

SPEAKERS

Özgenur AKTAN, Galatasaray University & Turkish National Defence University
Laurent BERTINO, Nansen Environmental and Remote Sensing Center
Giovanni BESIO, Department of Civil, Chemical and Environmental Engineering, University of Genoa
Michele BOLLA PITTALUGA, Department of Civil, Chemical and Environmental Engineering, University of Genoa
Davide BONALDO, National Research Council, Institute of Marine Science
Hagen BRAUN, German Aerospace Center
Richard BREWIN, NATO's Emerging Security Challenges Division
Vismay Hemal BUCH, University of Toronto
Chiara CAGNAZZO, European Centre for Medium-Range Weather Forecasts
Sandro CARNIEL, NATO STO-CMRE
Albert CHAN, Defence Research and Development Canada
Bruno CHARBONNEAU, Royal Military College Saint-Jean
Tobias ETZOLD, Norwegian Institute of International Affairs
Gian Luca EUSEBI BORZELLI, Center for Remote Sensing of the Earth, NATO STO-CMRE
Kristen FLETCHER, Naval Postgraduate School
Michael FRANKEN, United States Navy (Retired)
Walter FUSCALDO, CMR-IMM, NATO STO-CMRE
Giovanni FUSINA, Defence Research and Development Canada - Centre for Security Science
Céline GONCALVES RODRIGUES, Universidade Nova de Lisboa
Francis GRIFFITHS, Royal Navy Develop Directorate Platform Capability Sponsor
Silvio GUALDI, Euro-Mediterranean Center on Climate Change
Rene HEISE, NATO's Emerging Security Challenges Division
Anton HOLLAND, NIVA Inc.
Alex KONDI, NATO STO-CMRE
Christopher Thomas KONEK, Office of Naval Research Global
Titia Alexandra KUIPERS, TNO, Acoustics and Sonar Department
Matjaz LICER, Slovenian Environment Agency
Fabio LISSI, NATO STO-CMRE
Marius NYQUIST PEDERSEN, Norwegian Defence Research Establishment
Victor OPPENEER, TNO, Acoustics and Sonar Department
John OSLER, Defence Research and Development Canada
Joahanna PIASEK-SKUPNA, NATO STO-CMRE
Aniello RUSSO, NATO STO-CMRE
Gianmaria SANNINO, National Agency for New Technologies, Energy and Sustainable Economic Development
Louise SELISNY, University of Oxford, Climate Change & (In)security Project
Bartosz SKOBIEJ, German Aerospace Center
Mark SPECTOR, Office of Naval Research Arlington
Carl WREDE, German Aerospace Center
Julia ZIMMERMAN, U.S. Army ERDC

KEYNOTE SPEAKERS

Dr Ethan CORBIN
Director, Defense and Security Committee, NATO Parliamentary Assembly, Belgium

Prof. Filippo GIORGI
Section Head, International Centre for Theoretical Physics, governed by UNESCO, Italy, IAEA

Ms Sherri GOODMAN
Secretary General, International Military Council on Climate & Security
Former Deputy Undersecretary of Defense (Environmental Security)
Senior Fellow, Polar Institute and Environmental Change & Security Program, Woodrow Wilson International Center, United States

Lt. Gen. Richard NUGEE
United Kingdom Ministry of Defence Non-executive Director for Climate Change and Sustainability
Climate Change & (In)security Project, United Kingdom

Prof. Stefan RAHMSTORF
Co-head of Research Department on Earth System Analysis of the Potsdam Institute for Climate Impact Research (PIK)
Professor of Physics of the Oceans at the University of Potsdam, Germany

DISTINGUISHED SPEAKERS

Brig. Gen. Luca BAIONE, Italian Air Force
Dr Catherine WARNER, NATO STO-CMRE Director
Dr Bryan WELLS, NATO Chief Scientist

PROGRAMME CHAIRS

Dr Sandro CARNIEL, NATO STO-CMRE Research Division Head
Mr Aniello RUSSO, NATO STO-CMRE Scientist

LOCAL ORGANIZING COMMITTEE

Dr Elena CAMOSSO, NATO STO-CMRE
Mr Fabio LISSI, NATO STO-CMRE
Ms Ilaria SAUDELLA, NATO STO-CMRE

NATO HQ ORGANIZING COMMITTEE

Mr Alvaro MARTIN BLANCO, NATO STO-OCS
Mr Daniel BAYLISS, NATO STO-OCS

VENUE AND LOCATION

Villa Marigola Congress Center
Cassa di Risparmio della Spezia
Via Biaggini, 1 - 19032 S.Terenzo di Lerici (SP)

ORGANIZING SECRETARIAT

EtaGamma srl
Via XX Settembre 20 - Genova
segreteria@etagamma.it Ph+39 010 8370728



CLIMATE CHANGE & SECURITY

03-05 OCTOBER 2023
LERICI, ITALY

www.climatechangesecurity.org

Tuesday, 03 October 2023

- 9.00** Welcome Remarks, Logistics and Agenda
S. Carniel, A. Russo, C. Warner, L. Baione
- 9.30** **Scientific Keynote** (remote)
Impact of Climate Change on the Earth's Hydrologic Cycle
F. Giorgi
- 10.15** *Climate Predictions and their Applications in the Mediterranean Region*
S. Gualdi
- 10.45** **Coffee Break**
- 11.15** *Copernicus Climate Change Service (C3S): From Data to Actionable Climate Information*
C. Cagnazzo, C. Buontempo
- 11.45** **Poster Pitches**

Climate Change and Security Threats in the Arctic Ocean: Assessing the Functioning of the Arctic Council

Ö. Aktan

Improving Copernicus Forecasts of Arctic Sea Ice and icebergs with the ACCIBERG Project

L. Bertino, C. Downy, T. Lavergne, S. Tietsche, A. Storto

Future Changes in Wave Climate in the Mediterranean and High North Seas Under Naval Operations' Perspective

G. Besio, A. Lira Loarca, A. Russo, S. Carniel, M. Bolla Pittaluga

Geo-hazard of Cyclone-induced Turbidity Currents on Critical Underwater Infrastructures

M. Bolla Pittaluga, G. Porcile, C. Pirmez, O. Sequeiros, A. Frascati

Using Climate Ensembles to Detect Present Signs of Future Climate: the Case of the 2022 Drought on the Po Valley

D. Bonaldo, D. Bellafore, C. Ferrarin, R. Ferretti, A. Ricchi, L. Sangelantoni, M. L. Vitelletti

Climate Change Denialism as a Value-based Problem

H. Braun, L. Albrecht

Security of Mediterranean Coastal Areas under Future Inundation Scenarios

S. Cappucci, A. Carrillo, R. Iacono, L. Moretti, M. Palma, A. Peloso, G. Richini, G. Sannino

Interdisciplinary Talent Generation for Climate Governance and Security: A Program Overview from Canada

B. Charbonneau, A. Giguère

Path-loss Analysis in Anomalous Electromagnetic Propagation Conditions Over Oceans Induced by Climate Change: Preliminary Results

A. Di Simone, C. E. Carniel, W. Fuscaldo, L. M. Millefiori, P. Braca, A. Russo, S. Carniel, L. Kantha

On the Triggering of the Atlantic Niño: Southern Versus Western Forcing

G. L. Eusebi Borzelli, C. E. Carniel, F. Lissi, A. Russo, S. Carniel

Designing the Communication Infrastructure of a Surveillance Robotic Network: a Data-driven Approach Against Environmental Variability

T. Fabbri, J. Piasek Skupna, A. Tesel, A. Russo, R. Been, S. Carniel, G. Ferri

Safeguarding Maritime Critical Infrastructure: A Model-driven Approach for Safety and Security of Offshore Wind Farms in the German North and Baltic Seas

A. Gabriel, C. Wrede, F. Sill Torres, B. Tecklenburg, B. Skobiej

Connecting Atlantic and Arctic Oceans with Challenges for Maritime Security Placing Portugal in the Arctic

C. Goncalves Rodrigues

Security Threats Posed by Climate Change Misinformation and Disinformation Campaigns: Implications for Military Security and the Extended Maritime Ecosystem

A. Holland, S. Young-Steinberg

Assessing Climate Change Impacts on Underwater Acoustic Signal Transmission Loss: A Simulation Analysis

A. Kondi, K. Pelekanakis, A. Russo, S. Carniel

Environmental Research Towards Climate Change and Security in South America

C. T. Konek

11.45 Poster Pitches

Security Challenges from Climate Change in the Arctic Maritime Domain and Priorities for the Application of NATO's Climate Change and Security Action Plan
F. Lissi, P. Baudu

Climate Change, Arctic security and Future Operations (CLIMARCSEC): A Multinational Capabilities Development Campaign (MCDC) Project
M. E. Mihailov, T. Etzold, W. D. Spoon, A. Chan

On the Impact of Climate Change on Sonar Performance

V. Oppeneer, A. Russo, G. Giorli, R. Van Vossen

Climate Change-induced Sea Level Rise and Coastal Floods in Northern Adriatic - Past Observations, Future Projections and Deep Learning Coastal Flood Modeling

M. Rus, M. Licer, M. Kristan

Studying Future Changes in Sonar Performance in Areas of NATO Interest

A. Russo, A. Lira Loarca, C. Strode, S. Carniel

US Navy Decarbonization Research Consortium

M. Spector, K. Fletcher, B. Muras, C. Bradley

On the Vulnerability of NATO Installations to Climate Variability and Change: A System-level Perspective

G. Villarini, S. Carniel, T. Kim, H. Kim, A. Russo

Quantifying the Impact of Climate Nonstationarity on Military Infrastructure Resilience

J. Zimmerman, C. Everett, G. Savant

12.45 Lunch

14.00 Political Keynote

Current and Over-the-Horizon Impacts of Climate Change on Security

E. Corbin

14.45 *Canada's National and International Programme on Climate Change and Security*

A. Chan, J. Osler, C. Boscarino, S. Pecknold

15.30 Coffee Break

16.00 *CMRE's Climate Change and Security Programme*

S. Carniel

16.30 *A Systems Thinking Approach Addressing the Impact of Climate Change on Naval Defence Operations*

T.A. Kuipers, R. Van Waas

16.50 *Future Geopolitics of Multipolar World and their Impact on Maritime Operations*

M. Franken

17.20 *Closing remarks*

NATO STO-CMRE

17.30 Poster Session and Icebreaker

Wednesday, 04 October 2023

9.15 *Welcome Remarks, Agenda Update*

NATO STO-CMRE

9.30 Scientific Keynote

Germany Sea Level Rise and AMOC Tipping Points

S. Rahmstorf

10.15 *Nature-based Infrastructure for Coastal Erosion: a Dual-impact Technology?*

G. Fusina, E. Murphy, J. King

10.40 Coffee Break

11.15 *Climate Change, Energy Transition and New Challenges Related to Enhanced Maritime Situational Awareness to Protect Critical Undersea Infrastructure*

R. Brewin, R. Heise

12.00 *Safeguarding Maritime Critical Infrastructure: A Model-Driven Approach for Safety and Security of Offshore Wind Farms in the German North and Baltic Seas*

C. Wrede, A. Gabriel, K. Tsetsos, F. Sill Torres

12.30 Lunch

14.00 Political Keynote

Threat Multiplier: NATO Leadership on Climate Change and Maritime Security

S. Goodman

14.45 **Panel Session 1: Climate Change & Security Research Trends**
Identifying Key Research Topics to be Investigated About Security Implications of Climate Change in the Maritime Domain

E. Corbin, R. Brewin, R. Heise, S. Carniel, S. Rahmstorf, S. Gualdi, S. Goodman, R. Nugee

15.30 Coffee Break

16.00 *NATO Capability Development in a Changing Climate*

L. Selisny

16.30 *Increasing Climate Literacy to Meet Climate Security Demands (remote)*

K. Fletcher, R. Grippo, M. Lesse

17.00 **Panel session 2: Climate Change & Security Education**
Climate Change & Security Higher Educational Path

B. Charbonneau, J. Osler, K. Fletcher, A. Russo

18.00 *Closing Remarks*

NATO STO-CMRE

18.30 Aperitif

19.30 Gala Dinner

Thursday, 05 October 2023

9.15 *Welcome Remarks, Agenda Update*

NATO STO-CMRE

9.30 Military Keynote

Climate Change Implication for National Security: the Case of Commercial Navies and Maritime Trade

R. Nugee

10.15 *Alternative Future Visions for NATO Maritime Operational Energy & Power*

F. Griffiths, L. Hammock, A. Tate

10.35 Coffee Break

11.10 *Scenario-building, AI, and Decision-making in the Arctic under Climate Change Conditions*

B. Charbonneau, P. Baudu, A. Giguère

11.40 *How Climate Change can worsen Security Dilemmas in the Norwegian High North*

M. Nyquist Pedersen, B. O. Knusten

12.00 *Climate Securitization or Arctic Militarization - The best way to preserve NATO's strategic dominance in the Arctic*

V. H. Buch

12.20 *Closing Remarks and Way Forward*

B. Wells, S. Carniel

13.00 Workshop Ends

