

P73 Land surface-atmosphere interactions and the northwest Australian summer monsoon of the late Pleistocene and Holocene

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Land surface-atmosphere interactions play a distinct role within the climate system and it has been shown that changes to land cover may be reflected in the regional climate. The land cover of the monsoon region of northwest Australia has changed in response to climate and land management practices. It has been hypothesized that land management practices introduced by the first Australians some 40,000 years ago might explain the relatively weak Holocene monsoon observed in palaeoclimate proxy records. However, on these time scales, the role of land surface-atmosphere interactions is typically overwhelmed by larger-scale controls such as sea surface temperatures and insolation. Similarly, previous global circulation modelling studies have inferred that the monsoon regime itself is not significantly influenced by decreased vegetation, but rather this acts to delay monsoon onset and reduces pre-monsoon precipitation. This study employs regional climate model WRF to test the sensitivity of the northwest Australian summer monsoon to changes in land cover and provide insight into the mechanisms involved.