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A SUSTAINABLE USE OF WATER RESOURCES FOR ENERGETIC PURPOSES

ERE 3.2

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Water is one of the most essential needs for life but more than one billion people live without an adequate resource of drinking water. This represents an important warning indicating why we should be very sensitive and conscious in using this important source of life. Water is a critical resource, not only for our direct consumption but also for nearly every product we use and consume. As an example, agriculture is the largest consumer of water, with extensive use in irrigation, livestock maintenance, and food processing. On the other hand, the energy sector also has a high water footprint because water resources represent important energy sources not only to produce but also to store thermal energy. To this regard, the geopolitical developments from February 2022 clearly indicated the need to accelerate and increase efforts to make the energy supply more independent and sustainable.

This session aims at developing an interdisciplinary research related to the appraisal and management of water resources. This includes the use of sustainable water not only for domestic and agricultural uses, but also as a source of energy for space heating and cooling as well as for thermal energy storage in aquifers. In this case, sustainability of water resources should be quantitative and qualitative, preserving its thermal and chemical characteristics before and after the energetic use.

Expected contributions may cover recent developments and projects aimed at a more conscious and sustainable use and management of the water resources, focusing on energetic purposes from agriculture to space heating and cooling which include the thermal energy production (e.g., open loop systems) and the underground storage (e.g., ATES, aquifer thermal energy storage.