

论文

山东省多年气象要素空间插值方法比较研究

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摘要:

针对山东省境内气象站点分布比较稀疏的情况,以1990~2001年山东省17个气象站点的年平均降水和温度为基础数据,分别建立了平均降水和温度与海拔、经纬度和植被指数(NDVI)之间的回归方程;在此基础上建立模拟站点以增加气象数据的信息量。分别采用反距离加权法(IDW)、径向基函数法(RBF)和普通克里格法(OK)3种插值方法进行比较插值分析。结果表明:模拟站点的加入大大提高了插值的精度;采用的3种插值方法中,普通克里格法比反距离加权法和径向基函数法具有更为理想的插值效果。

关键词: 空间插值 温度 降水 模拟站点

Comparative study of spatial interpolation methods on weather data in Shandong Province

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Abstract:

Average precipitation and temperature data of 17 meteorological stations in Shandong Province from 1990 to 2001 were employed for spatial interpolation. The relationships between the average precipitation, temperature and elevation, normalized difference vegetation index (NDVI), longitude and latitude using stepwise regression equations were set up. Due to the sparse distribution of meteorological stations in Shandong Province, some suppositional meteorological stations were added to provide additional spatial information of meteorological data. Three methods, inverse distance weighted (IDW), radial basis function (RBF) and ordinary Kriging (OK), were adopted for interpolation. The results show that the suppositional meteorological stations can greatly improve the interpolation accuracy, and the ordinary Kriging method was the best among the three selected methods.

Keywords: spatial interpolation temperature rainfall suppositional meteorological stations

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