

Hydrological response of LULC and climate change in Mediterranean basin: application to the Siliana catchment in Tunisia

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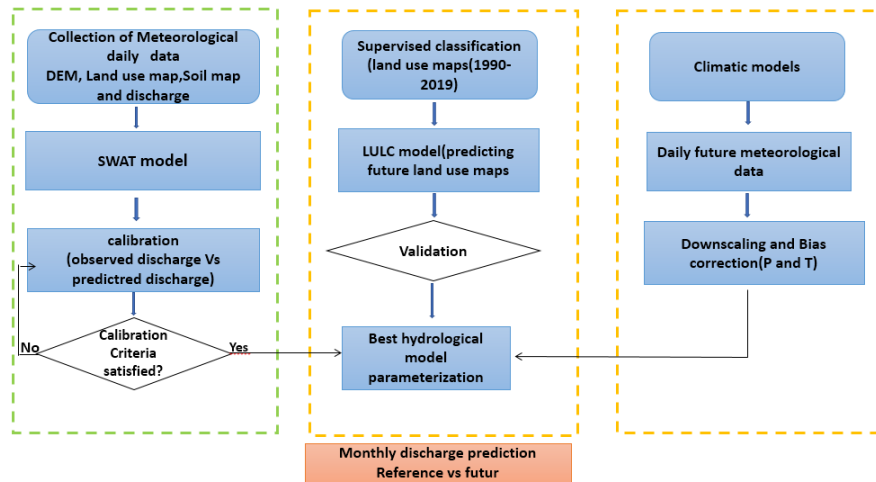
1. Introduction

- Siliana catchment reached an increasingly severe water stress in recent years, and a high vulnerability to climate change and land use change. These major points of concern can be addressed through model based approaches.

2. Objectives

- Assessing the performances of the SWAT model in simulating the hydrology of a Siliana catchment.
- Assessing the hydrological impacts of LU and CC in the Siliana catchment

3. Methodology



4. Results

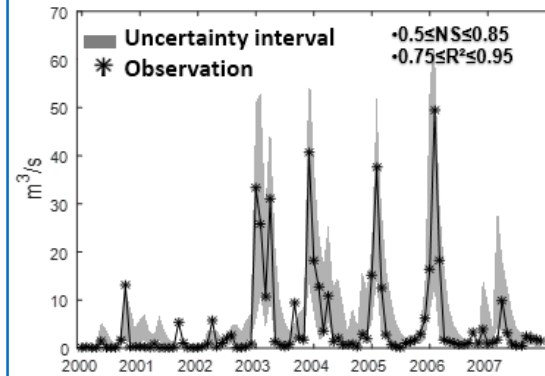


Figure.1: SUFI2 prediction uncertainty bounds for Siliana catchment(2000-2007)

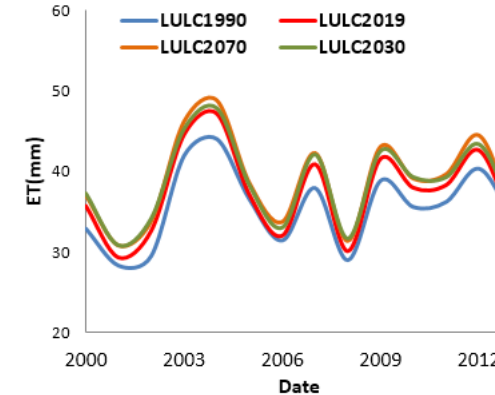


Figure.2. Annual average ET response in the different LULC scenarios of Siliana catchment.

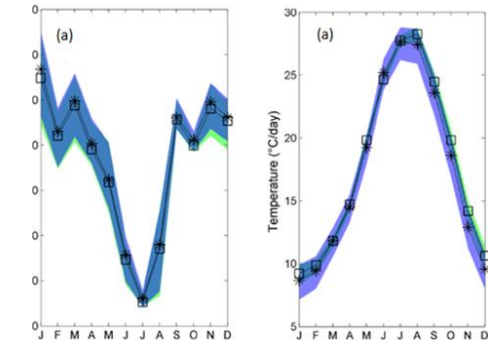


Figure.3. Climate models bias corrected simulations vs measurements

5. Conclusion

- ✓ Some measurements can reduce the uncertainty of some parameters (e.g. Soil parameter: land cover map updates).
- ✓ Evaluation of the quality of available data is necessary to minimize errors in the model simulation especially for the assessment of LU and CC impacts.
- ✓ The LU change in Siliana catchment detected by LU model are expected to decrease the streamflow and increase the ET in the future projections.
- ✓ The Siliana watershed is likely to experience drier and warmer conditions in the future. Climate models project a general decrease in precipitation and increase in temperature.