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Title: A rule of thumb Prediction of sub-seasonal extreme dry spells in the Sudan-Sahel region

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Abstract:

The occurrence of consecutive dry days longer than two weeks in May-July and longer than a week in August-September are sources of water stress, seedling failure and most yield loss in the West African Sahel. This presentation seeks to expose the statistical-dynamical links of these extreme dry spells (extDS) with above/below/normal patterns of rainy season and sea surface temperature anomalies (SSTAs) and upper level wind patterns. The results are drawn from the 1950-2010 daily rainfall data from well distributed raingauge network of the Sudan-Sahel extended to the northern regions of the humid countries of West Africa, observed SSTAs and NCEP re-analysis data set. We establish the statistical-dynamical relationships between the quality of rainy season, sea surface temperatures anomalies, upper level wind patterns and the regional occurrence index of extDS (ROI). Then we use this relationship to forecast the sub-seasonal length and timing of extreme dry spells over the region. This subjective approach can be developed in a form of algorithm for local situations to enhance seasonal prediction of within season rain events and drought spells over the Sahel.

Keywords: Sub-seasonal Prediction, Extreme Dry Spells, Season Quality, SST Anomaly, Wind Pattern, Statistical-Dynamical Link, Sahel

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