



**International Conference Themes 2023 –
Long-term trends, abrupt shifts and extreme
events in oceanic and atmospheric variability: a
scientific and philosophic discussion**

November 15-17th 2023, Venice, Italy

Program

Wednesday November 15th

Location: Aula Magna Silvio Trentin Ca' Dolfin - Dorsoduro 3825/e 30123 (VE)

**Angelo
Rubino** **9:15-9:30** **Welcome Speech**

**Stefano
Pierini** **9:30 – 10:00** **INVITED TALK
On the multistability and excitability paradigms in climate
dynamics**

Session 1	10:00-11:00	The Mediterranean Sea /1
Luigi	Cavaleri	How the smallest wind waves systems show the changing thermal climate of the Mediterranean Sea
Giovanni	Liguori	The relative contribution of initial condition versus atmospheric forcing in 10-day forecasts of the Mediterranean Sea
Francesco	Memmola	An high resolution coupled ocean-atmosphere numerical simulation for the Adriatic Sea
Alvise	Benetazzo	Short-term response of entrained air bubble plumes observed in the North Adriatic Sea under different forcing conditions

11:00-11:30 **COFFEE BREAK**

Session 2 11:30-12:30 Monitoring and modelling sea dynamics in coastal areas		
Piero	Lionello	General patterns of coastal lagoon behaviours under climate change
Hans	Burchard	Diahaline exchange flow in tidal estuaries under different forcing conditions
Sara	Rubinetti	A manifold perspective to evaluate Marine Protected Areas' connectivity in the German Bight (North Sea)
Alexey	Androsov	Nonlinear processes in tsunami simulations for the Peruvian coast with focus on Lima/Callao

12:30-14:30 LUNCH (*)

Andrea Zhok 14:30-15:00 INVITED TALK
Scientific truth and democratic politics.
Some considerations about the public debate on climate change

Session 3 15:00-15:45 Climate variability/1		
Alberto	Montanari	Long term cycles in hydroclimatic processes: the unresolved enigma of climatic variability
Beatrice	Giambenedetti	Understanding the deep-sea variability through integrated approaches.
Nicola	Scafetta	Assessment of impacts and risks of realistic global warming trends for the 21st century

15:45-16:15 COFFEE BREAK

Session 4 16:15-17:15 Climate variability/2		
Matthew	Lachniet	Grand Canyon paleoclimate record shows elevated groundwater recharge during the Early Holocene
Dmitry	Sein	Climate modelling on eddy resolving scales
Mauro Alessandro	Giudici Comunian	A bayesian approach to map oceanic structures: a test case for the Gulf stream
Davide	Zanchettin	Pacific and Atlantic sea-surface temperature variability in a multi-model ensemble of historical and global warming scenario simulations

17:15-18:15 TOAST WITH ALL THE PARTICIPANTS

Thursday November 16

Location: Aula Magna Silvio Trentin Ca' Dolfin - Dorsoduro 3825/e 30123 (VE)

Michael Mcphaden	9:30 – 10:00	INVITED TALK Causes and consequences of the 2020-23 triple dip La Niña
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Session 5	10:00-11:00	Extreme events
Salvatore	Marullo	Has the frequency of Mediterranean Marine Heatwaves really increased in the last decades?
Antonio	Ricchi	On the generation of a meteotsunami, the case study of supercell storm, over Adriatic Sea.
Gianluca	Alimonti	Is the number of global natural disasters increasing?
Francesco	Pausata	On the Great Wall impacts on the hydrological cycle and climate extremes over Northern Africa

11:00-11:30 COFFEE BREAK

Session 6	11:30-12:15	The Mediterranean Sea/2
Ivica	Vilibić	The Adriatic water masses: lessons learned since the pioneering work of Mira Zore-Armanda 60 years ago
Naomi	Krauzig	New insights into long-term trends and extreme events in the Tyrrhenian Sea
Riccardo	Martellucci	Subsurface temperature anomaly observed by Argo floats during the 2022 Mediterranean Marine heatwave

12:15-14:30 LUNCH ()*

Session 7	14:30-15:30	High latitudes and Polar regions
Ivan	Kuznetsov	Dynamical reconstruction of the upper-ocean state in the Central Arctic during the winter period of the MOSAiC Expedition
Maurizio	Fedi	Ice mass-balance in Greenland and Iceland through Extremely Compact Sources
Carlotta	Dentico	Atlantic water variability in the Fram Strait induced by changes in the Greenland Sea Gyre circulation
Francesco	De Rovere	Why is the influence of Atlantic Water increasing in West Spitsbergen fjords?

15:30-16:00 COFFEE BREAK

Session 8	16:00-17:15	Carbon cycle and biogeochemical observations
Andrea	Sfriso	Biogenic carbonates, a good choice for carbon sequestration in coastal areas? In search for other points of view.
Soultana	Zervoudaki	Long term trends of zooplankton biodiversity in a coastal area of the Eastern Mediterranean Sea
Elisabeth	Kubin	Ocean Acidification: Weaves to be Tied on European and Global scale

17:15-18:00 TOAST WITH ALL THE PARTICIPANTS

20:30 SOCIAL DINNER (*)

Friday November 17

Location: Aula Magna Silvio Trentin Ca' Dolfin - Dorsoduro 3825/e 30123 (VE)

Session 9	9:30-10:45	Climate variability/3
Franco	Prodi	Open questions in the climate system
Nicola	Scafetta	Empirical assessment of the role of the Sun in climate change using balanced multiproxy solar records
Matteo	Mastropiero	Mean-state changes and ENSO contributions to Amazon vegetation productivity in CMIP6 models
Sedra	Shafi	The association Between PM2.5 and Meteorological parameters and trend of Asian monsoon in 5 cities of Asia
Ana	Amaral Wasielesky	Characterizing the Campbell Plateau with Argo Float Measurements.

10:45-11:15 COFFEE BREAK

Session 10	11:15-12:15	The Mediterranean Sea /3
Marco	Reale	Challenging the complexity: modeling approaches for the Mediterranean climate system
Lorenzo	Pasculli	Volume transport estimates in the Strait of Sicily with a regional model
Naomi	Krauzig	Tracking changes and extremes: Insights from the Fortunae Buoy on thermohaline variability in the Marche region (Adriatic Sea)
Angelo	Rubino	Intrinsic variability in the Mediterranean Sea

12:00 – 12:30 FINAL DISCUSSION

12:30 – 13:00 TOAST WITH ALL PARTICIPANTS

(*) at participants' cost

All talk slots, except key-note talks, include a 12-minute presentation and 3 minutes for discussion

Detailed list of contributions

Alimonti G. (1), Mariani L. (2)

Is the number of global natural disasters increasing?

(1) INFN & UniMi, Milano

(2) Università di Brescia

Amaral Wasielesky A. (1), Menna M. (2), Mauri E. (2), Martellucci R. (2), Rubino A. (1), Cotroneo J. (3),
Aulicino P. (3) and Ferola A. I. (3)

Characterizing the Campbell Plateau with Argo Float Measurements

(1) Ca' Foscari University of Venice

(2) National Institute of Oceanography and Applied Geophysics

(3) Department of Science and Technology, University of Napoli Parthenope

Androsov A. (1), Harig S. (1), Zamora N. (2), Knauer K. (3), Rakowsky N. (1)

Nonlinear processes in tsunami simulations for the Peruvian coast with focus on Lima/Callao

(1) Alfred Wegener Institute for Polar and Marine Research (AWI), Bremerhaven, Germany

(2) Barcelona Supercomputing Center (BSC), Spain

(3) EOMAP GmbH & Co. KG (EOMAP)

Benetazzo, A. (1), Halsne, T. (2,3), Breivik, O. (2,3), Strand, K.O. (2), Callaghan, A. (4),
Barbariol, F. (1), Davison, S. (1), Bergamasco, F. (5), Sclavo, M. (6), Molina, C. (7), Bastianini, M. (1)

Short-term response of entrained air bubble plumes observed in the North Adriatic Sea under different forcing conditions

(1) Istituto di Scienze Marine (ISMAR), Consiglio Nazionale delle Ricerche (CNR), Venice, Italy

(2) Norwegian Meteorological Institute, Bergen, Norway

(3) Geophysical Institute, University of Bergen, Bergen, Norway

(4) Department of Civil and Environmental Engineering, Imperial College, London, United Kingdom

(5) University of Venice Ca' Foscari, Italy

(6) Istituto di Scienze Polari (ISP), Consiglio Nazionale delle Ricerche (CNR), Venice, Italy

(7) Nortek AS, Norway

Burchard H. (1), Klingbeil K. (1), Reese N. (1), Li X. (1), Gräwe U. (1)

Dialine exchange flow in tidal estuaries under different forcing conditions

(1) Leibniz Institute for Baltic Sea Research

Cavaleri L. (1), Langodan S. (2), Pezzutto P. (3)

How the smallest wind waves systems show the changing thermal climate of the Mediterranean Sea

(1) CNR-ISMAR, Venezia

(2) KAUST, ARAMCO, Saudi Arabia

(3) CNR-IRBIM, Ancona

Comunian A. (1), **Giudici M.** (1), Panzeri A. (1)

A bayesian approach to map oceanic structures: a test case for the Gulf stream

(1) Università degli Studi di Milano, Dipartimento di Scienze della Terra "A. Desio"

Dentico C. (1), Bensi M. (2) Rubino A. (1)

Atlantic water variability in the Fram Strait induced by changes in the Greenland Sea Gyre circulation

(1) Department of Environmental Sciences, Informatics and Statistics, Ca' Foscari University of Venice, Venice, Italy

(2) National Institute of Oceanography and Applied Geophysics - OGS, Italy"

De Rovere F. (1), Chiggiato J. (2), Langone L. (3), Sundfjord A. (4), Albretsen J. (5), Duarte P. (4)

Why is the influence of Atlantic Water increasing in West Spitsbergen fjords?

(1) Ca' Foscari University of Venice

(2) Istituto di Scienze Marine - Consiglio Nazionale delle Ricerche (ISMAR-CNR)

(3) Istituto di Scienze Polari - Consiglio Nazionale delle Ricerche (ISP-CNR)

(4) Norwegian Polar Institute

(5) Institute of Marine Research (Norway)

Maiolino M. (1), Florio G. (1), **Fedi M.** (1)

Ice mass-balance in Greenland and Iceland through Extremely Compact Sources

(1) DISTAR, Università di Napoli Federico II

Giambenedetti B. (1,2), Lo Bue N. (2), Artale V. (2,3)

Understanding the deep-sea variability through integrated approaches.

(1) Department of Physics, University of Rome Tor Vergata, Italy

(2) Istituto Nazionale di Geofisica e Vulcanologia (INGV), Rome, Italy

(3) National Research Council (CNR), Institute of Marine Sciences (ISMAR), Rome, Italy

Krauzig N. (1,2), Falco P. (1), Zambianchi E. (2).

(1) Università Politecnica delle Marche

(2) Università degli Studi di Napoli "Parthenope"

Krauzig N.(1), Colucelli A. (1), Garzia A. (1), Memmola F. (1) Falco P. (1)

Tracking changes and extremes: Insights from the Fortuna Buoy on thermohaline variability in the Marche region (Adriatic Sea)

(1) Università Politecnica delle Marche

Kubin E. (1), Lipizer M. (1), Molina Jack M. (1), Giorgetti A. (1)

Ocean Acidification: Weaves to be Tied on European and Global scale

(1) OGS

Kuznetsova I. (1), Rabe B. (1), Androsov A. (1), Fang Y-C (2), Hoppmann M. (1), Quintanilla-Zurita A. (1), Harig S. (1), Tippenhauer S. (1), Schulz K. (3), Mohrholz V. (4), Fer I. (5), Fofonova V. (1), Janout M. (1)
Dynamical reconstruction of the upper-ocean state in the Central Arctic during the winter period of the MOSAiC Expedition

(1) Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung, Bremerhaven, Germany

(2) National Sun Yat-sen University University, 80424 Kaohsiung, Taiwan

(3) Oden Institute for Computational Engineering and Sciences, The University of Texas at Austin, Austin, TX, United States

- (4) Leibniz-Institute for Baltic Sea Research Warnemünde, Germany
(5) Geophysical Institute, University of Bergen and Bjerknes Center for Climate Research, Bergen, Norway

Lachniet M. S. (1), Du X. (2), Dee S.G. (2), Asmerom Y. (3), Polyak V.J. (3), Tobin B.W. (4)

Grand Canyon paleoclimate record shows elevated groundwater recharge during the Early Holocene

- (1) University of Nevada Las Vegas
(2) Rice University, Houston, Texas
(3) University of New Mexico, Albuquerque, New Mexico
(4) University of Kentucky, Lexington KY

Liguori G. (1)

The relative contribution of initial condition versus atmospheric forcing in 10-day forecasts of the Mediterranean Sea

- (1) University of Bologna

Bozzeda F. (1), **Lionello P.** (1)

General patterns of coastal lagoon behaviours under climate change

- (1) DiSTeBA, University of Salento

Marullo S. (1,2), Serva F. (2), de Toma V. (2), Pisano A. (2), Iacono R. (1), Napolitano E. (1), Di Sarra G. (1), Meloni D. (1), Sferlazzo D.(1), Bellacicco M. (2), Landolfi A. (2), Organelli E. (2), Yang C. (2), Santoleri R. (2)

Has the frequency of Mediterranean Marine Heatwaves really increased in the last decades?

- (1) ENEA Centro Ricerche Frascati, Casaccia e Lampedusa, Italy
(2) CNR - Institute of Marine Sciences, Rome – Italy

Mastropiero M. (1), Peano D. (2), Zanchettin D. (1)

Mean-state changes and ENSO contributions to Amazon vegetation productivity in CMIP6 models

- (1) Department of Environmental Sciences, Statistics and informatics, Ca' Foscari University of Venice, Venice, Italy
(2) Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici, CMCC, Bologna, Italy

McPhaden, M. J. (1)

Causes and Consequences of the 2020-23 Triple Dip La Niña

- (1) NOAA/PMEL, Seattle, WA USA

Memmola F. (1), Coluccelli A. (1), Neri F. (1), Garzia A. (1), Ricchi A. (2), Ferretti R. (2), Falco P. (1)

An high resolution coupled ocean-atmosphere numerical simulation for the Adriatic Sea

- (1) Università Politecnica delle Marche, Dipartimento di Scienze della vita e dell'Ambiente
(2) Università dell'Aquila, Dipartimento di Fisica e chimica

Montanari A. (1)

Long term cycles in hydroclimatic processes: the unresolved enigma of climatic variability

- (1) Università di Bologna

Pasculli L. (1,2), Falcieri F.M. (2), Schroeder K. (2), Chiggiato J. (2), Rubino A. (1)

Volume transport estimates in the Strait of Sicily with a regional model

- (1) Ca' Foscari University of Venice
(2) Consiglio Nazionale delle Ricerche - Istituto di Scienze Marine (CNR-ISMAR)

Pausata F. (1)

On the Great Wall impacts on the hydrological cycle and climate extremes over Northern Africa

(1) University of Quebec in Montreal, Montreal (QC), Canada

Pierini S. (1)

On the multistability and excitability paradigms in climate dynamics

(1) Università Parthenope di Napoli

Pirro A. (1), Martellucci R. (1), Gallo A. (1), Kubin E. (1), Mauri E. (1), Notarstefano G. (1), Pacciaroni M. (1), Bussani A. (1), Menna M. (1)

Subsurface temperature anomaly observed by Argo floats during the 2022 Mediterranean Marine heatwave

(1) National Institute of Oceanography and Applied Geophysics - OGS

Prodi F. (1)

Open questions in the climate system

(1) Nubila sas, Bologna

Falco P. (1), **Ricchi A. (2)**; Memmola F. (1) Coluccelli A. (1), Brocchini M. (1), Corvaro S. (1), Penna P. (3), Ferretti R. (1)

On the generation of a meteotsunami, the case study of supercell storm, over Adriatic Sea.

(1) Università Politecnica delle Marche

(2) Università dell'Aquila

(3) CNR-IRBIM

Reale M. (1), Salon S. (1) and ECHO group (1), Giuliani G. (2), García-Valdecasas M.M. (2,3), Coppola E. (2)
Challenging the complexity: modeling approaches for the Mediterranean climate system

(1) National Institute of Oceanography and Applied Geophysics-OGS, Trieste, Italy

(2) The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy

(3) University of Granada

Rubinetti S. (1), Sidorenko V. (1), Androsov A. (1), Horn S. (1), Wiltshire K.H. (1) and members of WP2.3 of CREATE Project

A manifold perspective to evaluate Marine Protected Areas' connectivity in the German Bight (North Sea)

(1) Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Germany

Rubino A. (1), Pierini S. (2), Rubinetti S. (3), Gnesotto M. (1), Zanchettin D. (1)

Intrinsic variability in the Mediterranean Sea

(1) Ca' Foscari University of Venice

(2) Università Parthenope di Napoli

(3) Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Germany

Scafetta N. (1)

Assessment of impacts and risks of realistic global warming trends for the 21st century

(1) Università degli Studi di Napoli Federico II

Scafetta N. (1)

Empirical assessment of the role of the Sun in climate change using balanced multiproxy solar records

(1) Università degli Studi di Napoli Federico II

Shafi S. (1), Scafetta N. (1)

Relation between PM2.5 and Asian monsoon seasonality in five major polluted cities of South-East and Western Pacific Asia

(1) University of Naples Federico II

Sein D.V. (1), Lohmann G. (1), Cabos W. (2)

Climate modelling on eddy resolving scales

(1) Alfred Wegener Institute, Bremerhaven, Germany

(2) University of Alcalá, Alcalá, Spain

Sfriso A.A. (1), Sciuto K. (1), Cunsolo F. (1), Tomio Y. (2), Pasculli A. (1), Munari C. (1), Mistri M. (1).

Biogenic carbonates, a good choice for carbon sequestration in coastal areas? In search for other points of view

(1) Università degli Studi di Ferrara

(2) Università Ca' Foscari Venezia

Vilibić I. (1), Pranić P. (2), Denamiel C. (1)

The Adriatic water masses: lessons learned since the pioneering work of Mira Zore-Armanda 60 years ago

(1) Ruđer Bošković Institute, Division for Marine and Environmental Research, Zagreb, Croatia

(2) Institute of Oceanography and Fisheries, Split, Croatia

Zanchettin D. (1)

Pacific and Atlantic sea-surface temperature variability in a multi-model ensemble of historical and global warming scenario simulations

(1) Ca' Foscari University of Venice

Zervoudaki S. (1), Koulouvari E. (1), Zoulias T.H. (1), Protopapa M. (1)

Long term trends of zooplankton biodiversity in a coastal area of the Eastern Mediterranean Sea

(1) Hellenic Center for Marine Research Institute of Oceanography

Zhok A. (1)

Scientific truth and democratic politics. Some considerations about the public debate on climate change

(1) University of Milano, Dept. Philosophy, Milano, Italy