



Towards assessment and prediction of hydrologic change

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Understanding hydrologic change arguably is a grand challenge facing the community. How well are we positioned to address the problem – do we understand the nature of past and ongoing hydrologic change, and are we equipped to make meaningful predictions of the future evolution of the land surface hydrologic system? We frequently hear that climate change implies an acceleration of the hydrologic cycle, but if so, why aren't we seeing increases in flooding? Do we adequately understand the interactions between precipitation changes (for which there are some documented changes) and flooding? Do we have an adequate basis for assessing the effects of land cover change on hydrology? I review here methods and evidence of hydrologic change in instrumental records, and discuss issues associated with the hydrological observing systems that support change detection. I then discuss approaches to predicting future hydrologic change, with particular attention to weak links in both process understanding, and its representation in predictive models.