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A comparative hydrology approach to understand groundwater recharge variability across the African continent

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Many rural and urban communities across Africa depend upon aquifers as their only perennial source of water. However, there is currently insufficient groundwater management, and practices need improving to ensure sustainable usage of groundwater now and in the future. Groundwater recharge estimates are needed to assess the extent to which groundwater resources can be withdrawn sustainably. Due to the scarcity of recharge observations throughout Africa, we developed a classification scheme to help infer knowledge from existing observations to transfer them to other unmonitored areas. Our first aim was to assess how and why groundwater recharge varies spatially across Africa. We will present our break-down of controlling factors on the spatial and temporal variability of groundwater recharge. As the study area is predominantly unmonitored, globally available datasets were used for all aspects of the classification scheme. Furthermore, this will allow the process to be easily replicated in other data sparse regions of the world. Ultimately, we expect the classification to support future model developments by identifying dominant controls on groundwater recharge processes for different regions across the African continent.