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Impacts of climate change on water resources in the upper watershed of the river Senegal: Contribution of Remote Sensing and Mike SHE model

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As a prelude to the preparation of the South African National Committee of the International Association of Hydrological Scientists (SANCIAHS) on "Water and Development: scientific challenges in addressing societal issues" to be held in Port Elizabeth from 10-14 July 2017, We are registering for an oral communication in the thematic session Land use change impacts on water resources.
It is widely proven by observational records and climate projections that freshwater sources are vulnerable and will suffer severely from climate change, with major impacts on human societies and ecosystems (IPCC, 2008). Changes in precipitation are very variable in the spatial scale and a decade to another. Climate change influences the functioning and operation of existing water infrastructure, including hydroelectric power, works to protect against flooding, drainage and irrigation systems, and the management practices of the water.
The main objective of this study is to determine climate impacts on integrated water resources management of the upper watershed of the river Senegal.
In a context of known variation of water resources, the originality of the subject is explained mainly on distributed hydrological model study to consider the land cover data, geographic information systems and hydro data -climate to detect the climate impact on water resources. Such a study distributed based modeling has not been carried out in Senegal especially one as large basin that upper watershed of the river Senegal.
Currently, integrated water resources management in a climate change context is a need that is expressed at all levels (local, national, regional, and international) because of the often tragic consequences of water shortages on the map human, economic and political. Thus the combination of hydro-climatic data, data for geographical information systems and those of land use has developed a database to import into MIKE SHE. Overall, the first simulation tests reproduce satisfactorily the form of observed hydrographs. The impacts of a potential climate change vary from one basin to another. Thus, compared to the observed data, the scenarios used in planning our basin average annual flow variations which are highly dependent on precipitation forecasts for each climate model.