERS SESSIONS

2 sessions of 30 minutes (15 posters per session)

14:30 – 16:55 WATER CYCLES AND EXTREME EVENTS SESSION

- 14:30 **The paradox of water cycle extremes in the Mediterranean**
Philippe Drobinski (CNRS, LMD)
- 14:50 **Better understanding of the key ingredients of Mediterranean extreme precipitations**
Samira Khodayar (Mediterranean Center for Environmental Studies)
- 15:00 **Towards integrated understanding and prediction of heavy precipitations, flash-floods and their impacts**
Hélène Roux (Toulouse INP, IMFT)

- 15:10 **Heat waves, droughts and water resources in the Mediterranean**
Pere Quintana Segui (Observatori de l'Ebre, universitat Ramon Llull – CSIC)
- 15:20 **Dense water formation induced by strong winter winds: impacts on marine ecosystems and transport of pollutants**
Xavier Durrieu de Madron (CNRS, CEFREM)
Exchange with the public (15')
- 15:45 BREAK
- 16:00 Round table (40') :
- **Charafat Afilal**, Former Minister Delegate to the Minister of Energy, Mines, Water and Environment, in charge of water (Morocco)
 - **Alice Aureli**, Chief Groundwater Systems and Settlements Section, International Hydrological Programme (IHP), UNESCO - Division of Water Sciences

Exchange with the public (15')

Tuesday 17 November

08:45 – 09:00 *Connection of the participants*

09:00 – 11:25 POLLUTION AND CONTAMINANTS SESSION

- 09:00 **Sources and transfer of contaminants in the Mediterranean**
Karine Desboeufs (University of Paris, LISA) , **Olivier Radakovitch** (Aix-Marseille University, CEREGE)
- 09:20 **Study of contamination at the land-sea interface : two approaches of the North and South of the Mediterranean**
Chrystelle Bancon-Montigny (University of Montpellier, HSM)
- 09:30 **Air pollution in the Mediterranean**
Agnès Borbon (CNRS, LAMP)
- 09:40 **Process studies at the air-sea interface in connection with desert dust deposits in the Mediterranean**
Karine Desboeufs (University of Paris, LISA)
- 09:50 **Plankton, key link in the transfer of chemical contaminants within the pelagic marine ecosystems**
Daniela Bănaru (Aix-Marseille University, MIO)
- 10:00 Exchange with the public (15')
- 10:15 BREAK
- 10:30 Round Table (40') :
- **Pierre Boissery**, Sea expert, Rhone-Mediterranean and Corsica water agency
 - **Gabino Gonzalez**, Head of Office, Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea
- Exchange with the public (15')

11:30 – 12:30 POSTERS SESSIONS

2 sessions of 30 minutes (15 posters per session)

12:30 – 13:30 BREAK & NETWORKING

Virtual rooms are available to participants during the break for networking purposes

13:30 – 16:15 SCIENCE FOR SUSTAINABLE DEVELOPMENT SESSION

- 13:30 **Presentation of the MedECC report**
Wolfgang Cramer, Coordinator of MedECC
- 13:50 **Presentation of the RED2020 report**
François Guerquin, Director of Plan Bleu
- Exchange with the public (20')

14:30 BREAK

14:45 Round Table (1h30) :

- **Stéphanie Bouziges-Eschmann**, General Secretary of the French Facility for Global Environment
- **Rajae Chafil**, Director of the Climate Change Competence Center of Marocco "4C MAROC"
- **Fatima Driouech**, Vice-chair WG1 of the IPCC
- **Jean Jalbert**, Director of the *Tour du Valat*
- **Arnau Queralt**, Director of the Advisory Council for the Sustainable Development of Catalonia (CADS) and chair of the EEAC Network

Exchange with the public (15')

16:30 – 17:30 POSTERS SESSIONS

2 sessions of 30 minutes (15 posters per session)

Wednesday 18 November

08:45 – 09:00 Connection of the participants

09:00 – 11:25 ECOLOGICAL SYSTEMS AND BIODIVERSITY SESSION

- 09:00 **Overview of key questions concerning the condition and functioning of the biodiversity in the Mediterranean**
Yildiz Aumeeruddy-Thomas (CNRS, CEFE)
- 09:20 **Insularity and fragmentation in the Mediterranean: from underwater islands to the archipelagos of knowledge**
Franck Richard (University of Montpellier, CEFE)
- 09:30 **The Mediterranean forest in a changing environment: how climate change affects its biodiversity and its functioning?**
Virginie Baldy (Aix-Marseille University, IMBE)
- 09:40 **The winter convection and its role in the organization of microbial populations**
Pascal Conan (Sorbonne University, LOMIC)
- 09:50 **Pastoral areas maintained by local human communities**
Pablo Dominguez (CNRS, GEODE)
- 10:00 Exchange with the public (15')
- 10:15 BREAK
- 10:30 Round Table (40') :
- **Khalil Attia**, Director of the CAR/ASP-UNEP/MAP
 - **Giovanbattista DeDato**, Senior Forestry Expert - Silva Mediterranea Secretariat, FAO
 - **Antonio Troya**, Director of the Centre for Mediterranean Cooperation of the International Union for Conservation of Nature (IUCN)
- Exchange with the public (15')

11:25 – 13:00 BREAK & NETWORKING

Virtual rooms are available to participants during the break for networking purposes

13:00 – 15:25 IMPACTS OF CLIMATE CHANGE IN THE 21ST CENTURY SESSION

- 13:00 **Climate change in the Mediterranean**
Piero Lionello (University of Salento and Centro Euro - Mediterraneo sui Cambiamenti Climatici)
- 13:20 **Climate change impacts on water resources**
Mehrez Zribi (CNRS, CESBIO)
- 13:30 **Climate change impacts on renewable energy**
Robert Vautard (CNRS, LSCE)
- 13:40 **Climate change impacts on the Mediterranean sea**
Gabriel Jorda (University of the Balearic Islands)

13:50 **Recent advances in climate modelling for impacts studies**
Erika Coppola (The Abdus Salam International Centre for Theoretical Physics)

14 :00 Exchange with the public (15')

14 :15 BREAK

14:30 Round Table (50') :

- **Pascal Bergeret**, Director of the International Center for Advanced Mediterranean Agronomic Studies – Mediterranean Agronomic Institute of Montpellier (CIHEAM - IAMM)
- **Jean Jouzel**, Climatologist, Emeritus Research Director at CEA
- **David Moncoulon**, Head of Modeling and R&D department – *Caisse Centrale de Réassurance (CCR)* (central reinsurance fund)
- **Alix Roumagnac**, President of Predict Services

Exchange with the public (20')

15:45 – 16:00 CLOSING

François Guerquin, Director of Plan Bleu

Joël Guiot, Coordinator of MedECC

Cyril Moulin, Director of MISTRALS

The scientific sessions

CLIMATE, ENVIRONMENT AND SOCIETIES

Lessons from the past

Monday 16 November (10:15 – 12:40)

The Mediterranean region faces rapid changes associated with human activities from increasing temperature and acidification to other anthropogenic stressors such as contamination and eutrophication. Our ability to achieve more sustainable human-environment relationships depends on our capacity to bridge disciplinary expertise and generate inter-disciplinary knowledge (natural and social sciences) to reduce human-driven pressures.

Past societies, from non-centralized rural societies, small city-states and villages, to large empires have experienced and sometimes challenged the complex dynamics of rapid climate changes and socio-environmental transformations. In this session we explore through several research projects conducted within the MISTRALS program key lessons learnt from past experiences of human societies and civilizations living around the Mediterranean. We also look at how the so-called “traditional” rural societies today adapted to recent past and present climate risks.

WATER CYCLES AND EXTREME EVENTS

Critical issues in the Mediterranean basin

Monday 16 November (14:30 – 16:55)

The countries around the Mediterranean basin face water problems, including water shortages and floods, that can impact food availability, cause epidemics, and threaten life and infrastructures. These problems are due to a combination of inadequate planning and management policies and of poor capability to predict hydrometeorological and climatic hazards.

The Mediterranean region is characterized by hot, long and dry summers and mild winters during which rainfalls occur. The medium to high mountains that surround the Mediterranean Sea play a crucial role in steering air flow and the Mediterranean Sea acts as a moisture and heat reservoir, so that weather system can evolve to high-impact weather systems such as heavy precipitation and floods during fall, cyclogenesis and wind storms during winter or heat waves and droughts during summer.

The understanding and ability to forecast such high-impact phenomena is still low because of the contribution of fine scale processes as well as not well known interactions between oceanic, atmospheric, and hydrological processes. The aim of this session is to give an overview of the major progress achieved in the frame of the MISTRALS program.

POLLUTION AND CONTAMINANTS

Pathways and impacts in ecosystems

Tuesday 17 November (09:00 – 11:25)

Marine chemical contamination in the Mediterranean is part of a general degradation of marine ecosystems and there is a need to improve scientific bases to describe the good ecological state and to provide better indicators of the evolution of this anthropic pressure on the environment. The Mediterranean is particularly vulnerable because human activities in neighboring countries (urbanization, agriculture, industries, aquaculture, tourism, port activities, etc.) induce significant inputs of chemical contaminants from rivers, rivers, runoff, groundwater, atmospheric deposition...

These contaminants act on ecosystems through disruptive effects and can constitute a risk for the sustainability of ecosystems and for human health. Despite increased monitoring of chemical pollution in the Mediterranean in support of public policies for many years, there remains a crucial need for scientific

research on these questions. The MISTRALS program has carry out research to better control the quantities of pollutants brought in from the continent or through the atmosphere as well as to better understand the mechanisms involved in their transport in the environment and their transfer in the food chain.

SCIENCE FOR A SUSTAINABLE DEVELOPMENT

Tuesday 17 November (13:30 – 16:15)

15 years after the first installment, a new report on the current state of the environment and development in the Mediterranean (RED 2019), the fruit of a collective multi-partner effort coordinated by Plan Bleu as part of the Action Plan for the Mediterranean from the United Nations Environment Program (UNEP / MAP) - Barcelona Convention, will soon be published. At a time of increasing concern about environmental pressures and impacts, this session will highlight the main conclusions, responses and key messages for policy makers. Despite the progress made, the current environmental and development trajectories do not allow the achievement of mutually agreed objectives, such as the good environmental status of the sea and the Mediterranean coasts or the objectives of sustainable development in the Mediterranean countries. The dominant consumption and production patterns must be profoundly changed because they are based on the unsustainable consumption of resources and have a negative impact on ecosystems, human well-being and health. New trajectories are absolutely necessary and measures benefiting from strong political support are essential to translate regional and national objectives into local actions and to enforce commitments.

Created in 2015, the Mediterranean Group of Experts on Environmental and Climate Change (MedECC) is a unique network of over 600 scientists, based on the IPCC approach, dealing with environmental and climate change in the Mediterranean region. The MedECC meets several objectives of regional institutions, such as UNEP / MAP, through the Mediterranean Strategy for Sustainable Development 2016-2025, the regional framework for adaptation to climate change in the Mediterranean and the Group of Experts on Union for the Mediterranean climate change. This open and independent international network of scientific experts aims to consolidate the best scientific knowledge and make it available to decision-makers, main stakeholders and the general public. After 4 years of work involving more than 100 scientific authors from 20 Mediterranean countries and a transparent review process, the first scientific assessment of the risks of climate and environmental change in the Mediterranean basin will soon be published. During this session, the first key messages intended for decision-makers will be presented.

ECOLOGICAL SYSTEMS AND BIODIVERSITY

Recent evolutions and impacts of global changes

Wednesday 18 November (09.00 – 11:25)

The Mediterranean region is one of 34 biodiversity hotspots identified worldwide. The Mediterranean indeed has a large number of endemic continental and marine species which rub shoulders with more common species resulting from anthropization over the long term of the Mediterranean, on land (forests of oaks and pines ...) as at sea (Posidonia meadows ...). Agrodiversity has also great nutritional value for societies and a major heritage value as a genetic resource on the planetary scale. This agrodiversity contributes to the socio-ecological resilience, but it is now threatened by agricultural industrialization. Finally, the Mediterranean is home to almost 10% of the world's marine biodiversity, but most stocks are declining worryingly due to anthropogenic pressures (pollution, overfishing ...) and more recently by invasive species.

Impacts of climate change (water scarcity, desertification, sea warming and acidification ...) have been added to these anthropic pressures to put biodiversity under high pressure in the Mediterranean. It is therefore essential to understand and monitor the effects of these global changes in order to best limit the negative impacts on biodiversity and ecosystem services by favoring sustainable management. In this session, we will present a summary of the state of knowledge from the MISTRALS program on Mediterranean biodiversity, its specificities and its vulnerability to recent changes.

IMPACTS OF CLIMATE CHANGE IN THE 21ST CENTURY

Wednesday 18 November (13:00 – 15:25)

The Mediterranean region is strongly impacted by climate change, with temperatures rising faster than the global average and reaching now +1.5°C above the values observed before the industrial revolution. Without mitigation, most climate scenarios indicate that temperature is likely to continue to increase at a high rate. Several impacts are already observed and particularly an increased frequency of heat waves, wildfires and drought events. In addition, all climate scenarios point towards a decrease in precipitations.

The combination of an increase in temperature and a decrease in precipitation sets the conditions for a drying of the whole Mediterranean region and most particularly the southern countries already affected by water scarcity. Paradoxically, heavy precipitation events are projected to increase for several Mediterranean countries, possibly leading to more severe floods in particular for urban areas.

In this context, the Mediterranean region is facing major challenges in the 21st century to adapt to these changing climatic conditions that may induce strong socio-economic consequences. In this session, a review of the state-of-knowledge about changes in the Mediterranean climate will be provided, based on the results obtained in several programs including MISTRALS, MED-CORDEX and MED-CLIVAR.