

## **INDICATIVE METHOD FOR SELECTION OF GRIDDING TECHNIQUES FOR SURFACE GENERATION**

NÓBREGA, RODRIGO P. & SILVA, ARDEMÍRIO B. Instituto de Geociências - DMG - UNICAMP - Campinas-SP - Brasil

Spatial data analysis usually requires the generation of continuous surfaces through some gridding technique, giving the interpreter the ability to view and manipulate the continuous distribution of discrete sampling data, like those collected in topographic, geochemical or geophysical surveys. There are many gridding methods, each of them having their own characteristic features, and so distinct surfaces are generated. One of the analyst task is to define the best interpolation technique, based on the similarity between the original data and the derived surface – the closest the surface values are of original data, the best interpolation method. The present work proposes a best gridding identification methodology, based on data's residual analysis. In a traditional approach, after assuring the spatial autocorrelation through Moran's I and Geary's C indexes, different surfaces are generated using distinct methods, and then a Normalized Residual Index (NRI) are calculated for each one. The NRI can be used as a similarity measure between the data and the surface, and the smaller the NRI, the closest the surface is to original data. However the authors notice that for a giving method the NRI reduce as the surface resolution increases. According to this, the NRI tends to zero (ideal surface) if the resolution tends to the sample size. Then the authors propose the generation of NRI variation curves to the spatial resolution, for each gridding method. Deriving this function the best resolution will be evidentiaded, allowing the comparison of NRIs between distinct methods.