

The judgement and analysis of spatial uncertainty caused by the overlapping between meteorological field value and GIS data

H. Hu, C. Zhang, C. Cheng

ABSTRACT

The meteorological field value embodied by the grid can't be aligned with the geographical object precisely in spatial, when overlapped with GIS data for querying the value of meteorological element by grid-cell, and the spatial uncertainty is arose by the surveying method of the Near Estimated Value (NEV) and the Quartering Grid (QG). So how to control the uncertainty caused by overlapping is the key to develop meteorological GIS application. The paper adopt the Cross Entropy (CE), the Mean Square Error (MSE), and the Root Mean Square Error (RMSE) to measure the uncertainty. It can be demonstrated that the NEV only meet the requirement of the application under higher spatial resolution such as the 1KM grid-size, but can't do so well in low resolution, however, the co-grid QG take the interpolation to promote the measurement accuracy, its uncertainty is less than that of the other method. The QG constitutively meet the meteorological GIS application when overlapped the meteorological field value in GIS.