Supplementary materials

Procedure of the clustering analysis for air mass trajectories

As provided in the model description (Draxler et al., 2007), each individual trajectory is initially defined to be a cluster (N trajectories and N clusters). The cluster process is an iterative process consisting of N-1 "passes" through all the clusters. In the 1st pass, the two closest clusters (trajectories) are paired, resulting in N-1 clusters. Similarly in the 2nd pass, the two closest clusters are paired, resulting in N-2 clusters. In this case, either the cluster having two trajectories could be paired with another trajectory or two clusters, each with one trajectory, could be paired.
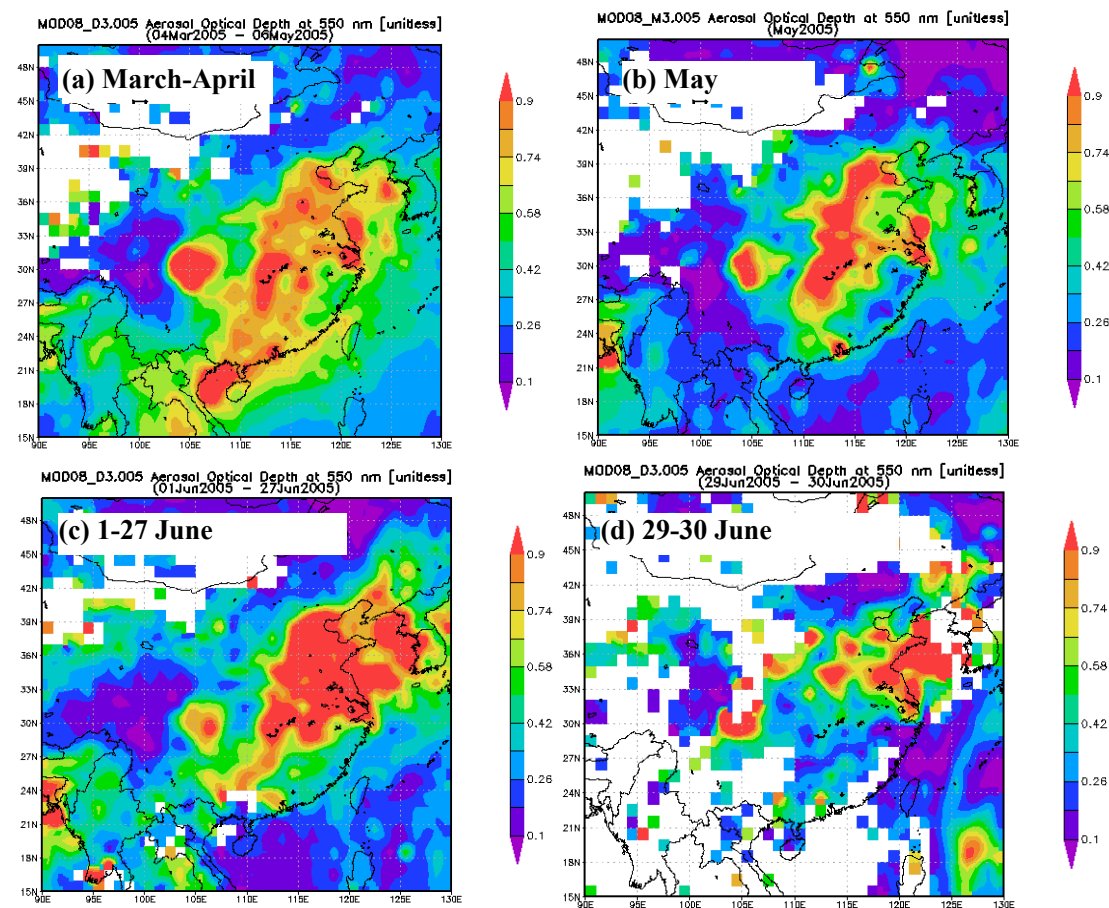

Fig. S1. The AOD distribution over China during (a) March-April, (b) May, (c) 1–27 June, and (d) 29-30 June in 2006.
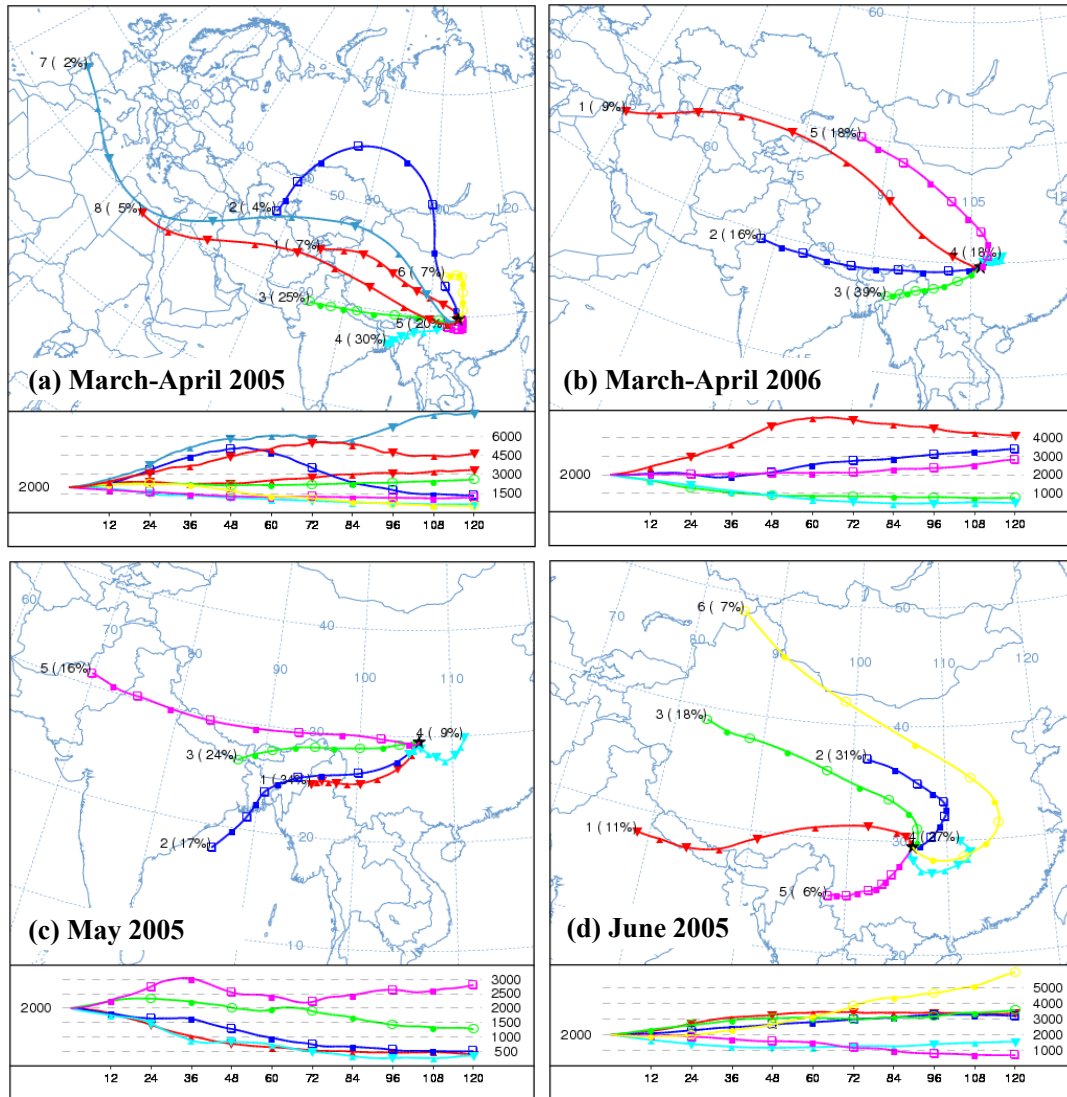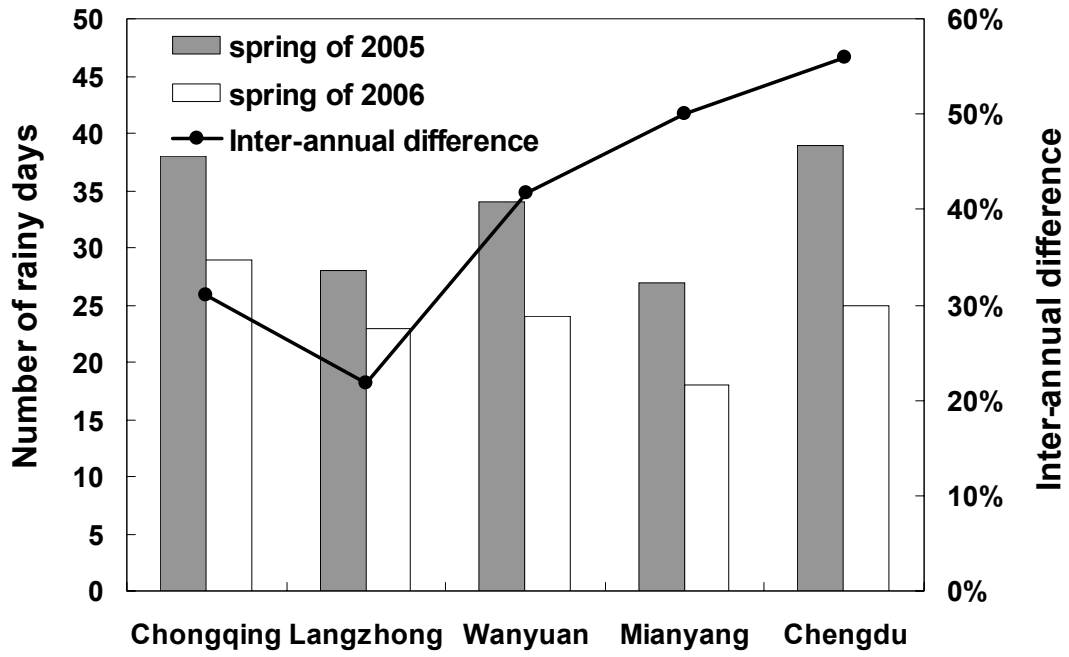
18
19 Fig.S2. The clusters of air mass backward trajectories arriving at 2000m above Chongqing for
20 (a) 4 March–6 May, (c) 7–31 May, (d) 1–27 June in 2005 and (b) 3 March–5 May in 2006.
21

Fig. S3. Numbers of rainy days and their inter-annual variations at Chongqing and surrounding cities during the springs of 2005 and 2006 (Inter-annual difference=Spring 2005/Spring 2006 -1)