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Atmospheric water vapor: Distribution and Empirical estimation in the Atmosphere of Thailand

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Atmospheric water vapor is a crucial component of the Earth's atmosphere, which is shown by precipitable water vapor. It is calculated from the upper air data. In Thailand, the data were collected from four measuring stations located in Chiang Mai, Ubon Ratchathani, Bangkok, and Songkhla during the years 1998-2013. The precipitable water vapor obtained from this investigation were used to define a empirical model associated with the vapor pressure, which is a surface data at the same stations. The result shows that the relationship has a relatively high level of reliability. The precipitable water vapor obtained from the upper air data is nearly equal to the value from the model. The model was used to calculate the precipitable water vapor from the surface data 85 stations across the country. The result shows that seasonal change of the precipitable water vapor was low in the dry season (November-April) and high in the rainy season (May-October). In addition, precipitable water vapor varies along the latitudes of the stations. The high value obtains for low latitudes, but it is low for high latitudes.

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