

In 2010 EXPO, the new generation model WRF-CHEM was used for air quality forecast for Shanghai. The numerical model (WRF-CHEM, WRF-CMAQ, RegAEMS) as well as statistical model, potential model were used to predict the air quality in Nanjing of China during the 2014 Youth Olympic Games. The data assimilation, assemble technique and model output statistics methods were used to improve the model performance and prediction accuracy. The similar method was used in air quality forecast for G20 in 2016 in Hanzhou of China. Furthermore, a new method based on combined numerical model(RegAEMS) and receptor model(CMB) was developed to apportion the source of fine particles. The CMAX/OSAT was used to investigate the source contribution of ozone. Routine forecast results show that the air quality forecast and source apportionment system perform well in 2016 EXPO in Shanghai, 2014 Youth Olympic Games in Nanjing and 2016 G20 in Hanzhou, especially for heavy pollution episodes.