

Selecting Optimal Data–Fitting Model for Surveying and Geodetic Applications

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SUMMARY

SELECTING OPTIMAL DATA-FITTING MODEL FOR SURVEYING AND GEODETIC APPLICATIONS (1)ODUMOSU, JOSEPH O, (2) IDOWU, FUNMILOLA F and (3) OKOROCHA, CHIKA V (1)Department of Surveying and Geoinformatics, Federal University of Technology, Minna. (2)Department of Surveying and Geoinformatics, the Polytechnic, Ibadan. (3)Lord's-Field Limited. ABSTRACT Geoid Computation, Topographic Surveying, GPS signal processing, Modelling of geo-hazards, datum transformation, image registration and all surveying and geodetic tasks require analytical interpolation of mid-point values having obtained certain bounding conditions via field observations especially as coverage area increases. Besides, field data is often accompanied by noise irrespective of the degree of refinement and accuracy involved in the data gathering process. While separation of noise from signal can be achieved via least squares collocation, interpolation of mid-point signal values requires that appropriate analytical interpolation technique is employed. Six interpolation models are herein presented and the optimal for particular surveying application determined based on the derived residuals and predictive error estimates.