

Monitoring and Spatio-Temporal Analysis of Schistosomiasis Japonicum breeding Environment in lake and marshland regions of the Yangtze middle reaches, P.R. China: the case of Dongting and Poyang Lakes

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In China more than 40 million people living in tropical and subtropical areas are concerned by the schistosomiasis disease; a serious problem of public health. Middle reaches of the Yangtze River, are the principal remaining endemic area, principally in lakes and marshlands regions of the Hunan, Hubei and Jiangxi provinces, particularly the Dongting and Poyang shores, the largest fresh water system in China. As an endemic disease, the prevalence and distribution of schistosomiasis are closely related to its intermediate host a small snail named *Oncomelania hupensis*; therefore, monitoring and controlling of the number of *O. hupensis* is the key to reducing the risk of schistosomiasis disease transmission. Within DRAGON "Flood Wetland" project, with the support of Chinese authorities, as well as ESA and CNES ones, a huge satellite database, very rich in term of sensors type (optical and SAR; from ENVISAT ASAR and MERIS, Beijing1, Landsat, ALOS, SPOT, ...) and spatial resolution (from 250m to 1m) was exploited in order to derive environmental factors (vegetation, vegetation growth, time of submersion, surface temperature, soil, etc...), which are related to the living, multiplying, of *O. hupensis*, in others words describing the ecosystem of intermediate host covering the Poyang and Dongting lakes areas. The risk transmission was also investigated through the analysis of human practices (buffalo pastures, fishing, and villages' neighbourhood with water bodies). One major innovation aspect of this work is the exploitation of time series, long or short ones, allowing a dynamic analysis of these environmental factors which are changing under the regional meteorological trends and also implantation of major structures such as the Three Gorges dam.