[EE] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-CC Cryospheric Sciences & Cold District Environment

[A-CC27]Remote Sensing of Snow

convener:Sheldon Dean Drobot (Harris Corporation)
Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
Due to its high albedo and low thermal conductivity, snow cover plays a central role in the mass and energy exchange across land-atmosphere and ocean-ice-atmosphere interfaces. Improvements in remote sensing technologies are now enabling a variety of new and improved observation capabilities for snow, including formation in the atmosphere, snowfall rates, and snow water equivalent (SWE) measurements. In this session, we seek abstracts related to remote sensing of snow in all its forms. This includes use of existing sensors for snow measurements and concepts for new sensors. Applications for snow in the atmosphere, on land, and on ice are welcome.

[ACC27-P02]Spatiotemporal variability of snow cover and snow water equivalent over Eurasia

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Changes in the extent and amount of snow cover in Eurasia are of great interest because of their vital impacts on the global climate system and regional water resource management. This study investigated the spatial and temporal variability of the snow cover extent (SCE) and snow water equivalent (SWE) of the continental Eurasia using the Northern Hemisphere Equal-Area Scalable Earth Grid (EASE-Grid) Weekly SCE data for 1972–2006 and the Global Monthly EASE-Grid SWE data for 1979–2004. The results indicated that, in general, the spatial extent of snow cover significantly decreased during spring and summer, but varied little during autumn and winter over Eurasia in the study period. The date at which snow cover began to disappear in spring has significantly advanced, whereas the timing of snow cover onset in autumn did not vary significantly during 1972–2006. The snow cover persistence period declined significantly in the western Tibetan Plateau as well as partial area of Central Asia and northwestern Russia, but varied little in other parts of Eurasia. “Snow-free breaks” (SFBs) with intermittent snow cover in the cold season were mainly observed in the Tibetan Plateau and Central Asia, causing a low sensitivity of snow cover persistence period to the timings of snow cover onset and disappearance over the areas with shallow snow. The averaged SFBs were 1–14 weeks in the Tibetan Plateau during 1972–2006 and the maximum intermittence could reach 25 weeks in some extreme years. At a seasonal scale, the SWE usually peaked in February or March, but fell gradually since April across Eurasia. Both annual mean and annual maximum SWE decreased significantly during 1979–2004 in most parts of Eurasia except for eastern Siberia as well as northwestern and northeastern China.