

Impact of different emission scenarios on global warming and global warming per capita

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This paper attempts to assess the roles of developing and developed countries playing in global warming of CO₂ emissions. We conducted the experiments using Community Climate System Model (CAM3.1) forced with CO₂ emissions of major carbon emissions countries to find the contributions of developed and the developing world to global warming during 1900 to 2006. We also did another experiment to evaluate that how much developed or developing countries may contribute to greenhouse effect from 2006 to 2050 by forcing CAM3.1 with 6 authoritative emissions scenarios. Given the different population, a new concept called globe warming per capita (GWPC) is putted forward to as a more equitable method of calculating how much responsibility a person bears of global warming in a country one year. We calculate the GWPC in developed and developing countries from 1900 to 2006 and from 2006 to 2050 respectively. It is found that CO₂ emissions in developing countries contribute less than 0.30C to the global greenhouse effect, in comparison with more than 0.5 0C in developed countries. Simulations also show globe warming per capita (CWPC) in developed countries is 10 times larger from 1900 to 2006, and could be 1.5 to 3 times larger during 2006 to 2050 according to 6 emissions scenarios. It does seem unfair to the developing worlds, and developed countries should take more responsibility for global warming.