

Research of Crustal Deformation Model for Next Version of Japanese Geodetic Datum

*Kensuke Kokado¹

1. GSI of Japan

Geospatial Information Authority of Japan (GSI) maintains the Japanese horizontal and vertical datum reference system and provides the accurate positions of control points including GNSS CORSS (Continuously Operating Reference Stations) as basic survey result based on the reference system. By utilizing the survey results as the reference position of various surveys and maps, people can receive location information service which positions are aligned with each other nationwide. Along with the progress of Global Navigation Satellite System (GNSS) and the satellite positioning techniques in recent years, it is expected that location information service will be developed using the high accuracy GNSS positioning.

However, there is some gaps due to the crustal deformation between the position of the survey results such as map and the measurement position of the GNSS positioning, which will be used in location information service. Therefore it is necessary to correct the crustal deformation that occurred between the reference date of map and the measurement date of the GNSS positioning in order to match the measurement position by GNSS with the map.

In order to properly correct the above gaps due to the crustal deformation, GSI plans to develop advanced correction system instead of the existing semi-dynamic correction system. For the system development, we have been researching the crustal deformation model considering not only steady crustal deformation but also postseismic deformation of the 2011 Tohoku-Oki earthquake or coseismic deformation of the other earthquakes caused along an active inland faults.

In this presentation, we will focus on the postseismic deformation of 2011 Tohoku-Oki earthquake among the contents of the research, and report the progress of the research to create the crustal deformation model in the Tohoku region.

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