Geophysical Research Abstracts
Vol. 16, EGU2014-622-1, 2014
EGU General Assembly 2014

Winter cloudiness variability over Northern Eurasia related to the Siberian High during last five decades

Alexander Chernokulsky, Igor Mokhov, and Natalia Nikitina

A.M.Obukhov Institute of Atmospheric Physics RAS, Laborathory of climate theory, Moscow, Russian Federation (chern_av@ifaran.ru, 7(495) 9531652)

We present an assessment of cloud fraction and different cloud types variability over Northern Eurasia regions in winter related to the Siberian High intensity (SHI) variations during 1966-2010. An analysis was carried out based on visual observations of clouds from almost 500 Russian meteorological stations. Moonlight criterion was implemented to reduce the uncertainty of night observations of clouds. SHI was defined based on sea-level pressure (SLP) fields from different reanalyses (NCEP/NCAR, NOAA-CIRES 20CR, ERA-Interim). We found statistically significant negative correlation of cloud cover with SHI over central and southern Siberia and southern Urals with the regression coefficients for total cloud fraction (TCF) about 3%/hPa for particular stations near the Siberian High center. Crosswavelet analysis of TCF and SHI revealed a long-term relationship between cloudiness and Siberian High. Generally, the Siberian High intensification by 1 hPa leads to a replacement of one overcast daywith one day without clouds, which is associated mainly with a decrease in precipitating and stratiform clouds. The detected changes can be associated with a positive feedback between cloudiness and Siberian High.