عنوان مقاله:

Cold Season’s Air Temperature Geostatistical Modeling: Considering the Landsat Thermal Band and Snow Cover Area

محل انتشار:

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خلاصه مقاله:

Providing climatic data like temperature in good spatial resolution is a key requirement for many geographical, ecological and bioclimatic research. With this in mind, various related studies use thermal remote sensing images as auxiliary data to enhance the air temperature interpolation outcomes. That’s while normally summer season images are used as auxiliary data and less attention has been paid to winter season acquired images which are often covered by snowy areas. With this in mind, the Snow Covered Area (SCA) extent impacts on air temperature interpolation were investigated. The data used were temperature data and four Landsat thermal images of December 1986 and 1999. To calculate the area of snow cover, band combination and NDSI index were used. Results show that Thermal Co-Kriging (TCK) of December 1986 provide better results with more snow affected thermal image. While in 1999 although different results were obtained but the best selected output did not show impacts of different snow cover area. These results revealed that probably the SCA extent threshold could be different and could be found with more research. Finally, we know that number of our observation stations are too low and considering the Kriging requirements like normal distribution and stationarity are toilsome but we should consider that this problem exists in the regions with low density of gauges and should find a way to enhance the air temperature interpolation in these cases. At the end, using high resolution, Landsat thermal bands improve our ability to explain and visualize local temperature variability into a variety of applications such as deriving temperature dependent climatic variables, species distribution modelling and assessments of fire risk.

کلمات کلیدی:

Interpolation, Thermal co-kriging, Kriging, Golestan