

# Annual Report 2016 of the IAHS-ICT activities

Prepared by Piotr Maloszewski

International Commission on Tracers - members:

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|---------------------|---------|----------------------------|
| Piotr Maloszewski   | Germany | President, 2011-2017       |
| Przemyslaw Wachniew | Poland  | Secretary, 2011-2015       |
| Josep Mas Pla       | Spain   | Vice President, 2011-2015  |
| Maki Tsujimura      | Japan   | Vice President, 2011-2015  |
| Zhonghe Pang        | China   | Vice President, 2011-2015  |
| Christine Stumpp    | Germany | President Elect, 2017-2021 |

**Period: April 2014 – May 2015**

## ***1) Commission members' individual activities***

The members of the commission have organized special sessions and/or lectures related to the application and development of tracer methods in the hydrology by national geological/geophysical congresses and at the home universities. They have performed several training courses, established scientific sessions and had oral presentations on tracer methods by national and international symposia and university workshops, e.g.: 2<sup>nd</sup> Spanish Workshop on Groundwater and Wetlands, organized by the International Association of Hydrogeologists (IAH-GE), celebrated in Girona, Spain, 6<sup>th</sup> Asian G-WADI (Water and Development Information for Arid Lands: A Global Network, UNESCO) ; 1<sup>st</sup> IDI (International Drought Initiative) - Expert Group Meeting “Advances in Groundwater Management and New Tools and Strategy for Coping with Drought held in Tehran, Iran, Training Workshop on “Advances in Water Resources Management in Arid and Semi-Arid Areas” in Khartoum, Sudan; Session “Monitoring Groundwater Quality and Quantity” by UNESCO International Scientific Symposium “Scientific, Technological and Policy Innovations for Improved Water Quality Monitoring in Kyoto, Japan. The ICT officers were also active by local workshops in Poland (UAM-University Poznan and AGH-University Krakow); Germany (University of Freiburg), New Zealand (Centre for Soil and Environmental Research, Lincoln University) and Tunisia (Training Workshop on “Integrated Water Resources Management in Africa” in Tunis). They supervised several PhD students and published several papers about application and modelling of tracer. Simultaneously the ICT officers have organized programs and projects such e.g.: EU Water JPI program, PERSIST on the occurrence and persistence of emerging contaminants in groundwater; Spanish National Program on Water Resources, REMEDIATION, focused on developing strategies for water resources remediation, specifically nitrate and emerging contaminants; and disseminated of the application of tracer techniques within the framework of the EU research project BONUS Soils2Sea.

## ***2) Workshop on tracer methods during 26<sup>th</sup> IUGG General Assembly in Prague, Czech Republic***

In Prague the ICT has organized the session: “Tracer methods for understanding the response of hydrological systems to transient contamination” (Hw15) by 26<sup>th</sup> IUGG General Assembly in June 2015. The commission had organized two oral (8 presentations) and one poster (8 posters) sessions. This workshop was aimed to the application of the environmental and artificial tracers in addressing response of hydrological systems at different scales. Knowledge of the distribution of water and solute travel times as fundamental for assessing temporal aspects water quality was discussed. The sessions were attended with 20-25 participants.

## ***3) Join workshop of the IAH and the ICT-IAHS by 42<sup>nd</sup> IAH Congress in Rom, Italy***

The commission has establish the workshop “Tracer and isotope hydrology” (S8.4) by 42<sup>nd</sup> IAH Congress “Aqua 2015”, which was held in Rome, Italy in September 2015. The join sessions IAH-

IAHS were held during four days and included three sessions with 18 oral and two sessions with 24 poster presentations. Each session was attended by 30-40 participants. The workshop was focused on two main topics: (i) estimation of water origin, water flow-paths and groundwater dynamics in heterogeneous groundwater systems by use of tracers and mathematical modelling; and (ii) understanding and estimating of pollutant transport and bioremediation processes using isotope methods. During oral and poster presentations, the application of tracers to characterize groundwater flow-paths, estimate system parameters and/or for understanding and quantifying of groundwater bioremediation were widely discussed.

#### ***4) ICT Workshop for IAHS General Assembly 2017***

The commission has proposed the workshop “Environmental and artificial tracers as indicators in hydrology” for the IAHS General Assembly to be held in RSA next year. The main issue should be focussed on using environmental and artificial tracers to provide insights into functioning of different compartments of the hydrological cycle and to assist the development of their conceptual and numerical models. Contributions will be invited to demonstrate the application and recent developments of tracer techniques in field studies or modelling in all areas of the surface and sub-surface hydrology.