

IAF EARTH OBSERVATION SYMPOSIUM (B1)
Assessing and Mitigating the Global Freshwater Crisis (6)

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KEYNOTE: COPING WITH MAJOR SOCIETAL HAZARDS SUCH AS FLOODING DUE TO A
CHANGING CLIMATE

Abstract

Climate change over the coming decades will be far reaching and will affect almost every aspect of our lives from food production, health, the economy to the environment. At the same time a growing global population that is increasingly urbanized and interconnected is making society more vulnerable and less resilient. There is also good evidence that climate-related hazards hit those living in poverty the hardest. Reducing our exposure to current climate threats is a critical first step towards mitigating or adapting to future climate change. Current climate and its variability already pose very significant risks, of which flooding is a clear and impactful example. Observed change in the climate over recent decades has been linked with changes in the global hydrological cycle, including increased atmospheric water content and changing precipitation patterns (Allan, 2011; Bates et al., 2008). It has been suggested that many of the most severe global impacts of anthropogenic climate change may be mediated by water (Stern, 2006) and that rivers may be among the ecosystems most sensitive to climate change (Kernan et al., 2010; Millennium Ecosystem Assessment, 2005; Ormerod, 2009). It is also anticipated that further warming will intensify the hydrological cycle, leading globally to an increased risk of floods and droughts (Bates et al., 2008; Giorgi et al., 2011; Rockström et al., 2009) and increased exposure to water resources stress, even under the most stringent emissions mitigation scenarios (Arnell et al., 2011, 2013). Significant advancement has been made to better understand, forecast, and mitigate threats have been made. The sophistication of hydrological analysis and models has developed rapidly with new data and increased computational power but there many gaps remain to be pursued to fully employ this knowledge for improved planning and decision making for mitigating this crisis. Promoting and enabling international cooperation is key towards tackling this global problem.