

Activities and future perspective of GGOS Working Group Japan

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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 shape, rotation, gravity field of the earth and its changes. GGOS integrates various international organizations related geodetic observation such as International GNSS Service (IGS), International VLBI Service for Geodesy and Astrometry (IVS), International Laser Ranging Service (ILRS) and so on in order to coordinate and promote global geodetic observations. 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 the main achievements of GGOS observation. GGOS is essential basic infrastructure for measuring and monitoring of earth's shape and its change.

The objective of GGOS, that is to continue to measure and monitor earth's shape and its change can be possible only with continuous global geodetic observation with high quality and enough spatial coverage. Such observation cannot be possible without continuous geodetic observation by countries all over the world. Therefore, several agencies in Japan such as Geospatial Information Authority of Japan (GSI), Japan Coast Guard, National Institute of Information and Communications, National Astronomical Observatory of Japan, National Institute of Polar Research, and Japan Aerospace Exploration Agency have been individually conducting geodetic observation such as GNSS, VLBI and SLR in Japan and Antarctica, and participating in global geodetic observation through international organizations such as IGS, IVS, and ILRS and so on. Several researchers with universities have also participated in the organizations as chairs and board members. In addition, we established a working group on GGOS, GGOS-WG of Japan under IAG Subcommittee in Science Council of Japan in 2013 in order to facilitate information sharing and strengthen collaboration between the agencies for further contribution to GGOS. The WG submitted a status report of geodetic observatories of Japan to GGOS in 2014 and updated it in 2017. The WG has also held a session on GGOS at annual meetings of Japan Geoscience Union (JpGU) since 2015. The theme of GGOS has also added in annual meeting of the Geodetic Society of Japan since 2018. Furthermore, GGOS invited the WG as the first GGOS Affiliate, which is a regional component of GGOS aiming to strengthen regional participation to GGOS and the WG has participated in and contributed to activities of GGOS from regional and national perspectives. As the first GGOS Affiliate, the WG hosted the GGOS annual meeting, GGOS Days 2018 in Tsukuba, Japan and discussed the future activities of GGOS for more strengthened collaboration between GGOS and the WG. In the meeting, current status and issues of network, observation, products and standard were discussed activities of three of four Focus Areas, 1. Unified Height System, 2. Geohazards, 4. Geodetic Space Weather were reported. Some members also reported the possibility of establishment of new GGOS affiliates in DACH countries, Scandinavia, Latin America and North America. The members agreed on the new WG in GGOS which will work on DOI of geodetic data. An update of GGOS guide book was also discussed in the meeting. In addition to the above activities, the WG organized special issue on GGOS in Journal of the Geodetic Society of Japan and also developed a Japanese brochure of GGOS in 2018 to facilitate understanding of the role and significance of GGOS for science and society. In 2018, some members of the WG participated in several international conferences related to GGOS and facilitated exchange of the latest information on geodetic observation. In 2019, we will continue sharing of information and strengthening collaboration in Japan and strengthen collaboration between GGOS and GGOS-WG of Japan.

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