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**WMO Space-based Weather and Climate Extremes Monitoring (SWCEM)
for East Asia and Western Pacific**

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Recognizing needs to better utilize and improve monitoring of weather and climate extremes from space, the World Meteorological Organization (WMO) established a flagship initiative - the Space-based Weather and Climate Extremes Monitoring (SWCEM). We started the SWCEM with the demonstration project for Asia-Pacific (2018-2019), and were able to bring clear benefits of translating science of satellite remote sensing to operational services at National Meteorological and Hydrological Services (NMHSs) in Member countries of WMO Regions II and V in a very short time. Recognizing SWCEM achievements in Asia and the Pacific, the Eighteenth World Meteorological Congress (Cg-18) in 2019 adopted the SWCEM Implementation Plan, endorsed its implementation from January 2020 in the region, and requested to consider the possibility of implementing similar projects in Africa and South America.

The demonstration project was focused on monitoring drought and heavy precipitation and it was implemented in geographical domain which covers the South-East Asia region and the Western Pacific Ocean area from 40°N to 45°S; 50°E to 120°W. The Japan Aerospace Exploration Agency (JAXA) and the Climate Prediction Center, National Oceanic and Atmospheric Administration (CPC/NOAA) provide satellite data and products for the region. SWCEM precipitation products produced by JAXA are based on the Global Satellite Mapping of Precipitation (GSMaP). CPC/NOAA provides SWCEM users with a similar set of products using the Climate Prediction Center morphing technique (CMORPH) satellite precipitation estimates. SWCEM space-based observations of precipitation have been incorporated into WMO activities strengthening capacity of Members, especially Small Island Developing States and Least Developed Countries, in climate change adaptation and disaster risk reduction. Satellite precipitation estimates and derived products

are a significant contribution to strengthening Multi-Hazard Early Warning Systems. Currently, we are implementing it through the Climate Risk and Early Warning Systems (CREWS) projects.