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An urban heat islands climatology in Russia and linkages to the climate change.

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Phenomenon of urban heat islands (UHI) was researched by many authors of scientific community. More investigators were focused on heat island of tropical city. (for example: Tropical urban heat islands: climate, buildings and greenery / Nyuk Hien Wong and Yu Chen. – London, 2009; 259 p.) However dynamics UHI in arctic, subarctic and sharp continental climates is poorly investigated. This situation is due to the fact that there isn't large cities in Europe and Northern America within that climate type. In this paper we investigate long-term, seasonal and diurnal dynamics UHI intensity for more than 20 cities of the Russian Federation (large than 100 000 population). Was calculated and analyzed changes UHI intensity within days and year. Also was detailed reviewed extreme values UHI and was discussed their relation with synoptic situations.
In that investigation data created by regular state meteorological observation ROSHYDROMET network was used. For every city we selected couple of stations: one located into city in high and midrise buildings area (including extensive lowrise and high-energy industrial - LCZ classification) and second one located in rural site (sparsely built or open-set and lightweight lowrise according LCZ classification). Also couples of stations must be close by distance (less than 100 km) and altitude. For selection operation was constructed spatial database in ESRI ArcGIS Desktop environmental.
Advantage investigation UHI of Russian city is diversity of climate condition. Selected cities locate within territory from 40N to 70N latitude and from 20E to 160E. That fact allows research UHI phenomenon in space term. Were detected intensity UHI patterns depends on geographical location of the city.