1 **Grid computing method for atmospheric environmental capacity**

2 **coupled with ventilation coefficient using CALPUFF simulation and**

3 **GIS spatial analysis technology**

4 **Supplementary material**

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6 Flow Field in spring, summer, autumn, and winter:

7 The flow field in spring (**Fig.1**) showed the surface wind direction in Fengtai District

8 transform from northwest wind to westerly wind. Starting early in the morning, the wind direction

9 gradually turned south, and the wind gradually weakened, reaching its lowest point at 14:00; from

10 14:00, the wind direction continued to turn south and the wind gradually strengthened.

11 The flow field in summer (**Fig.2**) showed the surface wind direction in Fengtai District

12 transform from the westerly and southeasterly wind. Starting early in the morning, the wind

13 direction gradually turned to the southeast, and the wind gradually weakened, reaching its lowest

14 point at 8:00; from 14:00, the wind direction continued to turn south and the wind gradually

15 strengthened.

16 The flow field in autumn (**Fig.3**) showed the surface wind direction in Fengtai District

17 transform from northwesterly and southerly winds. Starting early in the morning, the wind

18 direction gradually turned north, and the wind gradually weakened, reaching its lowest point at

19 8 :00; from 14:00, the wind direction turned south and the wind gradually strengthened.
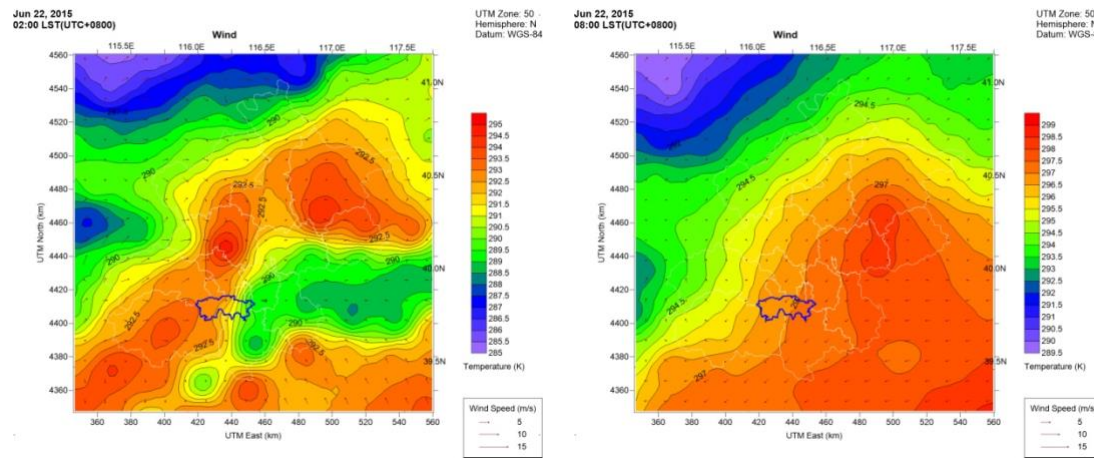
20 The flow field in winter (**Fig.4**) showed the surface wind direction in Fengtai District the

21 dominant situation of the northwest wind. Starting early in the morning, the wind gradually

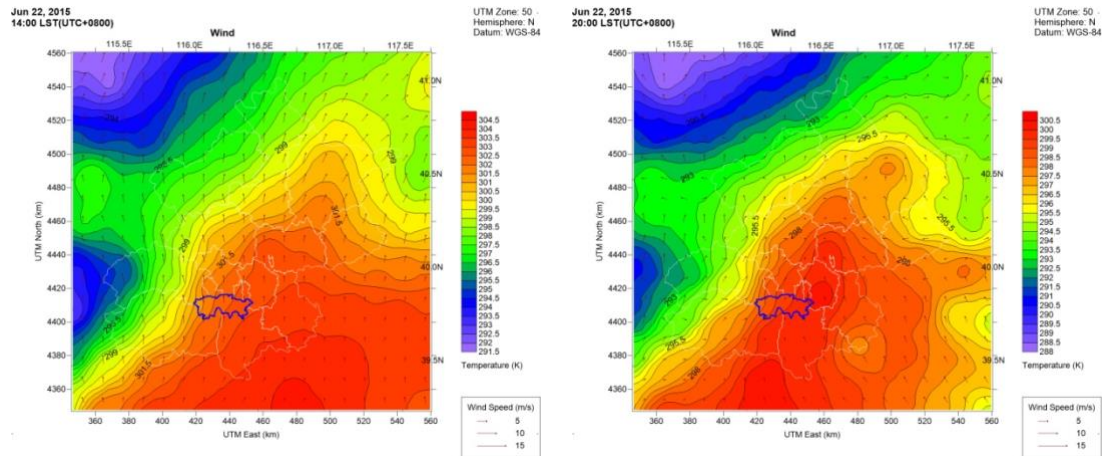22 weakened and reached its lowest point at 14:00; from 14:00, the wind turned west and the wind
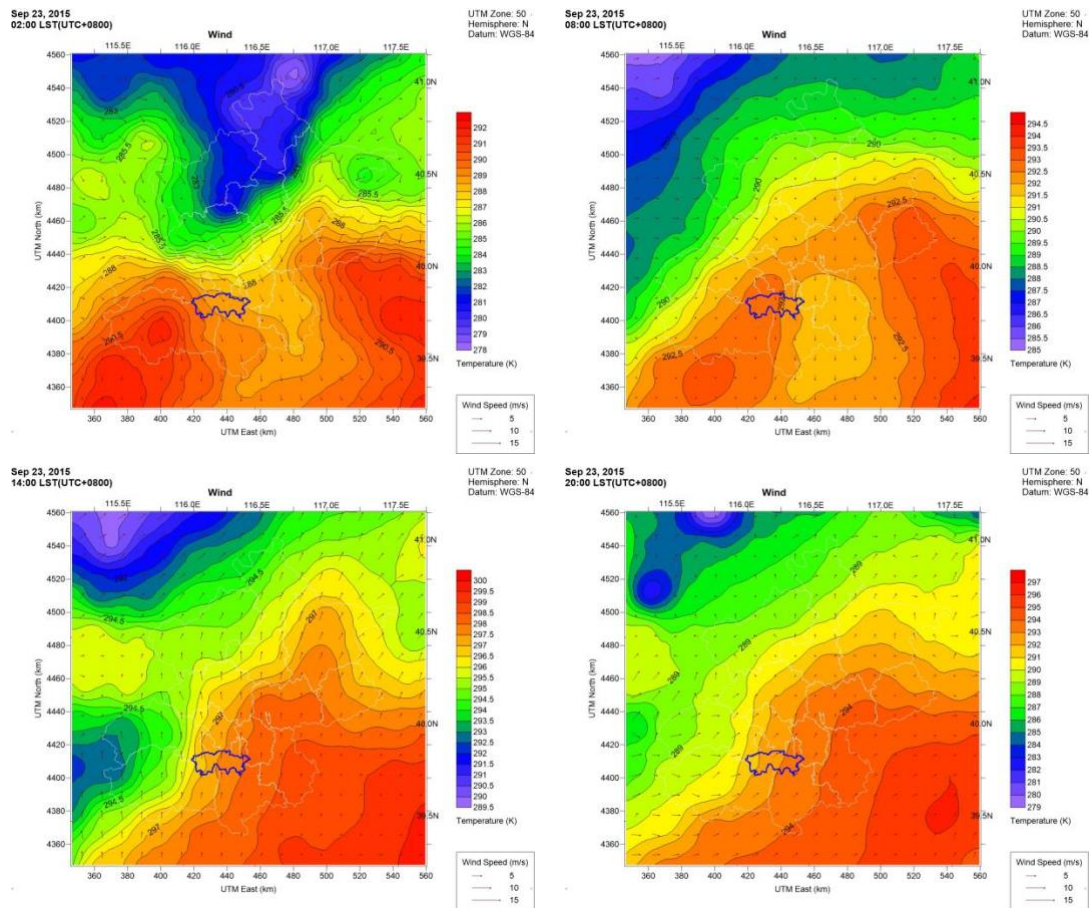
23   gradually strengthened.
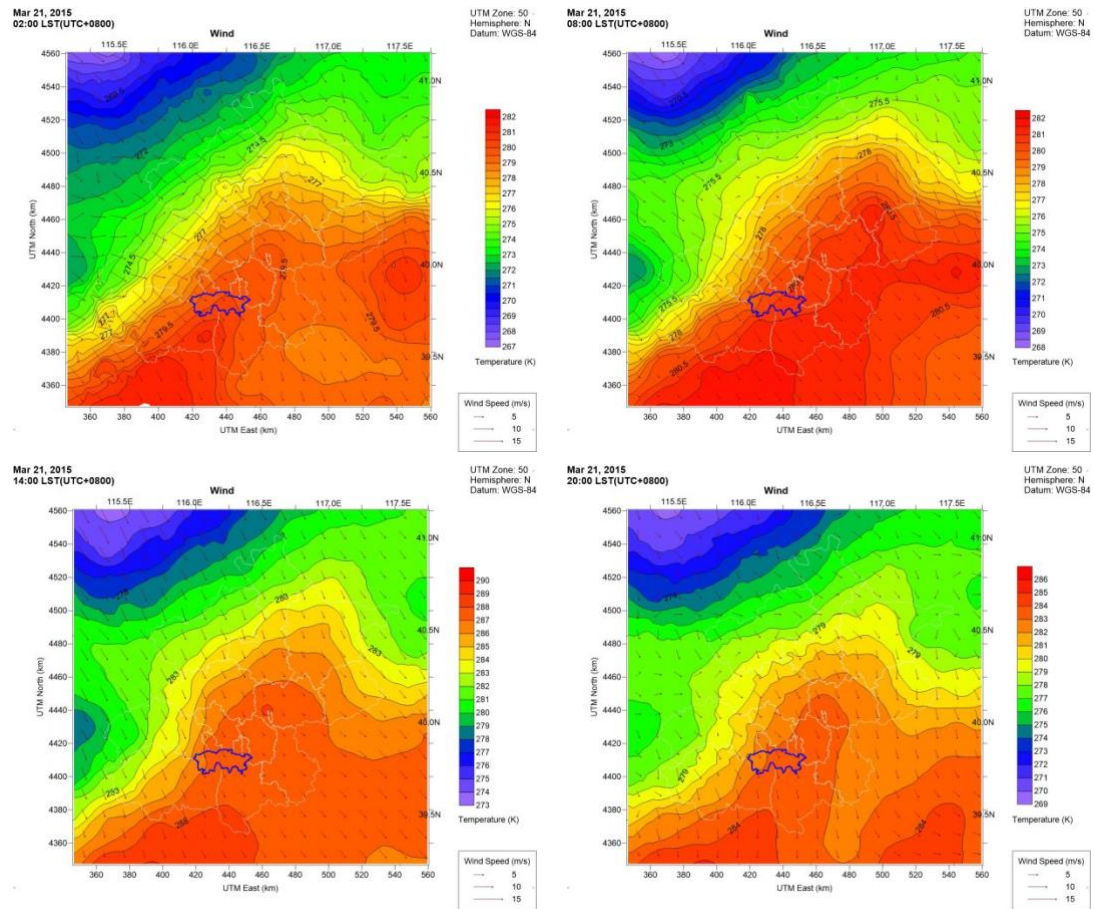
Fig. 1. Spring weather field map of Beijing

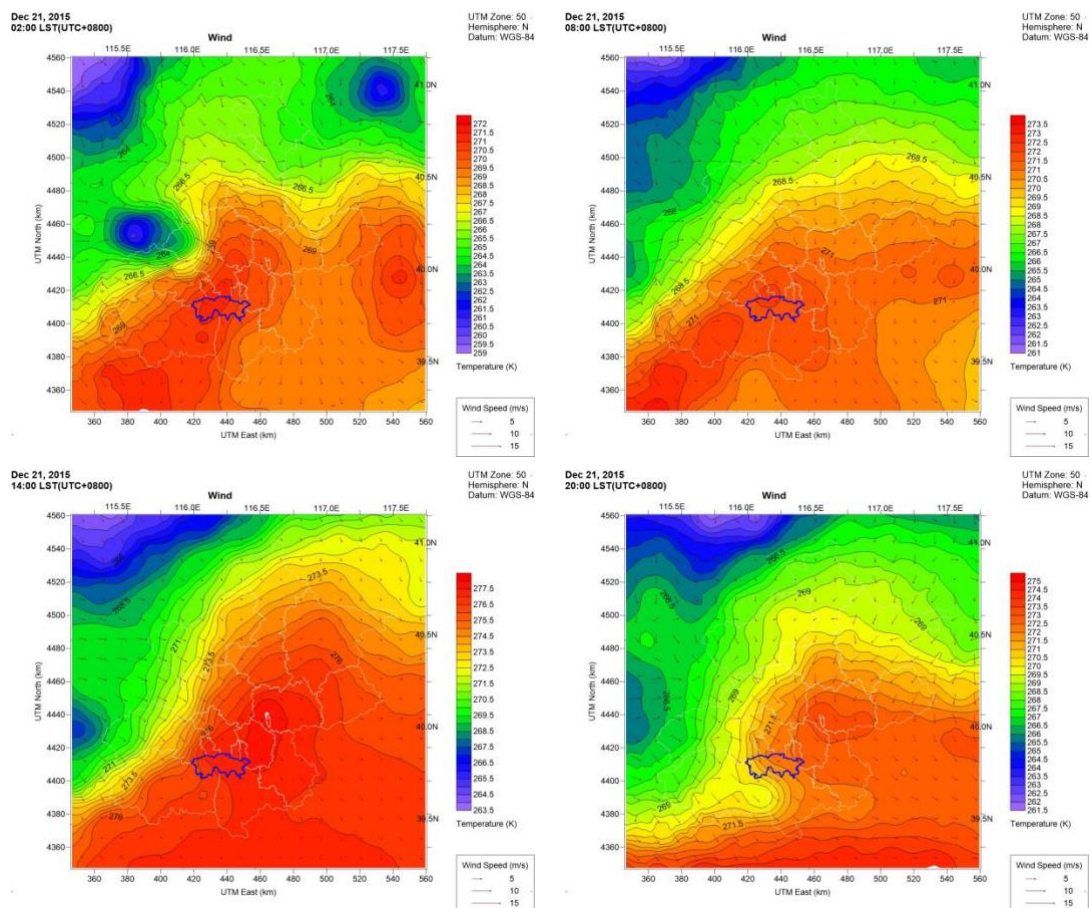25 **Fig. 2.** Summer weather field map of Beijing

26 **Fig. 3.** Autumn weather field map of Beijing

Fig. 4. Winter weather field map of Beijing

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