

Table 1. Number of grid points with significant Kendall correlation between candidate approaches and FAO-PM method in the three regions of the Omo-Gibe River Basin on annual and seasonal scales. Values left to the slash represent number of grids with significant Kendall correlations ($p \leq 0.05$). Second values represent number of grids with highly significant Kendall correlations ($p \leq 0.001$). Entries after the slash are included to numbers before slash.

| Time scale | PT | TW | HS | BC | MK |
|-------------------|-----------|-----------|-----------|-----------|-----------|
| Lower Region | | | | | |
| Annual | 13/4 | 23/2 | 30/26 | 24/3 | 26/16 |
| Kiremt | 27/19 | 16/2 | 21/3 | 20/5 | 27/27 |
| Belg | 27/19 | 16/2 | 21/3 | 20/5 | 27/27 |
| Bega | 13/6 | 9/2 | 24/7 | 10/3 | 26/20 |
| Middle Region | | | | | |
| Annual | 15/7 | 29/20 | 30/27 | 30/23 | 11/3 |
| Kiremt | 25/21 | 18/4 | 22/8 | 28/20 | 1/0 |
| Belg | 25/21 | 18/3 | 22/8 | 28/20 | 1/0 |
| Bega | 16/9 | 25/21 | 27/21 | 22/16 | 13/3 |
| Upper Region | | | | | |
| Annual | 25/16 | 30/27 | 30/30 | 30/26 | 21/8 |
| Kiremt | 30/29 | 9/4 | 21/3 | 30/22 | 6/5 |
| Belg | 30/29 | 9/4 | 20/8 | 30/22 | 6/5 |
| Bega | 21/14 | 27/25 | 30/30 | 30/29 | 30/19 |

Table 2. Highest and lowest Kendall correlation coefficients between candidate approaches and FAO–PM method in the three regions of the Omo–Gibe River Basin on annual and seasonal scales. Values left to the slash represent highest Kendall correlation coefficient while second values represent lowest Kendall correlation coefficient.

| Time scale | PT | TW | HS | BC | MK |
|-------------------|------------|-----------|-----------|-----------|-----------|
| Lower Region | | | | | |
| Annual | 0.48/0.23 | 0.50/0.24 | 0.83/0.13 | 0.53/0.24 | 0.71/0.24 |
| Kiremt | 0.77/0.24 | 0.59/0.24 | 0.83/0.24 | 0.70/0.24 | 0.83/0.38 |
| Belg | 0.77/0.24 | 0.59/0.24 | 0.83/0.24 | 0.70/0.24 | 0.83/0.38 |
| Bega | 0.50/0.29 | 0.56/0.26 | 0.78/0.24 | 0.60/0.25 | 0.65/0.30 |
| Middle Region | | | | | |
| Annual | 0.48/0.13 | 0.76/0.25 | 0.58/0.33 | 0.6/0.26 | 0.43/0.24 |
| Kiremt | 0.88/0.27 | 0.46/0.24 | 0.39/0.24 | 0.49/0.25 | 0.3/0.30 |
| Belg | 0.88/0.27 | 0.46/0.24 | 0.39/0.24 | 0.49/0.25 | 0.3/0.30 |
| Bega | 0.55/0.25 | 0.55/0.24 | 0.52/0.27 | 0.53/0.24 | 0.38/0.24 |
| Upper Region | | | | | |
| Annual | 0.58/0.25 | 0.62/0.33 | 0.62/0.41 | 0.58/0.36 | 0.7/0.24 |
| Kiremt | 0.87/0.31 | 0.58/0.24 | 0.62/0.24 | 0.57/0.25 | 0.87/0.29 |
| Belg | 0.87/0.31 | 0.58/0.24 | 0.62/0.24 | 0.57/0.25 | 0.87/0.29 |
| Bega | 0.52/-0.40 | 0.6/0.28 | 0.68/0.40 | 0.61/0.27 | 0.63/0.24 |

Table 3. Number of grid points with significant trends ($p \leq 0.05$ on annual and seasonal scales for various PET approaches

| Candidate approaches | PT | TW | HS | BC | MK | PM |
|---|-------|-------|------|------|-------|-------|
| Kiremt (JJAS) | | | | | | |
| No. of grid points with significant increasing trends | 26 | 82 | 82 | 90 | 47 | 59 |
| No. of grid points with significant decreasing trends | 8 | 0 | 0 | 0 | 2 | 0 |
| Maximum trend magnitude (mm/decade) | 23.5 | 75.3 | 21.4 | 14.7 | 23.5 | 27.0 |
| Minimum trend magnitude (mm/decade) | -0.02 | 1.8 | 3.5 | 6.3 | -4.3 | 0.03 |
| Belg (MAM) | | | | | | |
| No. of grid points with significant increasing trend | 1 | 56 | 41 | 84 | 5 | 11 |
| No. of grid points with significant decreasing trends | 26 | 2 | 29 | 0 | 40 | 23 |
| Maximum trend magnitude (mm/decade) | 3.3 | 49.8 | 18.8 | 6.9 | 3.3 | 16.9 |
| Minimum trend magnitude (mm/decade) | -12.2 | -4.0 | -8.0 | 1.2 | -15.8 | -17.6 |
| Bega (ONDJF) | | | | | | |
| No. of grid points with significant increasing trend | 16 | 90 | 71 | 90 | 40 | 31 |
| No. of grid points with significant decreasing trends | 3 | 0 | 3 | 0 | 2 | 2 |
| Maximum trend magnitude (mm/decade) | 14.5 | 180.9 | 27.9 | 12.5 | 22.3 | 33.1 |
| Minimum trend magnitude (mm/decade) | -3.9 | 6.6 | -6.3 | 4.4 | -7.8 | -14.0 |
| Annual | | | | | | |
| No. of grid points with significant increasing trend | 22 | 90 | 70 | 90 | 27 | 70 |
| No. of grid points with significant decreasing trend | 0 | 0 | 3 | 0 | 0 | 0 |

| | | | | | | |
|-------------------------------------|------|-----------|----------|----------|------|------|
| Maximum trend magnitude (mm/decade) | 30.8 | 322. 3 | 64. 6 | 26. 4 | 50.5 | 72.9 |
| Minimum trend magnitude (mm/decade) | 6.7 | 10.7 | -8. 2 | 6.4 | 2.1 | 18.3 |
