



Reconstitution of Holocene Climate Events in Western Africa from palynological proxies through hydrogeological modelling

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The Niayes of Senegal are sahelian inter-dunal fens, that hosted an azonal sub-guinean vegetation during the Holocene thanks to the availability of fresh groundwater despite contrasted climatic conditions. Exploratory scenario-based modeling of the zonal hydrogeology has been conducted for different periods with the Cast3M code. The results show that the delay in the onset of humid vegetation ca. 10 ky cal. BP could be ecosystemic and denote a start of the African Humid Period (AHP) ca. 11.5 ky cal. BP. Alternatively, the AHP could have started earlier while its beneficial effects would have been canceled by low sea levels. Vegetation degradation around 7.5 ky cal. BP is shown to have resulted from a climate minoration, that possibly alleviated until 4 ky cal. BP. The rising watertable allowed the degraded forest to persist during that period however. The forest expansion that followed ca. 3.5 ky cal. BP had then clearly a climatic origin. The interpretation of pollens for climate research requires a careful filtering-out of local groundwater availability.