

**Masayuki Fujita**

Japan

**Q1**

Japan has conducted numerous hydrographic surveys within the vast national water. In 1960s, we started to use the LORAN-C system to determine the position of a survey vessel, whose value, however, generally included the error within a few hundred meters. After the GNSS service became available for public, not only positioning errors in the sea have been drastically improved, but also Japan has adopted the WGS84 instead of the Japanese local system, as GNSS services connected Japan, an isolated island country, to the rest of the world from the coordinate perspective. We established DGPS stations in 1997 along the coast of Japan, and successfully reduced the positioning error to approximately 1 meter. This success was doubly helpful for safety of navigation, that is, providing ships with their more precise locations and enabling creation of even more precise nautical charts than before. Moreover, we developed new technology using GNSS services for detecting seafloor movement in centimeters. This technology is essential for understanding the occurrence of earthquakes and is acclaimed in terms of contribution both to disaster prevention and mitigation, and to earth science.

**Q2**

Artificial Intelligence (AI) technology has been evolved rapidly and been utilized in various fields in recent years. I wish to see the introduction of the AI technology into hydrography, such as action control of autonomous survey vehicles, automatic compiling of nautical charts and processing huge LiDAR and/or MBES data, in the next few years.

**Q3**

None.