

IMPLEMENTATION OF DATUM TRANSFORMATIONS FOR THE ITALIAN TERRITORY IN GRASS: METHODOLOGY, PROBLEMS AND EXPERIMENTS

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Abstract

This paper describes the creation of new grids for datum transformation in the PROJ4 library, providing a technical insight of the implementation and use issues. The results obtained during their use in GRASS are reported. The grids used in this study were originally developed for the Italian territory, using data published in Bollettino di Geodesia e Scienze Affini for the transformations among ROMA1940, ED1950 and WGS84-ETRF89 datum. The accuracy of the transformations based on these new grids is tested against official data supplied by the Geodetic Division of Italian Geographic Army Institute (IGMI). This comparison, taking also into account already published results regarding performances of other common GIS softwares, shows that GRASS is now the GIS software allowing the highest accuracy in datum transformation within the Italian territory.