**Appendix**

**Table A1** | Acronyms used in the present paper

|  |  |
| --- | --- |
| **Acronym** | **Expansion** |
| AM | Arithmetic Mean |
| ANN | Artificial Neural Network |
| BP | Back propagation |
| CMIP3 | Coupled Model Intercomparison Project 3 |
| CMIP5 | Coupled Model Intercomparison Project 5 |
| CMIP6 | Coupled Model Intercomparison Project 6 |
| CP | Compromise Programming |
| FAHP | Fuzzy Analytic Hierarchy Process |
| FCA | Fuzzy Cluster Analysis |
| GCM | Global Climate Model |
| GPCP | Global Precipitation Climatology Project |
| HBMA | Hierarchical Bayesian Model Averaging |
| KANN | Kohonen Artificial Neural Networks |
| KNN | K-Nearest Neighbour |
| MME | Multi Model Ensemble |
| PROMETHEE | Preference Ranking Organization METHod for Enrichment of Evaluations |
| RAC | Representation of the Annual Cycle |
| REA | Reliability Ensemble Averaging |
| RF | Random Forest |
| RVM | Relevance Vector Machine |
| SAT | Surface Air Temperature |
| SMA | Simple Model Averaging |
| SSP | Shared Socioeconomic Pathways |
| SVM | Support Vector Machine |
| TAR | Third Assessment Report |
| TOPSIS | Technique for Order of Preference by Similarity to Ideal Solution |
| VIKOR | VIseKriterijumska Optimizacija I Kompromisno Resenje |
| WASM | West African Summer Monsoon |

**Table A2** | Information about selected performance measures/indicators

|  |  |  |  |
| --- | --- | --- | --- |
| **Performance measure** | **Acronym** | **Boundary values of performance measure** | **Preferable direction/value for ranking of GCM** |
| Absolute normalised mean bias error/deviation | ANMBE/ANMBD | Preferred is 0 | Lower |
| Agreement index | AI | 0 to 1 | Higher |
| Average absolute relative error | AARE | Preferred is 0 | Lower |
| Bias, relative bias, mean bias |  | Preferred is 0 | Lower |
| Brier score | BS | Preferred is 0 | Lower |
| Correlation coefficient (spatial/temporal) | CC | −1 to 1 | Higher |
| Coefficient of determination | R2 | 0 to 1 | Higher  |
| Coefficient of variation | Cv | 0 to 1 | Lower (<1 preferable) |
| Cramer’s V |  | 0 to 1 | Higher |
| Deterministic coefficient | DC | 0 to 1 | Higher |
| Fractional skill score | FSS | 0 to 1 | Greater than 0.5 is preferable |
| Goodman–Kruskal’s lambda | Lambda | 0 to 1 | Higher  |
| Improved rank score method |  | 0 to 1 | Higher |
| Kling–Gupta efficiency |  | −∞ to 1 | Higher |
| Kolmogorov–Smirnov statistic | KS | 0 to 1 | Higher |
| Linear correlation coefficient | r | 0 to 1 | Higher |
| Location metric |  |  | Lower |
| Mapcurves |  | 0 to 1 | Higher |
| Mean absolute error | MAE | Preferred is 0 | Lower |
| Mean square error/root mean square error | MSE/RMSE | Preferred is 0 | Lower |
| Mielke measure | M | 0 to 1 | Higher |
| Model climate performance index | MCPI |  | Lower |
| Model performance index | MPI | 1 | MPIs smaller than 1 indicate GCMs that perform better than the average |
| Model variability index | MVI |  | Lower |
| Modified index of agreement | md | 0 to 1 | Higher |
| Nash–Sutcliffe efficiency | NSE | –∞ and 1 | Higher |
| Normalised root mean square error/deviation | NRMSE/NRMSD | Preferred is 0 | Lower |
| Normalised standard deviation | NSD | 0 to 1 | Lower |
| Partial correlation | PAC | −1 to 1 | Higher |
| Pattern correlation | PC | −1 to +1 | Higher |
| Percent of bias | PBIAS | Preferred is 0 | Lower |
| Rating metric | RM | 0 to 1 | Higher |
| Ratio of the root mean square error to the standard deviation of measured data  | RSR | Preferred is 0 | Lower |
| Ratio of standard deviations | rSD | Preferred is 0 | Lower |
| Relative entropy | RE | 0 to ∞ | Lower |
| Relative error | RE | Positive to negative % | Lower |
| Scatter index /relative change | SI | 0 | Lower |
| Shape metric |  |  | Lower |
| Significance score | SIS | 0 to 1 | Higher |
| Skill score | SS | 0 to 1 | Higher |
| Spatial correlation thresholds | SC | 0 to 1 | Higher |
| Spatial efficiency metric | SPAEF | −∞ and 1 | Higher |
| Spatial pattern correlation coefficient | SPC | −1 to +1 | Higher |
| Spatial skill score |  | 0 to 1 | Higher |
| Standard deviation |  | [−∞,∞] | Lower |
| Student’s t-test |  | 0% to 100% | Lower  |
| Symmetrical uncertainty | SU | More than 0 | Higher  |
| Taylor skill score | TSS | 0 to 1 | Higher |
| Total index | TI | +6 to −6 | 6 is preferable |
| Variable convergence score | VCS | 0 to 1 | Higher |
| Wavelet-based skill score | WSS | 1 | Higher |
| Z-value test |  | −3 to +3 standard deviation | Lower z-score |