



Performance of global seasonal precipitation forecasts across semi-arid regions

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Until 2025 approximately 1.8 billion people are expected to suffer from absolute water scarcity. In order to deal with this issue, scientists and decision makers seek to improve their management strategies of water resources. It is expected that they would tend to rely their management practice on global hydrometeorological data, remote-sensing products and global model systems, since the number of in situ gauges is significantly decreasing during the last decades. It is recognized that the seasonal scale, in particular, is crucial for water management in semi-arid regions.

This present study is embedded in the Seasonal Water Resources Management (SaWaM) project, which aims to assess the skill of seasonal precipitation forecasts across selected semi-arid regions worldwide, i.e. Brazil, Iran, and West Africa. The performance of two global seasonal forecast products NCEP-CFSv2 and ECMWF-S4 is analyzed in terms of the representation of (sub)seasonal precipitation features such as precipitation amount, dry and wet spell length and –probability, drought indices, onset of the rainy season, etc. The hindcasts of the two global seasonal products are validated for the wet seasons of period 1981 to 2010 using the interpolated precipitation observation products GPCC, GPCP, and CRU. Different deterministic and probabilistic skill measures such as Root Mean Square Error, Equitable Threat Score, Brier Skill Score and False Positive Rate are employed to evaluate the forecast ensemble. Moreover, it is analyzed whether or not single members from the seasonal ensemble forecast can be omitted. The value of the two global seasonal products for decision support in water management will be discussed in the context of availability, quality, and resolution of the data.