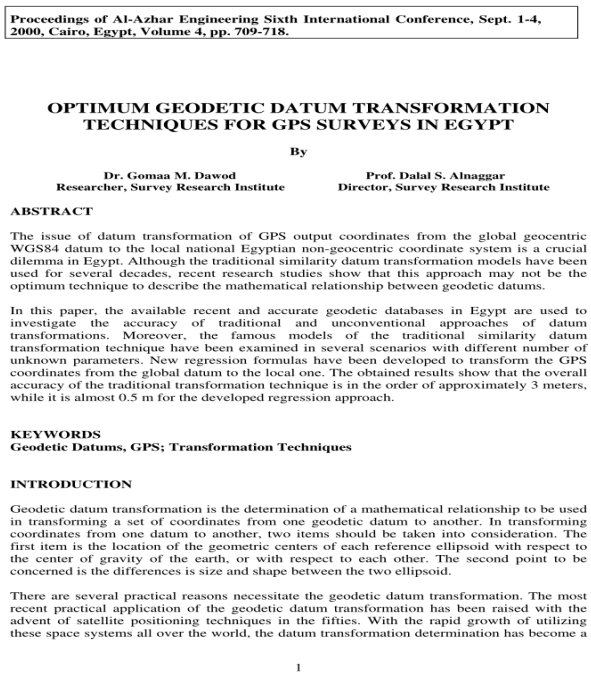
Coordinate Transformation (Surveying Mathematics Made Simple Book 9)



Proceedings of Al-Azhar Engineering Sixth International Conference, Sept. 1-4, 2000, Cairo, Egypt, Volume 4, pp. 709-718.

OPTIMUM GEODETIC DATUM TRANSFORMATION TECHNIQUES FOR GPS SURVEYS IN EGYPT

By

Dr. Gomaa M. Dawod
Researcher, Survey Research Institute

Prof. Dalal S. Alnaggar
Director, Survey Research Institute

ABSTRACT

The issue of datum transformation of GPS output coordinates from the global geocentric WGS84 datum to the local national Egyptian non-geocentric coordinate system is a crucial dilemma in Egypt. Although the traditional similarity datum transformation models have been used for several decades, recent research studies show that this approach may not be the optimum technique to describe the mathematical relationship between geodetic datums.

In this paper, the available recent and accurate geodetic databases in Egypt are used to investigate the accuracy of traditional and unconventional approaches of datum transformations. Moreover, the famous models of the traditional similarity datum transformation technique have been examined in several scenarios with different number of unknown parameters. New regression formulas have been developed to transform the GPS coordinates from the global datum to the local one. The obtained results show that the overall accuracy of the traditional transformation technique is in the order of approximately 3 meters, while it is almost 0.5 m for the developed regression approach.

KEYWORDS
Geodetic Datums, GPS; Transformation Techniques

INTRODUCTION

Geodetic datum transformation is the determination of a mathematical relationship to be used in transforming a set of coordinates from one geodetic datum to another. In transforming coordinates from one datum to another, two items should be taken into consideration. The first item is the location of the geometric centers of each reference ellipsoid with respect to the center of gravity of the earth, or with respect to each other. The second point to be concerned is the differences is size and shape between the two ellipsoid.

There are several practical reasons necessitate the geodetic datum transformation. The most recent practical application of the geodetic datum transformation has been raised with the advent of satellite positioning techniques in the fifties. With the rapid growth of utilizing these space systems all over the world, the datum transformation determination has become a

Editorial Reviews. About the Author. My land surveying career began several decades ago Coordinate Transformation (Surveying Mathematics Made Simple Book 9) - Kindle edition by Jim Crume. Download it once and read it on your.Coordinate Transformation: Step by Step Guide (Surveying Mathematics Made Simple) (Volume 9) [Jim Crume] on mydietdigest.com *FREE* shipping on qualifying .Coordinate Transformation (Surveying Mathematics Made Simple Book 9) eBook : Jim Crume: mydietdigest.com: Kindle Store.Register Free To Download Files File Name: Coordinate Transformation Surveying Mathematics Made Simple Book 9 Kindle Edition PDF. COORDINATE .Mathematics Made Simple) (Volume 18), and Coordinate Transformation: Step Parcel Boundary: Step by Step Guide (Surveying Mathematics Made Simple).Inverse Between Rectangular Coordinates (Surveying Mathematics Made Simple Coordinate Transformation (Surveying Mathematics Made Simple Book 9).Coordinate Transformation (Surveying Mathematics Made Simple Book 9). Jim Crume. Kindle Edition. $ Bearings and Azimuths (Surveying Mathematics.Bearings and Azimuths (Surveying Mathematics Made Simple Book 1). Jim Crume. Kindle Edition. CDN$ Coordinate Transformation (Surveying.simple step by step guide surveying geodetic datums buy coordinate transformation step by step guide volume 9 surveying mathematics made simple book 9 of.Cheap Coordinate Transformation (Surveying Mathematics Made Simple Book 9) ,You can get more details about Coordinate Transformation (Surveying.Start with Book 18 - Mastering the RPN & ALG Calculators. This will to Decimal Degrees and back again is vital in performing mathematical calculations. Book 9 - Coordinate Transformation (Scale, rotate, elevation, N-E transformations) Book 19 - Geodetic Datums Made Simple (NGS & OPUS data sheets explained).Download Coordinate Transformation Surveying Mathematics Made Simple Book 9 Kindle Edition pdf or read online. Coordinate Transformation Surveying.The Surveying Mathematics Made Simple series of books and apps are . 3 - Inverse Between Rectangular Coordinates 9 - Coordinate Transformation.Coordinate Transformation (Surveying Mathematics Made Simple Book 9) (English Edition). Coordinate Transformation (Surveying Jim Crume. eBook Kindle.guide, coordinate transformation surveying mathematics made simple book 9 kindle edition, western sloper a rock climbing guide to rifle mountain park.

[PDF] The Aurora of the Philosophers: Monarchia
[PDF] The Last Kolovsky Playboy (House of Kolovsky Series Book 4)
[PDF] A Treatise on the Circular Zodiac of Tentyra, in Egypt
[PDF] La pratique du Neerlandais
[PDF] The Complete Guide to Sonys Alpha 99 SLT Camera - 3 Selected Chapters
[PDF] The Convict and the Colonel: A Story of Colonialism and Resistance in the Caribbean [Paperback] [200

[PDF] INTERPRETATIONS OF AMERICAN HISTORY. VOLUME I TO 1877 Patterns and Perspectives