



## Hydro-meteorological Impact on Malaria Diseases at Regional Scale in India

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Several studies have revealed that rainfall and temperature are highly correlated with malaria spread. There are several studies relating the combined effect of hydrological and meteorological information for the malaria diseases<sup>1-4</sup>. In this study, attempts are being made for assessing the combined effect of hydro-meteorological variables on malaria disease at the regional scale. It reveals that evaporation is one of the essential climatic variables in this context, which is jointly derived by hydrological and meteorological variables. To our best knowledge, there are very few studies which have been performed to analyse the relations between malaria and the ratio of precipitation (P) and actual evaporation (AET). This study analyses the impact of the ratio of P and actual AET on malaria diseases. The work has performed at regional scale using annual data of malaria disease over the Tirap district of Arunachal Pradesh in India. Annual P data from Indian Meteorological (IMD) and GRUN<sup>5</sup> global surface runoff during the period of 1995 to 2012 are used for this analysis. The AET was estimated as difference e between P and runoff time series. The AET and P relationship with Plasmodium vivax (PV), Plasmodium falciparum (PF) is analysed. The sum of PV and PF is BSB indicator, it shows the total number of people affected by malaria. The study has revealed that fraction P/AET is negatively correlated with PV, PB and BSB. In comparison to hydrological and meteorological variables like P, surface runoff, AET and AET/P which are mostly positively correlated with BSB, PV and PF. This preliminary result will be further explored in order to find a connection on improving the forecast of malaria diseases using hydrometeorological inputs for better health management In the studied district.

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