



Discharge and water temperature evolution in future climate. A case study on the Rhone river

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EDF, as electricity producer, is interested on the future evolution of water temperature and discharge for the rivers where industrial sites are located. In particular, the model of present discharges and water temperatures is done via an hydrological model coupled with water temperature model. Forcing the models with GCM future climate scenarios it is possible to forecast the future evolutions of these two variables.

Here a case study on the cross-boarder Rhone basin at the section of Viviers (73,000 km², France) is presented. This watershed presents very particular characteristics, namely the influence of the Lemane lake on the upstream part of the basins and the presence of several tributary characterized by various hydrological regimes. For this reason, the hydrological modeling is a key in the future climate evolution estimation. A very wide data set of meteorological measure (collected by EDF during the last 35 years) is used to calibrate the models. The selected future scenarios are issued from the results of 6 coupled model RCM-GCM of the European project Ensemble.