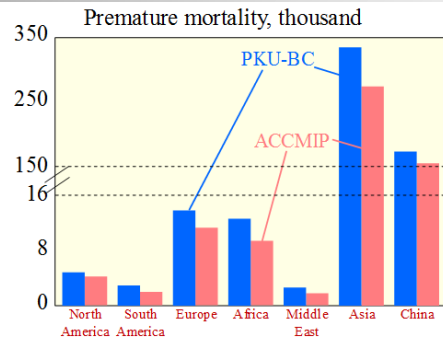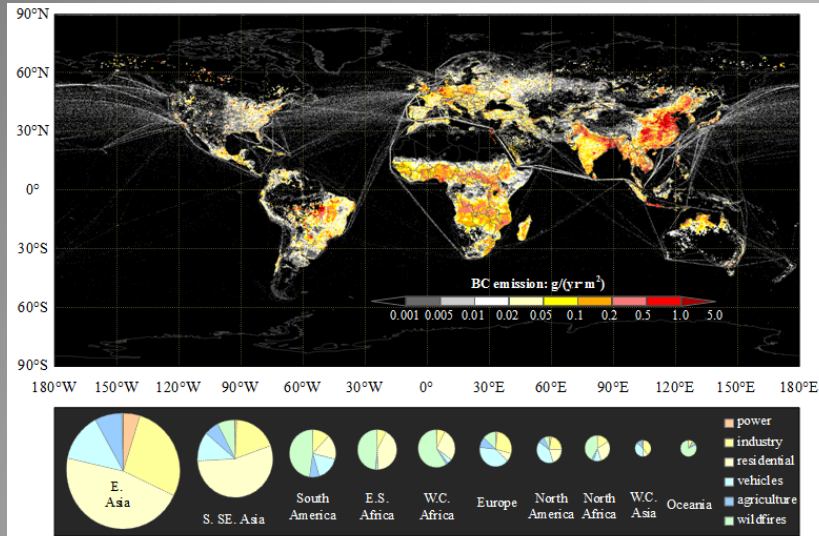# Development of a new global black carbon emission inventory (PKU-BC), and the implication on modeling and impact on climate and health.

Rong Wang, Shu Tao, Yves Balkanski, Philippe Ciais, Huizhong Shen, Ye Huang, Raffaella Vuolo

Fig. 1. Geographic distribution of total BC emissions at 0.1°×0.1° resolution in 2007. For the total emission, the relative contributions of the 6 economic sectors in 10 regions are shown as pie charts at the bottom, and the total areas of the pies are proportional to the total emissions in the regions. The total emissions in North Africa and Caribbean/Central America are too small to be shown as pie charts.

Fig. 2. Comparison between the modeled and measured surface BC concentrations (n=208). Uncertainties of modeled BC concentrations derived from the low (25th percentile) and high (75th percentile) emission in PKU-BC are shown as error bars in (A) and (C). Mean squared deviations (MSDs) for each region are listed in each figure.

Fig. 3. Comparison of estimated health impact due to cardiopulmonary and lung cancer deaths in the exposure of population to BC based on the PKU-BC and ACCMIP inventory.
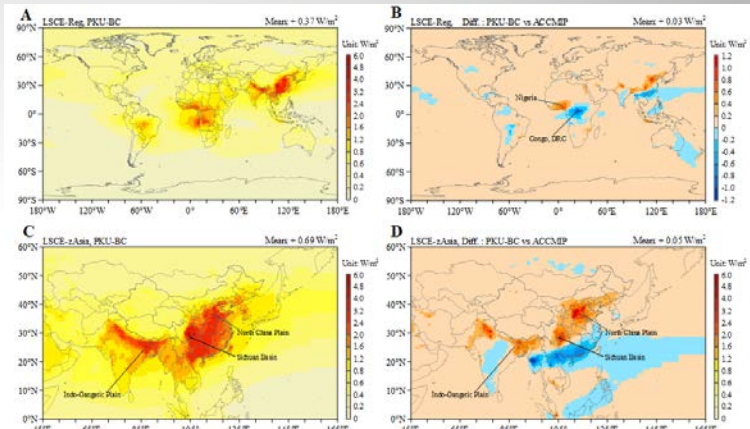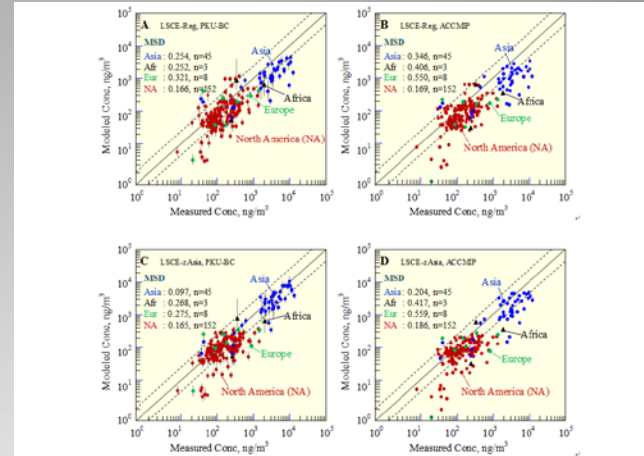
Fig. 4. All-sky direct radiative forcing (RF) of BC at TOA. (A) RF by LSCE-Reg model based on the PKU-BC inventory; (B) Difference of RF between the PKU-BC and ACCMIP inventory by LSCE-Reg model; (C) RF by LSCE-Reg model based on the ACCMIP inventory; (D) Difference of RF between the PKU-BC and ACCMIP inventory by LSCE-zAsia model.