**Table S3. Mean of performance metrices computed for IMERG and CFSR precipitation and their P values when tested for the significance for each continent**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Region | Africa | Asia | Australia | Europe | N\_America | Russia | S\_America |
| NSE\_IMERG | 0.19 | 0.5 | 0.71 | 0.48 | 0.59 | -0.03 | 0.25 |
| NSE\_CFSR | -0.06 | -0.22 | 0.46 | 0.1 | -0.17 | -0.5 | -0.95 |
| P\_NSE | 0.12 | 0 | 0 | 0 | 0 | 0 | 0 |
| KGE\_IMERG | 0.38 | 0.59 | 0.75 | 0.68 | 0.68 | 0.5 | 0.43 |
| KGE\_CFSR | 0.34 | 0.33 | 0.65 | 0.56 | 0.41 | 0.33 | 0.1 |
| P\_KGE | 0.53 | 0 | 0 | 0 | 0 | 0 | 0 |
| VE\_IMERG | 0.33 | 0.55 | 0.67 | 0.68 | 0.66 | 0.53 | 0.41 |
| VE\_CFSR | 0.29 | 0.31 | 0.54 | 0.56 | 0.45 | 0.33 | 0.23 |
| P\_VE | 0.61 | 0 | 0 | 0 | 0 | 0 | 0.09 |
| R\_IMERG | 0.79 | 0.87 | 0.9 | 0.89 | 0.86 | 0.87 | 0.82 |
| R\_CFSR | 0.63 | 0.71 | 0.78 | 0.81 | 0.71 | 0.73 | 0.57 |
| P\_R | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RMSE\_IMERG | 33.75 | 44.01 | 26.87 | 25.16 | 32.42 | 24.74 | 54.11 |
| RMSE\_CFSR | 46.88 | 75.99 | 37.74 | 33.54 | 50.69 | 32.86 | 98.19 |
| P\_RMSE | 0.03 | 0 | 0 | 0 | 0 | 0 | 0 |
| PBIAS\_IMERG | 36.04 | 24 | 9.36 | 23.03 | 11.46 | 40.7 | 38.14 |
| PBIAS\_CFSR | 2.05 | 25.62 | 0.87 | 30.56 | 23.45 | 52.57 | 22.74 |
| P\_PBIAS | 0 | 0.62 | 0 | 0 | 0 | 0 | 0.17 |