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Nota di contenuto	Part I: Gravity Field Modelling and Height Systems -- Remarks on the Terrain Correction and the Geoid Bias -- Why a Height Theory Must Be Rigorous and Physically Correct -- Geodetic Heights and Holonomy -- Physical Heights of Inland Lakes -- The Uncertainties of the Topographical Density Variations in View of a Sub-Centimetre Geoid -- Estimation of Height Anomalies from Gradients of the Gravitational Potential Using a Spectral Combination Method -- Evaluation of the Recent African Gravity Databases V2.x -- Part II : Estimation Theory -- PDF Evaluation of Elliptically Contoured GNSS Integer Ambiguity Residuals -- Spatio-Spectral Assessment of Some Isotropic Polynomial Covariance Functions on the Sphere -- MDBs Versus MIBs in Case of Multiple Hypotheses: A Study in Context of Deformation Analysis -- A Simple TLS-Treatment of the Partial EIV-Model as One with Singular Cofactor Matrices I: The Case of a Kronecker Product for $QA = Q_0 Q_x$ -- Bayesian Robust Multivariate Time Series Analysis in Nonlinear Regression Models with Vector Autoregressive and t-Distributed Errors -- Part III: Geodetic Data Analysis -- An Estimate of the Effect of 3D Heterogeneous Density Distribution on Coseismic Deformation Using a

Spectral Finite-Element Approach -- On the Estimation of Time Varying AR Processes -- Refinement of Spatio-Temporal Finite Element Spaces for Mean Sea Surface and Sea Level Anomaly Estimation -- On the Coestimation of Long-Term Spatio-Temporal Signals to Reduce the Aliasing Effect in Parametric Geodetic Mean Dynamic Topography Estimation -- A Flexible Family of Compactly Supported Covariance Functions Based on Cutoff Polynomials -- Modeling of Inhomogeneous Spatio-Temporal Signals by Least Squares Collocation -- A Multi-Epoch Processing Strategy for PPP-RTK Users -- Part IV: Geoid and Quasi-Geoid -- Geoid or Quasi-Geoid? A Short Comparison -- The Quasigeoid: Why Molodensky Heights Fail -- Molodensky's and Helmert's Theories: Two Equivalent Geodetic Approaches to the Determination of the Gravity Potential and the Earth Surface. .

Sommario/riassunto

This open access volume contains the proceedings of the X Hotine-Marussi Symposium on Mathematical Geodesy which was held from 13 to 17 June 2022 at the Politecnico di Milano, Milan, Italy. Since 2006 the series of the Hotine-Marussi Symposia has been under the responsibility of the Inter-Commission Committee on Theory (ICCT) within the International Association of Geodesy (IAG). The ICCT organized the last five Hotine-Marussi Symposia held in Wuhan (2006), Rome (2009, 2013 and 2018), and Milan (2022). The overall goal of the ICCT and Hotine-Marussi Symposia has always been to advance geodetic theory which is indeed documented by the 22 research articles published in these proceedings. The jubilee X Hotine-Marussi Symposium was organized in 10 topical sessions covering all parts of geodetic theory including reference frames, gravity field modelling, adjustment theory, height systems, time series analysis, or advanced numerical methods. In total, 60 participants attended the Symposium who delivered 62 oral and 18 poster presentations. During a special session, five invited speakers discussed two basic concepts of physical geodesy – geoid and quasigeoid.
