



## **On science versus engineering in hydrological modelling**

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It is always stressed that hydrological modelling is very important, to prevent floods, to mitigate droughts, to ensure food production or nature conservation. All very true, but I believe that focussing so much on the application of our knowledge (which I call 'the engineering approach'), does not stimulate thorough system understanding (which I call 'the scientific approach'). In many studies, science and engineering approaches are mixed, which results in large uncertainty e.g. due to a lack of system understanding. To what extent engineering and science approaches are mixed depends on the Philosophy of Science of the researcher; verificationism seems to be closer related to engineering, than falsificationism or Bayesianism. In order to grow our scientific knowledge, which means increasing our understanding of the system, we need to be more critical towards the models that we use, but also recognize all the processes that influence the hydrological cycle. In an era called 'The Anthropocene' the influence of humans on the water system can no longer be neglected, and if we choose a scientific approach we have to account for human-induced processes. Summarizing, I believe that we have to account for human impact on the hydrological system, but we have to resist the temptation to directly quantify the hydrological impact on the human system.