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## **An Integrative Information Aqueduct to Close the Gaps between Global Satellite Observation of Water Cycle and Local Sustainable Management of Water Resources (iAqueduct)**

**yijian zeng**<sup>1</sup> and the iAqueduct Team<sup>\*</sup>

<sup>1</sup>ITC Faculty, University of Twente, Water Resources, Enschede, Netherlands (y.zeng@utwente.nl)

<sup>\*</sup>A full list of authors appears at the end of the abstract

In the past decades, space-based Earth Observations (EO) have been rapidly advancing in monitoring the global water cycle, in particular for the variables related to precipitation, evapotranspiration and soil moisture, often at (tens of) kilometre scales. Whilst these data are highly effective to characterise water cycle variation at regional to global scale, they are less suitable for sustainable management of water resource, which needs more detailed information at local and field scale due to inhomogeneous characteristics of the soil and vegetation. To effectively exploit existing knowledge at different scales we thus need to answer the following questions: How to downscale the global water cycle products to local scale using multiple sources/scales of EO data? How to explore and apply the downscaled information at the management level for understanding soil-water-vegetation-energy processes? And how to use such fine-scale information to improve the management of soil and water resources? An integrative information aqueduct (iAqueduct) is proposed to close the gaps between global satellite observation of water cycle and local needs of information for sustainable management of water resources. iAqueduct aims to accomplish its goals by combining Copernicus satellite data (with intermediate resolutions) with high resolution Unmanned Aerial System (UAS) and in-situ observations to develop scaling functions for soil properties and soil moisture and evapotranspiration at high spatial resolution scales.

**iAqueduct Team:** Zhongbo Su 1,<sup>\*</sup>, Yijian Zeng 1,<sup>\*</sup>, Nunzio Romano 2,3, Salvatore Manfreda 4, Félix Francés García 5, Eyal Ben Dor 6, Brigitta Szabó 7, Giulia Vico 8, Paolo Nasta 2, Ruodan Zhuang 4, Nicolas Francos 6, János Mészáros 7, Donald Tendayi Rwasoka 1, Bas Retsios 1 1 University of Twente, Faculty of Geo-information and Earth Observation (ITC), Hengelosestraat 99, 7514 AE, Enschede, The Netherlands; 2 Department of Agricultural Sciences, AFBE Division, University of Napoli Federico II, Portici (Napoli), Italy; 3 Interdepartmental Center for Environmental Research (C.I.R.A.M.), Univ. of Napoli Federico II, Via Università n. 100, 80055 Portici, Napoli, Italy; 4 Department of Civil, Architectural and Environmental Engineering, Federico II University, via Claudio 21, 80125 Napoli, Italy; 5 Research Group of Hydrological and Environmental Modelling (GIHMA), Research Institute of Water and Environmental Engineering, Universidad Politécnica de Valencia, 46022 València, Spain; 6 Department of Geography and Human Environment, Tel Aviv

University (TAU), Tel Aviv 6997801, Israel; 7 Institute for Soil Sciences and Agricultural Chemistry, Centre for Agricultural Research, H-1022 Budapest, Hungary; 8 Department of Crop Production Ecology, Swedish University of Agricultural Sciences (SLU), 750 07 Uppsala, Sweden;