Effects of model input data uncertainty in simulating water resources of a transnational catchment

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Landscape consists of different ecosystem components and how these components affect water quantity and quality need to be understood. We start from the assumption that water resources are generated in landscapes and that rural land use (particular agriculture) has a strong impact on water resources that are used downstream for domestic and industrial supply. Partly located in the north of Luxembourg and partly in the southeast of Belgium, the Haute-Sûre catchment is about 943 km2. As part of the catchment, the Haute-Sûre Lake is an important source of drinking water for Luxembourg population, satisfying 30% of the city's demand. The objective of this study is investigate impact of spatial input data uncertainty on water resources simulations for the Haute-Sûre catchment. We apply the SWAT model for the period 2006 to 2012 and use a variety of digital information on soils, elevation and land uses with various spatial resolutions. Several objective functions are being evaluated and we consider resulting parameter uncertainty to quantify an important part of the global uncertainty in model simulations.