

A Dynamic Equation for Downscaling Surface Air Temperature

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Abstract : In order to utilize results from global climate models, dynamical and statistical downscaling techniques have been developed. For dynamical downscaling, usually a limited area numerical model is used, with associated high computational cost. This research proposes dynamic equation for specific space-time regional climate downscaling from the Educational Global Climate Model (EdGCM) for Southeast Asia. The equation is for surface air temperature. These equations provide downscaling values of surface air temperature at any specific location and time without running a regional climate model. In the proposed equations, surface air temperature is approximated from ground temperature, sensible heat flux and 2m wind speed. Results from the application of the equation show that the errors from the proposed equations are less than the errors for direct interpolation from EdGCM.

Keywords : dynamic equation, downscaling, inverse distance, weight interpolation

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