**The 8th International Conference on Water Resources and Environment Research (ICWRER2022), University of Central Florida, USA April 25-27, 2022**

**Special Session**

**Better understand past, present and future climate variability by linking water isotopes and conventional hydrometeorology**

*Chair*: Ms Yuliya Vystavna, Programme Officer, Isotope Hydrology Section, International Atomic Energy Agency (IAEA), Vienna International Centre, PO Box 100, 1400 Vienna, Austria, email: y.vystavna@iaea.org

*Co-chair*: Mr Johannes Cullmann, Director, Cross-Cutting Coordination Water and Cryosphere, World Meteorological Organization (WMO), 7bis, avenue de la Paix, Case postale 2300, CH-1211 Geneva 2, Switzerland, email: jcullmann@wmo.int

*Session Description:*

A future projections of climate changes are mainly based on the assessment of the past and present hydroclimate variations and climate change causes. While understanding of climate variability is mainly based on conventional hydrometeorological parameters, principally air temperature and precipitation, in the last five decades, water isotopes (18O, 2H and 3H) have been widely used to address problems related to the hydrologic cycle, including water (vapor) source tracing, moisture transportation and precipitation formation. Linking isotopes to hydrological and meteorological conditions can improve the interpretation of processes that occur on different spatial scales and that cause perturbations in hydrological cycles triggering extreme events such floods and droughts.

The session welcomes papers that focus on investigation of the predictability of the climate system and extreme events (floods and droughts) at various time and space scales as well as making predictions from observed climate states by linking isotopes and conventional hydrometeorological parameters.

The purpose of the session is to review the present state of knowledge on interpretation of climate variability by linking isotope hydrology and hydrometeorology, through bringing together meteorologists, hydrologists and isotopes hydrologists to exchange current ideas and information.

The session is aimed at professionals involved in a broad spectrum of disciplines, including research, water resources management, processes in the hydrosphere and atmosphere, climate change and its impact on the water cycle, environmental modeling, protection of the environment, geographical information systems, emergency response, and the development of isotopic techniques and tools. Representatives of international organizations, government officials, including policymakers and individuals responsible for the assessment of climate and environmental programs would also benefit from the session attendance.

The connection link and program are available at: [https://icwrer2022.weebly.com/](https://icwrer2022.weebly.com/%20)

**Session program on 26 April 2022**

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| Time (EDT) | Speaker | Affiliation | Presentation Title |
| 11:20-11:25 | Mr Johannes Cullmann | Director, Cross-Cutting Coordination Water and Cryosphere, World Meteorological Organization (WMO), 7bis, avenue de la Paix, Case postale 2300, CH-1211 Geneva 2, Switzerland, email: jcullmann@wmo.int  | Introductory talk |
| 11:25-11:35 | Ms Jodie Miller | Head of Isotope Hydrology Section, International Atomic Energy Agency, jodie.miller@iaea.org  | Big Data and Nuclear Sciences: the role of the Global Network of Isotopes in Precipitation in developing accurate climate models and mitigating the impacts of extreme weather events |
| 11:35-11:45 | Mr Maksym Gusyev | Project Associate Professor,Institute of Environmental Radioactivity, Fukushima University /National Graduate Institute for Policy Studies, 1 Kanayagawa, Fukushima, 960-1296, JapanPhone: +81-24-548-5207; E-mail: r891@ipc.fukushima-u.ac.jp; maksymgusyev@gmail.com | Understanding climate and water extremes with environmental tritium and stable isotopes as useful tools in Asia |
| 11:45-11:55 | Mr Andrew Watson | Stellenbosch University Water Institute, Stellenbosch University, South Africa, awatson@sun.ac.za  | Predicting and preparing for a changing climate: implications for hydrological extremes and water resource management |
| 11:55-12:05 | Ms Alexandra Mattei | Université de Corse Pascal Paoli, Faculté des Sciences et Techniques, Département d’Hydrogéologie, Corte, France 2 CNRS, UMR 6134, SPE, Corte, France,mattei\_al@univ-corse.fr  | Estimating evaporation in Mediterranean regions with water stable isotopes |
| 12:05-12:15 | Mr Seifu Kebede Gurmessa | Center for Water Resources Research, University of KwaZulu Natal, Durban, South Africa kebedegurmessas@ukzn.ac.za  | Isotope enrichment pattern in tropical lakes in Africa |
| 12:15-12:20 | Ms Yuliya VystavnaMr Johannes Cullmann | International Atomic Energy Agency y.vystavna@iaea.org WMOjcullmann@wmo.int  | Short discussion, closure and follow ups |