

Supplementary Table S1. Summarized statistics of monthly PTB cases, monthly meteorological factors in Hainan, 2004–2018

| Variables | Mean | SD | Minimum | P_{10} | P_{25} | P_{50} | P_{75} | P_{90} | Maximum |
|---------------------------------------|---------|--------|---------|----------|----------|----------|----------|----------|---------|
| Monthly PTB cases | 802 | 180.19 | 364 | 603 | 684 | 773 | 910 | 1,065 | 1,307 |
| Monthly PTB incidence (1/100 000) | 9.25 | 2.37 | 4.31 | 6.52 | 7.54 | 8.76 | 10.95 | 12.9 | 15.47 |
| Monthly average temperature (°C) | 24.23 | 4.06 | 17 | 18.4 | 19.83 | 25.05 | 28.18 | 28.89 | 30.2 |
| Monthly average air pressure (hPa) | 1010.46 | 3.66 | 999.1 | 1005.3 | 1009 | 1011 | 1012.58 | 1015.2 | 1018.6 |
| Monthly average relative humidity (%) | 78.88 | 3.49 | 68.98 | 74.6 | 76.33 | 79.2 | 81.88 | 83 | 86.8 |
| Monthly average precipitation (mm) | 117.3 | 96.09 | 1.8 | 15.51 | 36.1 | 78.95 | 191.78 | 261.53 | 401.6 |

Note. SD is standard deviation of variables, and P_{10} , P_{25} , P_{50} , P_{75} , P_{90} are the 10th, 25th, 50th, 75th, 90th percentiles of variables, respectively.

Supplementary Table S2. Spearman correlation coefficient between monthly PTB incidence and meteorological factors in Hainan, 2004–2018

| Factors | Monthly PTB incidence | Monthly average temperature | Monthly average air pressure | Monthly average relative humidity | Monthly average precipitation |
|-----------------------------------|-----------------------|-----------------------------|------------------------------|-----------------------------------|-------------------------------|
| Monthly PTB incidence | 1 | 0.24* | -0.26* | 0.15* | 0.21* |
| Monthly average temperature | | 1 | -0.71* | 0.50* | 0.81* |
| Monthly average air pressure | | | 1 | -0.26* | -0.58* |
| Monthly average relative humidity | | | | 1 | 0.60* |
| Monthly average precipitation | | | | | 1 |

Note. * $P < 0.05$.

Supplementary Table S3. The parameters determination of *lag* time and degree of freedom of *time* and natural cubic spline function

| (Lag ₁ , Lag ₂) | N | (N ₁ , N ₂) | Whether it passes the significance test of RR ₁ | Whether it passes the significance test of RR ₂ | AIC criterion |
|--|---|------------------------------------|--|--|---------------|
| (12, 12) | 6 | (2, 3) | Yes | No | 698.32 |
| (12, 12) | 6 | (3, 3) | Yes | No | 698.06 |
| (12, 12) | 6 | (2, 2) | No | No | 701.44 |
| (12, 12) | 6 | (3, 2) | No | No | 701.91 |
| (12, 12) | 7 | (2, 3) | Yes | No | 698.99 |
| (12, 12) | 7 | (3, 3) | Yes | No | 698.28 |
| (12, 12) | 7 | (2, 2) | No | No | 701.95 |
| (12, 12) | 7 | (3, 2) | No | No | 701.48 |
| (12, 11) | 6 | (2, 3) | Yes | Yes | 698.23 |
| (12, 11) | 6 | (3, 3) | Yes | Yes | 698.35 |
| (12, 11) | 6 | (2, 2) | Yes | Yes | 701.43 |
| (12, 11) | 6 | (3, 2) | Yes | Yes | 700.7 |
| (12, 11) | 7 | (2, 3) | Yes | Yes | 698.64 |
| (12, 11) | 7 | (3, 3) | Yes | Yes | 697.41 |
| (12, 11) | 7 | (2, 2) | Yes | Yes | 699.9 |
| (12, 11) | 7 | (3, 2) | Yes | Yes | 700.9 |
| (13, 11) | 6 | (2, 3) | Yes | Yes | 694.2 |
| (13, 11) | 6 | (3, 3) | Yes | Yes | 694.05 |
| (13, 11) | 6 | (2, 2) | Yes | Yes | 697.23 |
| (13, 11) | 6 | (3, 2) | Yes | Yes | 694.95 |
| (13, 11) | 7 | (2, 3) | Yes | Yes | 694.87 |
| (13, 11) | 7 | (3, 3) | Yes | Yes | 693.2 |
| (13, 11) | 7 | (2, 2) | Yes | Yes | 695.9 |
| (13, 11) | 7 | (3, 2) | Yes | Yes | 695.95 |
| (14, 11) | 6 | (2, 3) | No | Yes | 690.01 |
| (14, 11) | 6 | (3, 3) | No | Yes | 690.03 |
| (14, 11) | 6 | (2, 2) | No | Yes | 691.36 |
| (14, 11) | 6 | (3, 2) | No | Yes | 692.3 |
| (14, 11) | 7 | (2, 3) | No | Yes | 690.28 |
| (14, 11) | 7 | (3, 3) | No | No | 690.15 |
| (14, 11) | 7 | (2, 2) | No | Yes | 690.58 |
| (14, 11) | 7 | (3, 2) | No | Yes | 691.5 |

Note. Lag₁: the maximum *lag* time of average temperature. Lag₂: the maximum *lag* time of average relative humidity. N: the freedom of natural cubic spline of *time*. N₁: the degrees of freedom of the natural cubic spline function in the expose-lag dimension of cross-basis terms for average temperature. N₂: the degrees of freedom of the natural cubic spline function in the expose-lag dimension of cross-basis terms for average relative humidity. The significance test of RR₁: the significance test of delayed RR at the average temperature corresponding to the maximum RR at the maximum lag₁. The significance test of RR₂: the significance test of delayed RR of average relative humidity corresponding to the maximum RR at the maximum lag₂.

Supplementary Table S4. The parameters determination for internal knots number at equally spaced values for the natural cubic spline function in the cross-basis terms

| (M_1, M_2) | Whether it passes the significance test of RR_3 | Whether it passes the significance test of RR_4 | AIC criterion |
|--------------|---|---|---------------|
| (2, 3) | Yes | Yes | 693.2 |
| (2, 2) | Yes | No | 695.5 |
| (3, 2) | Yes | No | 694.21 |
| (3, 3) | Yes | No | 692.55 |

Note. M_1 : the number of internal knots at equally spaced values for the natural cubic spline function in the cross-basis terms of average temperature. M_2 : the number of internal knots at equally spaced values for the natural cubic spline function in the cross-basis terms of average relative humidity. The significance test of RR_3 : the significance test of delayed RR at the average temperature corresponding to the maximum RR at the maximum lag 13. The significance test of RR_4 : the significance test of delayed RR of average relative humidity corresponding to the maximum RR at the maximum 11.

Supplementary Table S5. The RR (95% CI) of monthly average temperature on the PTB incidence at different lag months

| TM (°C) | lag0 | lag1 | lag2 | lag3 | lag4 | lag5 | lag6 | lag7 | lag8 | lag9 | lag10 | lag11 | lag12 | lag13 |
|------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 17 | 1.08 (0.91, 1.29) | 1.16 (0.99, 1.35) | 1.24 (1.07, 1.44) | 1.32 (1.13, 1.55) | 1.4 (1.18, 1.66) | 1.46 (1.21, 1.76) | 1.51 (1.24, 1.84) | 1.53 (1.25, 1.87) | 1.53 (1.26, 1.86) | 1.51 (1.25, 1.81) | 1.47 (1.24, 1.75) | 1.43 (1.21, 1.68) | 1.37 (1.17, 1.61) | 1.32 (1.11, 1.56) |
| | 1.06 (0.92, 1.23) | 1.12 (0.99, 1.27) | 1.18 (1.05, 1.33) | 1.24 (1.09, 1.41) | 1.29 (1.13, 1.49) | 1.34 (1.15, 1.56) | 1.37 (1.17, 1.62) | 1.37 (1.18, 1.64) | 1.39 (1.18, 1.64) | 1.38 (1.18, 1.61) | 1.36 (1.18, 1.57) | 1.33 (1.16, 1.53) | 1.3 (1.13, 1.49) | 1.26 (1.09, 1.46) |
| 18 | 1.06 (0.92, 1.05) | 1.12 (0.99, 1.27) | 1.18 (1.05, 1.33) | 1.24 (1.09, 1.41) | 1.29 (1.13, 1.49) | 1.34 (1.15, 1.56) | 1.37 (1.17, 1.62) | 1.37 (1.18, 1.64) | 1.39 (1.18, 1.64) | 1.38 (1.18, 1.61) | 1.36 (1.18, 1.57) | 1.33 (1.16, 1.53) | 1.3 (1.13, 1.49) | 1.26 (1.09, 1.46) |
| | 1.05 (0.93, 1.09) | 1.09 (0.98, 1.21) | 1.13 (1.02, 1.25) | 1.17 (1.05, 1.30) | 1.2 (1.08, 1.35) | 1.23 (1.07, 1.41) | 1.26 (1.09, 1.45) | 1.26 (1.10, 1.47) | 1.27 (1.11, 1.47) | 1.27 (1.11, 1.46) | 1.26 (1.11, 1.43) | 1.25 (1.11, 1.41) | 1.23 (1.09, 1.39) | 1.21 (1.06, 1.38) |
| 19 | 1.03 (0.93, 1.03) | 1.06 (0.92, 1.06) | 1.08 (0.96, 1.17) | 1.11 (1.00, 1.19) | 1.13 (1.01, 1.22) | 1.15 (1.01, 1.26) | 1.16 (1.02, 1.29) | 1.16 (1.03, 1.32) | 1.17 (1.03, 1.34) | 1.18 (1.04, 1.34) | 1.18 (1.05, 1.33) | 1.17 (1.05, 1.32) | 1.17 (1.04, 1.30) | 1.16 (1.03, 1.31) |
| | 1.03 (0.92, 1.02) | 1.06 (0.92, 1.06) | 1.08 (0.96, 1.17) | 1.11 (1.00, 1.19) | 1.13 (1.01, 1.22) | 1.15 (1.01, 1.26) | 1.16 (1.02, 1.29) | 1.16 (1.03, 1.32) | 1.17 (1.03, 1.34) | 1.18 (1.04, 1.34) | 1.18 (1.05, 1.33) | 1.17 (1.05, 1.32) | 1.17 (1.04, 1.30) | 1.16 (1.03, 1.31) |
| 20 | 1.02 (0.92, 1.02) | 1.03 (0.92, 1.03) | 1.05 (0.96, 1.05) | 1.06 (0.96, 1.05) | 1.07 (0.96, 1.07) | 1.08 (0.96, 1.07) | 1.09 (0.96, 1.07) | 1.09 (0.97, 1.07) | 1.09 (0.97, 1.07) | 1.1 (0.98, 1.07) | 1.11 (0.99, 1.07) | 1.11 (1.00, 1.24) | 1.11 (1.00, 1.24) | 1.12 (1.00, 1.25) |
| | 1.01 (0.92, 1.01) | 1.02 (0.92, 1.02) | 1.02 (0.96, 1.02) | 1.03 (0.96, 1.03) | 1.03 (0.96, 1.03) | 1.04 (0.96, 1.03) | 1.04 (0.96, 1.03) | 1.04 (0.97, 1.03) | 1.05 (0.97, 1.04) | 1.05 (0.97, 1.04) | 1.06 (0.97, 1.05) | 1.07 (0.97, 1.05) | 1.08 (0.97, 1.04) | 1.08 (0.97, 1.04) |
| 21 | 1.02 (0.92, 1.02) | 1.03 (0.94, 1.14) | 1.05 (0.95, 1.15) | 1.06 (0.96, 1.17) | 1.07 (0.96, 1.17) | 1.08 (0.96, 1.19) | 1.09 (0.96, 1.21) | 1.09 (0.96, 1.23) | 1.09 (0.97, 1.24) | 1.1 (0.97, 1.24) | 1.11 (0.97, 1.24) | 1.11 (0.98, 1.24) | 1.11 (0.98, 1.24) | 1.12 (0.98, 1.25) |
| | 1.01 (0.92, 1.01) | 1.02 (0.92, 1.02) | 1.02 (0.96, 1.02) | 1.03 (0.96, 1.03) | 1.03 (0.96, 1.03) | 1.04 (0.96, 1.03) | 1.04 (0.96, 1.03) | 1.04 (0.97, 1.03) | 1.05 (0.97, 1.04) | 1.05 (0.97, 1.04) | 1.06 (0.97, 1.05) | 1.07 (0.97, 1.05) | 1.08 (0.97, 1.05) | 1.08 (0.97, 1.05) |
| 22 | 1.01 (0.92, 1.01) | 1.02 (0.92, 1.02) | 1.02 (0.96, 1.02) | 1.03 (0.96, 1.03) | 1.03 (0.96, 1.03) | 1.04 (0.96, 1.03) | 1.04 (0.96, 1.03) | 1.04 (0.97, 1.03) | 1.05 (0.97, 1.04) | 1.05 (0.97, 1.04) | 1.05 (0.98, 1.04) | 1.06 (0.98, 1.04) | 1.07 (0.98, 1.04) | 1.08 (0.98, 1.04) |
| | 1.00 (0.92, 1.00) | 1.00 (0.92, 1.00) | 1.00 (0.96, 1.00) | 1.00 (0.96, 1.00) | 1.00 (0.96, 1.00) | 1.00 (0.96, 1.00) | 1.00 (0.96, 1.00) | 1.00 (0.97, 1.00) | 1.01 (0.97, 1.01) | 1.01 (0.97, 1.01) | 1.02 (0.97, 1.02) | 1.03 (0.97, 1.02) | 1.04 (0.97, 1.02) | 1.05 (0.97, 1.02) |
| 23 | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.09) | 1.00 (0.94, 1.09) | 1.00 (0.94, 1.10) | 1.00 (0.94, 1.10) | 1.00 (0.94, 1.10) | 1.00 (0.94, 1.11) | 1.00 (0.94, 1.11) | 1.00 (0.94, 1.12) |
| | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.09) | 1.00 (0.94, 1.09) | 1.00 (0.94, 1.10) | 1.00 (0.94, 1.10) | 1.00 (0.94, 1.10) | 1.00 (0.94, 1.11) | 1.00 (0.94, 1.12) | 1.00 (0.94, 1.13) |
| 24 | 1.00 (0.96, 1.04) | 1.00 (0.96, 1.05) | 1.00 (0.96, 1.05) | 1.00 (0.96, 1.05) | 1.00 (0.96, 1.05) | 1.00 (0.96, 1.05) |
| | 1.00 (0.96, 1.04) |
| 25 | 1 (1, 1) |
| | 1.00 (1, 1) | 1.00 (1, 1) | 1.01 (1, 1) | 1.00 (1, 1) | 0.99 (1, 1) | 0.98 (1, 1) | 0.98 (1, 1) |
| 26 | 1.00 (0.97, 1.03) | 1.00 (0.97, 1.03) | 1.01 (0.98, 1.04) | 1.01 (0.98, 1.04) | 1.01 (0.98, 1.04) | 1.01 (0.98, 1.04) | 1.01 (0.98, 1.05) | 1.01 (0.98, 1.05) | 1.01 (0.97, 1.05) | 1.01 (0.97, 1.04) | 1.01 (0.97, 1.04) | 1.02 (0.97, 1.03) | 1.02 (0.97, 1.01) | 1.01 (0.95, 1.01) |
| | 1.00 (0.97, 1.03) | 1.00 (0.97, 1.03) | 1.01 (0.98, 1.04) | 1.01 (0.98, 1.04) | 1.01 (0.98, 1.04) | 1.01 (0.98, 1.04) | 1.01 (0.98, 1.04) | 1.01 (0.98, 1.04) | 1.01 (0.97, 1.04) | 1.01 (0.97, 1.04) | 1.01 (0.97, 1.04) | 1.01 (0.97, 1.04) | 1.01 (0.97, 1.04) | 1.01 (0.97, 1.04) |
| 27 | 1.00 (0.94, 1.06) | 1.00 (0.94, 1.06) | 1.01 (0.95, 1.07) | 1.01 (0.95, 1.07) | 1.02 (0.95, 1.08) | 1.02 (0.95, 1.08) | 1.03 (0.95, 1.09) | 1.03 (0.95, 1.09) | 1.03 (0.95, 1.09) | 1.02 (0.95, 1.08) | 1.01 (0.95, 1.07) | 0.99 (0.95, 1.04) | 0.98 (0.95, 1.04) | 0.97 (0.95, 1.04) |
| | 1.00 (0.94, 1.08) | 1.00 (0.94, 1.08) | 1.01 (0.95, 1.09) | 1.01 (0.95, 1.09) | 1.02 (0.95, 1.10) | 1.02 (0.95, 1.10) | 1.03 (0.95, 1.10) | 1.03 (0.95, 1.10) | 1.03 (0.95, 1.10) | 1.02 (0.95, 1.10) | 1.01 (0.95, 1.10) | 0.99 (0.95, 1.06) | 0.98 (0.95, 1.06) | 0.97 (0.95, 1.06) |
| 28 | 1.00 (0.92, 1.08) | 1.00 (0.92, 1.08) | 1.01 (0.94, 1.09) | 1.01 (0.94, 1.09) | 1.02 (0.94, 1.10) | 1.02 (0.94, 1.10) | 1.03 (0.94, 1.11) | 1.03 (0.94, 1.11) | 1.04 (0.94, 1.11) | 1.04 (0.94, 1.11) | 1.04 (0.94, 1.10) | 1.03 (0.94, 1.10) | 1.03 (0.94, 1.06) | 1.02 (0.94, 1.06) |
| | 1.00 (0.92, 1.08) | 1.00 (0.92, 1.08) | 1.01 (0.94, 1.09) | 1.01 (0.94, 1.09) | 1.02 (0.94, 1.10) | 1.02 (0.94, 1.10) | 1.03 (0.94, 1.11) | 1.03 (0.94, 1.11) | 1.04 (0.94, 1.11) | 1.04 (0.94, 1.11) | 1.04 (0.94, 1.10) | 1.03 (0.94, 1.10) | 1.03 (0.94, 1.06) | 1.02 (0.94, 1.06) |
| 29 | 1.00 (0.9, 1.10) | 1.00 (0.9, 1.10) | 1.01 (0.93, 1.11) | 1.01 (0.93, 1.11) | 1.02 (0.93, 1.12) | 1.02 (0.93, 1.12) | 1.03 (0.93, 1.13) | 1.03 (0.93, 1.13) | 1.04 (0.93, 1.12) | 1.04 (0.93, 1.12) | 1.04 (0.93, 1.11) | 1.03 (0.93, 1.11) | 1.03 (0.93, 1.06) | 1.02 (0.93, 1.06) |
| | 1.00 (0.9, 1.10) | 1.00 (0.9, 1.10) | 1.01 (0.93, 1.11) | 1.01 (0.93, 1.11) | 1.02 (0.93, 1.12) | 1.02 (0.93, 1.12) | 1.03 (0.93, 1.13) | 1.03 (0.93, 1.13) | 1.04 (0.93, 1.12) | 1.04 (0.93, 1.12) | 1.04 (0.93, 1.11) | 1.03 (0.93, 1.11) | 1.03 (0.93, 1.06) | 1.02 (0.93, 1.06) |
| 30 | 1.00 (0.87, 1.13) | 1.00 (0.87, 1.13) | 1.01 (0.91, 1.13) | 1.01 (0.91, 1.13) | 1.02 (0.94, 1.14) | 1.02 (0.94, 1.14) | 1.03 (0.94, 1.15) | 1.03 (0.94, 1.15) | 1.04 (0.94, 1.14) | 1.04 (0.94, 1.14) | 1.04 (0.94, 1.12) | 1.03 (0.94, 1.12) | 1.03 (0.94, 1.07) | 1.02 (0.94, 1.07) |
| | 1.00 (0.87, 1.13) | 1.00 (0.87, 1.13) | 1.01 (0.91, 1.13) | 1.01 (0.91, 1.13) | 1.02 (0.94, 1.14) | 1.02 (0.94, 1.14) | 1.03 (0.94, 1.15) | 1.03 (0.94, 1.15) | 1.04 (0.94, 1.14) | 1.04 (0.94, 1.14) | 1.04 (0.94, 1.12) | 1.03 (0.94, 1.12) | 1.03 (0.94, 1.07) | 1.02 (0.94, 1.07) |

Note. * P -value < 0.05 , and TM is the monthly average temperature.

Supplementary Table S6. The cumulative *RRs* (95% *CI*) of monthly average temperature and monthly average relative humidity on the PTB incidence by different lag period

| Average temperature (°C) | | | Average relative humidity (%) | | |
|--------------------------|-------|------------------------|-------------------------------|-------|--------------------|
| Lag | Value | RR (95% CI) | Lag | Value | RR (95% CI) |
| lag0-3 | 17 | 2.06 (1.13, 3.74)* | lag0-3 | 73.00 | 1.28 (1.05, 1.57)* |
| lag0-6 | 17 | 6.32 (2.22, 18.01)* | lag0-6 | 73.00 | 1.79 (1.26, 2.53)* |
| lag0-9 | 17 | 22.31 (4.85, 102.70)* | lag0-9 | 73.00 | 2.40 (1.49, 3.87)* |
| lag0-13 | 17 | 85.01 (12.11, 596.83)* | lag0-11 | 73.00 | 2.72 (1.58, 4.67)* |
| lag0-3 | 18.09 | 1.73 (1.08, 2.77)* | lag0-3 | 74.24 | 1.20 (0.99, 1.45) |
| lag0-6 | 18.09 | 4.02 (1.76, 9.15)* | lag0-6 | 74.24 | 1.79 (1.28, 2.50)* |
| lag0-9 | 18.09 | 10.51 (3.12, 35.40)* | lag0-9 | 74.24 | 2.56 (1.60, 4.10)* |
| lag0-13 | 18.09 | 30.64 (6.28, 149.50)* | lag0-11 | 74.24 | 2.93 (1.71, 5.01)* |

Note. * *P*-value < 0.05.

Supplementary Table S7. The *RRs* (95% *CI*) of monthly average temperature and monthly average relative humidity on the PTB incidence at different lag months

| Lag | Average temperature (°C) | | Average relative humidity (%) | |
|-------|--------------------------|--------------------|-------------------------------|--------------------|
| | 17.00 | 18.09 | 73.00 | 74.24 |
| lag0 | 1.08 (0.91, 1.29) | 1.06 (0.92, 1.22) | 1.03 (0.98, 1.09) | 0.99 (0.94, 1.05) |
| lag1 | 1.16 (0.99, 1.35) | 1.12 (0.99, 1.27) | 1.05 (1.00, 1.11)* | 1.03 (0.98, 1.08) |
| lag2 | 1.24 (1.07, 1.44)* | 1.18 (1.05, 1.32)* | 1.08 (1.02, 1.13)* | 1.07 (1.02, 1.12)* |
| lag3 | 1.32 (1.13, 1.55)* | 1.23 (1.09, 1.39)* | 1.09 (1.04, 1.15)* | 1.10 (1.05, 1.16)* |
| lag4 | 1.40 (1.18, 1.66)* | 1.29 (1.12, 1.47)* | 1.11 (1.05, 1.17)* | 1.13 (1.07, 1.19)* |
| lag5 | 1.46 (1.21, 1.76)* | 1.33 (1.14, 1.54)* | 1.12 (1.06, 1.18)* | 1.14 (1.08, 1.21)* |
| lag6 | 1.51 (1.24, 1.84)* | 1.36 (1.16, 1.60)* | 1.12 (1.06, 1.18)* | 1.15 (1.09, 1.22)* |
| lag7 | 1.53 (1.25, 1.87)* | 1.38 (1.17, 1.62)* | 1.12 (1.06, 1.17)* | 1.15 (1.08, 1.21)* |
| lag8 | 1.53 (1.26, 1.86)* | 1.38 (1.18, 1.62)* | 1.11 (1.05, 1.16)* | 1.13 (1.07, 1.19)* |
| lag9 | 1.51 (1.25, 1.81)* | 1.37 (1.18, 1.60)* | 1.09 (1.04, 1.14)* | 1.11 (1.06, 1.16)* |
| lag10 | 1.47 (1.24, 1.75)* | 1.35 (1.17, 1.56)* | 1.07 (1.02, 1.12)* | 1.08 (1.03, 1.13)* |
| lag11 | 1.43 (1.21, 1.68)* | 1.32 (1.16, 1.52)* | 1.05 (1.00, 1.11)* | 1.05 (1.00, 1.11)* |
| lag12 | 1.37 (1.17, 1.61)* | 1.29 (1.13, 1.48)* | – | – |
| lag13 | 1.32 (1.11, 1.56)* | 1.26 (1.09, 1.46)* | – | – |

Note. * *P*-value < 0.05.

Supplementary Table S8. The RR (95% CI) of monthly average relative humidity on the PTB incidence at different lag months

| RH (%) | lag0 | lag1 | lag2 | lag3 | lag4 | lag5 | lag6 | lag7 | lag8 | lag9 | lag10 | lag11 |
|--------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| 68.98 | 1.24 (1.06, 1.45) [*] | 1.16 (1.02, 1.31) [*] | 1.08 (0.97, 1.2) | 1.02 (0.93, 1.12) | 0.97 (0.89, 1.06) | 0.94 (0.85, 1.03) | 0.92 (0.84, 1.01) | 0.92 (0.85, 1) | 0.93 (0.87, 1.01) | 0.96 (0.89, 1.04) | 0.99 (0.9, 1.04) | 1.03 (0.91, 1.16) |
| 69.98 | 1.18 (1.05, 1.33) [*] | 1.13 (1.02, 1.25) [*] | 1.08 (0.99, 1.18) | 1.04 (0.97, 1.12) | 1.01 (0.94, 1.09) | 0.99 (0.92, 1.06) | 0.98 (0.91, 1.05) | 0.97 (0.91, 1.04) | 0.98 (0.92, 1.04) | 1 (0.93, 1.06) | 1.01 (0.94, 1.09) | 1.04 (0.94, 1.14) |
| 70.98 | 1.12 (1.02, 1.23) [*] | 1.1 (1.02, 1.19) [*] | 1.08 (1.01, 1.16) [*] | 1.06 (1, 1.13) [*] | 1.05 (0.99, 1.11) | 1.04 (0.98, 1.1) | 1.03 (0.97, 1.09) | 1.03 (0.97, 1.08) | 1.03 (0.98, 1.08) | 1.03 (0.98, 1.09) | 1.04 (0.98, 1.1) | 1.04 (0.97, 1.12) |
| 71.98 | 1.07 (1.00, 1.15) [*] | 1.08 (1.02, 1.15) [*] | 1.08 (1.01, 1.14) [*] | 1.08 (1.02, 1.14) [*] | 1.08 (1.03, 1.14) [*] | 1.08 (1.03, 1.14) [*] | 1.08 (1.03, 1.14) [*] | 1.08 (1.02, 1.13) [*] | 1.08 (1.02, 1.12) [*] | 1.08 (1.02, 1.11) [*] | 1.08 (1.01, 1.11) | 1.05 (0.99, 1.11) |
| 72.98 | 1.03 (0.98, 1.09) | 1.05 (1.00, 1.11) [*] | 1.08 (1.02, 1.13) [*] | 1.09 (1.04, 1.15) [*] | 1.11 (1.05, 1.17) [*] | 1.12 (1.06, 1.18) [*] | 1.12 (1.06, 1.18) [*] | 1.12 (1.06, 1.17) [*] | 1.11 (1.05, 1.16) [*] | 1.09 (1.04, 1.14) [*] | 1.07 (1.02, 1.12) [*] | 1.05 (1, 1.11) [*] |
| 73.98 | 1.00 (0.95, 1.05) | 1.04 (0.99, 1.09) | 1.07 (1.02, 1.12) [*] | 1.1 (1.05, 1.16) [*] | 1.13 (1.07, 1.19) [*] | 1.14 (1.08, 1.21) [*] | 1.14 (1.08, 1.21) [*] | 1.14 (1.08, 1.21) [*] | 1.13 (1.08, 1.21) [*] | 1.11 (1.07, 1.16) [*] | 1.09 (1.06, 1.16) [*] | 1.05 (1.03, 1.13) [*] |
| 74.98 | 0.98 (0.93, 1.03) | 1.02 (0.97, 1.07) | 1.06 (1.01, 1.11) [*] | 1.1 (1.04, 1.15) [*] | 1.13 (1.07, 1.19) [*] | 1.15 (1.08, 1.21) [*] | 1.15 (1.09, 1.22) [*] | 1.15 (1.09, 1.21) [*] | 1.15 (1.08, 1.21) [*] | 1.13 (1.08, 1.19) [*] | 1.11 (1.06, 1.16) [*] | 1.08 (1.03, 1.13) [*] |
| 75.98 | 0.97 (0.93, 1.02) | 1.01 (0.97, 1.05) | 1.05 (1.01, 1.09) [*] | 1.08 (1.04, 1.13) [*] | 1.11 (1.06, 1.16) [*] | 1.13 (1.07, 1.19) [*] | 1.13 (1.08, 1.19) [*] | 1.13 (1.08, 1.19) [*] | 1.12 (1.07, 1.17) [*] | 1.1 (1.05, 1.14) [*] | 1.07 (1.03, 1.12) [*] | 1.04 (1, 1.09) [*] |
| 76.98 | 0.97 (0.94, 1.01) | 1.00 (0.97, 1.03) | 1.03 (1, 1.06) [*] | 1.05 (1.02, 1.08) [*] | 1.07 (1.04, 1.11) [*] | 1.09 (1.05, 1.13) [*] | 1.09 (1.05, 1.13) [*] | 1.09 (1.05, 1.13) [*] | 1.08 (1.05, 1.11) [*] | 1.07 (1.05, 1.11) [*] | 1.05 (1.02, 1.08) [*] | 1.03 (1, 1.07) [*] |
| 77.98 | 0.99 (0.97, 1.00) | 1.01 (0.99, 1.01) | 1.02 (1, 1.02) [*] | 1.03 (1.01, 1.04) [*] | 1.05 (1.01, 1.05) [*] | 1.07 (1.02, 1.05) [*] | 1.07 (1.02, 1.06) [*] | 1.07 (1.02, 1.06) [*] | 1.06 (1.02, 1.05) [*] | 1.05 (1.02, 1.04) [*] | 1.04 (1.02, 1.04) [*] | 1.03 (1, 1.03) [*] |
| 78.98 | 1 (1, 1) |
| 79.98 | 1.00 (0.99, 1.01) | 1.00 (0.99, 1.01) | 1.00 (1.00, 1.01) | 1.00 (1.00, 1.01) | 1.00 (1, 1.01) |
| 80.98 | 0.98 (0.97, 1.02) | 1.00 (0.98, 1.02) | 1.02 (1.00, 1.03) | 1.04 (1.00, 1.04) | 1.05 (1.04, 1.04) [*] | 1.05 (1.05, 1.05) [*] | 1.05 (1.04, 1.04) [*] | 1.05 (1.04, 1.04) [*] | 1.04 (1.04, 1.04) [*] | 1.03 (1.03, 1.04) [*] | 1.02 (1.02, 1.04) [*] | 1.00 (1, 1.01) [*] |
| 81.98 | 0.97 (0.95, 1.02) | 1.00 (0.97, 1.03) | 1.03 (1, 1.05) | 1.05 (1.01, 1.06) [*] | 1.06 (1.02, 1.08) [*] | 1.08 (1.03, 1.08) [*] | 1.08 (1.03, 1.08) [*] | 1.08 (1.03, 1.08) [*] | 1.07 (1.02, 1.07) | 1.05 (1.01, 1.05) | 1.03 (1.01, 1.03) | 1.00 (1.02, 1.00) [*] |
| 82.98 | 0.97 (0.93, 1.02) | 1.00 (0.97, 1.04) | 1.03 (1, 1.06) | 1.05 (1.02, 1.08) [*] | 1.06 (1.03, 1.09) [*] | 1.07 (1.04, 1.1) [*] | 1.07 (1.04, 1.1) [*] | 1.07 (1.04, 1.1) [*] | 1.06 (1.03, 1.08) | 1.06 (1.01, 1.08) | 1.03 (1.01, 1.03) | 1.00 (1.01, 1.02) [*] |
| 83.98 | 0.96 (0.92, 1.01) | 0.99 (0.96, 1.03) | 1.02 (0.99, 1.05) | 1.04 (1.02, 1.08) [*] | 1.05 (1.04, 1.1) [*] | 1.11 (1.11, 1.11) [*] | 1.11 (1.11, 1.11) [*] | 1.11 (1.11, 1.11) [*] | 1.08 (1.02, 1.08) | 1.06 (1.00, 1.06) | 1.02 (1.02, 1.06) | 0.97 (0.92, 0.97) [*] |
| 84.98 | 0.95 (0.9, 1.01) | 0.99 (0.94, 1.03) | 1.02 (0.98, 1.05) | 1.04 (1.01, 1.08) [*] | 1.05 (1.03, 1.1) [*] | 1.11 (1.11, 1.11) [*] | 1.11 (1.11, 1.11) [*] | 1.11 (1.11, 1.11) [*] | 1.08 (1.02, 1.08) | 1.05 (1.01, 1.05) | 1.02 (1.02, 1.05) | 0.93 (0.88, 0.93) [*] |
| 85.98 | 0.94 (0.88, 1.02) | 0.98 (0.92, 1.03) | 1.01 (0.96, 1.06) | 1.04 (0.99, 1.08) | 1.05 (1, 1.1) [*] | 1.06 (1.01, 1.12) [*] | 1.06 (1.00, 1.11) | 1.05 (1.00, 1.11) | 1.03 (1.00, 1.08) | 0.99 (0.94, 1.05) | 0.95 (0.94, 1.05) | 0.91 (0.84, 0.95) [*] |

Note. *P-value<0.05, and RH is the monthly average relative humidity.