

Developing of the database of meteorological and radiation fields for Moscow region (urban reanalysis) for 1981-2014 period with high spatial and temporal resolution. Strategy and first results.

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The main goal of this investigation is to develop a kind of “urban reanalysis” – the database of meteorological and radiation fields under Moscow megalopolis for period 1981-2014 with high spatial resolution.

Main meteorological fields for Moscow region are reproduced with COSMO_CLM regional model (including urban parameters) with horizontal resolution 1x1 km. Time resolution of output fields is 1 hour.

For radiation fields is quite useful to calculate SVF (Sky View Factor) for obtaining losses of UV radiation in complex urban conditions. Usually, the raster-based SVF analysis the shadow-casting algorithm proposed by Richens (1997) is popular (see Ratti and Richens 2004, Gal et al. 2008, for example). SVF image is obtained by combining shadow images obtained from different directions. An alternative is to use raster-based SVF calculation similar to vector approach using digital elevation model of urban relief.

Output radiation field includes UV-radiation with horizontal resolution 1x1 km

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