Model simulation using biomass-burning emission inventories based on fire spot information for Taishan field campaign in June 2006

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Agricultural field burning is an important source for air pollutants such as BC, OC, CO, and etc over the North China Plain in June. On our primary model experiment using annual emission inventory for biomass burning by ACESS (Ace-Asia. and Trace-P Modeling and Emission Support System), modeled BC, OC, and CO were much lower than observed concentrations in the first peak (June 6-8) and the second peak (June 12-13). As for CO, modeled concentration was much lower than observation even during latter half of June with less field burning. In this study, we developed daily emission inventories of field burning using annually emission inventories for province level by ACESS and Cao et al., with combining several fire spot information by MODIS, ATSR, and L3JRC. The model results by CMAQ using these daily emission inventories suggested that the gridded data for daily field burning emissions using Cao's emissions and fire spot information from MODIS is better to capture observed BC, OC, O_3 and CO during polluted period (June 6-8 and June 12-13). However, we have still had some problems, e.g.: modeled CO is much larger than observed CO during latter half of June; model sometimes failed to capture day-by-day changing of observed O_3; and modeled O_3 sometimes overestimated. These problems may be caused by uncertainties in anthropogenic emissions and the model's resolution.