

# Data from satellite imagery useful for malaria early warning systems

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Researchers at Umeå University have developed a model that uses

seasonal weather data from satellite images to accurately predict outbreak of malaria with a one-month lead time. With a so-called GAMBOOST model, a host of weather information gathered from satellite images can be used as a cost-effective disease forecasting model, allowing health officials to get ahead of the malaria infection curve by allocating resources and mobilizing public health responses. The model was recently described in the journal *Scientific Reports*, a Nature Research publication.

In the forecasting model, information about land surface temperature, rainfall, evaporation and plant perspiration is used to establish links between observable weather patterns and future patterns of malaria outbreaks. Using hospital and weather data from a rural district in Western Kenya, the researchers have been able to show with a high level of accuracy that conducive environmental conditions occur before a corresponding increase in hospital admissions and mortality due to malaria.

"A one month lead time may be short but can provide enough time to intensify malaria control interventions in an endemic area where a [malaria](#) preparedness and response plan is already in place. In the [model](#), alert thresholds can be improved to provide longer lead times ranging from one to six months," says Maquins Sewe, researcher at Umeå University's Epidemiology and Global Health Unit and corresponding author of the study.

**More information:** Maquins Odhiambo Sewe et al. Using remote sensing environmental data to forecast malaria incidence at a rural district hospital in Western Kenya, *Scientific Reports* (2017). [DOI: 10.1038/s41598-017-02560-z](https://doi.org/10.1038/s41598-017-02560-z)

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