

Activities of GGOS Working Group Japan for the past five years

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Global Geodetic Observing System (GGOS) is a fundamental framework for integration of global geodetic observations such as GNSS, VLBI, SLR, DORIS, gravity measurements and so on. The main objective of the system is to measure and monitor earth's shape, rotation, gravity field and its changes. In order to coordinate and facilitate global geodetic observation, GGOS integrates geodetic observations conducted by various international organizations such as International GNSS Service (IGS), International VLBI Service for Geodesy and Astrometry (IVS), International Laser Ranging Service (ILRS) and so on. International Terrestrial Reference Frame (ITRF) which is a de-facto standard for Global Geodetic Reference Frame (GGRF), reference frame for earth's shape and variation which was endorsed by the United Nations General Assembly in 2015, is also one of main products achieved by GGOS observation. GGOS is essential basic infrastructure for measuring and monitoring of earth's shape and its change.

The objective of GGOS that is continuous measurement and monitoring of earth's shape and its change can be possible only with continuous global geodetic observation with high quality and enough spatial density. Such global observation cannot be possible without continuous effort for continuous geodetic observation conducted by countries in the whole world. Therefore, several agencies in Japan such as Geospatial Information Authority of Japan (GSI), Japan Coast Guard, National Institute of Information and Communications (NICT), National Astronomical Observatory of Japan (NAO), National Institute of Polar Research (NIPR), and Japan Aerospace Exploration Agency (JAXA) have been participating in global geodetic observation through international organizations such as IGS, IVS, and ILRS. Some researchers with universities have also participated in the organizations as board members. In addition, we established a working group on GGOS in Japan, GGOS-WG Japan in IAG Subcommittee under Science Council of Japan in 2013. The main role of the WG is to facilitate information sharing and strengthen collaboration between the agencies for further contribution to GGOS. The WG produced a status report of geodetic observatories of Japan and submitted it to GGOS in 2014. The WG has also held a session on GGOS at an annual meeting of Japan Geoscience Union (JpGU) since 2015. In 2017, the WG invited four speakers from GGOS to the special session at JpGU 2017 on May. In conjunction with the session, the WG also held a small lecture meeting at GSI headquarters. The WG chair also presented its activities at IAG-IASPEI2017 in Kobe on August. Furthermore, GGOS invited the WG as the first GGOS Affiliate, which is a component of GGOS aiming to strengthen participation from nations and regions in GGOS. This enables the WG to participate in and contribute to activities of GGOS from regional and national perspectives. Another focus area of the WG is outreach. The WG is preparing publication of special issue on GGOS in Journal of the Geodetic Society of Japan and also developing a brochure of GGOS in Japanese in order to facilitate understanding for the significance of GGOS. In 2018, the WG will continue activities on sharing of information and outreach. In addition, the WG will host an annual meeting of GGOS, GGOS Days 2018 and strengthen collaboration between GGOS and GGOS-WG Japan.

Keywords: Global Geodetic Observing System, Global Geodetic Reference System, Space Geodetic Observation, GNSS, Very Long Baseline Interferometry, Satellite Laser Ranging

