



How many reservoirs should we build in France to maintain water availability under a changing climate?

Vazken Andréassian, Guillaume Thirel, and Charles Perrin
Iristea, HBAN, Antony, France (vazken.andreassian@irstea.fr)

Although climatic predictions based on the IPCC scenarios have been made available to policy-makers for several years, the debate on adaptation is still extremely limited. This is natural in a world where short-term preoccupations are overwhelming. But it is true that hydrologists have not spent much effort in translating the scientific message into a message understandable by policy makers.

In this presentation, we wish to transform the future climate simulations into a provocative question, better able to raise interest among policy-makers: if we would like to keep the same availability of water resource under a changing climate, how many dams would we have to build until 2050? (Of course, this does not mean that we believe that the only possible adaptation strategy lies in dam building).

To this aim, we use climatic simulations based on the last IPCC scenarios, a hydrological model to transform these scenarios into streamflow series, and a water allocation model working under simple hypotheses to compute the efficiency of the flow-to-resource conversion and simulate the impact of reservoir operation.

After presenting the method for three French rivers (the Vilaine, the Durance and the Garonne) we apply it to 1000 points all over France and propose a countrywide quantification of reservoir construction needs, in order to adapt to predicted climatic changes.