



Abstract Details

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Abstract:

The geoid of Shenzhen with one-kilometer resolution and centimeter accuracy, has been constructed with remove-restore technique, using GPS/leveling data with accuracy better than 2 cm, 5213 discrete gravity data, digital terrain model with 100m resolutions and global earth's magnetic field model WDM94. The requirements of GPS/leveling and gravity for precise determination of local geoid are discussed in the paper. And some suggestions for the precise determination of local or regional geoid are given from the test results. References CHEN Junyong. Requirements of GPS/leveling and gravity for the precise determination of local geoid. GEODAEICA et CARTOGRAPHICA SINICA, 2001, 30 (3) : 189-191 (in Chinese) HAAGMANS R R N, de MIN E, van GELDEREN M. Fast evaluation of convolution integrals on the sphere using 1D-FFT, and a comparison with existing methods for Stokes's integral. Manuscr Geod, 1993, 18, 227-237. HEISKANEN W A and MORITZ H. Physical Geodesy. Institute of Physical Geodesy, Technical University, Graz, 1967. LI Jiancheng. The Spectral Methods in Physical Geodesy. Wuhan: Wuhan Technical University of Surveying and Mapping, 1993. (in Chinese) LI Yecai. Optimized spectral method for geoid determination. Report No. 20050, Department of Geomatic Science and Surveying, The University of Calgary, Canada, 1993. LUO Zhicai and CHEN Yongqi. Evaluation of Geo-potential Models EGM96, WDM94 and GPM98CR in Hong Kong and Shenzhen. Journal of Geospatial Engineering, 2002, Vol.4, No. 1, 21-30. LUO Zhicai and CHEN Yongqi. Precise determination of Hong Kong geoid using heterogeneous data. Proceedings of FIG XXII International Congress, Washington, D.C. USA, April 19-26, 2000. MORITZ H. Local geoid determination in mountainous areas. Report No. 1983, Department of Geodetic Science and Surveying, The Ohio State University, 1983. NING Jingsheng, LUO Zhicai, YANG Zhanji, CHEN Yongqi and ZHANG Tianji. Determination of Shenzhen Geoid with 1km Resolution and Centimeter Accuracy. ACTA GEODAEICA et CARTOGRAPHICA SINICA 32(2): 102-107 (in Chinese) SIDERIS M G and FORSBERG R. 1990, Review of geoid prediction methods in mountainous regions. Rapp R H and SIDERIS M G. Determination of the Geoid, Present and Future, IAG Symposium No. 10, New York: Springer-Verlag, 1990. YANG Zhanji. Precise determination of local geoid and its geophysical interpretation. Hong Kong: Department of Land Surveying and Geo-Informatics, The Hong Kong Polytechnic University, 1999.