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Space based weather and climate extreme monitoring**Yuriy Kuleshov**

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It is widely recognized that there is a need to better utilize and improve the monitoring of extreme weather and climate events from space. In February 2017, the World Meteorological Organization (WMO) convened the first international workshop on Space-based Weather and Climate Extremes Monitoring (SWCEM). The workshop stimulated a dialogue amongst satellite operators, WMO regional climate centers and national meteorological and hydrological services and provided recommendations on the utilization of space-based observation data and products for operational monitoring of weather and climate extremes in response to the current and future user requirements. Following the workshop's recommendations, WMO executive council decided at its 69th session (EC-69) to agree on conducting a demonstration project on SEMDP in WMO regions. The demonstration project is established to run initially for two years (2018-2019) and will be focused on weather and climate extremes such as drought and heavy precipitations over the South-East Asia and the Pacific. Meteorological service of Australian Bureau of Meteorology will play a leading role in implementation of the SEMDP. Space based data and derived products form critical part of the bureaus operations. Current operational products of the Australian bureau of meteorology for drought monitoring are derived from surface-based observations and typically focused on identifying rainfall deficits over extended periods (months to years) using percentile (decile) analysis. As for extreme precipitations, they are typically diagnosed on a monthly time scale. Using space-based observations; it would be possible to monitor extreme precipitation events over shorter periods from pentads up to a month. Monitoring weather and climate extremes on shorter time scales is considered by the bureau as a valuable extension of its operational products to enhance climate services for Australian users.

Biography

Yuriy Kuleshov is a Professor and Academician, affiliated with the Australian Bureau of Meteorology and the Royal Melbourne Institute of Technology University. He has authored 15 book chapters and 70 papers in peer-reviewed journals. His main research interests are climatology of severe weather phenomena (tropical cyclones, thunderstorms and lightning); satellite remote sensing for monitoring of severe weather and climate and seasonal climate prediction. For lifetime achievements in satellite remote sensing of the Earth's environment, he was elected as an Academician of the Russian Academy of Engineering Sciences.

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