Current Status of AMSR2 on board GCOM-W and Development of AMSR3 on GOSAT-GW

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Series of space-borne passive microwave imager, called the Advanced Microwave Scanning Radiometer (AMSR), have been developed and launched by JAXA since 2002 for understanding of global water cycle and climate variations and expanding operational applications. Currently, AMSR2 on the Global Change Observation Mission –Water (GCOM-W) has been operating in orbit since May 2012, succeeding AMSR-E observation since 2002. AMSR2 has 16 channels from 6.9 to 89 GHz and the biggest antenna among the passive microwave imagers in the world to enable higher spatial resolution. Both GCOM-W and AMSR2 are in healthy condition to continue its operation in future.

Since designed mission life of GCOM-W was 5-year and it is already operating almost 8-year, JAXA has started development of AMSR2 follow-on mission, AMSR3 on the Global Observing SATellite for Greenhouse gases and Water cycle (GOSAT-GW), since December 2019. The GOSAT-GW satellite carries AMSR3 and successor mission of Greenhouse gases Observing SATellite-2 (GOSAT-2) led by Ministry of the Environment of Japan (MOE) and National Institute for Environmental Studies (NIES). AMSR3 will have 21 channels from 6.9 to 183.3+-7 GHz with 2.0m antenna. High-frequency channels of 165.5 GHz, 183+-3 GHz, and 183+-7 GHz V-polarization are newly available for snowfall retrievals and water vapor analysis in numerical weather prediction in meteorological agencies. Additional 10 GHz V and H polarization channels with wider band width and improved NEDT are also available to develop higher resolution sea surface temperature especially for fisheries. The GOSAT-GW satellite is currently targeting the launch in Japanese Fiscal Year of 2023.

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