

## **Mapping the risk of Rift Valley fever re-emergence in Southern Africa using remote sensing data**

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Rift Valley fever is a viral disease of animals and humans that occurs throughout sub-Saharan Africa, Egypt and the Arabian Peninsula. Outbreaks of the disease are episodic and closely linked to climate variability, especially widespread elevated rainfall that facilitates Rift Valley fever virus transmission by vector mosquitoes. Episodic outbreaks of the disease are closely linked to interannual variability in rainfall associated with the El Niño/Southern Oscillation (ENSO). In this study we utilize satellite-derived normalized difference vegetation index data and rainfall anomalies during the 2007-2008 period to drive a RVF risk model and map areas of likely RVF risk activity over the region. These model outputs are compared against 2007-2008 RVF outbreak data and we record environmental conditions that appear to be associated with outbreak locations. The results indicate that the RVF outbreak during this period was a result of above normal rainfall creating the ideal complex of ecological and habitats for the production of mosquito vectors associated with RVF. The results also highlight the value of systematic satellite observations of the land biosphere integrated with case data in developing early warning systems for episodic disease outbreaks.