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AI for Operational Hydrology

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Editorial

Being one among the article board individuals, I take a benefit to talk about the Hydrogeology and Hydrologic Journal as it covers the diverse sections/ fields related to the Hydrogeology and Hydrologic groundwater, surface water, water resource systems, hydraulics, agro hydrology, geomorphology, soil science, instrumentation and remote sensing, civil and environmental engineering, atmospheric water, snow and ice in the mode of original articles, review articles, case reports, short communications etc. To making them accessible online for the benefit of the scientific community globally.

O17 is a challenge-based, online interactive coaching programme to help young global innovators connect and shape good ideas into viable social innovations projects for achieving the 17 Global Goals for Sustainable Development at local, regional or global level. O17 supports projects that enable grassroots public participation and citizen science through the use of open data and crowdsourcing.

There are two open calls per year in which 6-8 challenges are formulated by experts from UN agencies, International Organizations and NGOs, targeting one or more of the Sustainable Development Goals (SDGs). Students and young scientists from all over the world are then asked to submit project proposals to solve these challenges. Selected candidates receive six weeks of mentoring to implement their projects under the guidance of the expert who defined the challenge. The most promising projects are further supported for their development, including internships and scholarships. The theme of the previous challenge was "Tackling plastic pollution". The next theme is "Artificial Intelligence for the SDGs" and the WMO HydroHub has been given the chance to formulate challenges.

The proposed challenges should answer the question: "Is there one particular challenge in operational hydrology that you think should be studied or resolved by means of AI?"

Two years later, hydrologists all around the world met in beautiful Montréal, Canada for the next IAHS conference organized as part of the 27th International Union of Geodesy and Geophysics General Assembly (IUGG 2019, 8-18 July 2019), including the five members of IAHS ECC (Joris, Svenja, Giova, Michelle, Jean and Nilay). We have been regularly meeting online since Nov 2018, yet we met in person for the first time in Montréal! (Note: The first IAHS ECC mandate officially came into force from July 2019 and will run until July 2021 when the next ECC will take over at the IAHS Scientific Assembly in Montpellier, France.

The week of 9-14 July was full of IAHS sessions and activities. The programme included 29 scientific sessions and 5 joint symposia led by IAHS (and co-organized with other IUGG associations). There were, in total, 4000+ participants from more than 100 countries. We were not so much affected by the high summer temperatures in Québec – rooms of the conference venue were cold enough to keep our attention strong. If you couldn't attend the IAHS conference, don't worry. You can get a glimpse of the week thanks to live feed in the HEPEX Blog by Marie-Amélie Boucher and Maria-Helena Ramos.

Previous studies indicated that the population size would arrive at its "upper limits" under the intense water scarcity in Urumqi; yet the "upper limits" had been repeatedly exceeded. Two latest research paper put forward a new term "generalized water", and estimated it under the framework of a noncompetitive input-output model. It was proved that generalized water made a main contribution to alleviate acute water scarcity in the past 40 years in the arid city, and answered the question why an urban population continues to grow under intensifying water scarcity. Another question is whether and how generalized water contributes to the continual development in the future in this city.

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