



Multiple environmental changes impacting hydrological processes in the Lower Senegal Delta Basin

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An integrated analysis of hydrological changes in the lower Senegal Delta Basin since the second half of the 20th Century shows significant impacts from the multiple environmental stresses affecting the system. Relatively low rainfall conditions during the 1970s and 1980s drought, was soon followed by the construction of dams along the Senegal River in 1983, and Landsat imagery between 1973 and 2010 identified a rapid irrigation expansion across the Senegal Delta. These multiple stressors simultaneously impacting the hydrological system are expressed in seasonal and inter-annual scale shifts in the (1) river hydrological regime, (2) groundwater elevations in the alluvial aquifer, and (3) interactions between these resources. This study has found that the compounding environmental change impacts on the hydrological processes are spatially heterogeneous, and highlight a system in various stages of transient response.