

## **United Nations General Assembly resolution regarding Global Geodetic Reference Frame (GGRF)**

Points of the resolution:

In the United Nations General Assembly resolution (Attachment 2) carried out on February 26th, 2014, six operative clauses were adopted. The recommended points of the resolutions are as follows.

- 1) Development of road-map (plan) for development/ sustainability of GGRF (operative clause 1)
- 2) Enhancing technical assistance for capability of development for developing countries (operative clause 2)
- 3) Open sharing of data and standards (operative clause 3)
- 4) Member states should commit to improving and maintaining appropriate national geodetic infrastructure (operative clause 4)
- 5) Multinational cooperation that addresses infrastructure gaps and duplications (operative clause 5)
- 6) Development of outreach programmes that make GGRF more visible and understandable to society (operative clause 6)

Background and significance of the resolution:

With the spread of smartphones and car navigation systems, etc. that can accurately measure latitude/longitude using GPS, etc., it has become easy to understand where a given place is located and where one is currently positioned. However, the accurate measurement of latitude/longitude on the earth is by no means simple. The earth's shape is not perfectly spherical; its shape and rotation are constantly changing little by little. In order to accurately measure latitude/longitude on the earth as it continuously changes in such complicated ways, it is necessary to constantly measure accurate positions at various points on the earth, and to know the exact shape of the earth and changes thereof. By accurately measuring positions, accurate positioning standards are determined for the whole earth, and positions measured by smartphones, etc. will be displayed correctly on maps.

In order to establish accurate positioning standards, the GSI continuously measures positions all over Japan. For example, the exact position of the Japanese archipelago is determined by carrying out continuous GNSS observation throughout Japan using man-made satellites such as GPS, or through VLBI surveying on a global scale by receiving electromagnetic waves from distant celestial bodies. However, there are even countries in Asia whose development have been remarkable that still have not established accurate positioning standards, and there are many countries where obstacles to human society and economic activities occur due to inconsistencies of latitude and longitude caused by the methods and timing of measurement.

For that reason, the United Nations General Assembly, recognizing the importance of the accurate latitude/longitude measurement in relation to life and economic activities, resolved on February 26th, 2015 to strengthen cooperation between countries around the world for improvement of the Global Geodetic Reference Frame (GGRF). This resolution is based on a proposal to be jointly carried out by 52 nations including Japan, and is the first United Nations General Assembly resolution in the field of surveying. In order to maintain the GGRF, not only is each nation required to establish accurate standards of its own, but there is also a need for mutual cooperation going beyond national borders, so all nations will now cooperate in order to accurately measure latitude/longitude forming the standard for global positioning.

The GSI has already been carrying out accurate position measurement, having cooperated with other advanced nations on initiatives to establish accurate positioning standards for the

whole world. Going forward, we will continue to measure the exact position of Japan and changes thereof, together with leading this initiative by using our wealth of experience to give advice as one of the leaders of the Asia-Pacific region, supporting the activities of nations that have not yet established positioning standards.