

An Evaluation of the Speed and Accuracy of the XYZ To ϕ , λ , h Conversion using Closed and Iterative Formulae

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Entry:	Bachelors degree in geoscience, physics, mathematics, or any related discipline, or invited entry to the Honours program in the Department
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Project Description:

The coordinate conversion between three-dimensional Cartesian coordinates and geodetic coordinates is used widely in geodesy, notably in satellite positioning. Many methods have been proposed using closed and iterative formulae. These are required because the forward conversion formulae are not easily inverted.

This project will use timed computer tests to quantify the speed of the different algorithms (of which there are about ten) for varying positions and altitudes and in order to determine their relative accuracy.

The results of this project will be used to advise users of the relative merits and deficiencies of the approaches. This is of importance because the practical use of the available formulae seems to be based on personal preference as opposed to the accuracy and applicability of the methods.

Further reading:

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