

Infectious disease and monsoon environments: Working towards forecasting epidemics in Africa

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Epidemics of infectious diseases are a major burden in the developing world. Malaria and meningitis have a major impact on society and economic development in sub-Saharan Africa. Malaria kills 2.7 million people a year, mostly children, with over 90% of this total in Africa. Meningitis is associated with the Sahel region of Africa where every 5-10 years they are subject to large epidemics.

Both diseases have strong seasonal cycles and major epidemics are often associated with climatically anomalous years. The ability to make a skillful seasonal forecast together with timely access to meteorological observations could enable the areas at risk of epidemics to be identified months in advance. Such a lead time would allow intervention to take place. This paper looks at recent work that has developed a statistical model for the prediction of meningitis and ongoing work developing a dynamic biological model for malaria. Both models can be run with seasonal probabilistic meteorological forecasts from the EU DEMETER project. Issues relating to seasonal forecasting of monsoon rainfall in Africa and the application of these forecasts in these health models will be discussed.

Thursday I (Keynote talk)