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VECTRI: A new dynamical disease model for malaria transmission

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In order to better address the role of population dynamics and surface hydrology in the assessment of malaria risk, a new dynamical disease model been developed at ICTP, known as the VECToR borne disease model of ICTP (VECTRI). The model accounts for the temperature impact on the larvae, parasite and adult vector populations in a similar fashion to previous dynamical models, but additionally explicitly accounts for the local population density, allowing for the incorporation of such impacts as bednet useor migration, as well as including a new simple pond model framework for surface hydrology. These additions allow the model to be reasonably run on resolutions down to O(10km), essentially the resolution of the population and climate input data. Results from the model driven by ERAI reanalysis and FEWS/TRMM rainfall for various regions in Africa will be shown which are focus areas of the Healthy Futures and QWeCI project which demonstrate that the model produces a realistic spatial and temporal variability of malaria transmission