|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Fossil site** | ***Nb. analogues*** | ***R2 (k-analogue and npls comp.)*** | | | ***RMSEP*** | | | ***Av. and Max bias*** | | |
|  | ***Method*** | TANN | PANN | AG | TANN | PANN | AG | TANN | PANN | AG |
| **Eifel** | *8433 analogues* |  |  |  |  |  |  |  |  |  |
|  | MAT | 0.87  (5 k) | 0.67  (5 k) | 0.69  (5 k) | 2.70 | 231.38 | 3656.88 | 0.17  4.75 | 7.41  1328.63 | 30.73  57723.40 |
|  | WAPLS | 0.76  (2 npls) | 0.66  (1 npl) | 0.63  (5 npls) | 2.76 | 118.50 | 1397.40 | -1.94 4.72 | -68.13  158.31 | 749.93  1869.45 |
| **Furamoos** | *8197 analogues* |  |  |  |  |  |  |  |  |  |
|  | MAT | 0.88  (4 k) | 0.64  (5 k) | 0.73  (5 k) | 2.59 | 243.18 | 3422.01 | 0.07  3.85 | 6.32  1548.76 | -12.07  46836.80 |
|  | WAPLS | 0.74  (2 npls) | 0.82  (2 npls) | 0.60  (2 npls) | 3.37 | 135.44 | 1526.13 | -2.64  5.58 | -61.86  170.66 | 926.32  2060.99 |
| **LGP** | *8437 analogues* |  |  |  |  |  |  |  |  |  |
|  | MAT | 0.87  (5 k) | 0.74  (4 k) | 0.75  (4 k) | 2.70 | 207.80 | 3280.79 | 0.17  4.75 | 3.64  1379.20 | -50.53  42109.00 |
|  | WAPLS | 0.65  (3 npls) | 0.61  (2 npls) | 0.56  (1 npl) | 3.49 | 218.37 | 1761.21 | -1.39  6.20 | -200.17  316.38 | -11.12  2717.28 |
| **Les Echets** | *8197 analogues* |  |  |  |  |  |  |  |  |  |
|  | MAT | 0.76  (4 k) | 0.64  (5 k) | 0.67  (5 k) | 3.65 | 243.18 | 3785.13 | 0.18  4.82 | 6.32 1548.76 | -45.48  57961.00 |
|  | WAPLS | 0.52  (5 npls) | 0.42  (5 npls) | 0.63  (5 npls) | 0.80 | 153.62 | 3592.02 | -6.39  7.90 | -33.97  216.04 | 2306.41  5074.10 |
| **LDB** | *8437 analogues* |  |  |  |  |  |  |  |  |  |
|  | MAT | 0.87  (5 k) | 0.76  (4 k) | 0.69  (5 k) | 2.65 | 196.97 | 3313.20 | 30.18  4.68 | 3.48  1335.51 | -33.18  51095 |
|  | WAPLS | 0.62  (3 npls) | 0.67  (2 npls) | 0.49  (3 npls) | 3.30 | 178.25 | 1535.77 | -0.92  5.69 | -119.71  263.93 | 743.75  1981 |

***Table X. Comparisons of modern training results using 3 global calibration and/or regression methods of climate reconstruction from EMPD2 dataset (without biomization).*** *Leave-out cross validation of MAT (i.e., the Modern analogue Technique,* [*https://github.com/gavinsimpson/analogue/tree/master/R*](https://github.com/gavinsimpson/analogue/tree/master/R)*), WAPLS (i.e., the Weighted Average Partial Least-Squares regression,* [*https://github.com/special-uor/fxTWAPLS/blob/master/man/fx.Rd*](https://github.com/special-uor/fxTWAPLS/blob/master/man/fx.Rd)*) (computed taking into account geographically and climatically close sites removed) and CREST, for 3 climate variables: Mean Annual Temperature (TANN, °C), Mean Annual Precipitation (PANN, mm) and Aridity Index (GA=ratio of PANN over potential evapotranspiration, ). The five fossil sites are: Eifel, Furamoos, La Grande Pile, Les Echets and Le lac Du Bouchet (****see map X****). From 8447 modern pollen spectrums selected in Europe (Davis, B. A. S. et al., 2020), abondance modern sites is estimated to be 8193-8437 range, function of taxonomic diversity of fossil records. We extracted climatic variables from WorldClim 2.1 (history annual weather data for 30 seconds spatial resolution (1km2) between 1970-2000). Zip data files are available in* [*https://worldclim.org/data/worldclim21.html*](https://worldclim.org/data/worldclim21.html) *(Fick, S.E. and R.J. Hijmans, 2017. WorldClim 2: new 1km spatial resolution climate surfaces for global land areas.*[*International Journal of Climatology 37 (12): 4302-4315*](https://rmets.onlinelibrary.wiley.com/doi/abs/10.1002/joc.5086)*). For each reconstruction, the best component k (i.e., number of modern analogues to select) and npls (i.e., number of components to select) is retained where RMSEP is minimized, R2 and average bias are max and min, respectively. Bootstrap method (random test) is used to deduce error predictions (nboot=1000 and Cross Validation phase=16). R2 is squared correlation between observed and predicted values and RMSEP is the root mean square error of prediction values.*