Panta Rhei – Everything Flows
Change in Hydrology and Society
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Details of the Proposal

Title of the Working Group

Water scarcity assessment: methodology and application

Abstract of the proposed research activity

With rapid socio-economic development, conflicts between water demand and supply have become more intense; water scarcity has become a bottleneck for the sustainable development in more and more countries and regions of the world. Water scarcity assessment has become a hot research topic in the field of hydrology and water resources management. However, previous methods for water scarcity assessment are mainly based on water quantity and seldom consider water quality. This underestimates the water scarcity situation given the fact that in many areas of the world water pollution has been an important cause of water shortage because the available water is too polluted for any safe use. In addition, environmental flow requirements are not explicitly considered in the water scarcity assessment.

This working group will focus on the improvement of water scarcity assessment by explicitly considering water quantity and quality as well as environmental flow requirements. The improved methods will be used to assess water scarcity on different scales ranging from globe to river basin and municipality. Future scenarios will be established to quantify water scarcity taking into account the continuous shifts of consumption pattern, socioeconomic development, increasing water pollution, and climate change. The research will compare the results from different studies (as carried out by different research groups) that use different assessment approaches and assumptions. This will bring insight into the relevance of different factors influencing the water scarcity, and sensitivities of the findings to assumptions and data used in the assessments.

Panta Rhei Research Themes, Targets and Science Questions addressed by the Working Group

This working group will address the research theme 'Water Scarcity Assessment', science questions 2, 3 and 6 and research targets of 'understanding', 'estimation' and 'science in practice'.

Societal impact of the Working Group activity

The working group will provide insights into how shifting consumption preferences and growing pollution influence water scarcity. It will also attempt to explain how water scarcity assessment is sensitive to assumptions on environmental flow requirements. A projection of future water scarcity will be provided with the improved methods, and driving forces determining future water status will be identified. The assessment will provide scientific support and data for UN bodies, international organizations, government bodies, decision makers, as well as the public.

List of Participants

Name of Participant	Affiliation (full address and email)	Role in Working Group (Chair or Member)	Main expertise
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