Study on Green House Gas Spatial Distribution and Its Climate Effect Influence in China

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Global climate change brings different effects in various regions. Here, we discuss its effects in China through 3 stories. Firstly, we achieved the CO2 and CH4's spatial distribution in China from AIRS observations and typical area ground truth. It shows that, (1) CH4's distribution has the relationship with the land cover spatial distributions, such as farmland, wetland and so on; (2) CO2's distribution has obvious difference between western and eastern of China, and its value is high in winter and spring season, relative low in summer and autumn season. Secondly, we simulated the typical area effect with Ecosystem-Atmosphere Simulation Scheme under future LUCC scenarios. Four typical area's ecological effects are simulated from 2010 to 2050 under 3 land cover scenarios, i.e., A2, B2, GH. Serials of ecological effect parameters are calculated, including sensible heat flux, latent heat flux, ET, NPP, GPP. Thirdly, we studied the winter wheat yield's change under different climate change scenarios in west north plateau in Shandong province in China from 2032-2060, 2062-2099. Several optimal cultivation measurements are proposed based on the yield simulation.

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