

## Supplementary

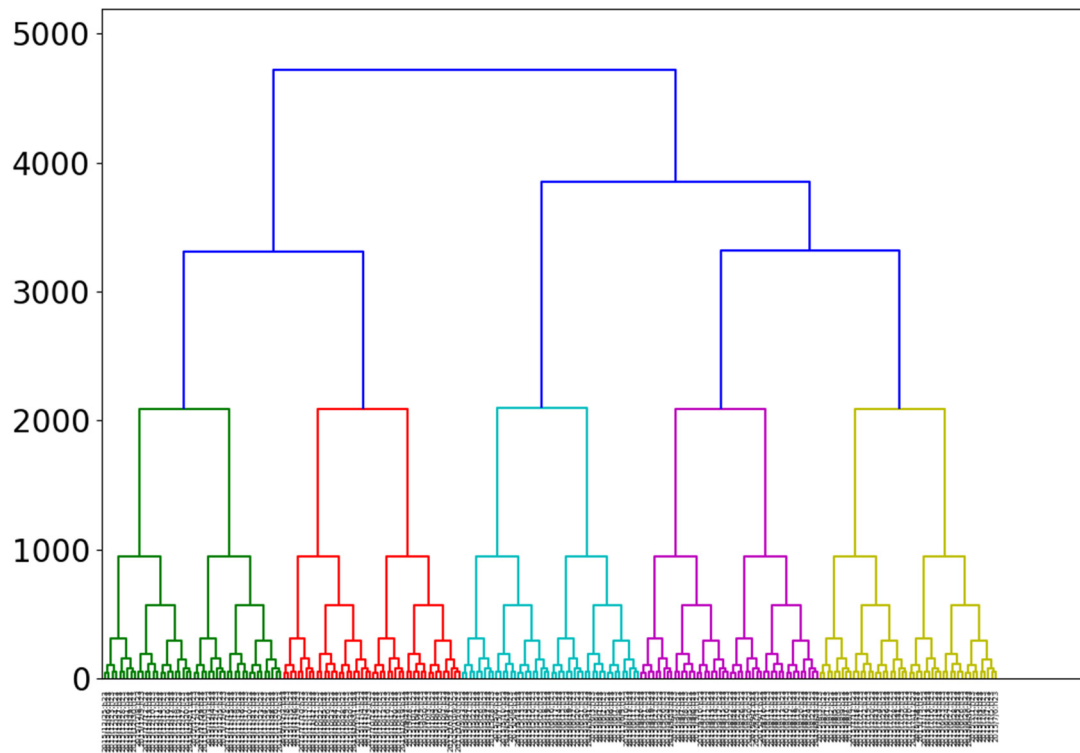
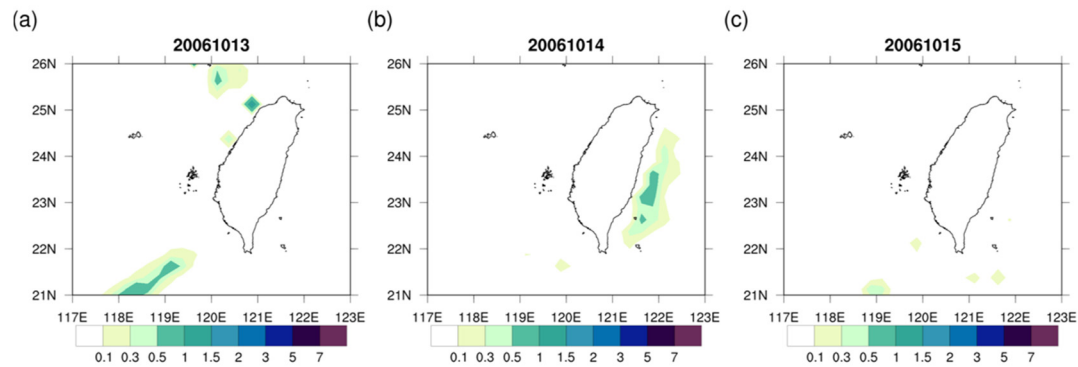


Figure S1. Part of the bottom-up hierarchical clustering analysis results. The dendrogram contains 240 samples of the 240-hour segment of API from over 2006-2015 (the total number of samples is 3642). The x-axis represents the starting time of each 240-hour segment of API, and the y-axis represents the layer of branches.



**Figure S2.** TRMM rainfall at 00Z on the high API episode within continuous weak synoptic days through 13th to 15th, October 2006. (unit:  $\text{mm h}^{-1}$ ).