
Propagation of Uncertainty within the Affine Transformation Application on Contours

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Abstract

This paper aims to investigate the propagation of horizontal errors, which are included in a digital contour file of a topographic map by applying the affine transformation of coordinates to this file. The application of the process increases existing horizontal errors, and therefore, these errors may have a direct proportionate impact on the elevation errors, which due to geometry, they co-exist within the digital file. This paper investigates the increase of these horizontal errors, as well as their effect on the respective elevation errors. The investigation applies to various usage cases of affine transformation of coordinates.

Keywords

affine transformation, error propagation, horizontal errors, elevation errors
