

The current status and future plans of the height reference system in Japan

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The height reference system in Japan has been maintained by the geospatial information authority of Japan (henceforth, GSI) since 1883 by conducting the nationwide spirit leveling with considering gravity effects. It takes more than 10 years to carry out leveling survey for the whole leveling route of Japan. However, its time and cost consuming process have been a big burden for the country. Furthermore, since Japan is continuously experiencing crustal deformations due to active plate activities, it's quite difficult to maintain the sufficient height accuracy by the current system. Therefore, GSI is planning to implement a GNSS and geoid-based height reference system. This system enables us to efficiently maintain the height reference system as well as to rapidly revise the height data after earthquakes. In this presentation, we introduce the current status and future plans of height reference system in Japan. Especially, we highlight the current gravimetric geoid model of Japan and the future plans of airborne gravity surveys over Japan for the model improvement. As the goal for this project, we are aiming to implement the 3-cm accurate geoid model and are planning to shift to the new height reference system in 2024.