



Summer fire conditions changes in North Eurasian mid-latitudes from regional model simulations for the 21st century

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Hazardous regional consequences of climate warming are related with droughts and fires, in particular with forest and peat fires. We estimate risks of fire hazard in the Northern Eurasian regions (including Siberia and eastern part of Europe) in the 21st century by using simulations with the MGO regional climate model for different anthropogenic scenarios (SRES-A2 and SRES-B2). Different fire indices are used, in particular Nesterov and Zhdanko indices.

In general, the obtained results show various changes for fire conditions in different regions of Northern Eurasia under general warming in the 21st century. Nonlinear effects are manifested and various regional trends are displayed for different time intervals. Spatiotemporal differences are related to the dependence of fire hazard on various climatic characteristics (temperature, precipitation, and relative humidity). Tendencies of change for summer precipitation differ in sign in the northern and southern latitudes. Differences in the temperature changes are not so dramatic for different regions. Regional temperature changes differ only in their value but not in sign: they are generally positive in the 21st century according to model simulations. The combination of change in temperature and hydrological characteristics leads to a general increase in fire indices for south regions in Northern Eurasia by the end of the 21st century in particular to the east from Baikal Lake in Siberia.