Appendix

(a) Formula of shading-wire-nets house nowcast (Forward selection):

$$
\begin{aligned}
Y = {} & (2655)\text{Air temperature} + (-187)\text{Air temperature}^2 + (6.52)\text{Air temperature}^3 \\
& + (-0.113)\text{Air temperature}^4 + (7.77 \times 10^{-4})\text{Air temperature}^5 \\
& + (-0.493)\text{Humidity} + (4.88 \times 10^{-3})\text{Humidity}^2 \\
& + (-1.18 \times 10^{-9})\text{Humidity}^5 + (22.2)\text{Solar radiation(kW)}^2 \\
& + (-22.1)\text{Solar radiation(kW)}^5 \\
& + (-24.8)\text{Solar radiation(MJ)} + (-617)\text{Solar radiation(MJ)}^3 \\
& + (1.05 \times 10^4)\text{Solar radiation(MJ)}^5 + (319)\text{Volumetric water content} \\
& + (-5982)\text{Volumetric water content}^3 \\
& + (1.51 \times 10^4)\text{Volumetric water content}^4 + (-8263)\text{Volumetric water content}^5 \\
& + (-1197)\text{Soil electrical conductivity} \\
& + (1.07 \times 10^4)\text{Soil electrical conductivity}^2 \\
& + (3.38 \times 10^4)\text{Soil electrical conductivity}^3 \\
& + (1.13 \times 10^5)\text{Soil electrical conductivity}^5 + (-55)\text{Soil temperature} \\
& + (4.37)\text{Soil temperature}^2 \\
& + (-0.161)\text{Soil temperature}^3 + (2.85 \times 10^{-3})\text{Soil temperature}^4 \\
& + (-1.96 \times 10^{-5})\text{Soil temperature}^5 - 1471
\end{aligned}
$$

(b) Formula of insect-wire-nets house nowcast (Forward selection):

$$
\begin{aligned}
&Y \\
&= (455)\text{Air temperature} + (-1.25)\text{Air temperature}^3 \\
&+ (0.0460)\text{Air temperature}^4 + (-5.05 \times 10^{-4})\text{Air temperature}^5 \\
&+ (222)\text{Humidity} + (-6.21)\text{Humidity}^2 + (0.0860)\text{Humidity}^3 + (-5.90 \times 10^{-4})\text{Humidity}^4 \\
&+ (1.61 \times 10^{-6})\text{Humidity}^5 + (27.1)\text{Solar radiation(kW)}^2 + (-17.0)\text{Solar radiation(kW)}^3 \\
&+ (-43.1)\text{Solar radiation(MJ)} + (813)\text{Solar radiation(MJ)}^5 + (1.13)\text{Rainfall} \\
&+ (-1.50 \times 10^{4})\text{Volumetric water content} + (1.84 \times 10^{5})\text{Volumetric water content}^2 \\
&+ (-9.46 \times 10^{5})\text{Volumetric water content}^3 \\
&+ (2.22 \times 10^{6})\text{Volumetric water content}^4 + (-1.95 \times 10^{6})\text{Volumetric water content}^5 \\
&+ (5.63 \times 10^{3})\text{Soil electrical conductivity} + (-1.08 \times 10^{5})\text{Soil electrical conductivity}^2 \\
&+ (9.07 \times 10^{5})\text{Soil electrical conductivity}^3 + (-3.47 \times 10^{6})\text{Soil electrical conductivity}^4 \\
&+ (4.95 \times 10^{6})\text{Soil electrical conductivity}^5 + (1291)\text{Soil temperature} \\
&+ (-85.1)\text{Soil temperature}^2 \\
&+ (2.80)\text{Soil temperature}^3 + (-4.60 \times 10^{-2})\text{Soil temperature}^4 \\
&+ (3.02 \times 10^{-4})\text{Soil temperature}^5 - 15675
\end{aligned}
$$

(c) Formula of outdoor field nowcast (Forward selection):

$$
\begin{aligned}
&Y \\
&= (-0.0308)\text{Air temperature} + (1.01 \times 10^{-5})\text{Air temperature}^4 + (-0.0336)\text{Humidity} \\
&+ (-639)\text{Volumetric water content} + (7658)\text{Volumetric water content}^2 \\
&+ (-4.03 \times 10^4)\text{Volumetric water content}^3 \\
&+ (9.59 \times 10^4)\text{Volumetric water content}^4 + (-8.37 \times 10^4)\text{Volumetric water content}^5 \\
&+ (186)\text{Soil electrical conductivity} + (-4436)\text{Soil electrical conductivity}^2 \\
&+ (3.99 \times 10^4)\text{Soil electrical conductivity}^3 + (-1.60 \times 10^5)\text{Soil electrical conductivity}^4 \\
&+ (2.32 \times 10^5)\text{Soil electrical conductivity}^5 + (21.4)\text{Soil temperature} \\
&+ (-0.594)\text{Soil temperature}^2 \\
&+ (2.21 \times 10^{-4})\text{Soil temperature}^4 \\
&+ (-2.37 \times 10^{-6})\text{Soil temperature}^5 + (0.0113)\text{Solar radiation(kW)} \\
&+ (-5.00 \times 10^{-5})\text{Solar radiation(kW)}^2 + (9.14 \times 10^{-8})\text{Solar radiation(kW)}^3 + (-6.95 \\
&\times 10^{-11})\text{Solar radiation(kW)}^4 + (1.84 \times 10^{-14})\text{Solar radiation(kW)}^5 \\
&+ (13.7)\text{Solar radiation(MJ)} + (-32.0)\text{Solar radiation(MJ)}^2 + (4.94)\text{Solar radiation(MJ)}^3 \\
&+ (-230)\text{Solar radiation(MJ)}^5 (-0.583)\text{wind speed} + (0.0608)\text{wind speed}^2 - 185
\end{aligned}
$$

(d) Formula of shading-wire-net house nowcast (LASSO regression):

$$\begin{aligned}Y = {} & (0.753)\text{Air temperature} + (0.00423)\text{Air temperature}^2 \\ & + (4.41 \times 10^{-5})\text{Air temperature}^3 + (-3.81 \\ & \times 10^{-10})\text{Humidity}^5 + (-146)\text{Solar radiation(MJ)}^5 \\ & + (-0.619)\text{Volumetric water content} + (-363)\text{Volumetric water content}^5 \\ & + (9.92)\text{Soil electrical conductivity}^2 + (-4977)\text{Soil electrical conductivity}^5 \\ & + (0.5)\text{Soil temperature} + (-3.11 \times 10^{-8})\text{Soil temperature}^5 - 10.4\end{aligned}$$

(e) Formula of insect-wire-nets house nowcast (LASSO regression):

$$\begin{aligned}Y = {} & (8.95 \times 10^{-4})\text{Air temperature}^3 + (1.41 \times 10^{-6})\text{Air temperature}^4 \\ & + (0.291)\text{Humidity} + (-1.56 \times 10^{-3})\text{Humidity}^2 + (-1.37 \times 10^{-5})\text{Humidity}^3 \\ & + (2.09 \times 10^{-9})\text{Humidity}^5 + (7.97)\text{Solar radiation(kW)}^2 \\ & + (-21.0)\text{Solar radiation(MJ)} + (-614)\text{Solar radiation(MJ)}^5 + (0.973)\text{Rainfall} \\ & + (-2.02)\text{Volumetric water content} + (-33.0)\text{Volumetric water content}^2 \\ & + (-83.0)\text{Volumetric water content}^3 + (1381)\text{Volumetric water content}^5 \\ & + (-250)\text{Soil electrical conductivity} + (1045)\text{Soil electrical conductivity}^2 \\ & + (1543)\text{Soil electrical conductivity}^3 \\ & + (-4.36 \times 10^4)\text{Soil electrical conductivity}^5 + (1.94)\text{Soil temperature} \\ & + (-3.01 \times 10^{-4})\text{Soil temperature}^3 + (-4.66 \times 10^{-6})\text{Soil temperature}^4 \\ & + (-1.43 \times 10^{-8})\text{Soil temperature}^5 - 2.58\end{aligned}$$

(f) Formula of outdoor field nowcast (LASSO regression):

$$\begin{aligned}Y = {} & (0.881)\text{Air temperature} + (1.70 \times 10^{-7})\text{Air temperature}^4 + (-0.0538)\text{Humidity} \\ & + (-188)\text{Volumetric water content} + (1300)\text{Volumetric water content}^2 \\ & + (-3009)\text{Volumetric water content}^3 + (5205)\text{Volumetric water content}^5 \\ & + (71.5)\text{Soil electrical conductivity} \\ & + (-586)\text{Soil electrical conductivity}^2 + (7361)\text{Soil electrical conductivity}^4 \\ & + (-9581)\text{Soil electrical conductivity}^5 + (0.246)\text{Soil temperature} \\ & + (-0.00382)\text{Soil temperature}^2 + (-8.57 \times 10^{-9})\text{Soil temperature}^5 \\ & + (-5.14 \\ & \times 10^{-4})\text{Solar radiation(kW)} + (2.86 \times 10^{-9})\text{Solar radiation(kW)}^3 + (-1.71 \\ & \times 10^{-15})\text{Solar radiation(kW)}^5 \\ & + (10.9)\text{Solar radiation(MJ)} + (-53.6)\text{Solar radiation(MJ)}^3 \\ & + (-0.660)\text{wind speed} + (0.0717)\text{wind speed}^2 - 11.9\end{aligned}$$