

The spatial and temporal characterisation of flooding within the floodplain wetland of the Nyl River, Limpopo Province, South Africa

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Abstract

The inundated area of a wetland is characterised by annual and interannual variability. This paper presents remotely-sensed imagery in order to better understand the spatial and temporal patterns of flooding within the floodplain wetland of the Nyl River, Limpopo Province. A detailed understanding of the hydrological characteristics of these flood events is essential in order to develop sustainable ecological and hydrological management plans for the area. From the results, flooding is shown to occur in 2 distinct phases. The initial phase is characterised by water ponding on the floodplain. The later phase is characterised by the input of water from tributaries to the north (e.g. Andriesspruit and Tobiasspruit) and southwest (e.g. Klein Nyl and Groot Nyl). This distinction may relate to the increasingly widespread practice of agricultural irrigation within adjacent tributary catchments. The methodology described in this study could yield valuable results when applied to other wetland systems in southern Africa.

Keywords: Landsat, remote sensing, flood dynamics, floodplain wetlands, Nyl River