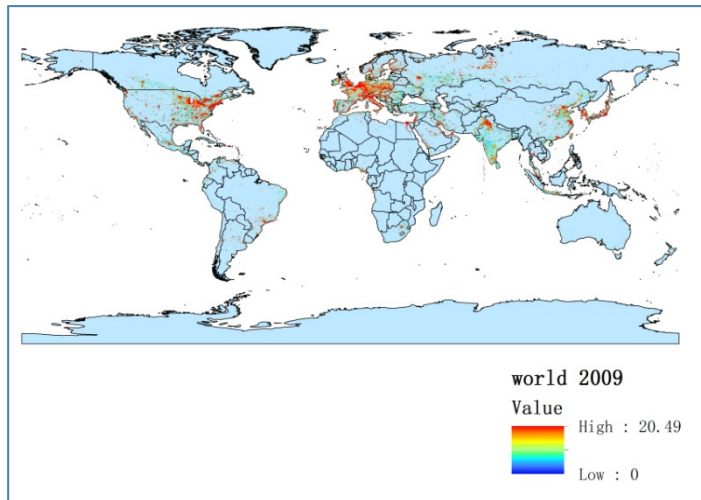
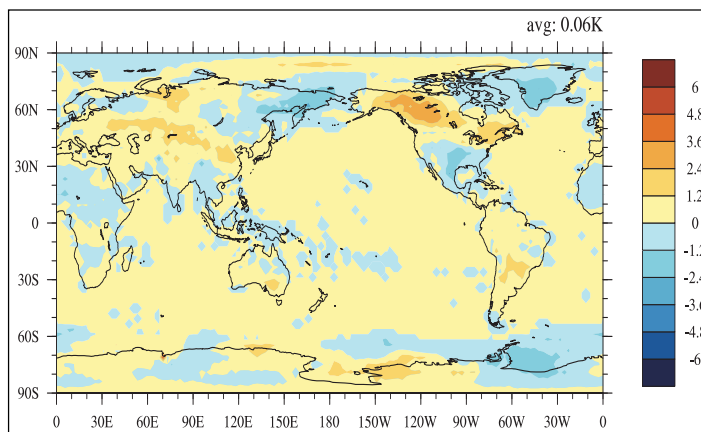


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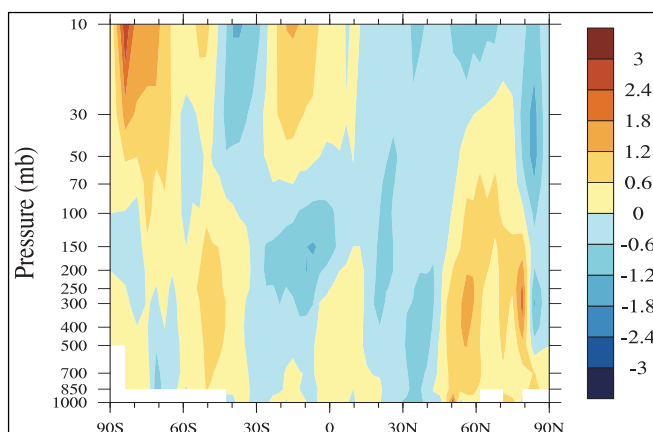
<http://dx.doi.org/10.2151/jmsj.2014-A10>



← Fig.1 Estimation of the distribution of global Anthropogenic Heat Release (AHR) using DMSP/OLS data in 2009(resolution: $0.1^\circ \times 0.1^\circ$; unit: W m^{-2}).



← Fig.2 Difference in the annual mean surface temperature between the experiment AHR and the control experiment(unit: K).



← Fig.3 Difference in the annual mean zonal wind between the experiment AHR and the control experiment (unit: m s^{-1})

- Global AHR was geographically concentrated, essentially correlating to economic activities, just as Fig.1 shows. Although the global mean flux of AHR is very small, it can reach a high enough level to affect regional climate in the concentrated urban regions.
- The model results(Figs. 2 and 3) show that AHR has a significant impact on surface temperature and that it is able to affect global atmospheric circulation, leading to a 1-2 K increase in the high-latitude areas of Eurasia and North America. The results show that the AHR is able to affect global climate despite being limited to a region. AHR is an important factor in global climate change that should not be ignored.