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Spatial and temporal dynamics of wetlands in the Khor Abu Habil, Sudan, as a prospective Ramsar site

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African wetlands provide a multitude of ecosystem services such as water for the local population or habitat for different species of water birds. The Khor Abu Habil alluvial wetlands (Khor is the name given to ephemeral rivers in Sudan) are located in the semi-arid zone in the southern part of the Sudan. These wetlands are fed by seasonal wadi streams and remain for several months. Despite their importance as a habitat for many migratory water birds, only little is known about their hydrological dynamics. In this study, we focus on the spatial and temporal variability of the wetlands in the Khor Abu Habil between 1984 and 2018. We used Google Earth Engine and the image collection of Landsat 5–8. To classify open water, we calculated the normalised difference vegetation index NDVI [e.g. Huete, A. R. et al., Remote Sens Environ, 1985, 17: 37–53] and the modified normalised difference water index MNDWI [Xu, Int J Remote Sens, 2006, 27: 3025–3033]. Our preliminary results indicate a large variability of open water areas and their general increase after 2007. This coincides with the construction of a dam upstream of the Khor. The results depend on the value of the threshold for MNDWI to identify water pixels and possibly also on the number of images available for a certain period. The Khor has hardly been influenced by modern infrastructure and our results should contribute to evaluate its suitability as a protected zone under the Ramsar Convention for the conservation and sustainable use of wetlands.