Geophysical Research Abstracts
Vol. 21, EGU2019-3868, 2019
EGU General Assembly 2019

Design and Service of National Geodetic Datum Modernization in China

Junli Wu and Ming Chen
National Geomatics Center of China,Beijing ,China(jlwu@ngcc.cn)

Abstract: The Geodetic datum is significance to national economic construction. By analyzing the situation that Chinese original infrastructure was old and damaged, and the technical system was imperfect, this paper proposes a high-precision, geocentric, dynamic and unified modern geodetic datum design including horizontal datum, height datum and gravity datum. Among them, 410 national reference stations using global navigation satellite system have been designed nationwide, reaching an average station spacing of about 70km in the eastern region and about 150km in the western region. At the same time, 4500 GNSS geodetic control points were designed as the encryption and supplement of the reference stations, with an average point spacing of about 40km; The census and redesign of the original national first-class level network reached a total length of 125,600 kilometers, including 148 rings and 431 leveling routes. On the basis of the absolute gravity point in the country, 50 new reference stations are selected as the absolute gravity reference points, and the average point spacing is about 300km. In 2012, China launched the major infrastructure construction project “National Modern Geodetic Datum Infrastructure Construction”, which was completed in May 2017, and 2017-2018 is the initial application of engineering results. The geometric attributes and physical attributes of the surveying and mapping results are unified, realizing the dynamic update of the national coordinate framework and international integration, and has the ability to the national real-time decimeter accuracy, providing national navigational positioning service capability with real-time decimeter accuracy.
Key words: Geodetic datum; GNSS reference stations; GNSS geodetic control network; Height control network