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**Arthur Getis\*** ([arthur.getis@sdsu.edu](mailto:arthur.getis@sdsu.edu)), Department of Geography, San Diego State University, San Diego, CA 92182. *Identifying Super-Annual Oscillations of an Infectious Disease in a Space-Time Pattern with the Use of the Hilbert-Huang Transform.*

The Hilbert-Huang Empirical Mode Decomposition (EMD) is used to subdivide Thailand province time-series data on human dengue hemorrhagic fever (DHF) infections into Intrinsic Mode Functions in order to test the hypothesis that the incidence of the mosquito-borne tropical disease can be accurately described by a spatial-temporal traveling wave. In 2001 alone, the World Health Organization reported 500,000 cases of DHF, the severe and sometimes fatal form of the disease. We test Cummings et al. (2004)# theory of repeating traveling waves in a 3-year periodic component of variance which is thought to reflect host-pathogen population dynamics. We recognize how a single epidemic might bias long term EMD results. Further examination of the dynamics using EMD analysis reveals a super-annual series of oscillations in a broader periodic range revealing a systematic space time pattern of epidemic behavior over two decades that are very different from Cummings et al. 3-year traveling wave.

# Cummings DAT, Irizarry RA, Huang NE, Endy TP, Nisalak A, Ungchusak K, Burke DS (2004) Travelling waves in the occurrence of dengue haemorrhagic fever in Thailand. *Nature* 427: 344-347. (Received September 12, 2007)