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The Effect of DHM Resolution in Computing the Topographic-Isostatic Harmonic Coefficients within Window Technique

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The window technique has been suggested by Abd-Elmotaal and Kühtreiber (2003) to get rid of the double consideration of the topographic-isostatic masses within the data window in the framework of the remove-restore technique. Within the course of the window technique, one needs to compute the harmonic coefficients of the topographic-isostatic masses for the data window. The paper studies the effect of using DHM's with different resolutions on the computed harmonic coefficients of the topographic-isostatic masses. The needed formulas of computing the topographic-isostatic harmonic coefficients are derived. Two different test areas, one in Austria and one in Egypt, are considered in this investigation. A set of DHM's with different resolutions is available for both test areas. In addition, two different gravity anomalies data sets are available, one for each test area. The computation of the reduced gravity anomalies for both data sets are carried out using the set of the available DHM's with different resolutions. A wide comparison among the resulted reduced anomalies sets has been carried out.