**Appendix**

**Table A1 |** Performance statistics of the modified Hargreaves–Samani equations in reference to the *ET0* values given by the FAO-56 PM equation for the Mediterranean Region

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| **Mediterranean Region** |
| **Combinations** | ***KH***  | ***eH*** | ***KT*** | ***Ks*** | **Training stations** | **Validation stations** |
| **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** | **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** |
| Orig. | 0.0023 | 0.5 | 17.8 |  | 1.12 | 20.71 | 1.39 | 1.09 | 22.10 | 1.34 |
| 1 | 0.0023 | 0.487 | 17.8 |  | 1.02 | 20.01 | 1.23 | 1.21 | 23.56 | 1.43 |
| 2 | 0.0022 | 0.5 | 17.8 |  | 1.02 | 20.02 | 1.23 | 1.21 | 23.54 | 1.43 |
| 3 | 0.0023 | 0.5 | 16.874 |  | 1.04 | 20.26 | 1.25 | 1.27 | 24.53 | 1.49 |
| 4 | 0.0023 | 0.331 | 45.458 |  | 0.87 | 16.44 | 1.07 | 1.06 | 20.76 | 1.26 |
| 5 | 0.0038 | 0.34 | 17.8 |  | 1.02 | 20.06 | 1.22 | 1.25 | 24.12 | 1.46 |
| 6 | 0.0012 | 0.5 | 51.551 |  | 0.90 | 17.01 | 1.11 | 1.03 | 20.09 | 1.24 |
| 7 | 0.0051 | −0.067 | 95.102 |  | 0.81 | 15.24 | 1.02 | 1.04 | 20.46 | 1.23 |
| 8\* |  | 0.518 a | 0.216 b |  | 0.80 | 17.16 | 0.97 | 0.75 | 16.23 | 0.98 |
| 9\* |  | 0.628 a | 0.180 b |  | 0.62 | 11.62 | 0.81 | 0.58 | 11.11 | 0.77 |
| 10\*\* | 0.00419 | 0.2342 | 17.8 | −0.0208 | 1.61 | 31.14 | 1.85 | 1.27 | 26.20 | 1.61 |

\* : *a* and *b* are the calibration coefficients of the wind speed calibration procedure (Equation (15)).

\*\*:*KH*, *eH*, and *Ks* were evolved by Almorox & Grieser (2015).

**Table A2** | Performance statistics of the modified Hargreaves–Samani equations in reference to the *ET0* values given by the FAO-56 PM equation for the Marmara Region

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| **Marmara Region** |
| **Combinations** | ***KH***  | ***eH*** | ***KT*** | ***Ks*** | **Training stations** | **Validation stations** |
| **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** | **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** |
| Orig. | 0.0023 | 0.5 | 17.8 |  | 1.48 | 27.72 | 1.78 | 1.20 | 24.95 | 1.42 |
| 1 | 0.0025 | 0.5 | 17.8 |  | 1.46 | 27.20 | 1.76 | 1.14 | 25.03 | 1.34 |
| 2 | 0.0025 | 0.5 | 17.8 |  | 1.46 | 27.20 | 1.76 | 1.31 | 25.76 | 1.61 |
| 3 | 0.0023 | 0.5 | 22.056 |  | 1.43 | 26.11 | 1.73 | 1.35 | 25.44 | 1.69 |
| 4 | 0.0023 | 0.334 | 50 |  | 1.24 | 22.43 | 1.53 | 1.02 | 19.53 | 1.29 |
| 5 | 0.0011 | 0.737 | 17.8 |  | 1.46 | 27.09 | 1.75 | 1.31 | 26.03 | 1.59 |
| 6 | 0.0011 | 0.5 | 62.98 |  | 1.23 | 22.04 | 1.51 | 1.02 | 19.72 | 1.31 |
| 7 | 0.0029 | 0.152 | 84.012 |  | 1.19 | 21.19 | 1.48 | 0.92 | 17.99 | 1.17 |
| 8\* |  | 0.447 a | 0.247 b |  | 1.17 | 23.21 | 1.38 | 1.01 | 22.81 | 1.15 |
| 9\* |  | 0.475 a | 0.228 b |  | 0.84 | 15.51 | 1.03 | 0.65 | 13.52 | 0.78 |
| 10\*\* | 0.00419 | 0.2342 | 17.8 | −0.0208 | 2.32 | 41.35 | 2.60 | 1.19 | 21.19 | 1.48 |

\* : *a* and *b* are the calibration coefficients of the wind speed calibration procedure (Equation (15)).

\*\*:*KH*, *eH*, and *Ks* were evolved by Almorox & Grieser (2015).

**Table A3** | Performance statistics of the modified Hargreaves–Samani equations in reference to the *ET0* values given by the FAO-56 PM equation for the Aegean Region

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| --- |
| **Aegean Region** |
| **Combinations** | ***KH***  | ***eH*** | ***KT*** | ***Ks*** | **Training stations** | **Validation stations** |
| **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** | **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** |
| Orig. | 0.0023 | 0.5 | 17.8 |  | 1.15 | 21.17 | 1.39 | 1.14 | 24.70 | 1.44 |
| 1 | 0.0023 | 0.511 | 17.8 |  | 1.16 | 20.92 | 1.39 | 1.24 | 26.07 | 1.57 |
| 2 | 0.0024 | 0.5 | 17.8 |  | 1.17 | 20.88 | 1.40 | 1.26 | 26.35 | 1.60 |
| 3 | 0.0023 | 0.5 | 19.074 |  | 1.14 | 20.47 | 1.37 | 1.21 | 25.35 | 1.53 |
| 4 | 0.0023 | 0.093 | 138.42 |  | 0.92 | 15.37 | 1.20 | 1.00 | 21.49 | 1.33 |
| 5 | 0.0091 | 0.109 | 17.8 |  | 1.13 | 20.53 | 1.36 | 1.22 | 26.00 | 1.55 |
| 6 | 0.0012 | 0.5 | 56.842 |  | 0.97 | 16.20 | 1.25 | 1.00 | 20.63 | 1.34 |
| 7 | 0.0065 | −0.106 | 87.655 |  | 0.89 | 14.77 | 1.19 | 0.90 | 19.03 | 1.17 |
| 8\* |  | 0.581 a | 0.192 b |  | 0.95 | 19.28 | 1.11 | 0.89 | 20.88 | 1.00 |
| 9\* |  | 0.603 a | 0.194 b |  | 0.65 | 11.52 | 0.83 | 0.58 | 11.99 | 0.72 |
| 10\*\* | 0.00419 | 0.2342 | 17.8 | −0.0208 | 2.02 | 36.47 | 2.27 | 1.38 | 31.00 | 1.54 |

\* : *a* and *b* are the calibration coefficients of the wind speed calibration procedure (Equation (15)).

\*\*:*KH*, *eH*, and *Ks* were evolved by Almorox & Grieser (2015).

**Table A4** | Performance statistics of the modified Hargreaves–Samani equations in reference to the *ET0* values given by the FAO-56 PM equation for the Black Sea Region

|  |
| --- |
| **Black Sea Region** |
| **Combinations** | ***KH***  | ***eH*** | ***KT*** | ***Ks*** | **Training stations** | **Validation stations** |
| **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** | **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** |
| Orig. | 0.0023 | 0.5 | 17.8 |  | 1.18 | 24.96 | 1.47 | 1.23 | 24.96 | 1.56 |
| 1 | 0.0023 | 0.51 | 17.8 |  | 1.19 | 24.85 | 1.48 | 1.26 | 24.97 | 1.60 |
| 2 | 0.0024 | 0.5 | 17.8 |  | 1.19 | 24.90 | 1.48 | 1.26 | 24.99 | 1.60 |
| 3 | 0.0023 | 0.5 | 18.773 |  | 1.18 | 24.48 | 1.46 | 1.24 | 24.43 | 1.57 |
| 4 | 0.0023 | 0.373 | 36.991 |  | 1.04 | 20.96 | 1.32 | 1.02 | 19.56 | 1.38 |
| 5 | 0.001 | 0.727 | 17.8 |  | 1.15 | 24.29 | 1.45 | 1.26 | 24.91 | 1.61 |
| 6 | 0.0013 | 0.5 | 44.05 |  | 1.00 | 20.30 | 1.29 | 1.02 | 19.33 | 1.39 |
| 7 | 0.00136 | 0.459 | 50.0 |  | 0.99 | 20.07 | 1.27 | 1.00 | 19.06 | 1.36 |
| 8\* |  | 0.420 a | 0.301 b |  | 1.06 | 23.51 | 1.25 | 0.99 | 22.97 | 1.22 |
| 9\* |  | 0.510 a | 0.260 b |  | 0.79 | 16.46 | 0.99 | 0.73 | 15.75 | 0.98 |
| 10\*\* | 0.00419 | 0.2342 | 17.8 | −0.0208 | 1.89 | 38.44 | 2.15 | 1.84 | 37.53 | 2.10 |

\* : *a* and *b* are the calibration coefficients of the wind speed calibration procedure (Equation (15)).

\*\*:*KH*, *eH*, and *Ks* were evolved by Almorox & Grieser (2015).

**Table A5** | Performance statistics of the modified Hargreaves–Samani equations in reference to the *ET0* values given by the FAO-56 PM equation for the Inner Anatolia Region

|  |
| --- |
| **Inner Anatolia Region** |
| **Combinations** | ***KH***  | ***eH*** | ***KT*** | ***Ks*** | **Training stations** | **Validation stations** |
| **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** | **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** |
| Orig. | 0.0023 | 0.5 | 17.8 |  | 1.18 | 24.15 | 1.38 | 1.20 | 23.43 | 1.47 |
| 1 | 0.0023 | 0.526 | 17.8 |  | 1.14 | 22.80 | 1.35 | 1.18 | 22.05 | 1.37 |
| 2 | 0.0024 | 0.5 | 17.8 |  | 1.14 | 23.12 | 1.34 | 1.18 | 22.50 | 1.39 |
| 3 | 0.0023 | 0.5 | 20.843 |  | 1.07 | 21.30 | 1.28 | 1.11 | 20.61 | 1.30 |
| 4 | 0.0023 | 0.138 | 114.442 |  | 0.80 | 15.14 | 1.02 | 0.79 | 13.64 | 1.02 |
| 5 | 0.0001 | 1.354 | 17.8 |  | 1.00 | 20.03 | 1.23 | 0.89 | 17.36 | 1.12 |
| 6 | 0.0007 | 0.5 | 94.637 |  | 0.79 | 15.01 | 1.02 | 0.78 | 13.32 | 0.99 |
| 7 | 0.0013 | 0.386 | 82.019 |  | 0.80 | 15.07 | 1.01 | 0.76 | 13.16 | 0.98 |
| 8\* |  | 0.597 a | 0.191 b |  | 1.01 | 21.85 | 1.15 | 1.16 | 22.74 | 1.32 |
| 9\* |  | 0.555 a | 0.185 b |  | 0.60 | 11.54 | 0.72 | 0.65 | 12.22 | 0.80 |
| 10\*\* | 0.00211 | 0.48956 | 17.8 | 0.08 | 1.39 | 27.55 | 1.61 | 1.50 | 28.27 | 1.75 |

\* : *a* and *b* are the calibration coefficients of the wind speed calibration procedure (Equation (15)).

\*\*:*KH*, *eH*, and *Ks* were evolved by Almorox & Grieser (2015).

**Table A6** | Performance statistics of the modified Hargreaves–Samani equations in reference to the *ET0* values given by the FAO-56 PM equation for the Eastern Anatolia Region

|  |
| --- |
| **Eastern Anatolia Region** |
| **Combinations** | ***KH***  | ***eH*** | ***KT*** | ***Ks*** | **Training stations** | **Validation stations** |
| **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** | **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** |
| Orig. | 0.0023 | 0.5 | 17.8 |  | 0.94 | 21.82 | 1.21 | 0.72 | 17.19 | 0.90 |
| 1 | 0.0023 | 0.466 | 17.8 |  | 0.86 | 22.34 | 1.03 | 0.60 | 18.22 | 0.69 |
| 2 | 0.002 | 0.5 | 17.8 |  | 0.86 | 22.20 | 1.02 | 0.59 | 18.03 | 0.68 |
| 3 | 0.0023 | 0.5 | 15.43 |  | 0.94 | 24.07 | 1.14 | 0.70 | 20.35 | 0.80 |
| 4 | 0.0023 | 0.213 | 67.991 |  | 0.53 | 12.49 | 0.68 | 0.54 | 14.81 | 0.59 |
| 5 | 0.0002 | 1.107 | 17.8 |  | 0.79 | 19.85 | 0.96 | 0.52 | 14.95 | 0.61 |
| 6 | 0.001 | 0.5 | 54.952 |  | 0.55 | 12.71 | 0.68 | 0.50 | 13.79 | 0.58 |
| 7 | 0.0022 | 0.267 | 55.438 |  | 0.53 | 12.17 | 0.69 | 0.49 | 13.13 | 0.55 |
| 8\* |  | 0.545 a | 0.184 b |  | 0.76 | 22.06 | 0.88 | 0.72 | 22.04 | 0.80 |
| 9\* |  | 0.684 a | 0.178 b |  | 0.41 | 10.08 | 0.52 | 0.49 | 12.37 | 0.55 |
| 10\*\* | 0.00211 | 0.48956 | 17.8 | 0.08 | 0.82 | 20.93 | 1.00 | 0.56 | 16.56 | 0.65 |

\* : *a* and *b* are the calibration coefficients of the wind speed calibration procedure (Equation (15)).

\*\*:*KH*, *eH*, and *Ks* were evolved by Almorox & Grieser (2015).

**Table A7** | Performance statistics of the modified Hargreaves–Samani equations in reference to the *ET0* values given by the FAO-56 PM equation for the Southeastern Anatolia Region

|  |
| --- |
| **Southeastern Anatolia Region** |
| **Combinations** | ***KH***  | ***eH*** | ***KT*** | ***Ks*** | **Training stations** | **Validation stations** |
| **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** | **MAE (mm day–1)** | **MARE (%)** | **RMSE (mm day–1)** |
| Orig. | 0.0023 | 0.5 | 17.8 |  | 1.03 | 19.14 | 1.32 | 0.89 | 17.10 | 1.09 |
| 1 | 0.0023 | 0.484 | 17.8 |  | 1.04 | 19.64 | 1.26 | 0.68 | 14.56 | 0.86 |
| 2 | 0.0022 | 0.5 | 17.8 |  | 1.04 | 19.61 | 1.27 | 0.68 | 14.57 | 0.86 |
| 3 | 0.0023 | 0.5 | 16.357 |  | 1.05 | 20.07 | 1.29 | 0.77 | 15.95 | 0.95 |
| 4 | 0.0023 | 0.308 | 51.364 |  | 0.92 | 16.59 | 1.14 | 0.61 | 13.18 | 0.77 |
| 5 | 0.0026 | 0.462 | 17.8 |  | 1.03 | 19.13 | 1.30 | 0.87 | 16.78 | 1.07 |
| 6 | 0.0014 | 0.5 | 37.853 |  | 0.94 | 16.79 | 1.17 | 0.60 | 12.62 | 0.77 |
| 7 | 0.0147 | −0.306 | 74.04 |  | 0.85 | 14.74 | 1.09 | 0.56 | 12.84 | 0.70 |
| 8\* |  | 0.560 a | 0.178 b |  | 0.86 | 19.05 | 1.00 | 0.69 | 16.91 | 0.81 |
| 9\* |  | 0.612 a | 0.199 b |  | 0.55 | 10.82 | 0.70 | 0.47 | 9.82 | 0.58 |
| 10\*\* | 0.00211 | 0.48956 | 17.8 | 0.08 | 1.07 | 20.04 | 1.29 | 0.56 | 13.28 | 0.72 |

\* : *a* and *b* are the calibration coefficients of the wind speed calibration procedure (Equation (15)).

\*\*:*KH*, *eH*, and *Ks* were evolved by Almorox & Grieser (2015).

**REFERENCE**

Almorox, J. & Grieser, J. 2016 Calibration of the Hargreaves– Samani method for the calculation of reference evapotranspiration in different Köppen climate classes. Hydrol. Res. 47 (2), 521-531.