



## **Intra-seasonal variability of precipitation over the Guinean coast and Central Africa: analysis of a 15-day mode of variability**

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The main objective of this study is to characterize the intra-seasonal scales variability (ISV) of precipitation over the Guinean coast and Central Africa during the spring (MAMJ). This has been done by applying statistical methods widely used in previous studies on the West African summer Monsoon. The data used here cover the period 1998-2010 and are derived from satellite products for rainfall (TRMM 3B42) and convection (NOAA OLR, CLAUS Brightness's Temperature). To characterize the atmospheric pattern associated to each ISV mode, we used the ERA-Interim reanalyses over the period 1998 to 2010.

At intra-seasonal timescale, three main modes, corresponding to those of the West African summer Monsoon have been highlighted. At the 10-25-day scale, regression analysis between a precipitation index over the Guinea coast and atmospheric fields enables to identify a dominant mode of variability associated with an oscillation of convective activity along the Guinean coast, probably triggered by an eastward Kelvin wave. The analysis of the spatio-temporal structure of this mode shows a dipole of convection centered on the coast of Guinea, with a wavelength  $\sim 10000$  km. It relates the enhancement of rainfall activity over the coast of Guinea to the activation of the monsoon westerly wind component due to the arrival from the west of a high pressure field, thus generated the zonal wind component associated to Kelvin wave dynamics. This structure slows down and remains almost stationary for a few days over the Guinean coast before moving eastward.

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