Climate and Humanitarian Consequences of an even Limited Nuclear Exchange and the Actual Risks of Nuclear War

Open webinar – June 26 – 4pm (CET)

(the official language of the webinar is english)

Organized by

Gruppo Interdisciplinare su Scienza, Tecnologia e Società *(GI-STS)* dell'Area della Ricerca di Pisa del CNR

In cooperation with

Areaperta – Area della Ricerca CNR di Pisa
Caffè della Scienza "N. Badaloni" - Livorno
Centro Interdisciplinare Scienze per La Pace dell'Università di Pisa
Istituto di Biofisica del CNR
Istituto di Fisiologia Clinica del CNR
Istituto di Scienza e Tecnologie dell'Informazione ``A. Faedo'' del CNR
La Nuova Limonaia
Laboratorio Informatica e Società del CINI
Pugwash Conferences on Science and World Affairs
Unione degli Scienziati Per Il Disarmo

With more than 13,000 nuclear weapons in the world, states with nuclear weapons have embarked on plans to modernize or expand their nuclear arsenals. The presence of these weapons creates a risk that, technical or human failure, hackers or even unwise leaders will launch the weapons intentionally or unintentionally. In the event of a nuclear war, urban firestorms — which create and sustain their own wind systems — would loft soot into the upper troposphere and lower stratosphere. The resulting reduction of sunlight would lead to global cooling that could also trigger changes in the ocean system. Impacts of the cooling could include expansion of sea ice also into populated coastal areas and affect marine life. Any use of nuclear weapons would be catastrophic for humanity. Even a "limited" nuclear war involving only 250 of the 13,000 nuclear weapons, or tactical ``small'' nuclear weapons, in the world could kill hundreds of million people outright and cause global climate disruption leading to a nuclear famine, putting 2 billion people at risk. Some of the most conventionally armed countries are pushing the world closer to the brink of nuclear conflict as mounting distrust and divisions corrode the bedrock of international cooperation, driving the multilateral system towards gridlock and dysfunction. David Ellwood will provide a picture of the climatic and humanitarian effects of a limited nuclear exchange. Paolo Cotta Ramusino will provide a picture of the actual risks of such a limited nuclear exchange to happen in one of the current high tension areas in the world, such as India-Pakistan, Russia-Ukraine or the Middle East.

Programme

Moderated by Mieke Massink - *CNR ISTI; GI-STS, Pisa*

16:00 **Fabio Recchia** - *President - Area Ricerca CNR, Pisa* (to be confirmed)
Giuliano Colombetti - *CNR IBF; CNR GI-STS, Pisa*
Opening

16:15 **David Ellwood** - *Council of the Pugwash Conferences on Science and World Affairs*
Climate and Humanitarian Consequences of an even Limited Nuclear Exchange

16:45 **Paolo Cotta Ramusino** - *Former Secretary General of Pugwash Conferences on Science and World Affairs*
The Actual Risks of Nuclear War

17:15 *Discussion*

Participants:

Prof. **Paolo Cotta Ramusino** has been Secretary General of Pugwash Conferences on Science and World Affairs (Peace Nobel Prize 1995). He is Professor of Mathematical Physics at the University of Milan. He was Director of the Landau Network's International Disarmament and Security Program - Centro Volta. He was the National Secretary of the Unione degli Scienziati per Il Disarmo (USPID), and he is currently a member of the Scientific Council of USPID. Member of the Working Group on International Security and Arms Control of the Accademia Nazionale dei Lincei. He has taught a Course on "Nuclear Weapons" at the State University of Milan for many years.

Dr. **David Ellwood** is a theoretical physicist and mathematician who served for more than a decade as Research Director of the Clay Mathematics Institute. He is a member of the Pugwash Council and the executive committees of International Pugwash and the British Pugwash group. David has held academic appointments at Harvard University, Boston University, Université de Strasbourg (IRMA), ETH Zürich, Université de Paris VI (UPMC) and the Institut des Hautes Études Scientifiques.

Dr. **Mieke Massink** is a senior researcher in computer science at the National Research Council, at the Institute of Information Science and Technology ``A. Faedo.'' She holds a Ph.D. in Mathematics and Informatics and a Doctoral Diploma in Informatics (Dutch degree) from Katholieke Universiteit Nijmegen (NL) and a Laurea in Computer Science from the University of Pisa. Her main field of research is formal/mathematical methods for the design and analysis of systems involving digital technology. She has taught courses on "Ethical and Social Aspects of Information Technology" and "Electronic Voting" as part of undergraduate courses at the University of Pisa. She is coordinator of the CNR/ISTI node of the CINI Laboratorio di Informatica e Società and a member of the ACM, the Unione degli Scienziati per Il Disarmo (USPID), and the GI-STS.

How to attend the webinar

The webinar will be held in Zoom at the following link:

https://us02web.zoom.us/j/84092884079?pwd=x8F6tnEY3QV3rhhG5AAkgkwnKp410P.1

Meeting ID: 840 9288 4079

Passcode: 106702