Supplement A

Below are figures illustrating the temporal variations of the geomagnetic field components.
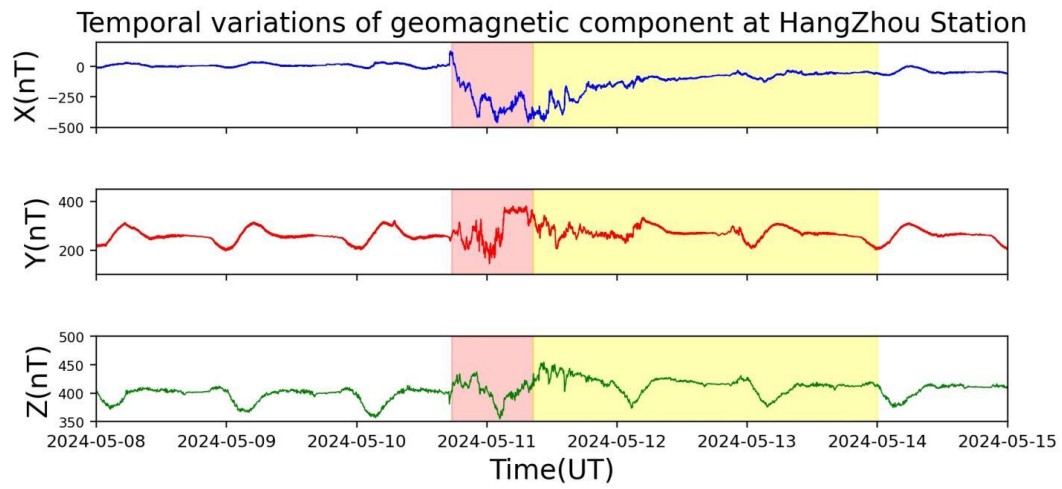
Figure S1. Temporal variations in the level of the X-, Y-, and Z-components of the geomagnetic field on May 8–14, 2024, at the Hangzhou station.
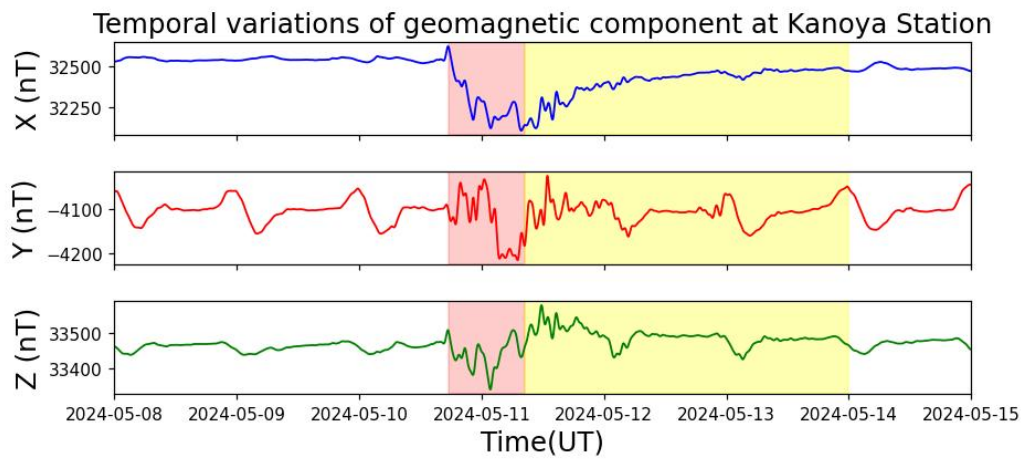
Figure S2. Temporal variations in the level of the X-, Y-, and Z-components of the geomagnetic field on May 8–14, 2024, at the Kanoya station.
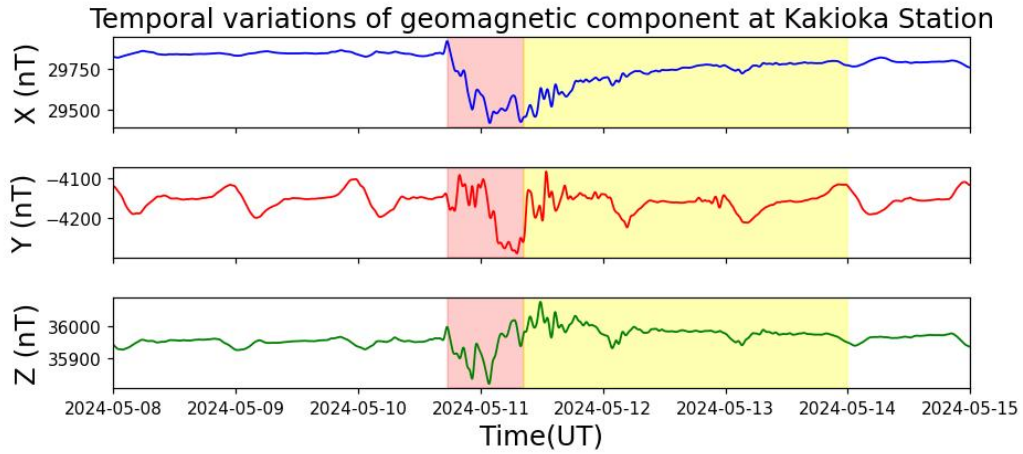
Figure S3. Temporal variations in the level of the X-, Y-, and Z-components of the geomagnetic field on May 8–14, 2024, at the Kakioka station.
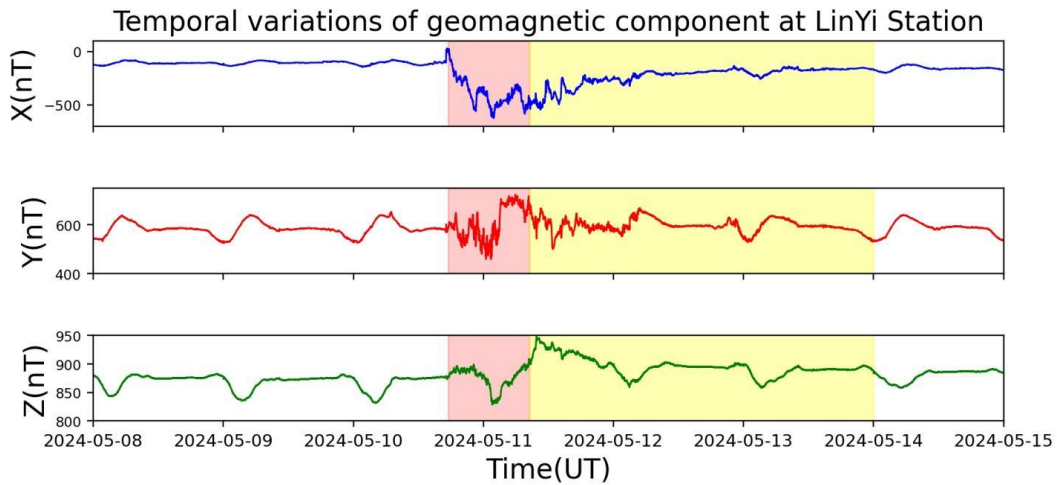
Figure S4. Temporal variations in the level of the X-, Y-, and Z-components of the geomagnetic field on May 8–14, 2024, at the Linyi station.
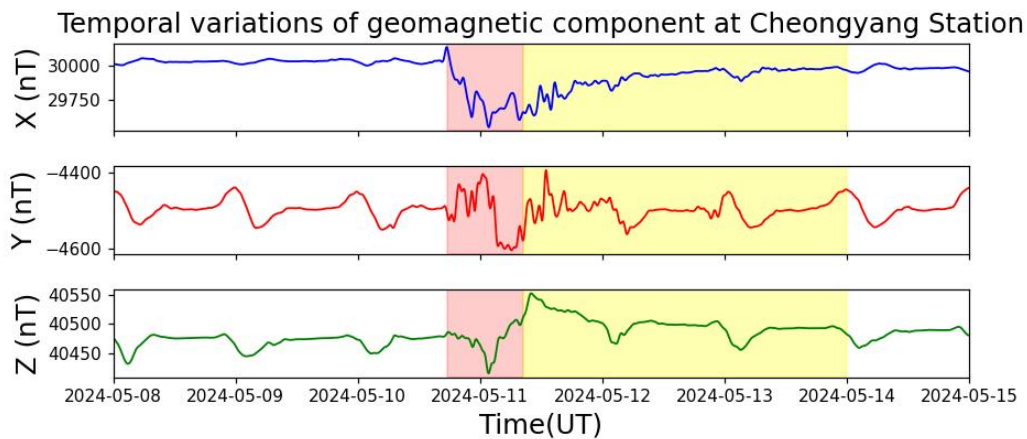
Figure S5. Temporal variations in the level of the X-, Y-, and Z-components of the geomagnetic field on May 8–14, 2024, at the Cheongyang station.
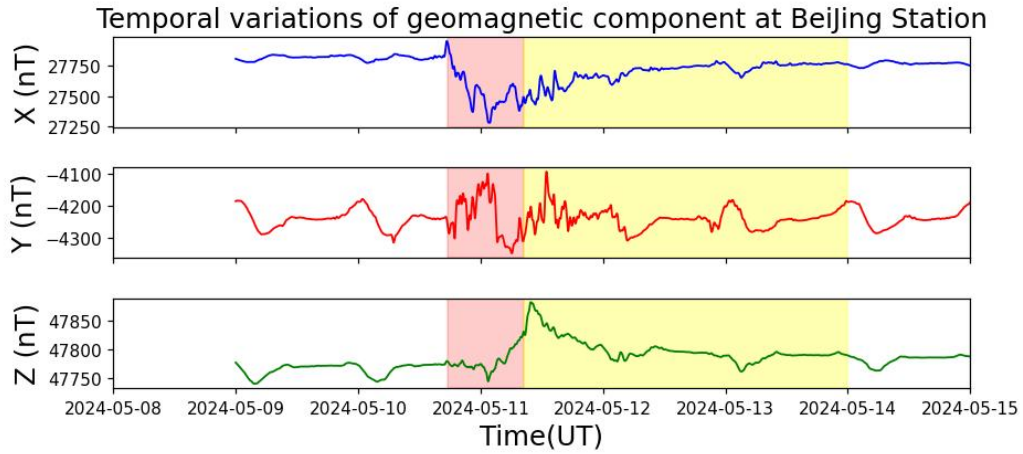
Figure S6. Temporal variations in the level of the X-, Y-, and Z-components of the geomagnetic field on May 8–14, 2024, at the Beijing station.
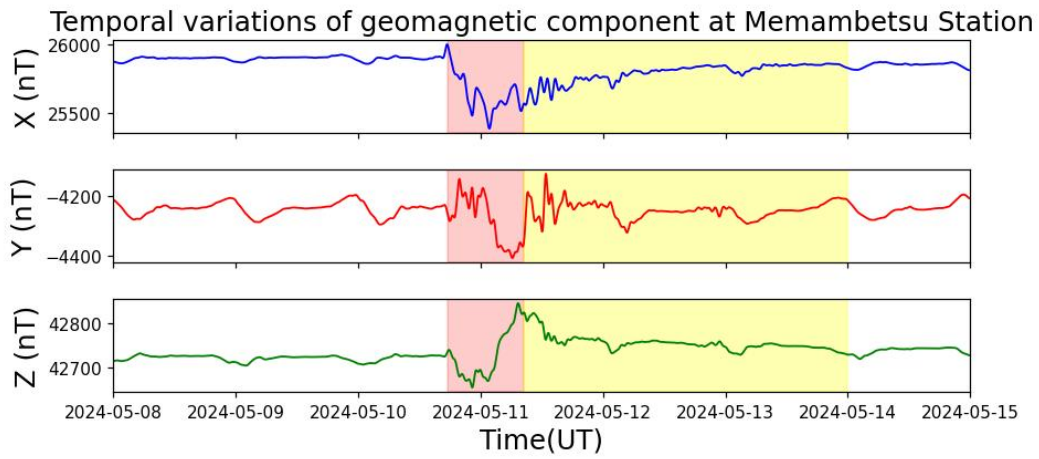
Figure S7. Temporal variations in the level of the X-, Y-, and Z-components of the geomagnetic field on May 8–14, 2024, at the Memambetsu station.
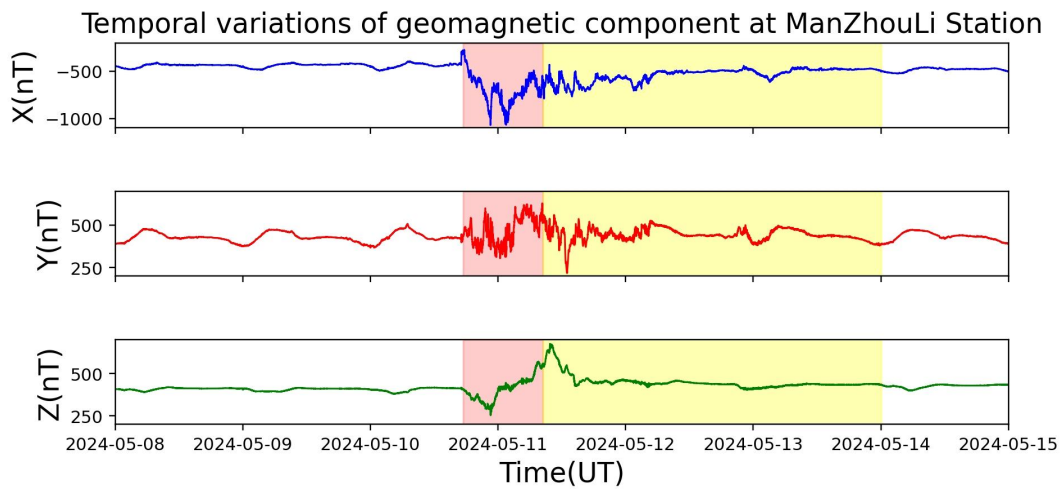
Figure S8. Temporal variations in the level of the X-, Y-, and Z-components of the geomagnetic field on May 8–14, 2024, at the Manzhouli station.

The following are figures illustrating the temporal variations of ionogram parameters.

Temporal variations of foF2 on May 8–14, 2024:(a) Wuhan station,(b) Weihai station
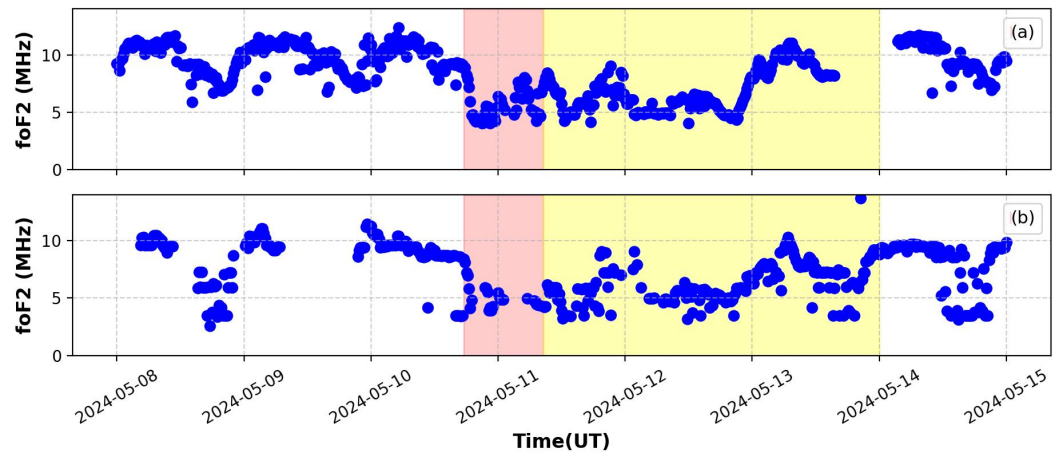
Figure S9. Temporal variations of foF2 on May 8–14, 2024: (a) Wuhan station, (b) Weihai station.

Temporal variations of hmF2 on May 8–14, 2024:(a) Wuhan station,(b) Weihai station
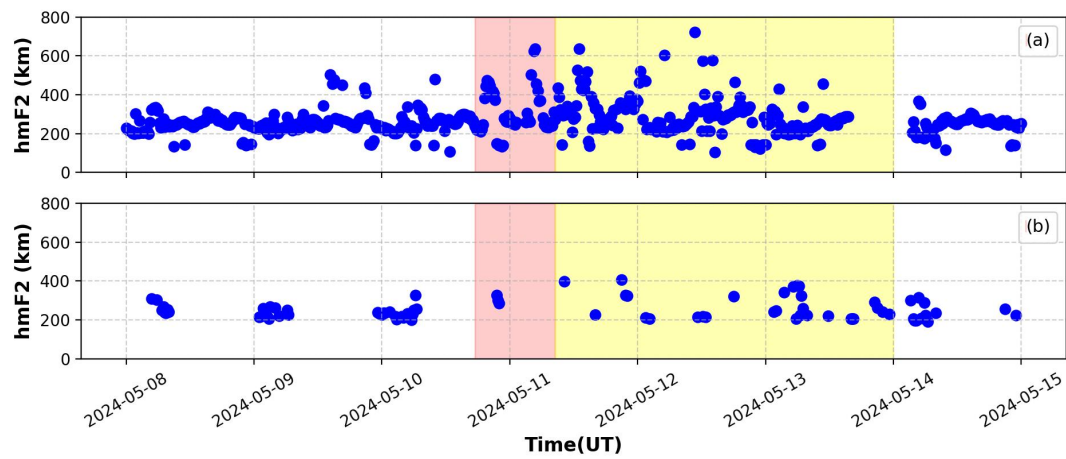
Figure S10. Temporal variations of hmF2 on May 8–14, 2024: (a) Wuhan station, (b) Weihai station.

Temporal variations of foF1 on May 8–14, 2024:(a) Wuhan station,(b) Weihai station
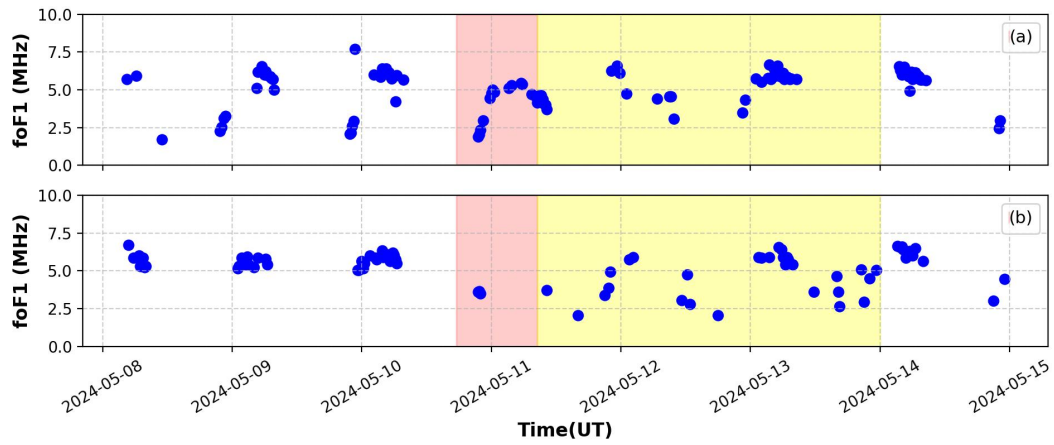
Figure S11. Temporal variations of foF1 on May 8–14, 2024: (a) Wuhan station, (b) Weihai station.

Temporal variations of hmF1 on May 8–14, 2024:(a) Wuhan station,(b) Weihai station
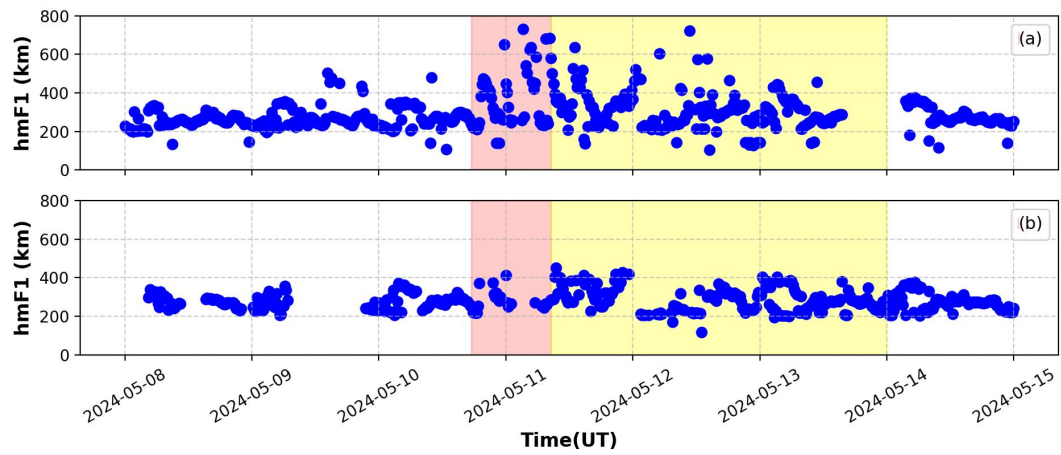
Figure S12. Temporal variations of hmF1 on May 8–14, 2024: (a) Wuhan station, (b) Weihai station.

Temporal variations of fmin on May 8-14, 2024:(a) Wuhan station, (b) Weihai station
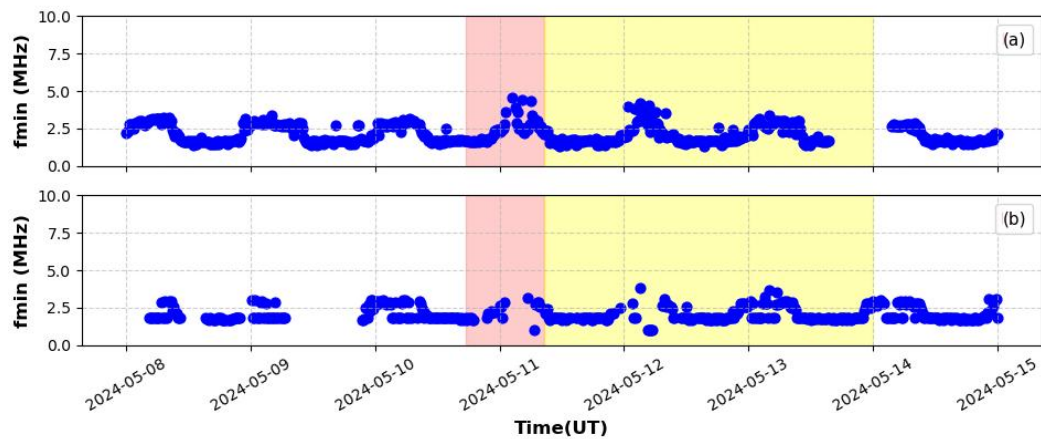
Figure S13. Temporal variations of fmin on May 8–14, 2024: (a) Wuhan station, (b) Weihai station.

Below are the results of the SSA of the level of variations in the geomagnetic field components.
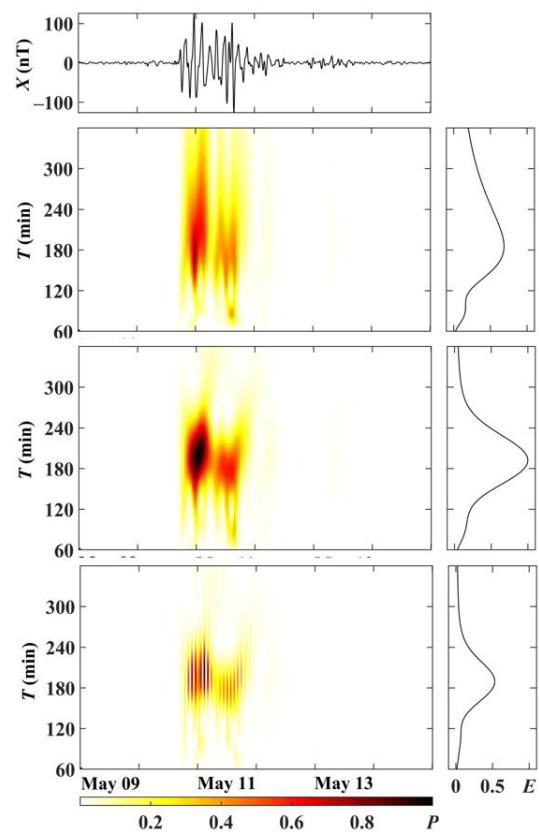
Figure S14. The same as in Figure 13 but for the Linyi station.
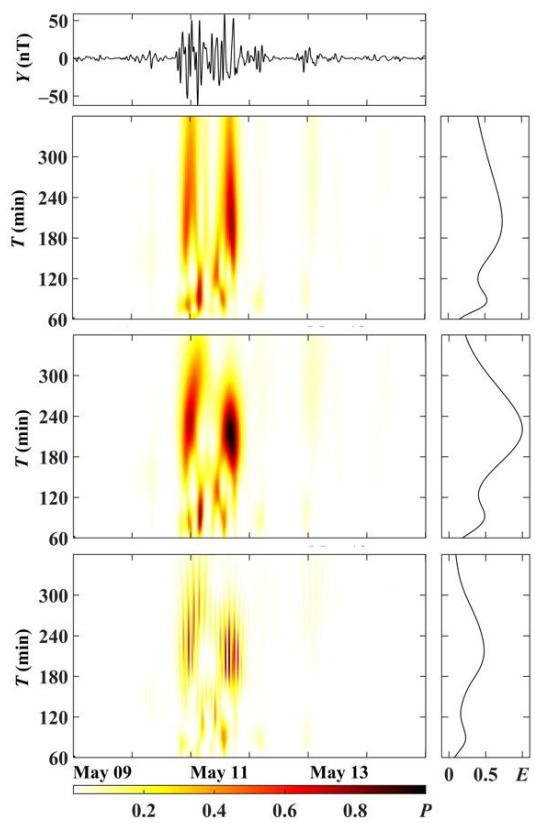
Figure S15. The same as in Figure 14 but for the Linyi station.
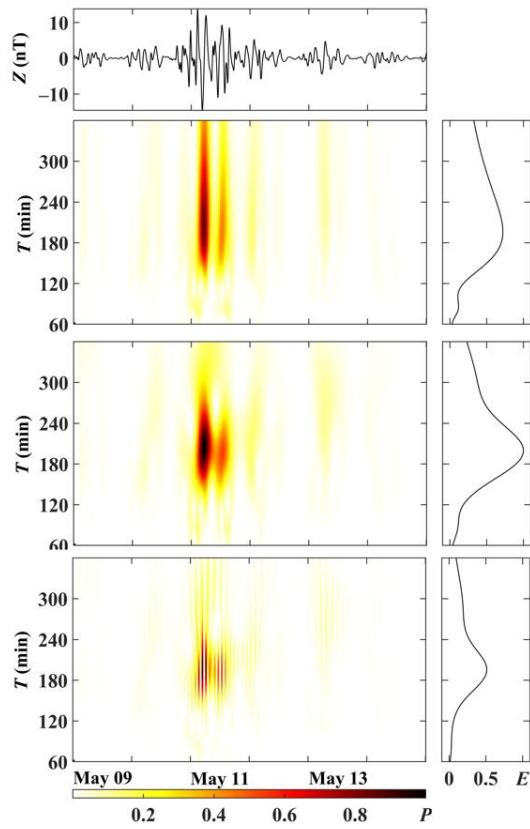
Figure S16. The same as in Figure 15 but for the Linyi station.
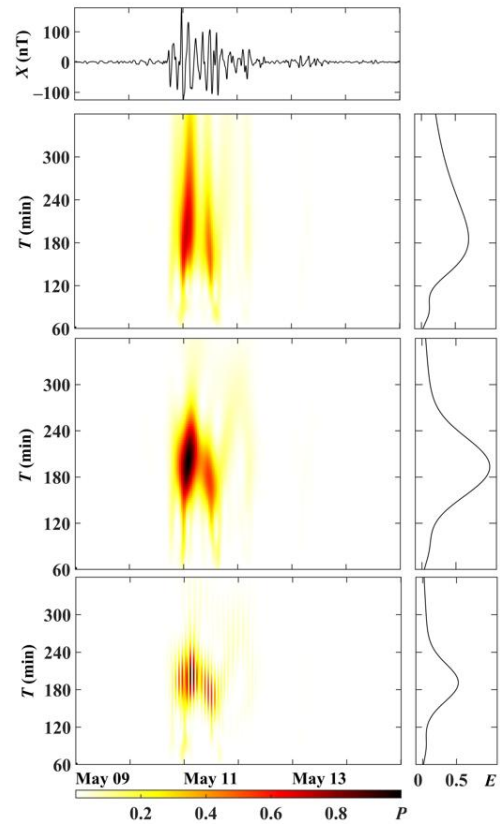
Figure S17. The same as in Figure 13 but for the Manzhouli station.
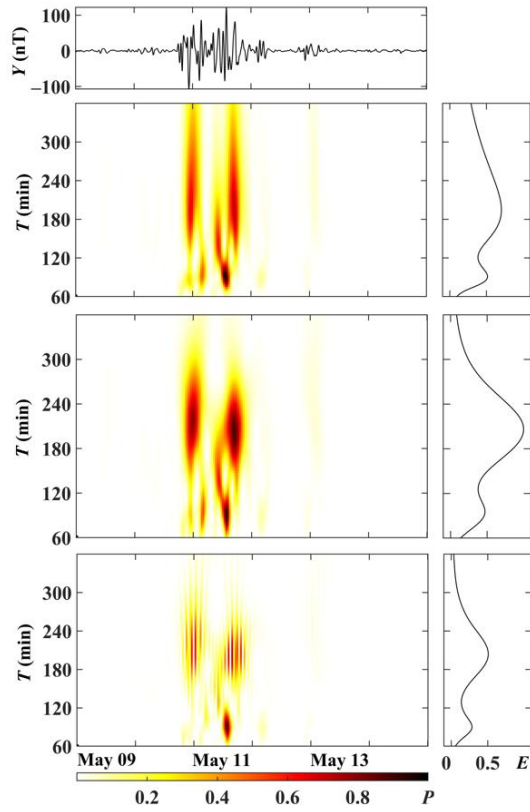
Figure S18. The same as in Figure 14 but for the Manzhouli station.
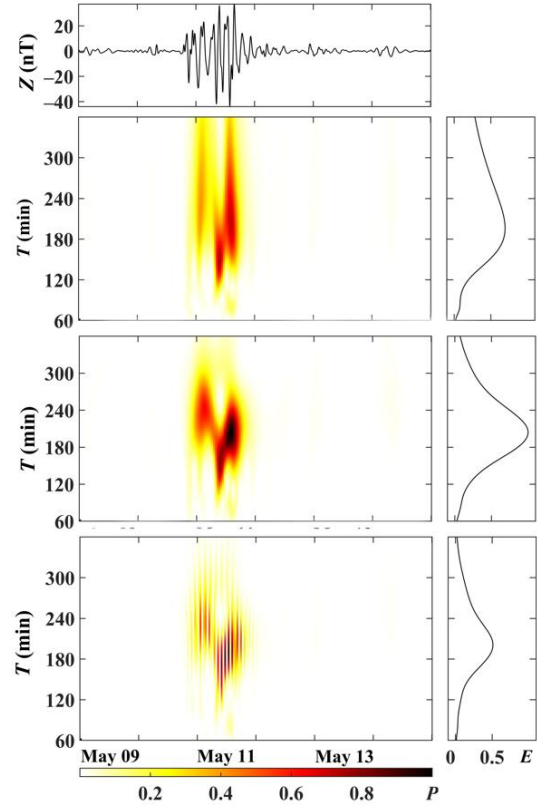
Figure S19. The same as in Figure 15 but for the Manzhouli station.