Assessment of the Performance of EIGEN-6C4 Via GNSS/Leveling Data over Vietnam

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SUMMARY

EIGEN-6C4, up to maximum spherical degree and order 2190, is a global combined gravity field model of GFZ Potsdam and GRGS Toulouse. The satellite gravity gradiometry data of the entire GOCE mission along with more terrestrial gravity data obviously contribute to an improvement of the EIGEN-6C4 interpretation. This paper uses the GNSS/leveling data over the mainland part of Vietnam as independent source for investigating the performance of EIGEN-6C4 with respect to EGM2008 which is commonly used in Vietnam. The evaluation was done in both absolute and relative approaches. The result reveals that compatibility of EIGEN-6C4 and EGM2008 derived values and the GNSS/leveling observation are not stable. It also provides an improvement for EIGEN-6C4 compared to EGM2008 in term of height anomaly at a particular point as well as the discrepancy of height anomalies for baseline across Vietnam. In addition, the better performance of EIGEN-6C4 over EGM2008 is dependent on terrain characteristics in study area.