



Monitoring climate and its variability for integrated infectious disease surveillance and early warning: achievements and new challenges in the application of remotely-sensed data

P. Ceccato, S. J. Connor, C. F. Ropelewski, M. A. Bell, M. C. Thomson

International Research Institute for Climate Prediction, The Earth Institute, 227a Monell Building, Columbia University, 61 Rt. 9W, Palisades, NY 10964-8000 USA. Phone: +1 845-680-4425 Fax: +1 845-680-4864 Email: pceccato@iri.columbia.edu

A number of the major infectious diseases that still plague the developing world are sensitive to interseasonal and interdecadal changes in environment and climate. The better-known examples are malaria, dengue, cholera and meningitis. The relationships between environmental remote sensing data, meteorological satellite data and the spatial and temporal distribution of these and other diseases have been the subject of a number of publications over the last decade. However, the routine operational use of satellite and ground based data relevant to improved control of these diseases remains very limited.

The objectives of this presentation are i) a summary review of the issues; ii) to present recent developments which use remote sensing, and available ground-based observations, to monitor climate variability and its impact on dynamics of these infectious diseases, iii) to outline the development opportunities for operational Disease Early Warning Systems which integrate real-time monitoring and forecasting and iv) to discuss technical issues that must be overcome in terms of routine operational monitoring. Technical challenges to be discussed include better measurement of parameters such as rainfall, temperature and dust cloud in order to improve the performance of the models used in the integrated Early Warning Systems.