**Epidemiology and Infection**

**Association between meteorological factors and reported cases of hand, foot, and mouth disease from 2000 to 2015 in Japan**

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**SUPPLEMENTARY MATERIAL**

# Supplementary Table S1 Meteorological parameters used for examining the relationship with weekly HFMD data

|  |  |  |
| --- | --- | --- |
| Meteorological parameters  | Mathematical calculation | Unit |
| Average temperature (T{A}) | Weekly average of daily average temperature | °C |
| Maximum temperature (T{M}) | Weekly average of daily maximum temperature | °C |
| Minimum temperature (T{m}) | Weekly average of daily minimum temperature | °C |
| Relative humidity (RH) | Weekly average of daily relative humidity | % |
| Total rainfall (RF) | Weekly summation of daily rainfall | mm |

# Supplementary Table S2 Two periodic modes used for the optimum LSF curves (XT{A}(*Temp*), XT{M}(*Temp*), XT{m}(*Temp*), and XRH(*h*))

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 　 | Perfectures | *f \** |  |  |  |  |  |
| XT{A}(*Temp*) | Hokkaido | 0.018,  | 0.044  |  |  |  |  |  |
|  | Miyagi | 0.022,  | 0.057  |  |  |  |  |  |
|  | Tokyo | 0.023,  | 0.052  |  |  |  |  |  |
|  | Nagano | 0.019,  | 0.047  |  |  |  |  |  |
|  | Kyoto | 0.023,  | 0.053  |  |  |  |  |  |
|  | Kochi | 0.024,  | 0.049  |  |  |  |  |  |
|  | Fukuoka | 0.022,  | 0.057  |  |  |  |  |  |
|  | Okinawa | 0.043,  | 0.108  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| XT{M}(*Temp*) | Hokkaido | 0.018,  | 0.042  |  |  |  |  |  |
|  | Miyagi | 0.021,  | 0.057  |  |  |  |  |  |
|  | Tokyo | 0.022,  | 0.049  |  |  |  |  |  |
|  | Nagano | 0.019,  | 0.047  |  |  |  |  |  |
|  | Kyoto | 0.019,  | 0.041  |  |  |  |  |  |
|  | Kochi | 0.024,  | 0.050  |  |  |  |  |  |
|  | Fukuoka | 0.020,  | 0.047  |  |  |  |  |  |
|  | Okinawa | 0.040  | 0.108  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| XT{m}(*Temp*) | Hokkaido | 0.016,  | 0.037  |  |  |  |  |  |
|  | Miyagi | 0.021,  | 0.054  |  |  |  |  |  |
|  | Tokyo | 0.022,  | 0.050  |  |  |  |  |  |
|  | Nagano | 0.019,  | 0.053  |  |  |  |  |  |
|  | Kyoto | 0.029,  | 0.054  |  |  |  |  |  |
|  | Kochi | 0.022,  | 0.055  |  |  |  |  |  |
|  | Fukuoka | 0.020,  | 0.059  |  |  |  |  |  |
|  | Okinawa | 0.038,  | 0.159  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| XRH(*h*) | Hokkaido | 0.014,  | 0.033  |  |  |  |  |  |
|  | Miyagi | 0.011,  | 0.029  |  |  |  |  |  |
|  | Tokyo | 0.012,  | 0.055  |  |  |  |  |  |
|  | Nagano | 0.014,  | 0.053  |  |  |  |  |  |
|  | Kyoto | 0.014,  | 0.056  |  |  |  |  |  |
|  | Kochi | 0.013,  | 0.061  |  |  |  |  |  |
|  | Fukuoka | 0.014,  | 0.066  |  |  |  |  |  |
|  | Okinawa | 0.015,  | 0.047  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| XRF(*r*) | Hokkaido | 0.004, | 0.014  |  |  |  |  |  |
|  | Miyagi | 0.002, | 0.005  |  |  |  |  |  |
|  | Tokyo | 0.002, | 0.004  |  |  |  |  |  |
|  | Nagano | 0.004, | 0.012  |  |  |  |  |  |
|  | Kyoto | 0.003, | 0.007 |  |  |  |  |  |
|  | Kochi | 0.002, | 0.005  |  |  |  |  |  |
|  | Fukuoka | 0.002, | 0.004  |  |  |  |  |  |
|  | Okinawa | 0.002, | 0.005  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| \* unit of *f*: 1/*Temp* for XT{A}(*Temp*), XT{M}(*Temp*) and XT{m}(*Temp*), 1/*h* for XRH(*h*), and 1/*r* for XRF(*r*)  |

# Supplementary Table S3 Values of mean, standard deviation (SD), and SD/mean for yearly temperature (a), and yearly incidence rate of HFMD (b) during 2000–2015 for eight prefectures in Japan

|  |  |  |  |
| --- | --- | --- | --- |
|  | *a*. Yearly temperature |  | *b*. Yearly incidence rate |
| mean (℃) | SD (℃) | SD/mean |  | mean (per 100,000 population) | SD (per 100,000 population) | SD/mean |
| Hokkaido | 9.31  | 0.40  | 0.04  |  | 0.81  | 0.48  | 0.59  |
| Miyagi | 12.80  | 0.43  | 0.03  |  | 1.09  | 0.89  | 0.81  |
| Tokyo | 16.66  | 0.40  | 0.02  |  | 0.85  | 0.68  | 0.80  |
| Nagano | 12.27  | 0.33  | 0.03  |  | 1.05  | 0.69  | 0.65  |
| Kyoto | 16.20  | 0.32  | 0.02  |  | 0.70  | 0.61  | 0.87  |
| Kochi | 17.37  | 0.33  | 0.02  |  | 0.86  | 0.65  | 0.76  |
| Fukuoka | 17.36  | 0.31  | 0.02  |  | 1.45  | 1.11  | 0.76  |
| Okinawa | 23.28  | 0.22  | 0.01  |  | 0.97  | 0.45  | 0.46  |

# Supplementary Figure S1 Average HFMD infection occurrence against maximum temperature (T{M}), *N*T{M}, and its LSF curve, *X*T{M}(*Temp*). *X*T{M}(*Temp*), solid line; *N*T{M}, dashed line



# Supplementary Figure S2 Average HFMD infection occurrence against minimum temperature (T{m}), *N*T{m}, and its LSF curve, *X*T{m}(*Temp*). *X*T{m}(*Temp*), solid line; *N*T{m}, dashed line



**Supplementary Figure S3 Comparison of the least squares fitting curve (solid line) with the original monthly data (dashed line) for Fukuoka Prefecture**