Supporting Information for

A statistical study of global ionospheric map total electron content changes prior to occurrences of M≥6.0 earthquakes during 2000-2014

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**Contents of this file**

Supplemental Figures S1-S26.

Introduction

Here we report figures that include GIM-TEC deviations that exceed ±1σ and ±3σ per day for ±15 days of earthquakes (in the main paper we show figures that use ±2σ). We also include figures using Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (in the main paper we show figures that use Dst instead of Kp). Lastly, one figure is included that shows data processed using a 24-hr notch filter rather than a 24-hr running average. These additional figures further support the conclusions of our paper.
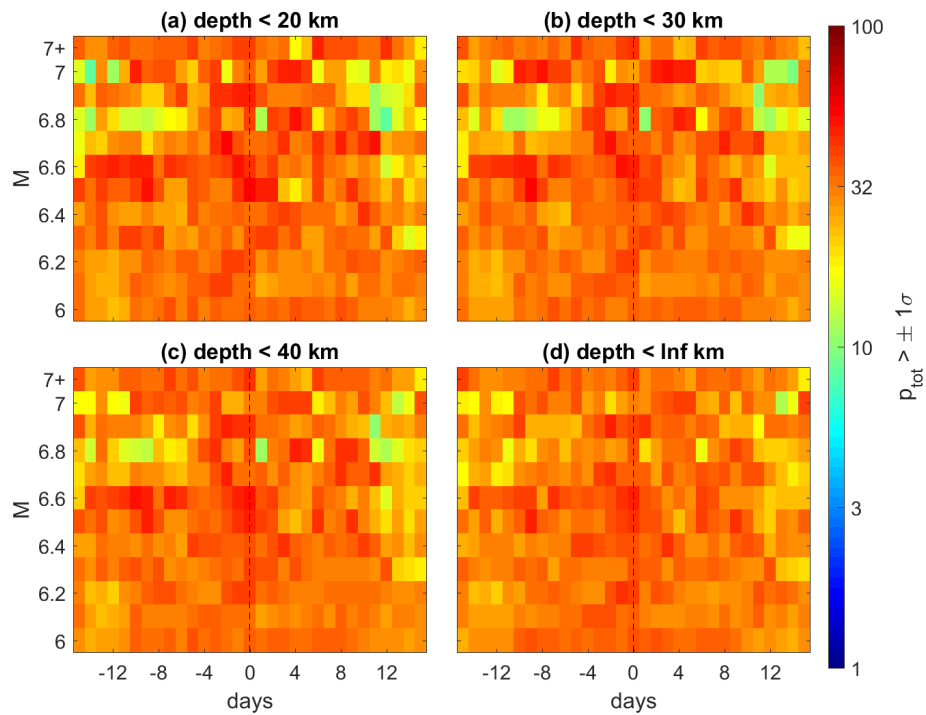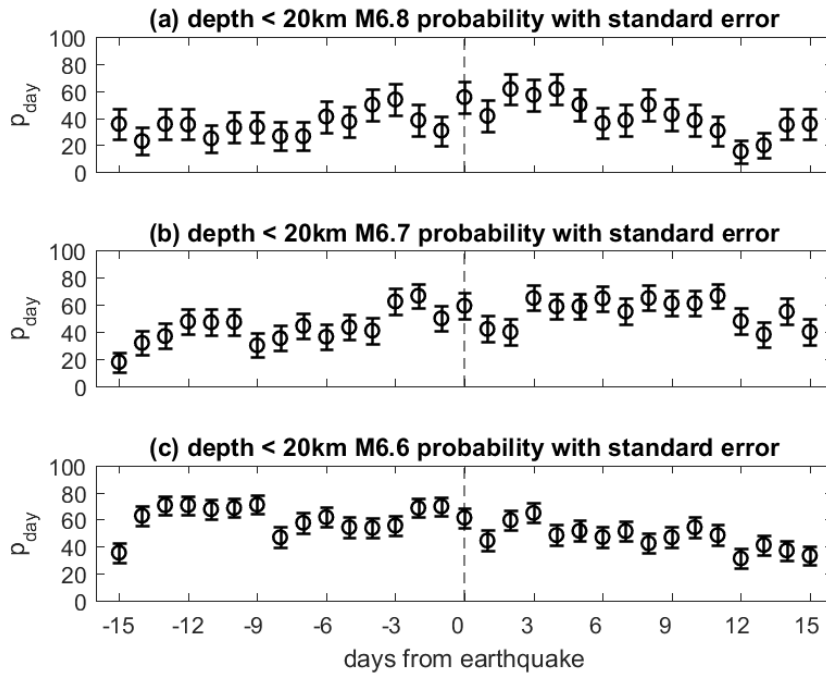
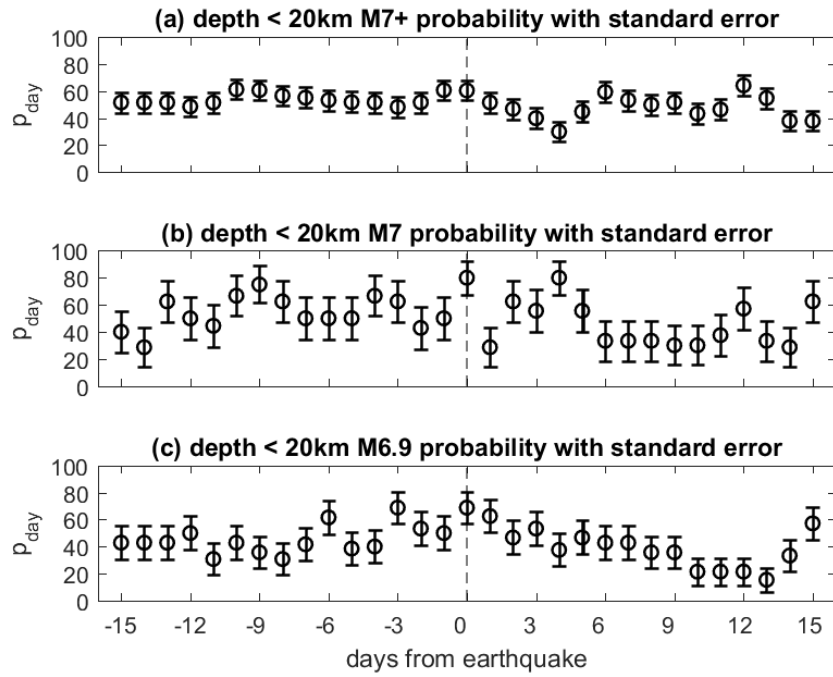**Figures S1.** Same as Figure 6 in paper, but using GIM-TEC deviations that exceed ±1σ (instead of ±2σ).
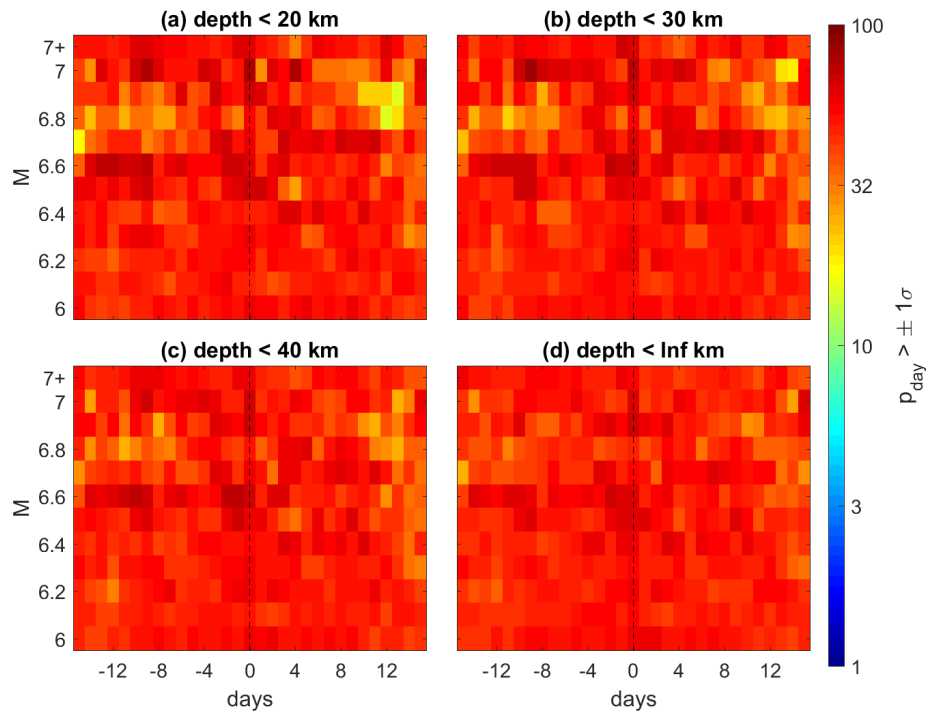
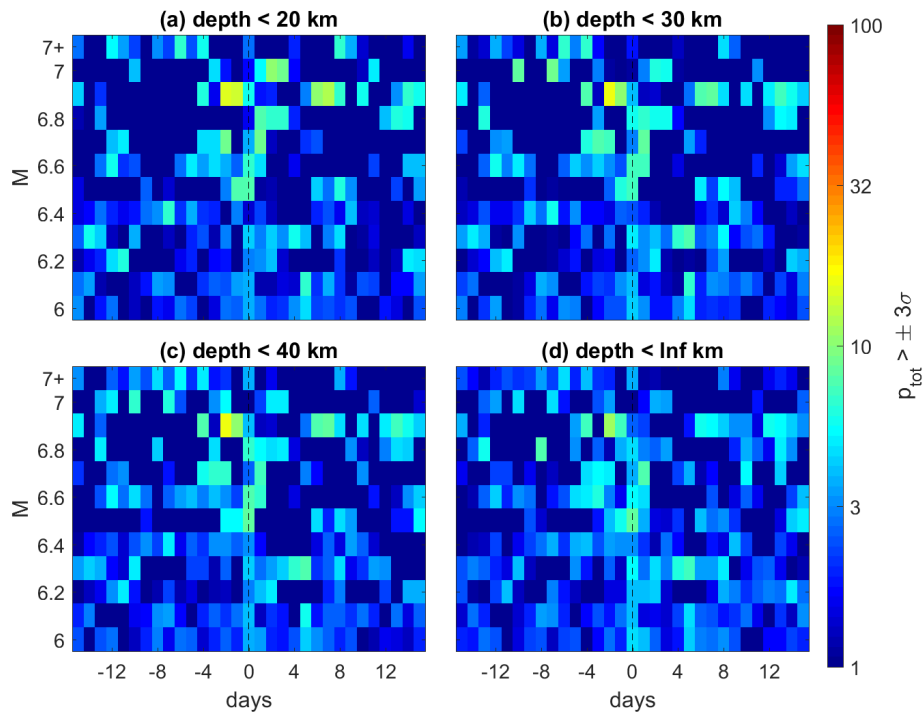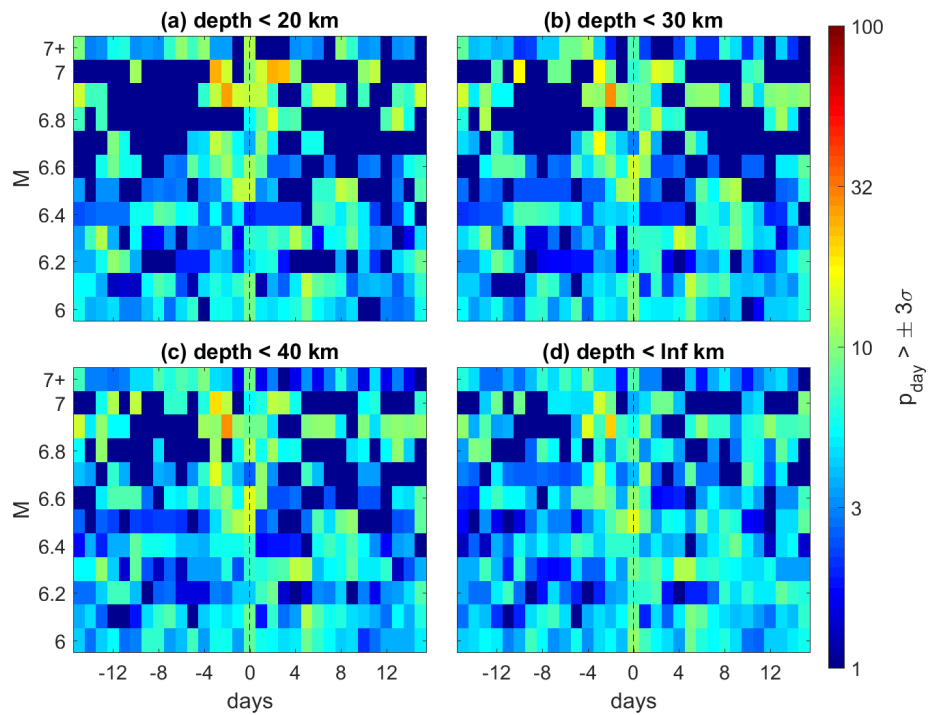**Figures S2.** Same as Figure 7 in paper, but using GIM-TEC deviations that exceed ±1σ (instead of ±2σ).
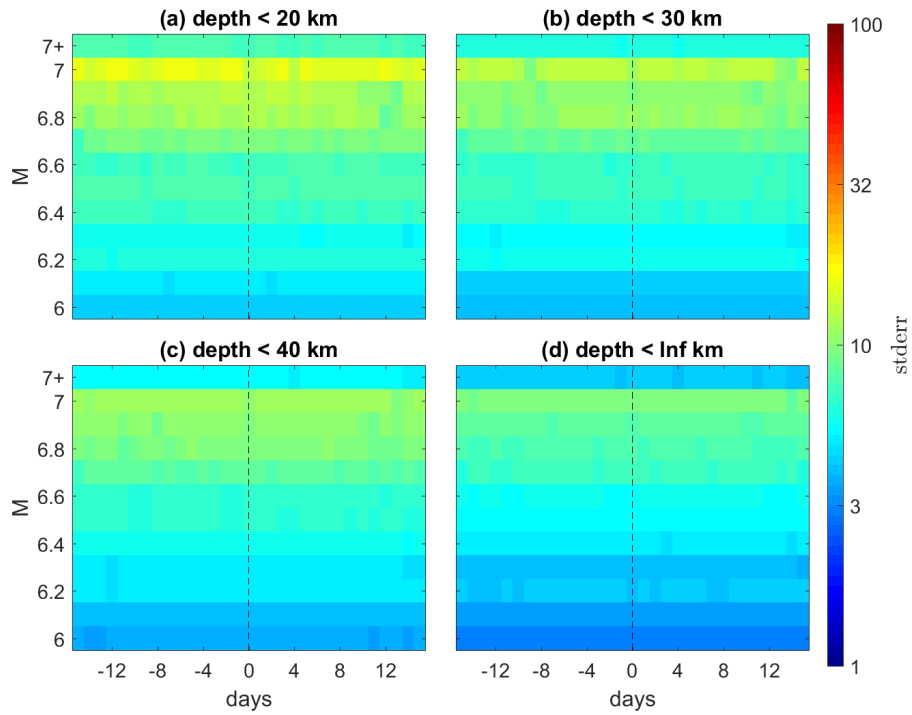
Figures S3. Same as Figure 8 in paper, but using GIM-TEC deviations that exceed ±1σ (instead of ±2σ).

Figures S4. Same as Figure 9 in paper, but using GIM-TEC deviations that exceed ±1σ (instead of ±2σ).

(a) depth < 20km M7+ probability with standard error

(b) depth < 20km M7 probability with standard error

(c) depth < 20km M6.9 probability with standard error

days from earthquake

Figures S5. Same as Figure 10 in paper, but using GIM-TEC deviations that exceed ±1σ (instead of ±2σ).

(a) depth < 20 km

(b) depth < 30 km

(c) depth < 40 km

(d) depth < Inf km

days

days

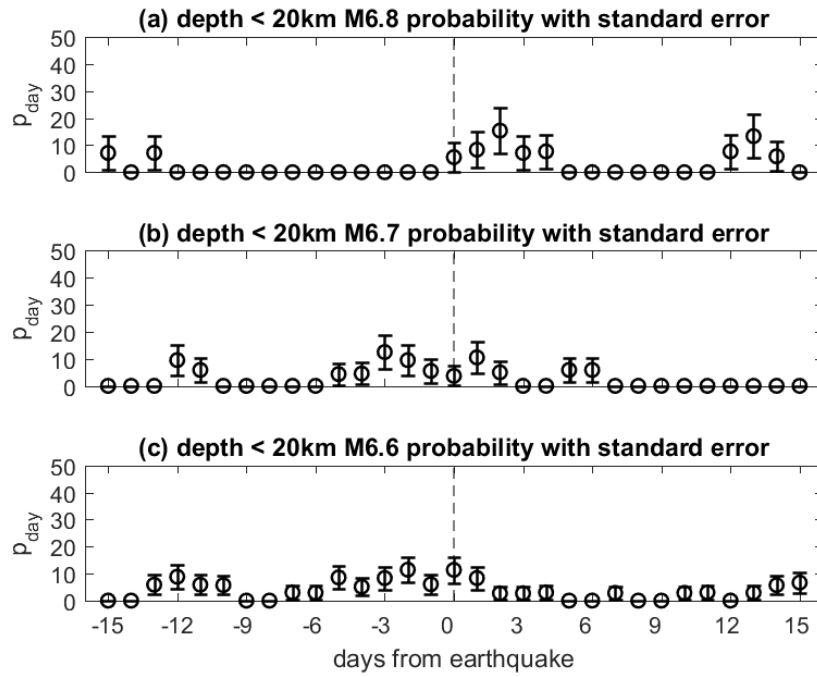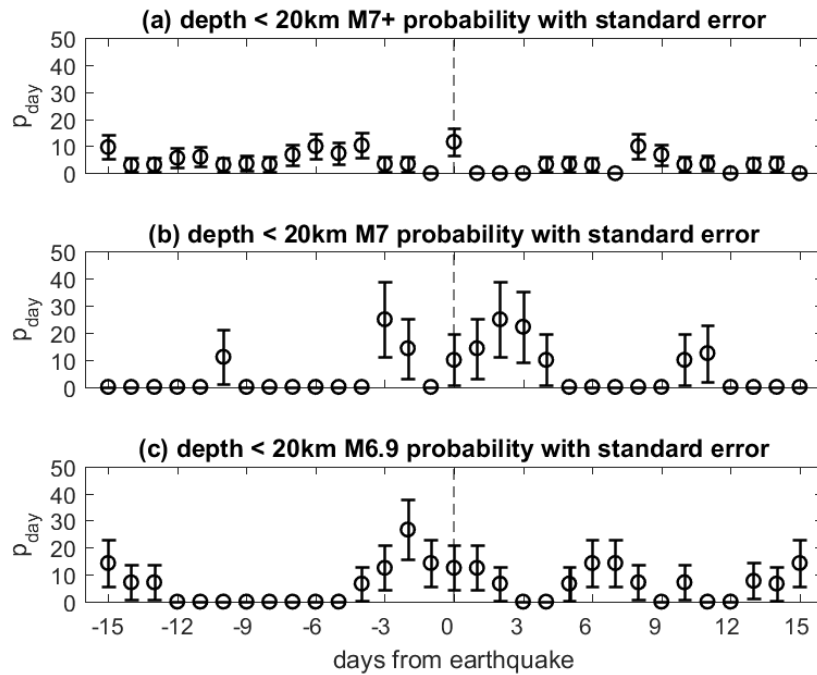**Figures S6.** Same as Figure 6 in paper, but using GIM-TEC deviations that exceed ±3σ (instead of ±2σ).

Figures S7. Same as Figure 7 in paper, but using GIM-TEC deviations that exceed ±3σ (instead of ±2σ).
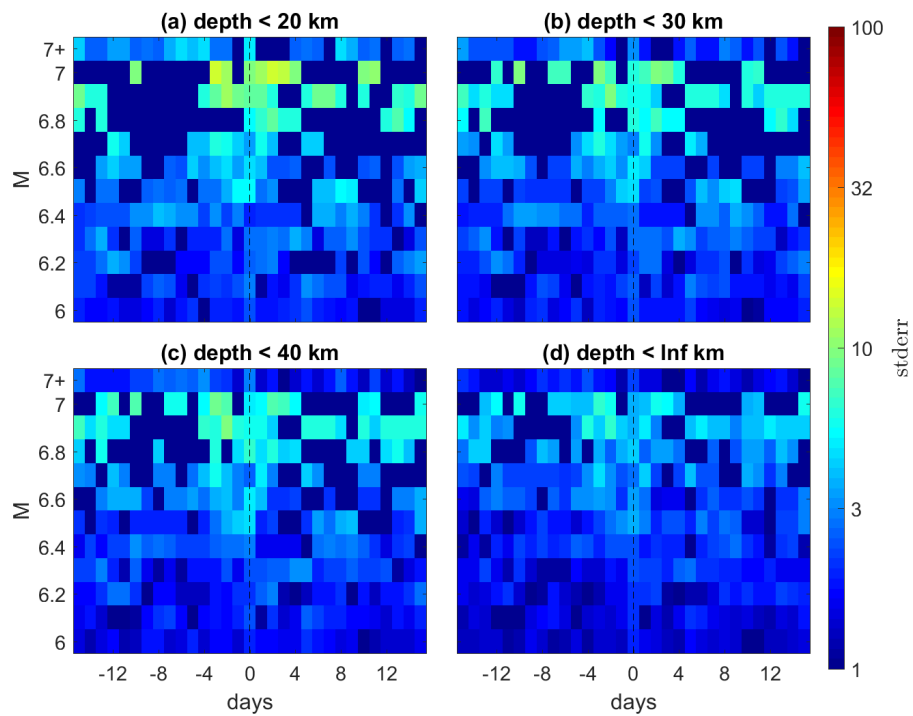
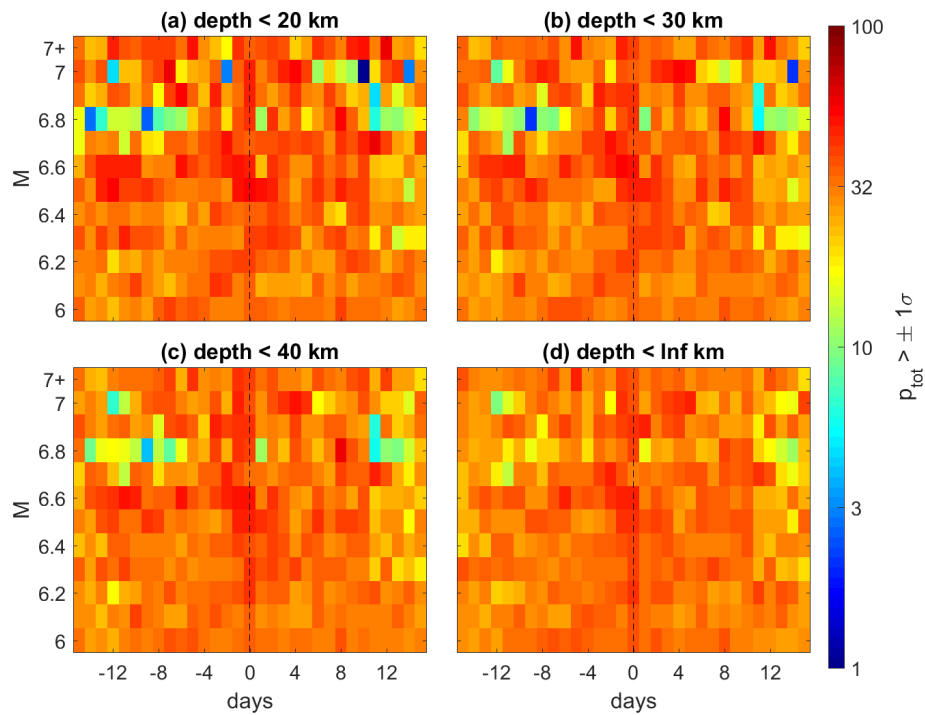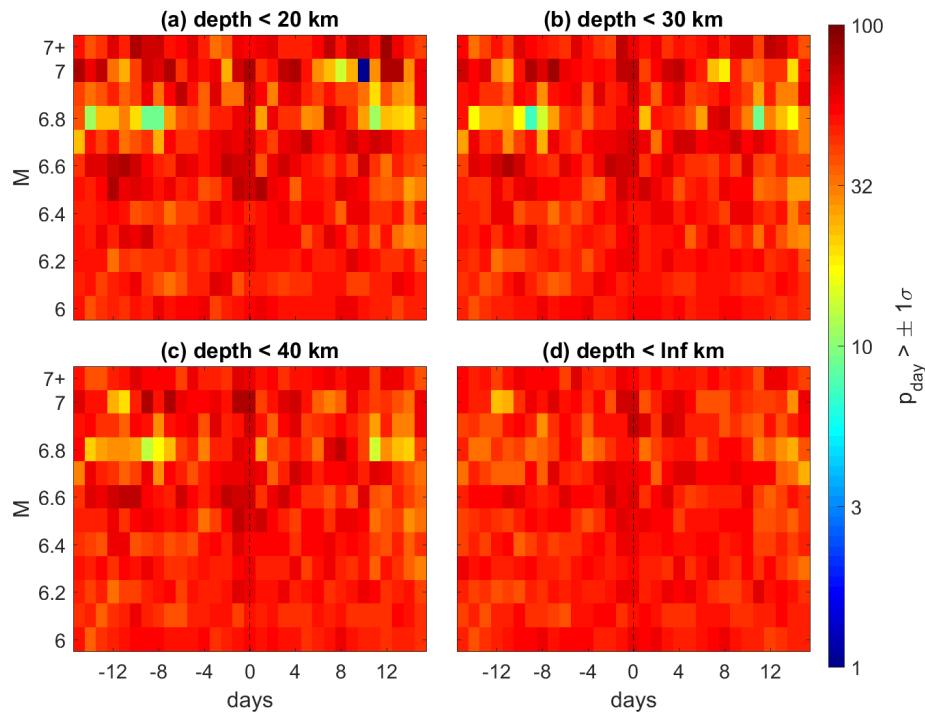**Figures S8.** Same as Figure 8 in paper, but using GIM-TEC deviations that exceed ±3σ (instead of ±2σ).

Figures S9. Same as Figure 9 in paper, but using GIM-TEC deviations that exceed ±3σ (instead of ±2σ).

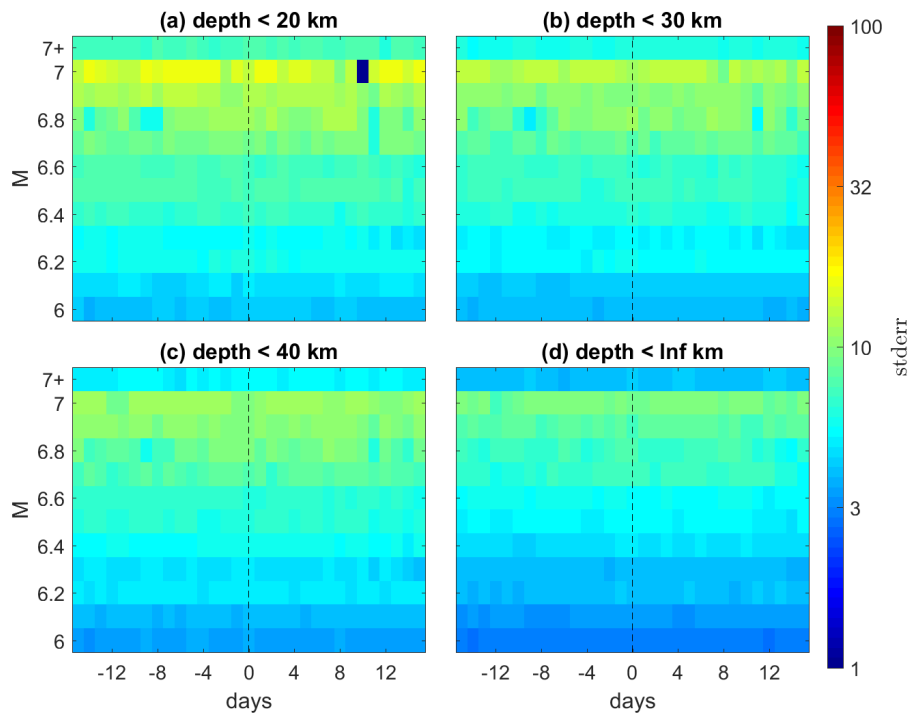**Figures S10.** Same as Figure 10 in paper, but using GIM-TEC deviations that exceed ±3σ (instead of ±2σ).

Figures S11. Same as Figure 6 in paper, but using GIM-TEC deviations that exceed ±1σ (instead of ±2σ) and Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).

Figures S12. Same as Figure 7 in paper, but using GIM-TEC deviations that exceed ±1σ (instead of ±2σ) and Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).
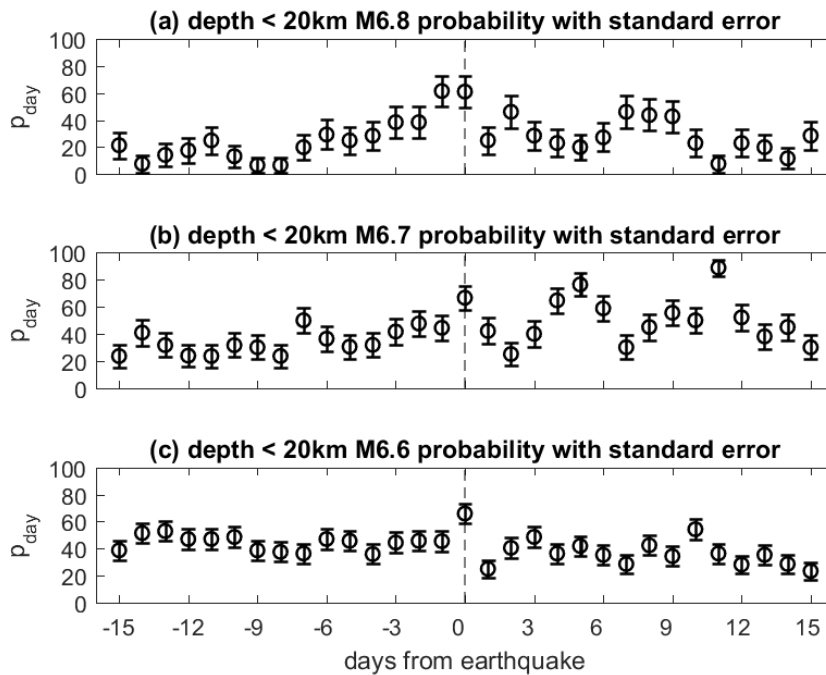
Figures S13. Same as Figure 8 in paper, but using GIM-TEC deviations that exceed ±1σ (instead of ±2σ) and Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).
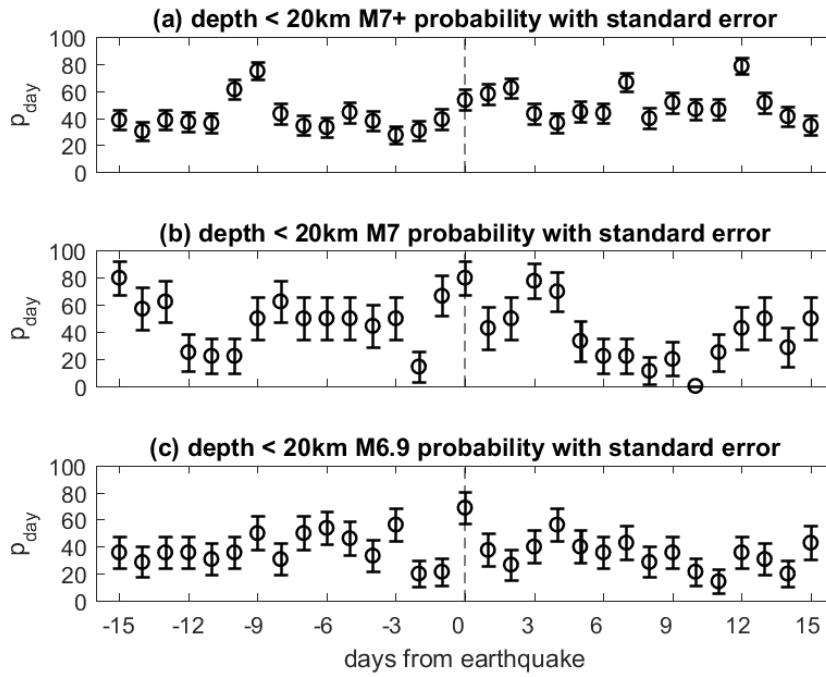

Figures S14. Same as Figure 9 in paper, but using GIM-TEC deviations that exceed ±1σ (instead of ±2σ) and Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).

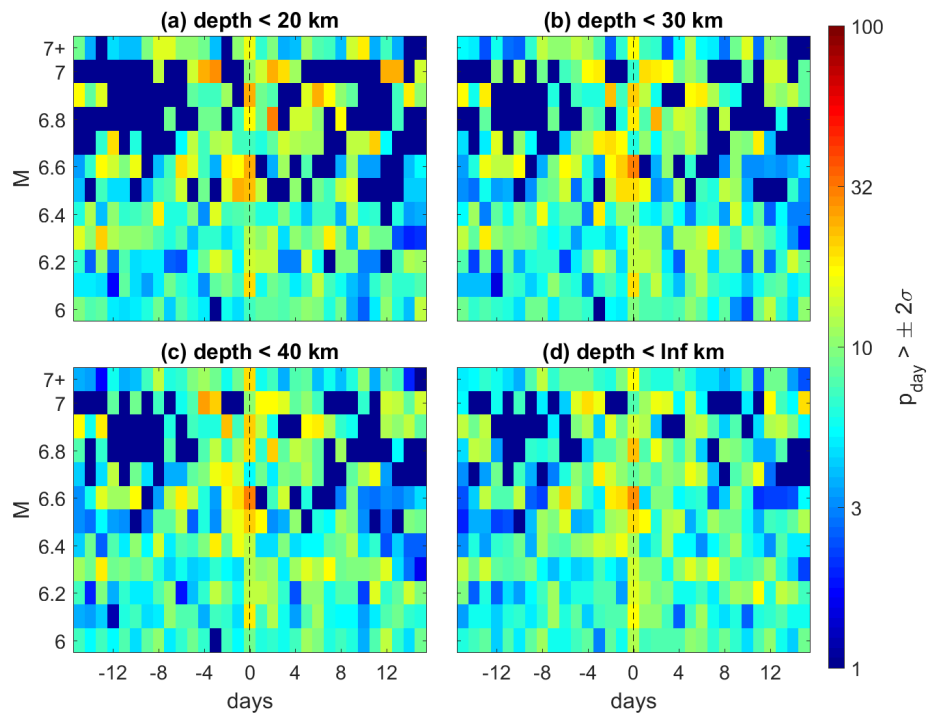**(a) depth < 20km M7+ probability with standard error**

(b) depth < 20km M7 probability with standard error

(c) depth < 20km M6.9 probability with standard error

days from earthquake

Figures S15. Same as Figure 10 in paper, but using GIM-TEC deviations that exceed ±1σ (instead of ±2σ) and Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).

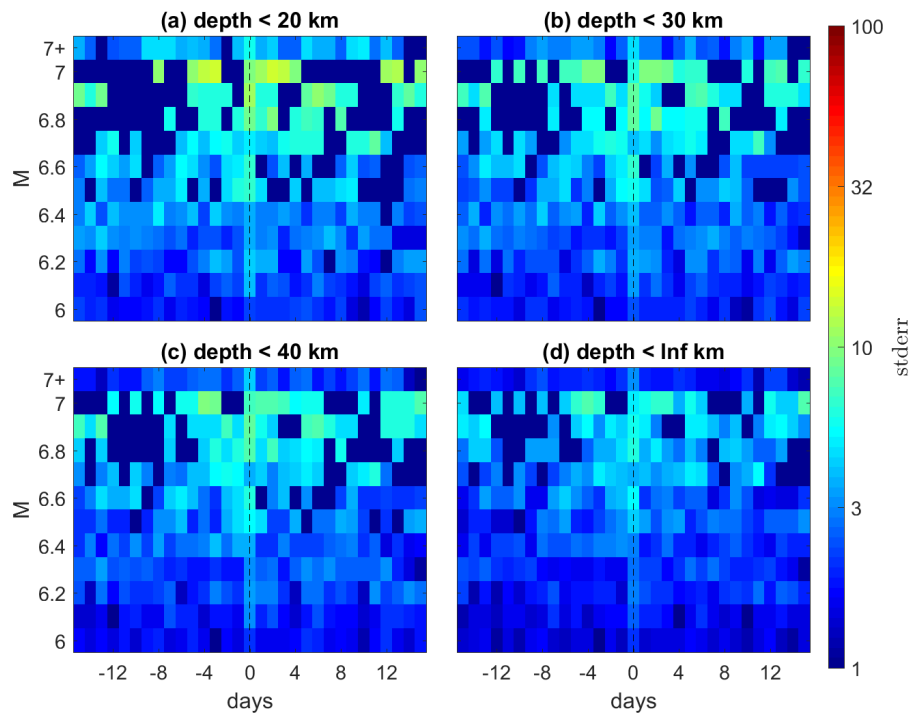**(a) depth < 20 km**

(b) depth < 30 km

(c) depth < 40 km

(d) depth < Inf km
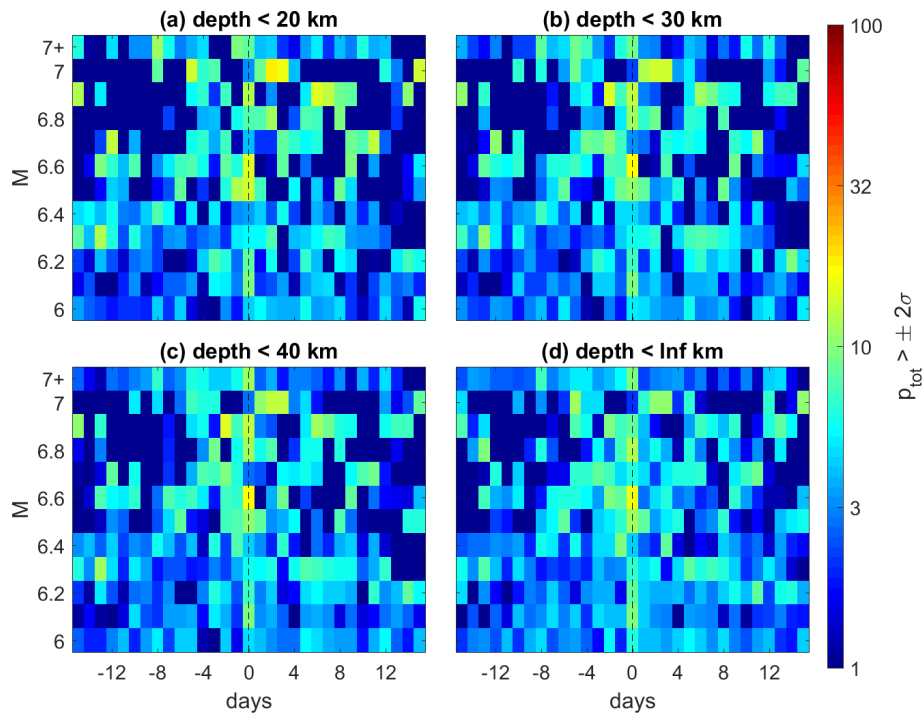
days

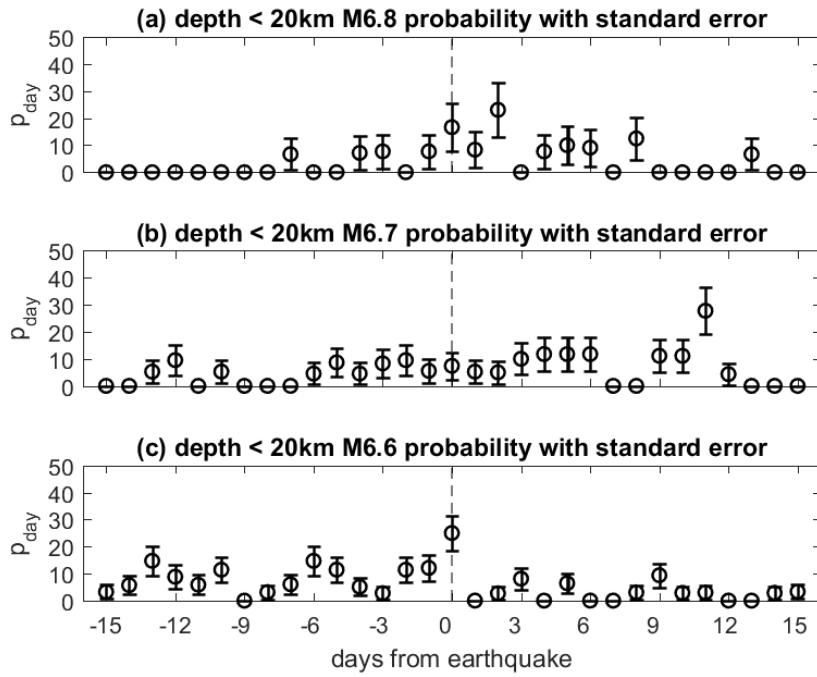**Figures S16.** Same as Figure 6 in paper, but using Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).
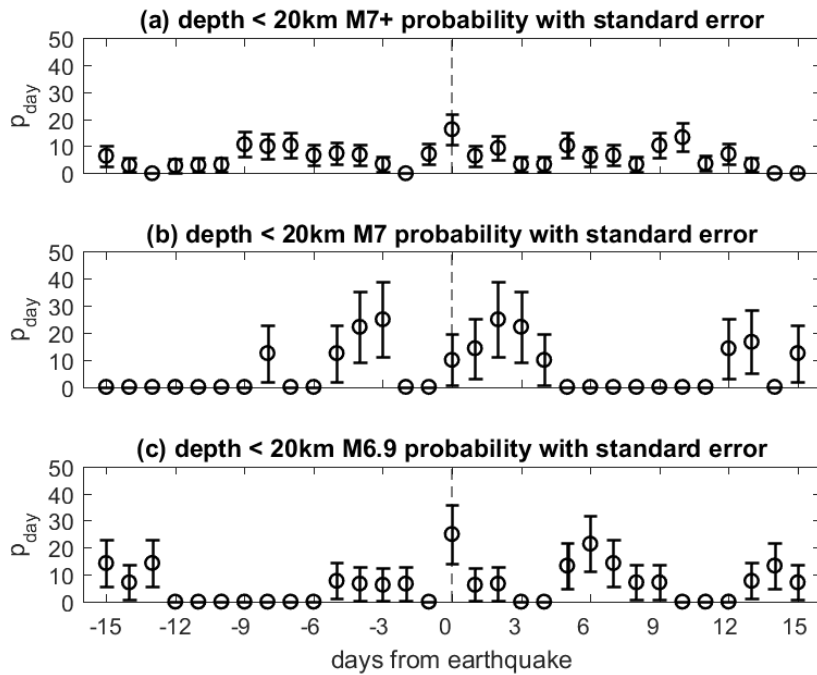
Figures S17. Same as Figure 7 in paper, but using Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).

Figures S18. Same as Figure 8 in paper, but using Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).

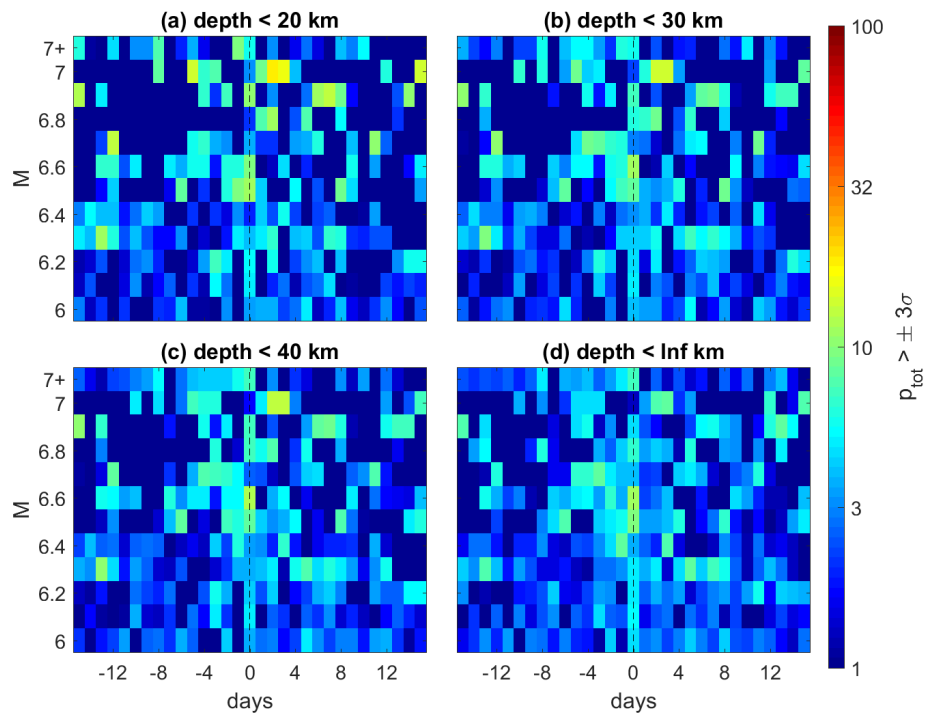**Figures S19.** Same as Figure 9 in paper, but using Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).

Figures S20. Same as Figure 10 in paper, but using Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).

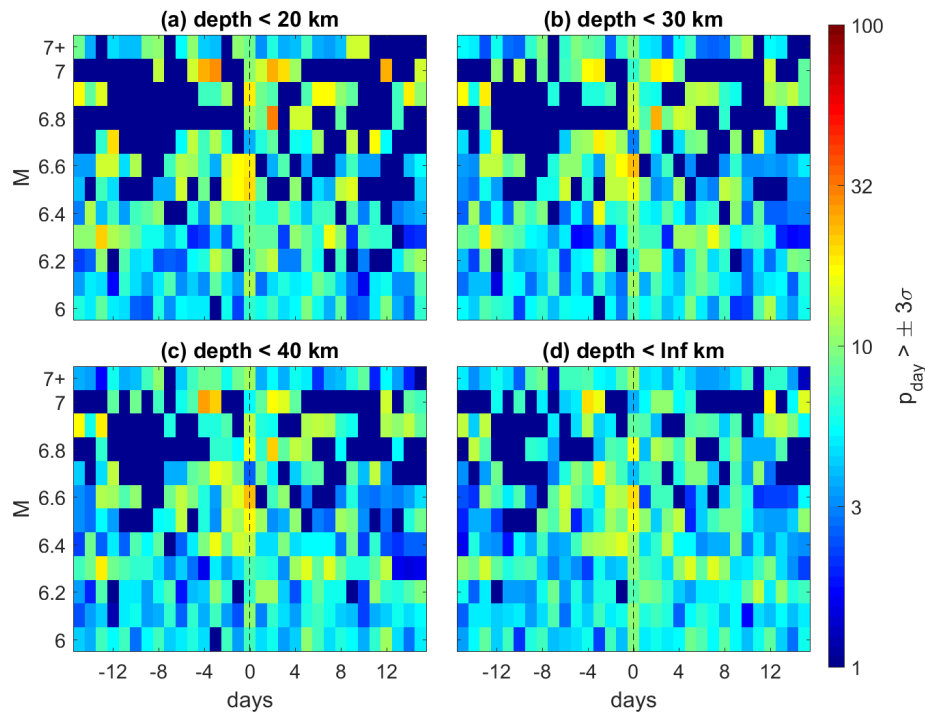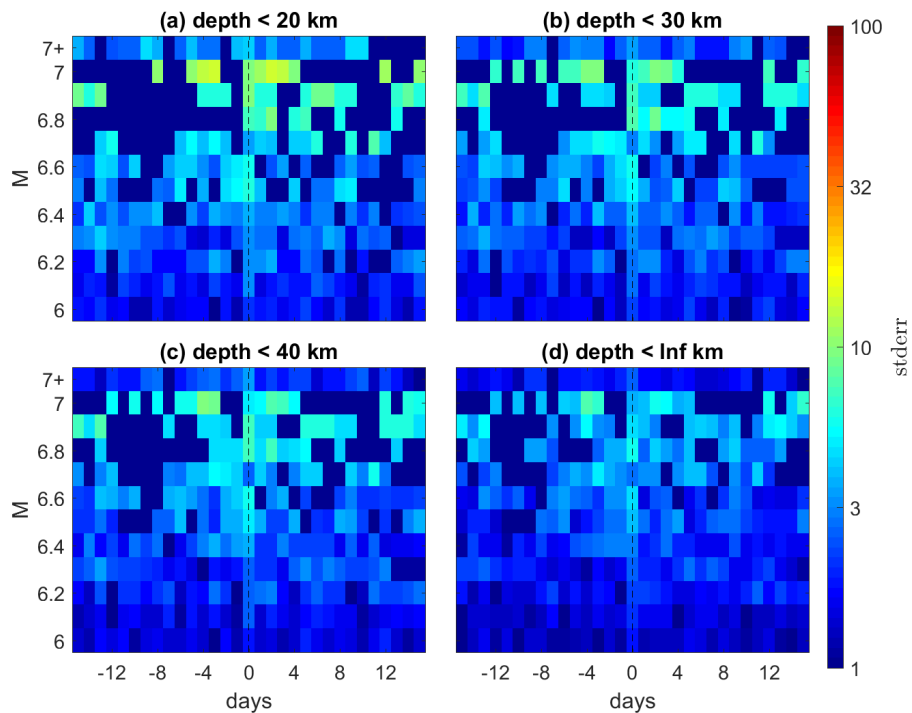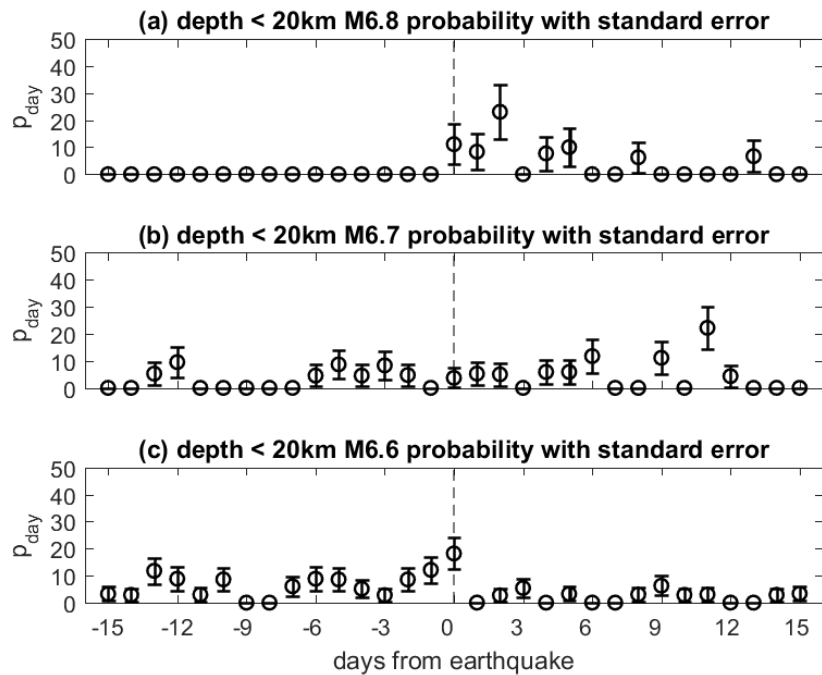**Figures S21.** Same as Figure 6 in paper, but using GIM-TEC deviations that exceed ±3σ (instead of ±2σ) and Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).

Figures S22. Same as Figure 7 in paper, but using GIM-TEC deviations that exceed ±3σ (instead of ±2σ) and Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).

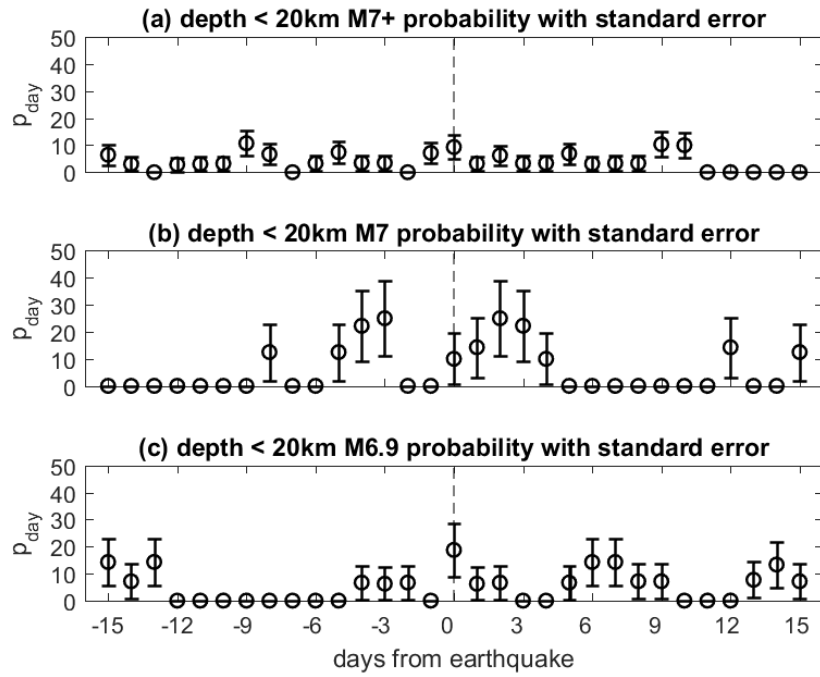**Figures S23.** Same as Figure 8 in paper, but using GIM-TEC deviations that exceed ±3σ (instead of ±2σ) and Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).

Figures S24. Same as Figure 9 in paper, but using GIM-TEC deviations that exceed ±3σ (instead of ±2σ) and Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).

Figures S25. Same as Figure 10 in paper, but using GIM-TEC deviations that exceed $\pm3\sigma$ (instead of $\pm2\sigma$) and Kp > 3 to remove GIM-TEC data related to geomagnetically disturbed days (instead of Dst criteria described in paper).
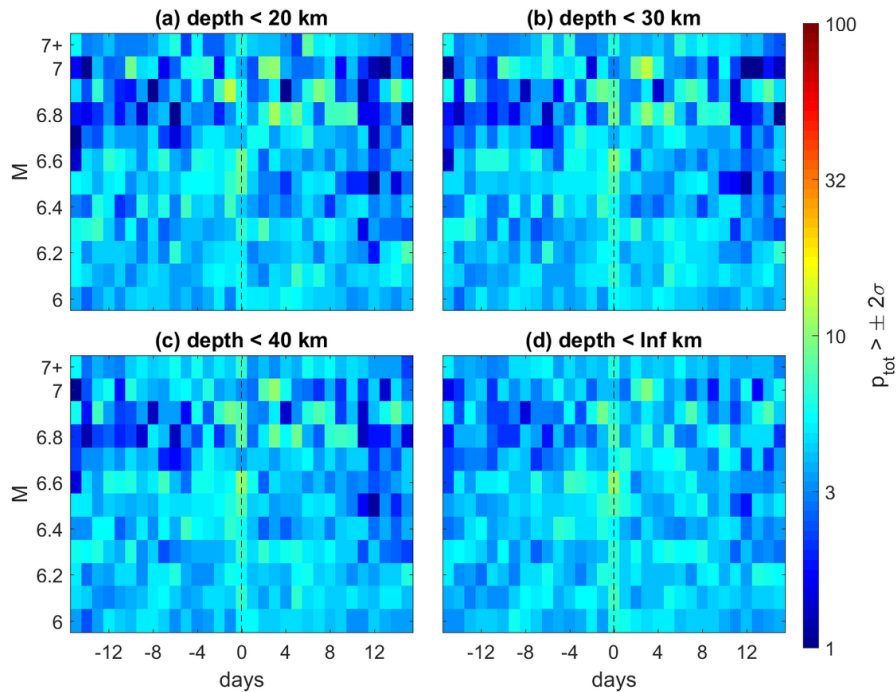

Figures S26. Same as Figure 6 in paper, but using a 24-hr notch filter rather than a 24-hr running average filter.