Appendix I

Table S1. Kriging hold-out validation summary showing model fit for heat index across Indian study sites

| Study site        | $R^2$ | RMSE | MAE |
|-------------------|-------|------|-----|
| Delhi             | 0.962 | 0.006| 0.005|
| Haryana           | 0.990 | 0.010| 0.008|
| Tamil Nadu        | 0.759 | 0.010| 0.007|
| Andhra Pradesh    | 0.990 | 0.085| 0.067|

$R^2 = \text{coefficient of determination, } \text{RMSE = root mean square error, } \text{MAE = mean absolute error}$

Table S2. K-fold cross validation Summary of the performance of interpolation methods to predict heat index across Andhra Pradesh

| Interpolation method | Efficiency | Prediction error |
|----------------------|------------|------------------|
|                      | $R^2$      | RMSE  | MAE  |
| IDW                  | 0.991      | 0.089 | 0.070|
| Kriging              | 0.990      | 0.085 | 0.067|
| EBK                  | 0.906      | 0.277 | 0.193|

$R^2 = \text{coefficient of determination, } \text{RMSE = root mean square error, } \text{MAE = mean absolute error, IDW: inverse distance weighting; EBK: Empirical Bayesian Kriging}$

Table S3. K-fold cross validation Summary of the performance of interpolation methods to predict heat index across Delhi

| Interpolation method | Efficiency | Error          |
|----------------------|------------|----------------|
|                      | $R^2$      | RMSE | MAE  |
| IDW                  | 0.980      | 0.004| 0.002|
| Kriging              | 0.962      | 0.006| 0.005|
$R^2$ = coefficient of determination, RMSE = root mean square error, MAE = mean absolute error, IDW: inverse distance weighting; EBK: Empirical Bayesian Kriging

Table S4. K-fold cross validation Summary of the performance of interpolation methods to predict heat index across Tamil Nadu

| Interpolation method | Efficiency | Error |
|----------------------|------------|-------|
|                      | $R^2$      | RMSE  | MAE  |
| IDW                  | 0.664      | 0.016 | 0.011 |
| Kriging              | 0.759      | 0.010 | 0.007 |
| EBK                  | 0.702      | 0.024 | 0.012 |

$R^2$ = coefficient of determination, RMSE = root mean square error, MAE = mean absolute error, IDW: inverse distance weighting; EBK: Empirical Bayesian Kriging

Table S5. K-fold cross validation Summary of the performance of interpolation methods to predict heat index across Haryana

| Interpolation method | Efficiency | Error |
|----------------------|------------|-------|
|                      | $R^2$      | RMSE  | MAE  |
| IDW                  | 0.986      | 0.010 | 0.008 |
| Kriging              | 0.990      | 0.010 | 0.008 |
| EBK                  | 0.437      | 0.068 | 0.050 |

$R^2$ = coefficient of determination, RMSE = root mean square error, MAE = mean absolute error, IDW: inverse distance weighting; EBK: Empirical Bayesian Kriging