

Supplementary Material B. Comparisons between the climatic data measured on-field and the predicted ones.

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Figure B1.a. Comparison of the monthly precipitations (*Ppt*) provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by the different databases considered in the study (gray boxes), specifically the cases of: (A) CHELSA 1.2 (Karger *et al.*, 2017, 2018); (B) CliMond (Kriticos *et al.*, 2012); (C) CRU CL 2.0 (New *et al.*, 2002); and (D) the one provided by Deblauwe *et al.* (2016). For each month, we provide herein a summary of the respective Paired Student *t* Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.

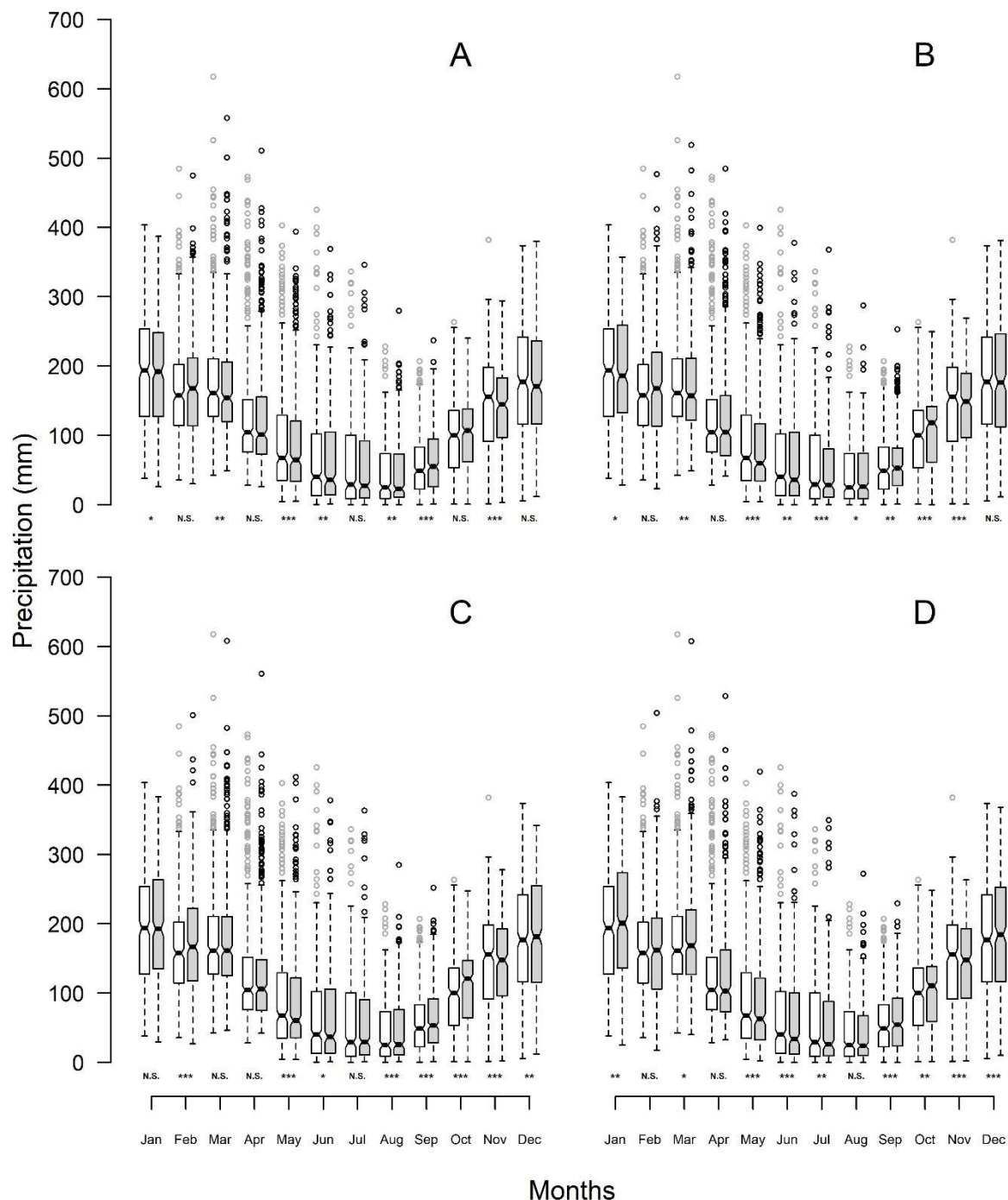


Figure B1.c. Comparison of the *Ppts* provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by the different databases considered in the study (gray boxes), specifically the cases of the databases provided in ecoClimate (Lima-Ribeiro *et al.*, 2015, 2020): (I) the Institut Pierre Simon Laplace (IPSL); (J) the Model for Interdisciplinary Research on Climate (MIROC); (K) the Max Planck Institute for Meteorology (MPI); and (L) the Meteorological Research Institute (MRI). For each month, we also provide herein a summary of the respective Paired Student *t* Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.

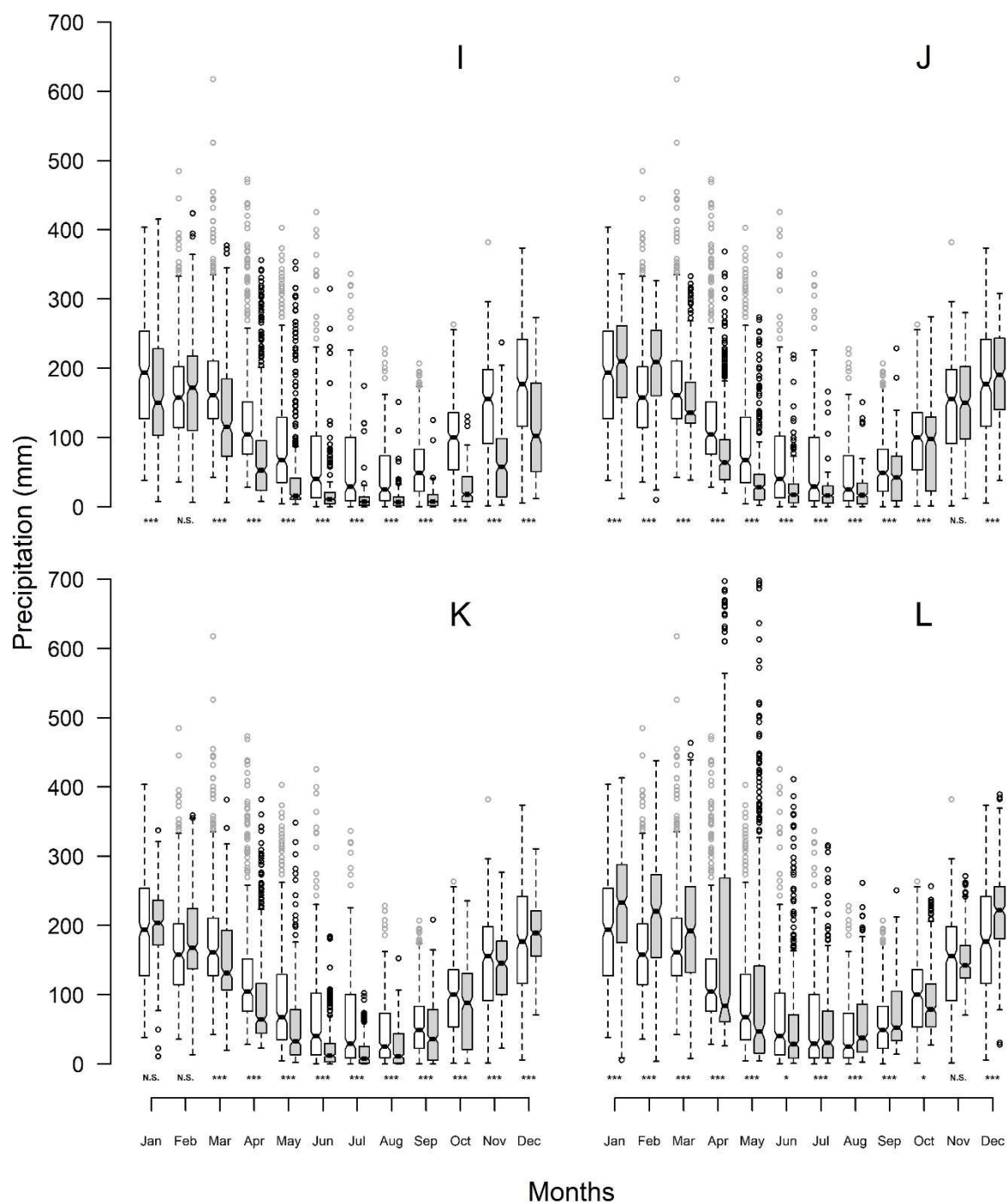


Figure B1.d. Comparison of the *Ppts* provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by the different databases considered in the study (gray boxes), specifically the cases of the databases: (M) Terraclim (Abatzoglou *et al.*, 2018); (N) Tropical Rainfall Measuring Mission (TRMM 3B43 v7; (Kummerow *et al.*, 2000; TRMM, 2018) ; (O) WorldClim 1.4 (Hijmans *et al.*, 2005); and (P) WorldClim 2.1 (Fick and Hijmans, 2017). For each month, we also provide herein a summary of the respective Paired Student *t* Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.

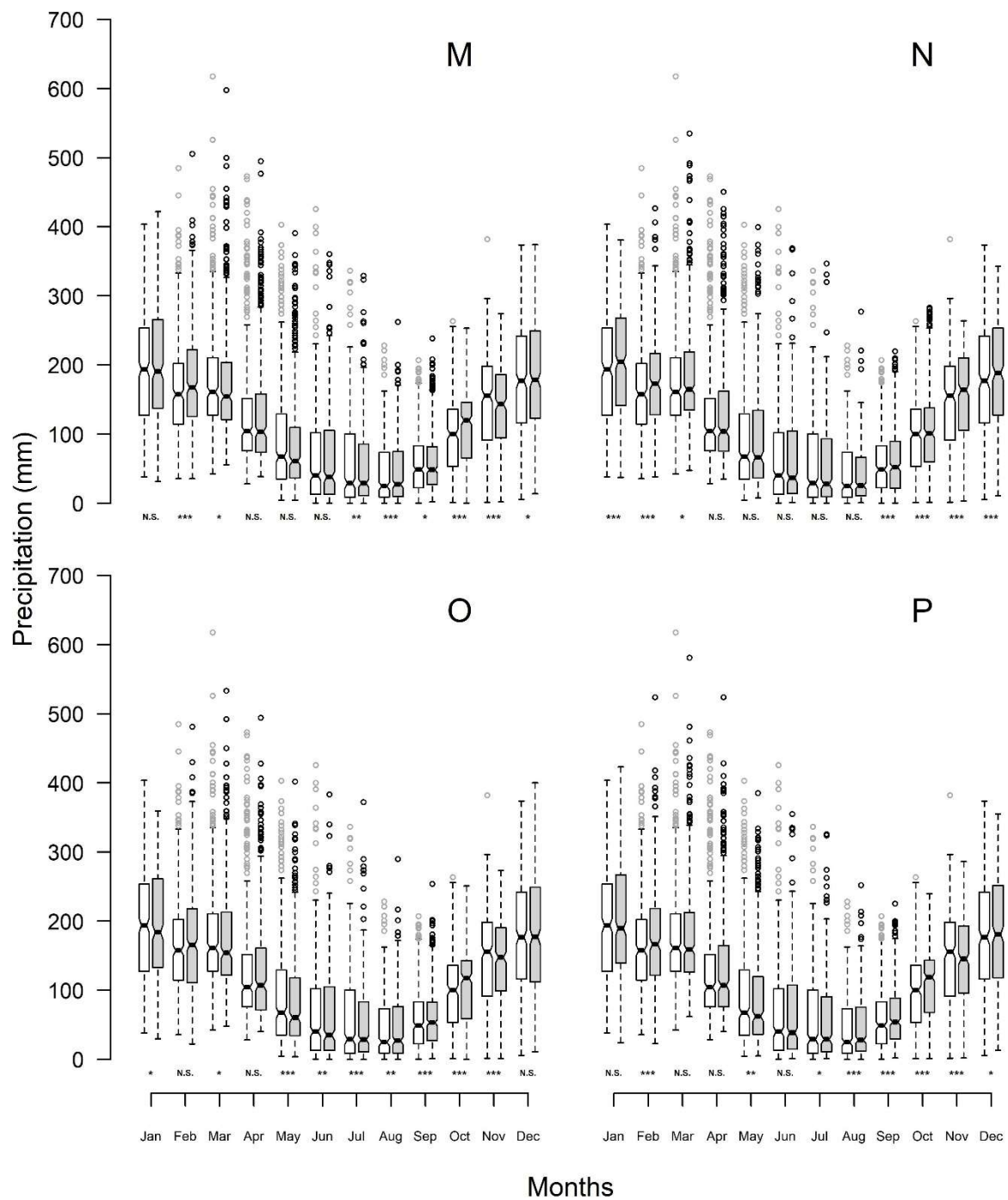


Figure B2.a. Comparison of the mean maximum monthly temperatures (T_{max}) provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by the different databases considered in the study (gray boxes), specifically the cases of the databases: (A) CHELSA 1.2 (Karger *et al.*, 2017, 2018); (B) CliMond (Kriticos *et al.*, 2012); (C) CRU CL 2.0 (New *et al.*, 2002); and (D) the one provided by (Deblauwe *et al.*, 2016). For each month, we also provide herein a summary of the respective Paired Student *t* Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.

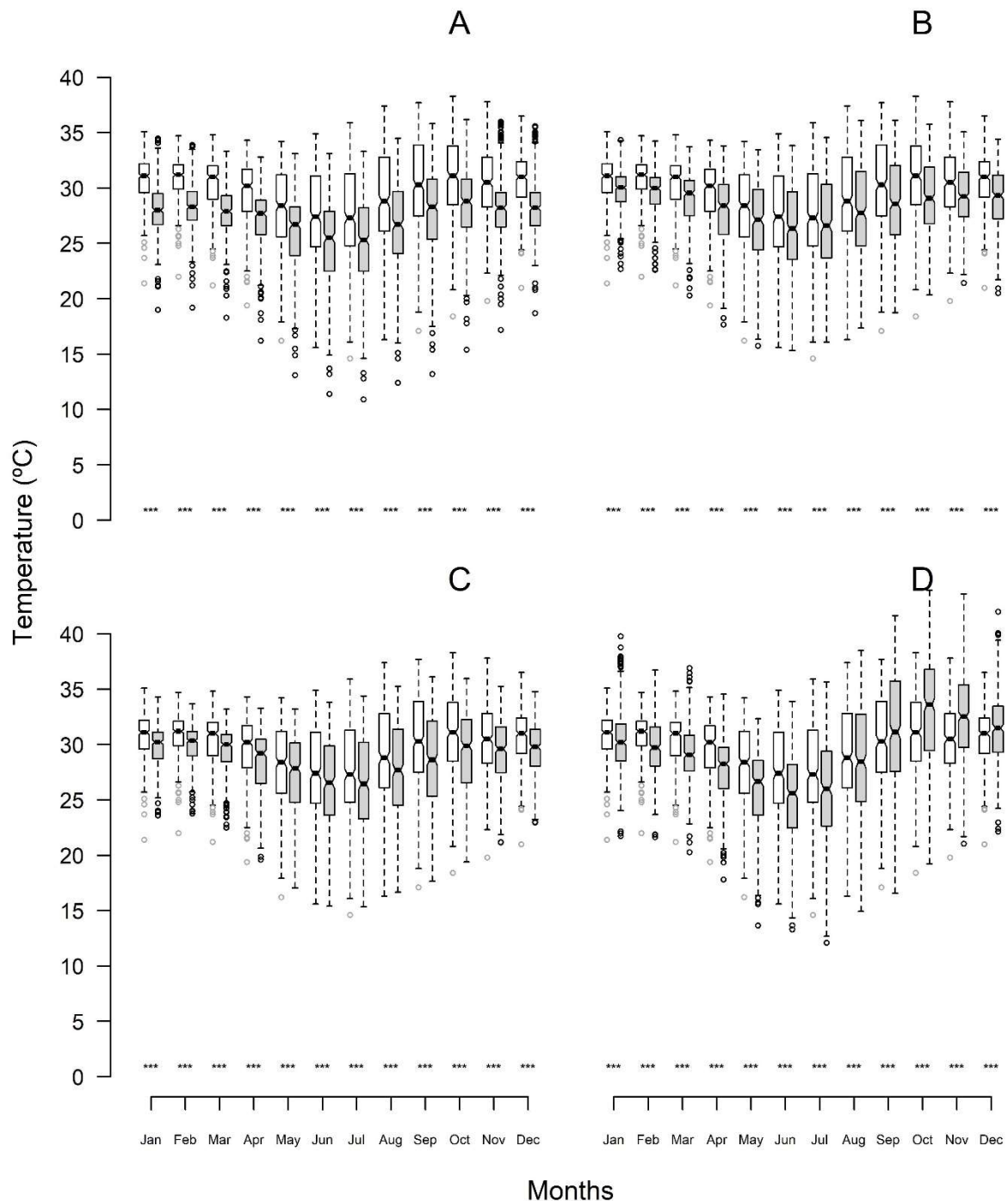


Figure B2.b. Comparison of the T_{max} provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by the different databases considered in the study (gray boxes), specifically the cases of the databases provided in ecoClimate (Lima-Ribeiro *et al.*, 2015, 2020): (E) the National Center for Atmospheric Research (CCSM); (F) the Centre National de Recherches Météorologiques (CNRM); (G) the Flexible Global Ocean-Atmosphere-Land System Model (FGOALS); and (H) the NASA Goddard Institute for Space Studies (GISS). For each month, we also provide herein a summary of the respective Paired Student *t* Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.

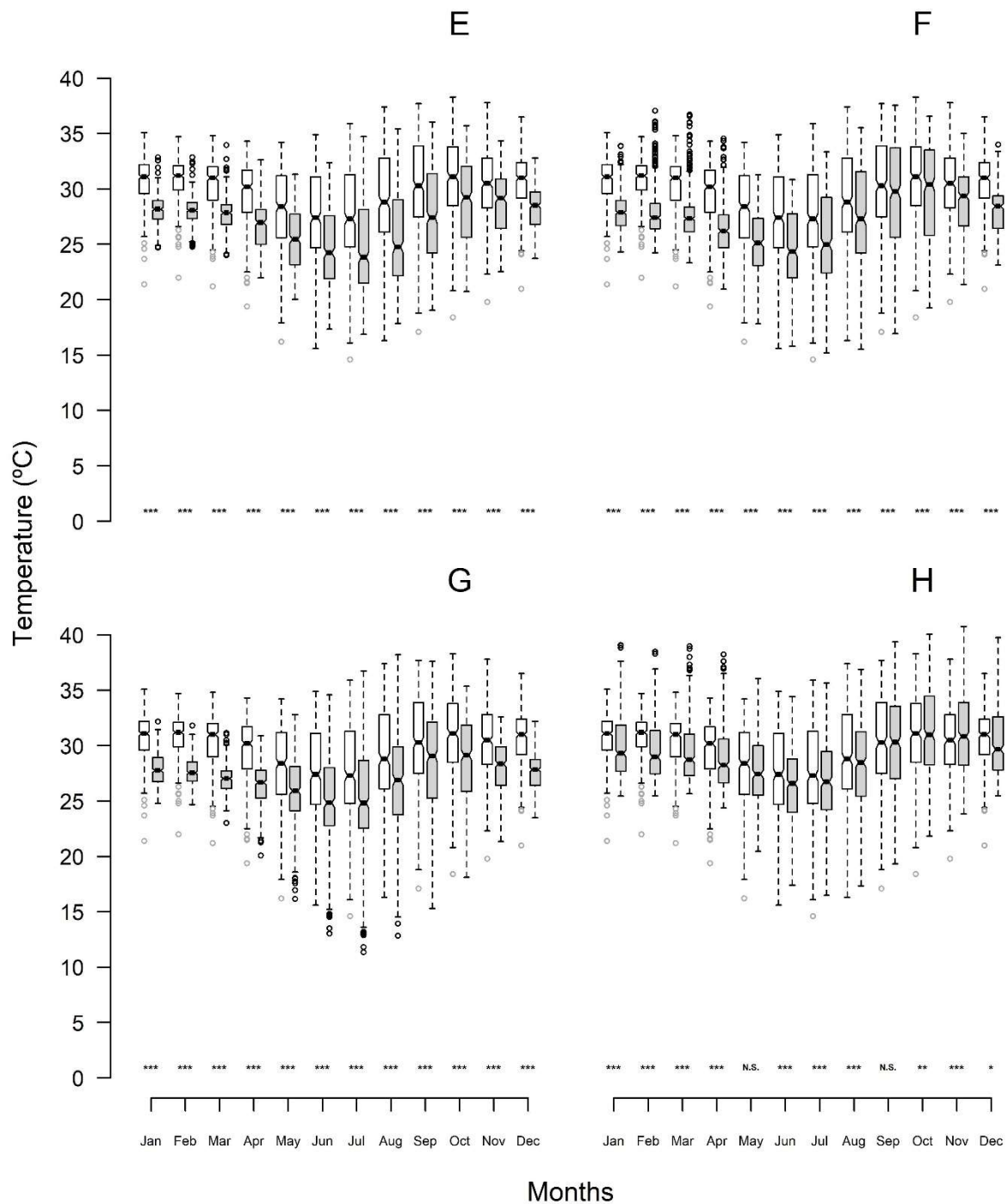


Figure B2.c. Comparison of the T_{max} provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by the different databases considered in the study (gray boxes), specifically the cases of the databases provided in ecoClimate (Lima-Ribeiro *et al.*, 2015, 2020): (I) the Institut Pierre Simon Laplace (IPSL); (J) the Model for Interdisciplinary Research on Climate (MIROC); (K) the Max Planck Institute for Meteorology (MPI); and (L) the Meteorological Research Institute (MRI). For each month, we also provide herein a summary of the respective Paired Student *t* Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.

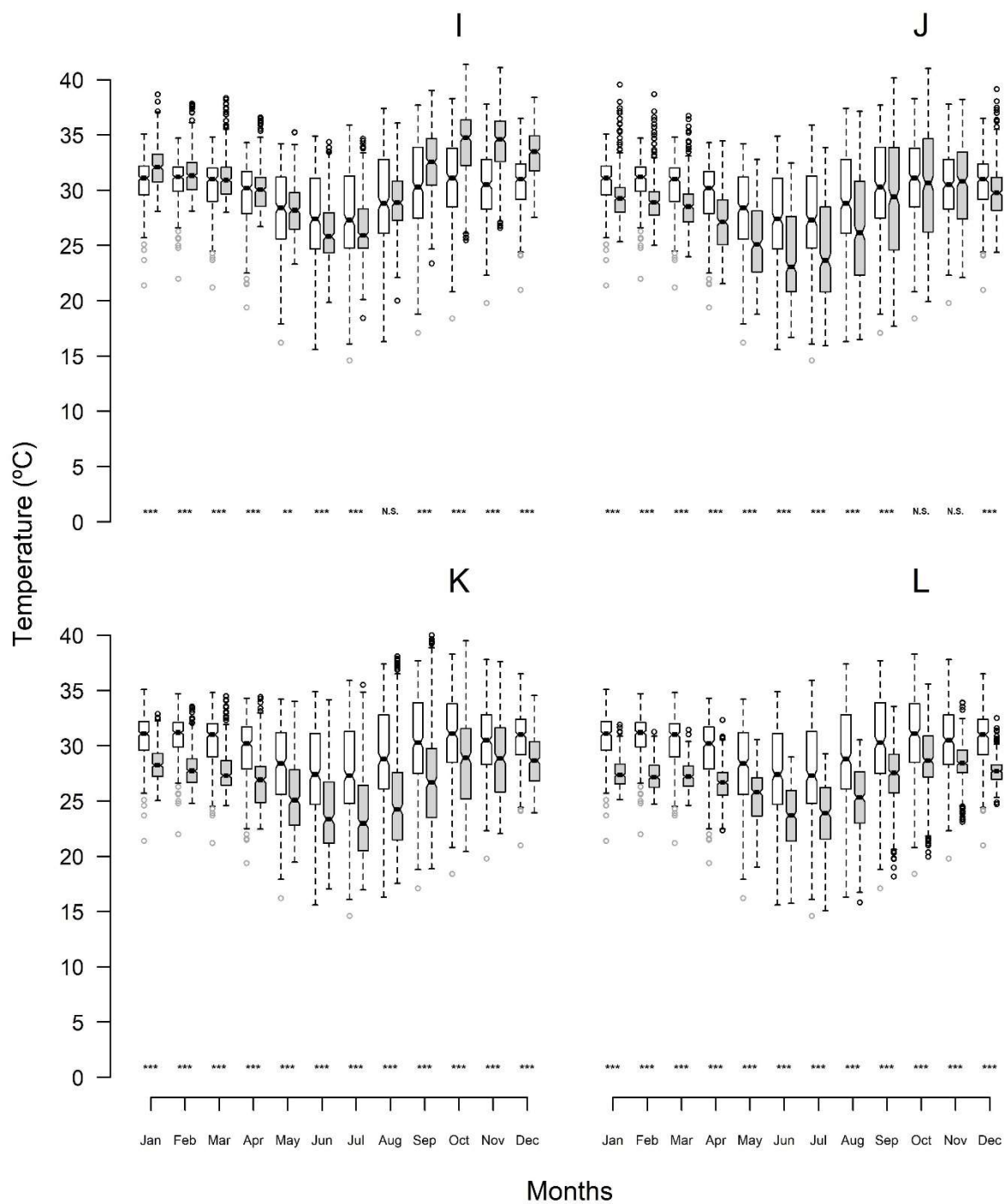
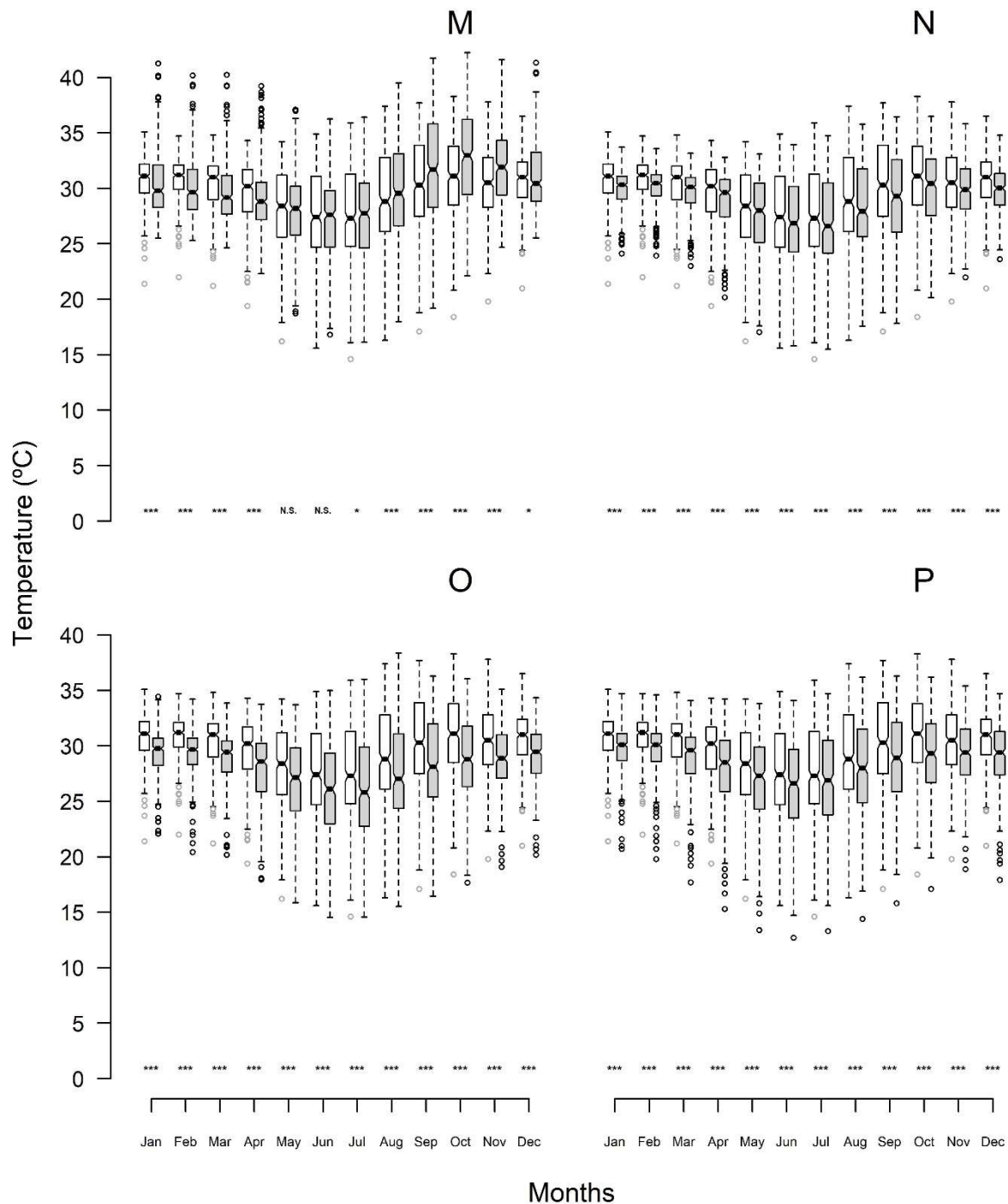


Figure B2.d. Comparison of the T_{max} provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by the different databases considered in the study (gray boxes), specifically the cases of the databases: (M) MERRAclim (Vega *et al.*, 2017, 2018); (N) National Oceanic and Atmospheric Administration (NOAA¹); (O) Terraclim (Abatzoglou *et al.*, 2018); and (P) WorldClim 1.4 (Hijmans *et al.*, 2005). For each month, we also provide herein a summary of the respective Paired Student *t* Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.



¹ CPC Global Temperature data provided by the NOAA/OAR/ESRL PSL, Boulder, Colorado, USA

Figure B2.e. Comparison of the T_{max} provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by WorldClim 2.1 (Fick and Hijmans, 2017). For each month, we also provide herein a summary of the respective Paired Student t Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.

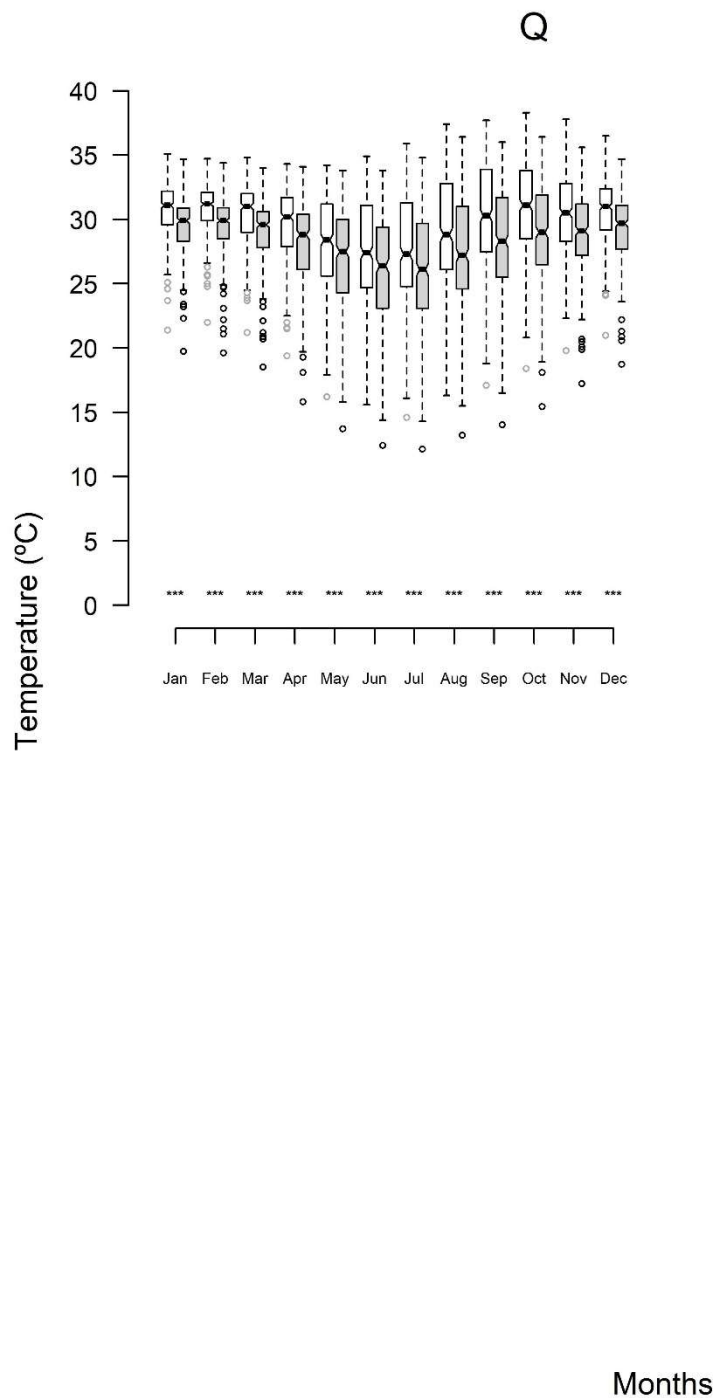


Figure B3.a. Comparison of the mean minimum monthly temperatures (T_{min}) provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by the different databases considered in the study (gray boxes), specifically the cases of the databases: (A) CHELSA 1.2 (Karger *et al.*, 2017, 2018); (B) CliMond (Kriticos *et al.*, 2012); (C) CRU CL 2.0 (New *et al.*, 2002); and (D) the one provided by (Deblauwe *et al.*, 2016). For each month, we also provide herein a summary of the respective Paired Student *t* Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.

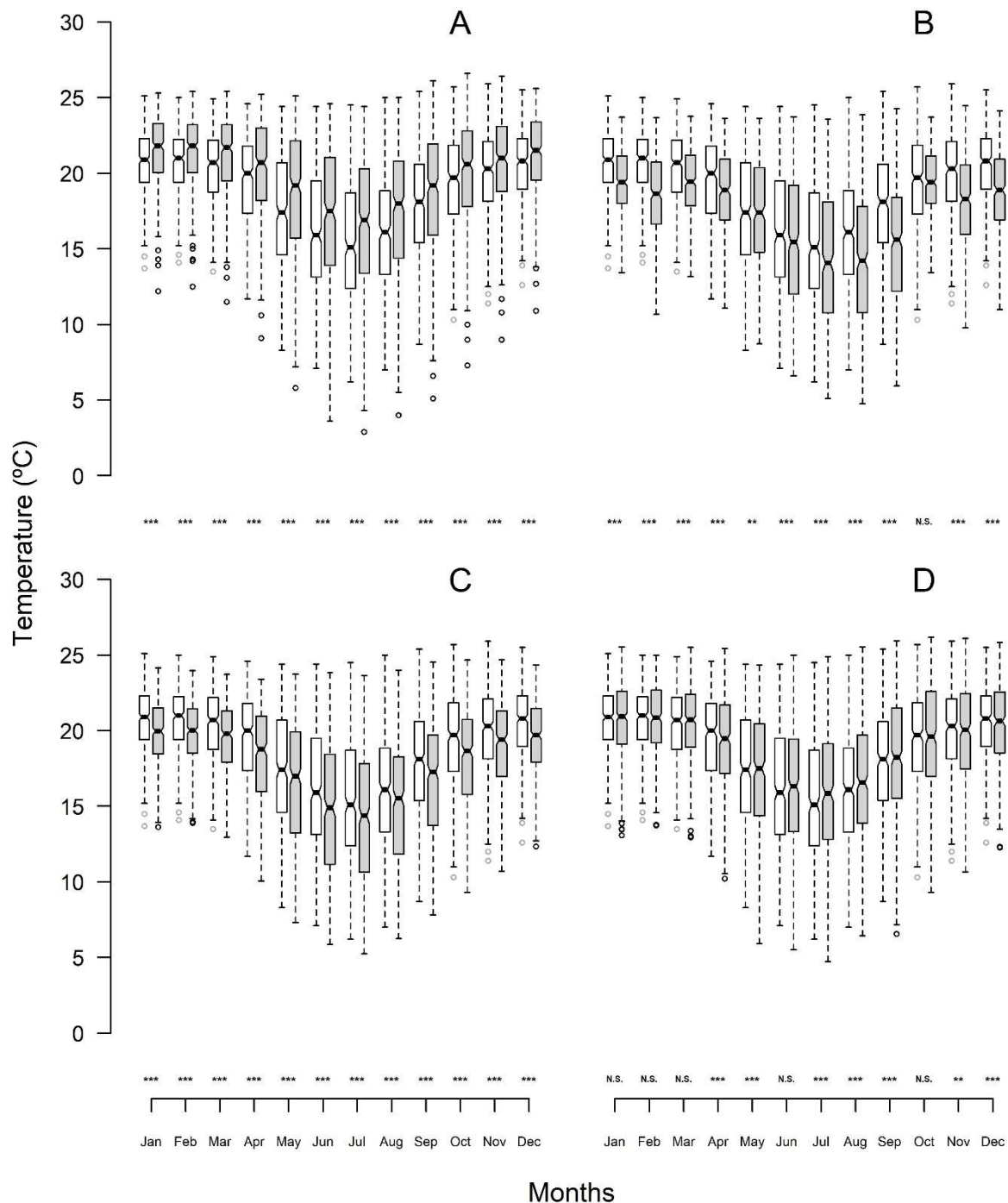


Figure B3.b. Comparison of the T_{min} provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by the different databases considered in the study (gray boxes), specifically the cases of the databases provided in ecoClimate (Lima-Ribeiro *et al.*, 2015, 2020): (E) the National Center for Atmospheric Research (CCSM); (F) the Centre National de Recherches Météorologiques (CNRM); (G) the Flexible Global Ocean-Atmosphere-Land System Model (FGOALS); and (H) the NASA Goddard Institute for Space Studies (GISS). For each month, we also provide herein a summary of the respective Paired Student *t* Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.

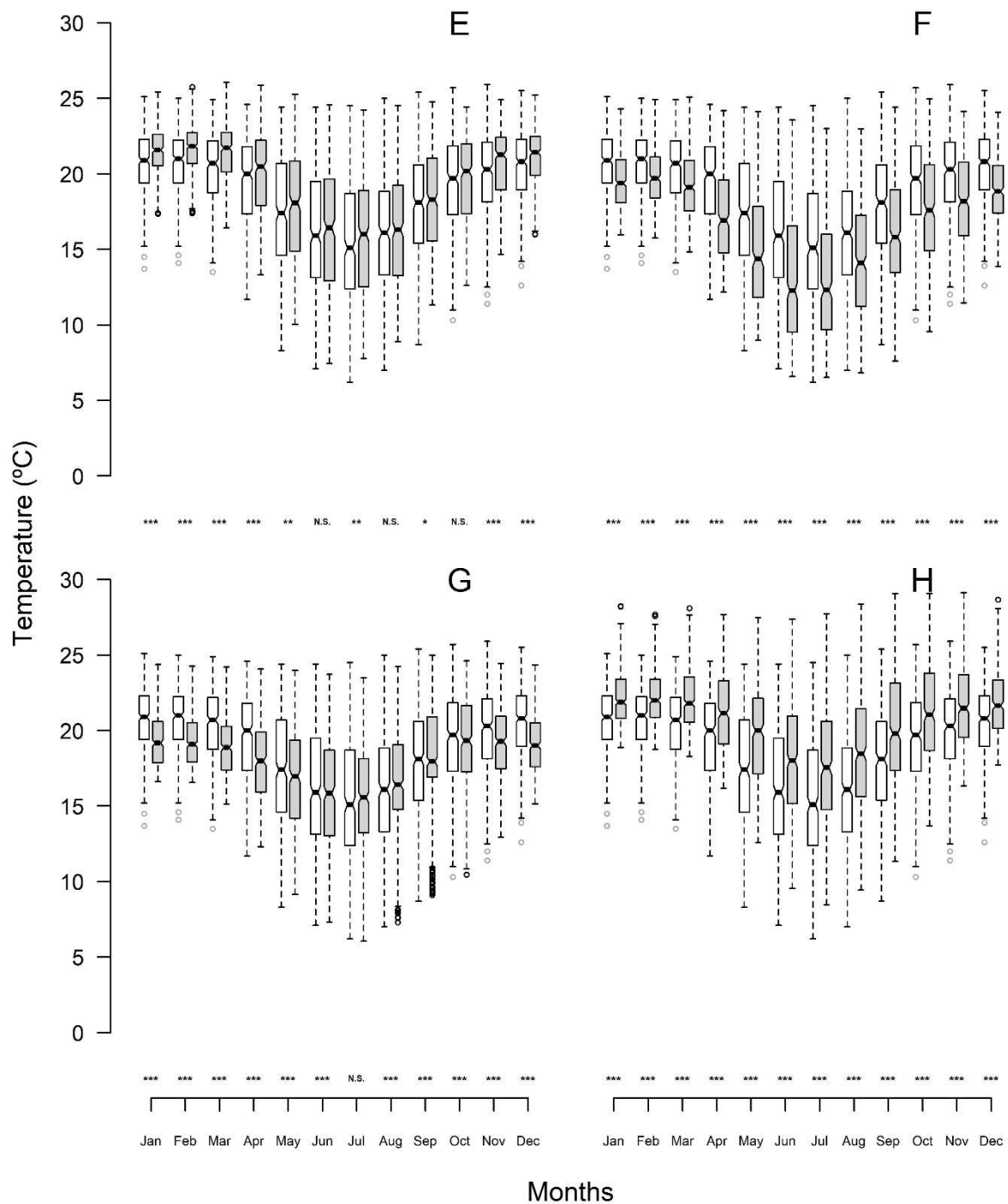


Figure B3.c. Comparison of the T_{min} provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by the different databases considered in the study (gray boxes), specifically the cases of the databases provided in ecoClimate (Lima-Ribeiro *et al.*, 2015, 2020): (I) the Institut Pierre Simon Laplace (IPSL); (J) the Model for Interdisciplinary Research on Climate (MIROC); (K) the Max Planck Institute for Meteorology (MPI); and (L) the Meteorological Research Institute (MRI). For each month, we also provide herein a summary of the respective Paired Student t Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.

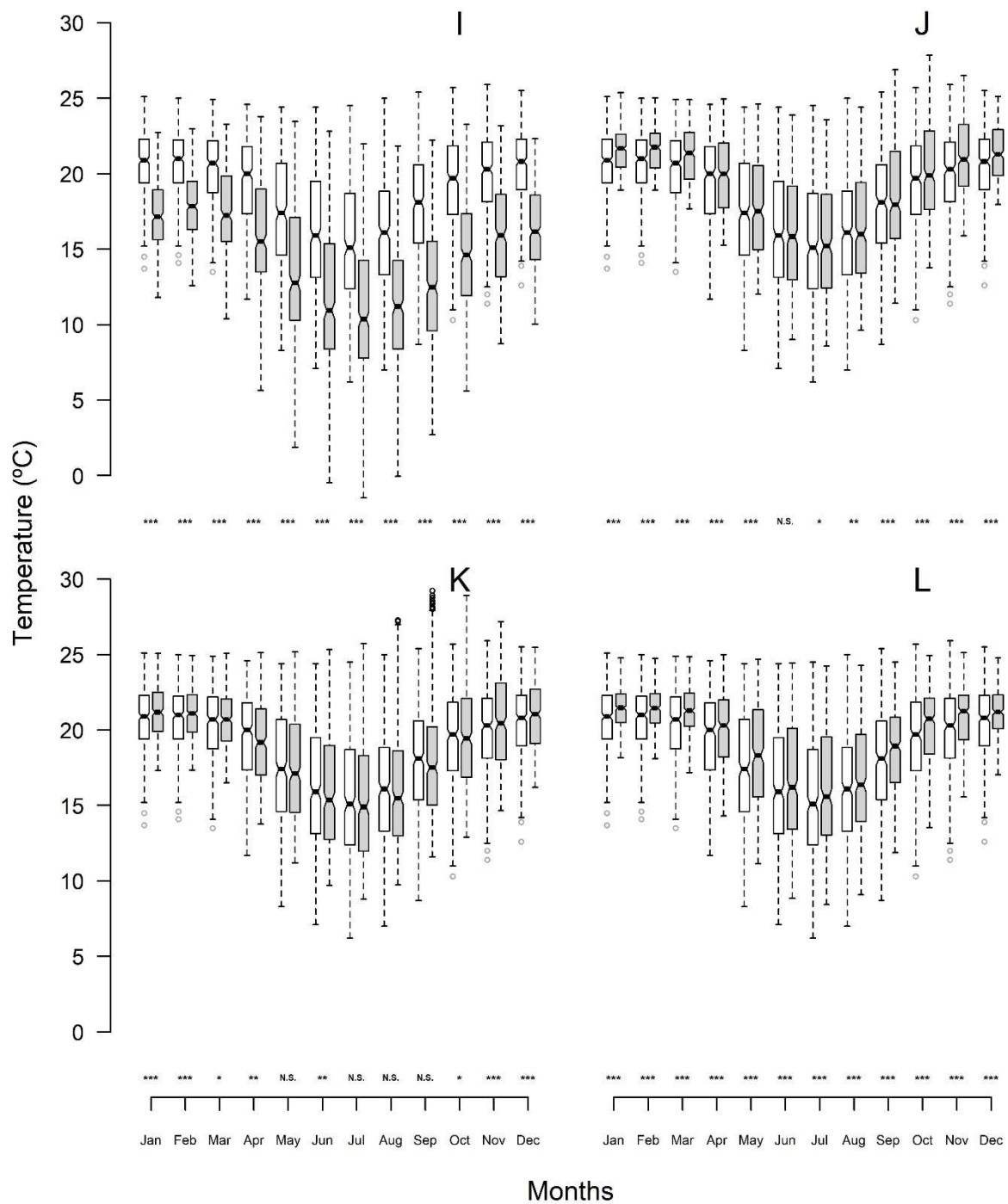
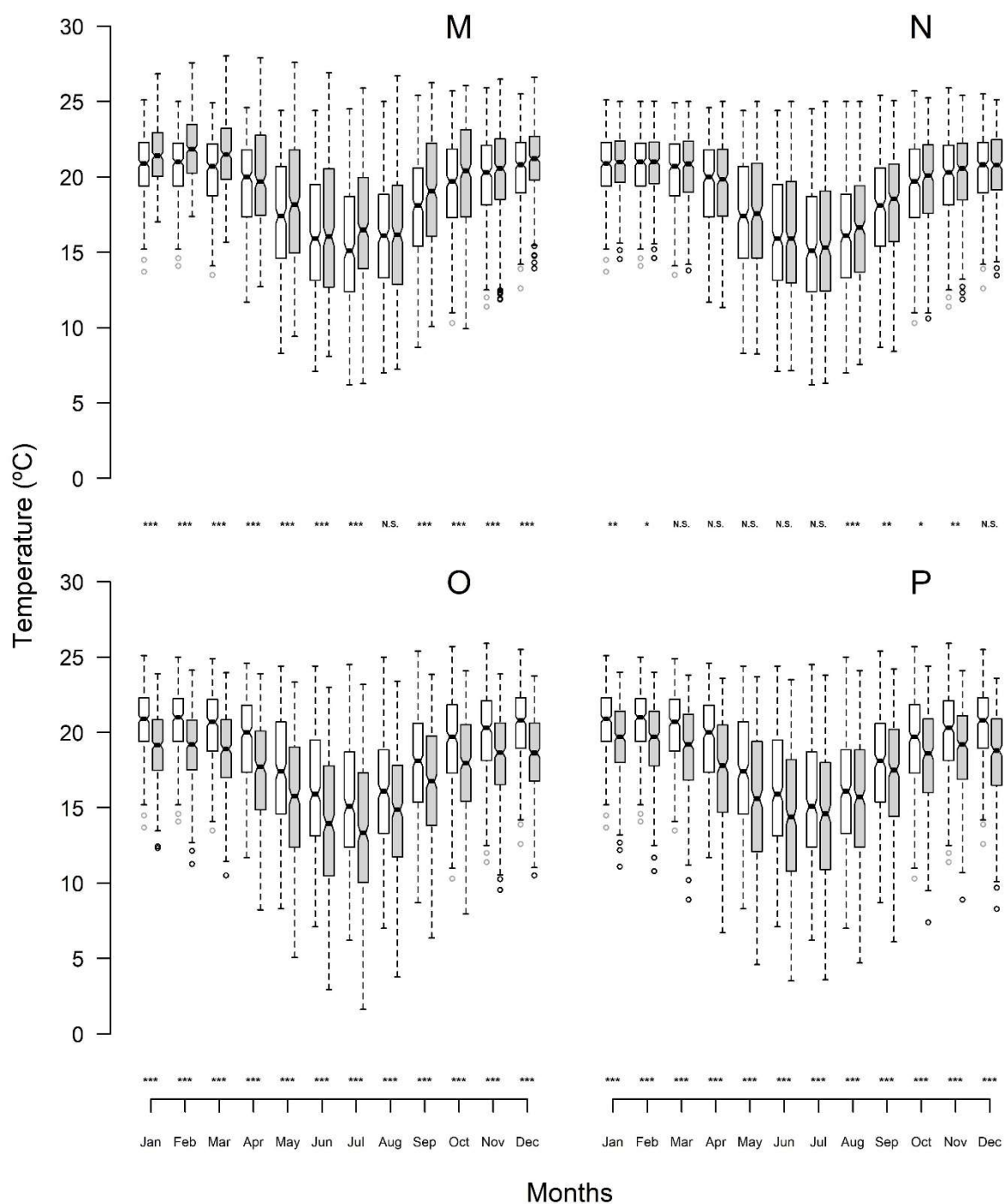


Figure B3.d. Comparison of the T_{min} provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by the different databases considered in the study (gray boxes), specifically the cases of the databases: (M) MERRAclim (Vega *et al.*, 2017, 2018); (N) National Oceanic and Atmospheric Administration (NOAA²); (O) Terraclim (Abatzoglou *et al.*, 2018); and (P) WorldClim 1.4 (Hijmans *et al.*, 2005). For each month, we also provide herein a summary of the respective Paired Student *t* Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.



² CPC Global Temperature data provided by the NOAA/OAR/ESRL PSL, Boulder, Colorado, USA

Figure B3.e. Comparison of the T_{min} provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology (INMET; white boxes) relative to the information provided by WorldClim 2.1 (Fick and Hijmans, 2017). For each month, we also provide herein a summary of the respective Paired Student t Test: (N.S.) not significant; (*) $p < 0,05$; (**) $p < 0,01$; (***) $p < 0,001$.

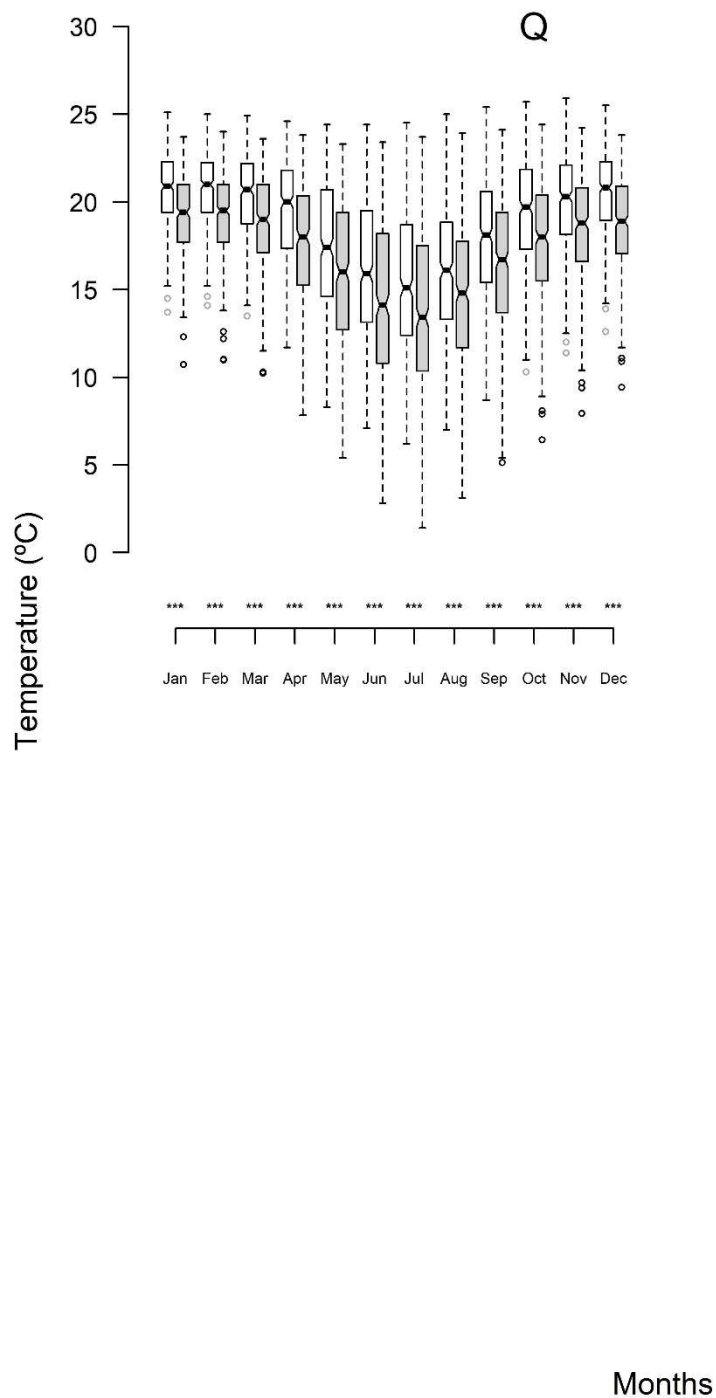


Figure B4. *Ppts* for Brazil from different sources. Yellow boxes: according to measures taken on-field by the meteorological gauges' network managed by the Brazilian Institute of Meteorology; Orange boxes: correspond to values provided by TRMM 3B43 v7 (Kummerow *et al.*, 2000; TRMM, 2018); Light-blue boxes: refers to the surfaces interpolated using the direct-based procedure; Dark-blue boxes: according to the surfaces interpolated using the error-based procedure. (Orig.) Original data; (CK) Cokriging; (GBM) Generalized boosted regression modeling; (LM) Simple regression; (RF) Quantile random forest; and (TPS) Thin plate splines.

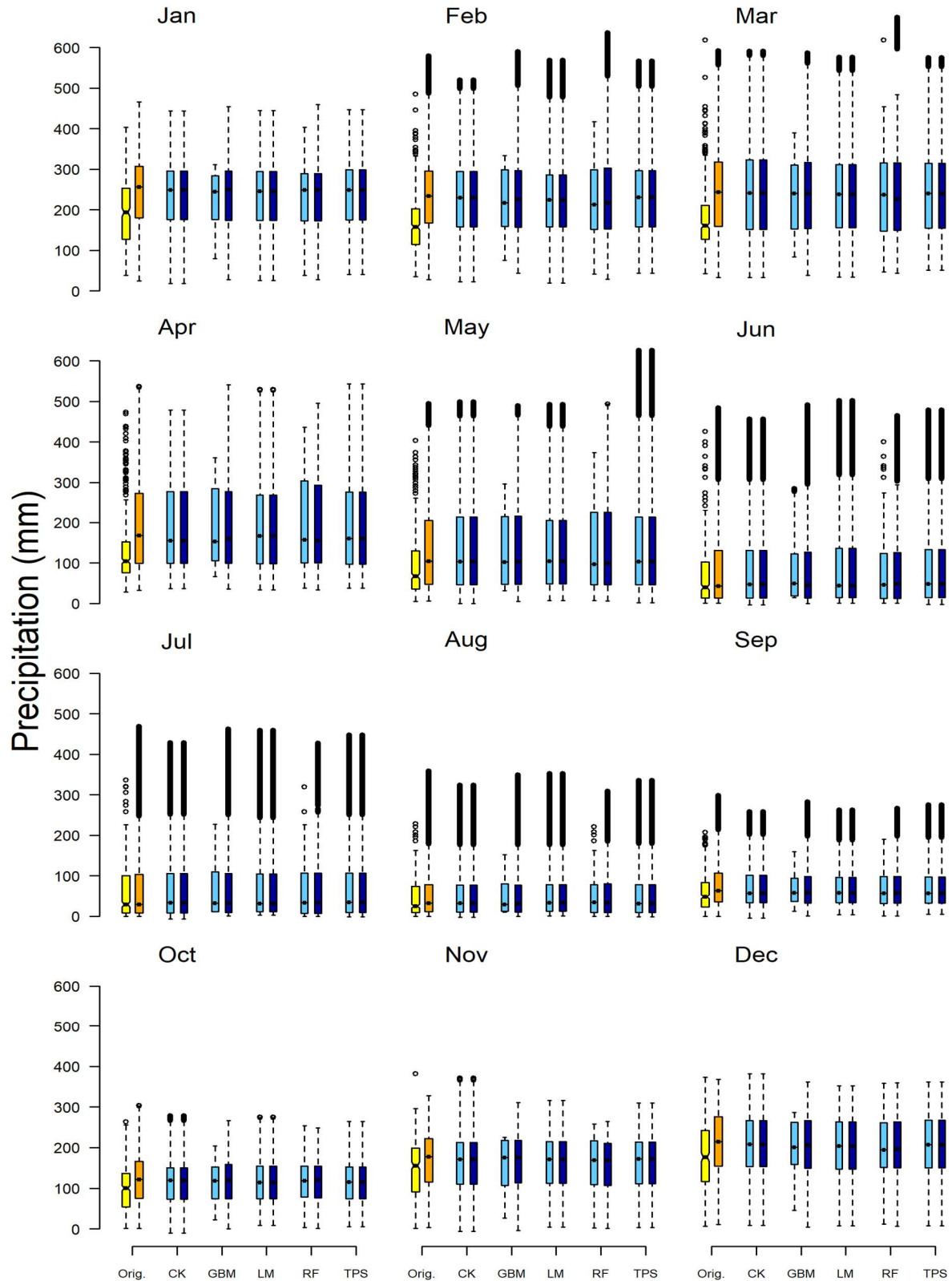


Figure B5. T_{max} for Brazil from different sources. Yellow boxes: according to measures taken on-field by the meteorological gauges' network managed by the Brazilian Institute of Meteorology; Orange boxes: correspond to values provided by NOAA, developed by the American National Oceanic and Atmospheric Administration (NOAA) through optimal interpolations of quality-controlled gauge records of the Global Telecommunication System (GTS); Light-blue boxes: refers to the surfaces interpolated using the direct-based procedure; Dark-blue boxes: according to the surfaces interpolated using the error-based procedure. (Orig.) Original data; (CK) Cokriging; (GBM) Generalized boosted regression modeling; (LM) Simple regression; (RF) Quantile random forest; and (TPS) Thin plate splines.

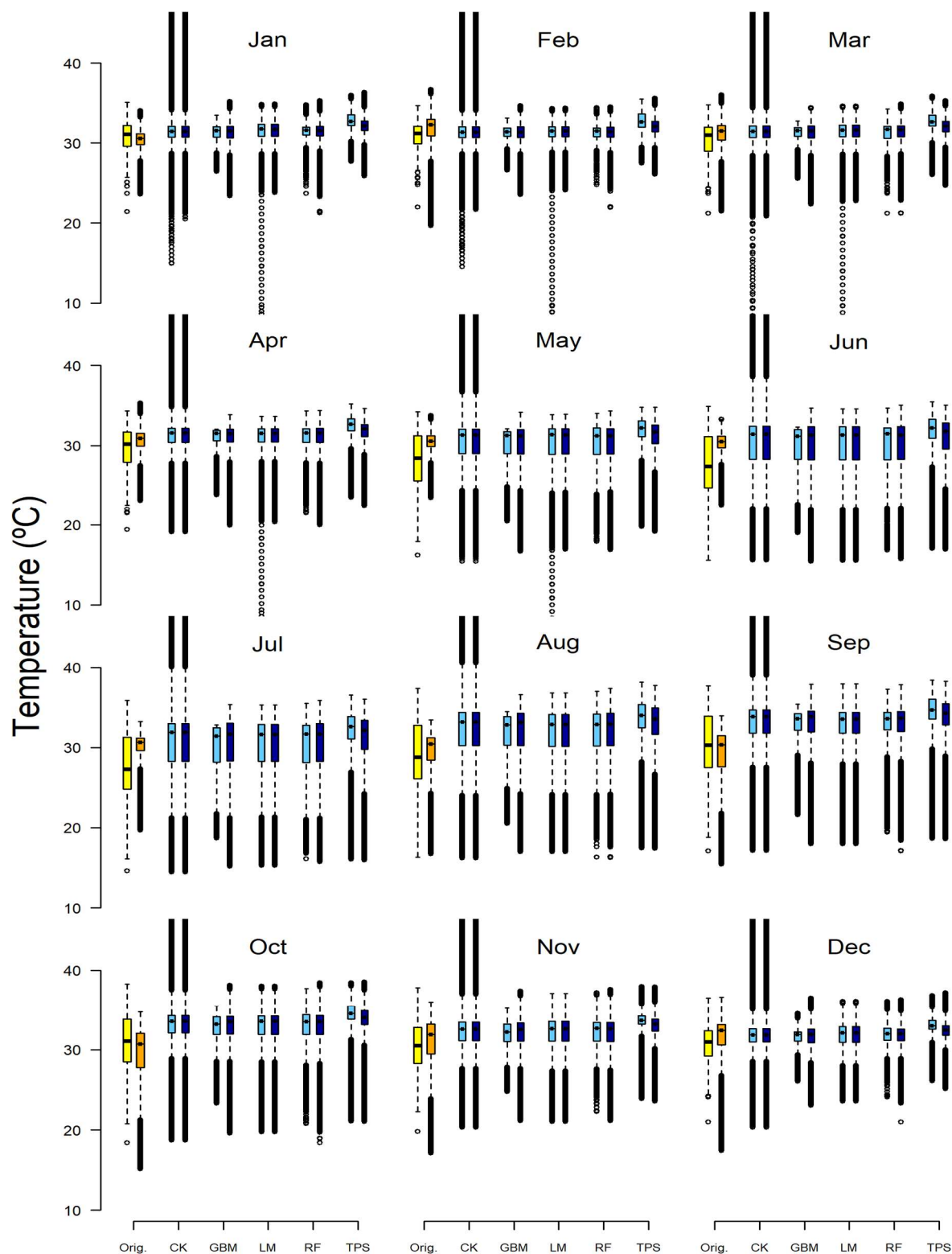


Figure B6. T_{min} for Brazil from different sources. Yellow boxes: according to measures taken on-field by the meteorological gauges' network managed by the Brazilian Institute of Meteorology; Orange boxes: correspond to values provided by NOAA, developed by the American National Oceanic and Atmospheric Administration (NOAA) through optimal interpolations of quality-controlled gauge records of the Global Telecommunication System (GTS); Light-blue boxes: refers to the surfaces interpolated using the direct-based procedure; Dark-blue boxes: according to the surfaces interpolated using the error-based procedure. (Orig.) Original data; (CK) Cokriging; (GBM) Generalized boosted regression modeling; (LM) Simple regression; (RF) Quantile random forest; and (TPS) Thin plate splines.

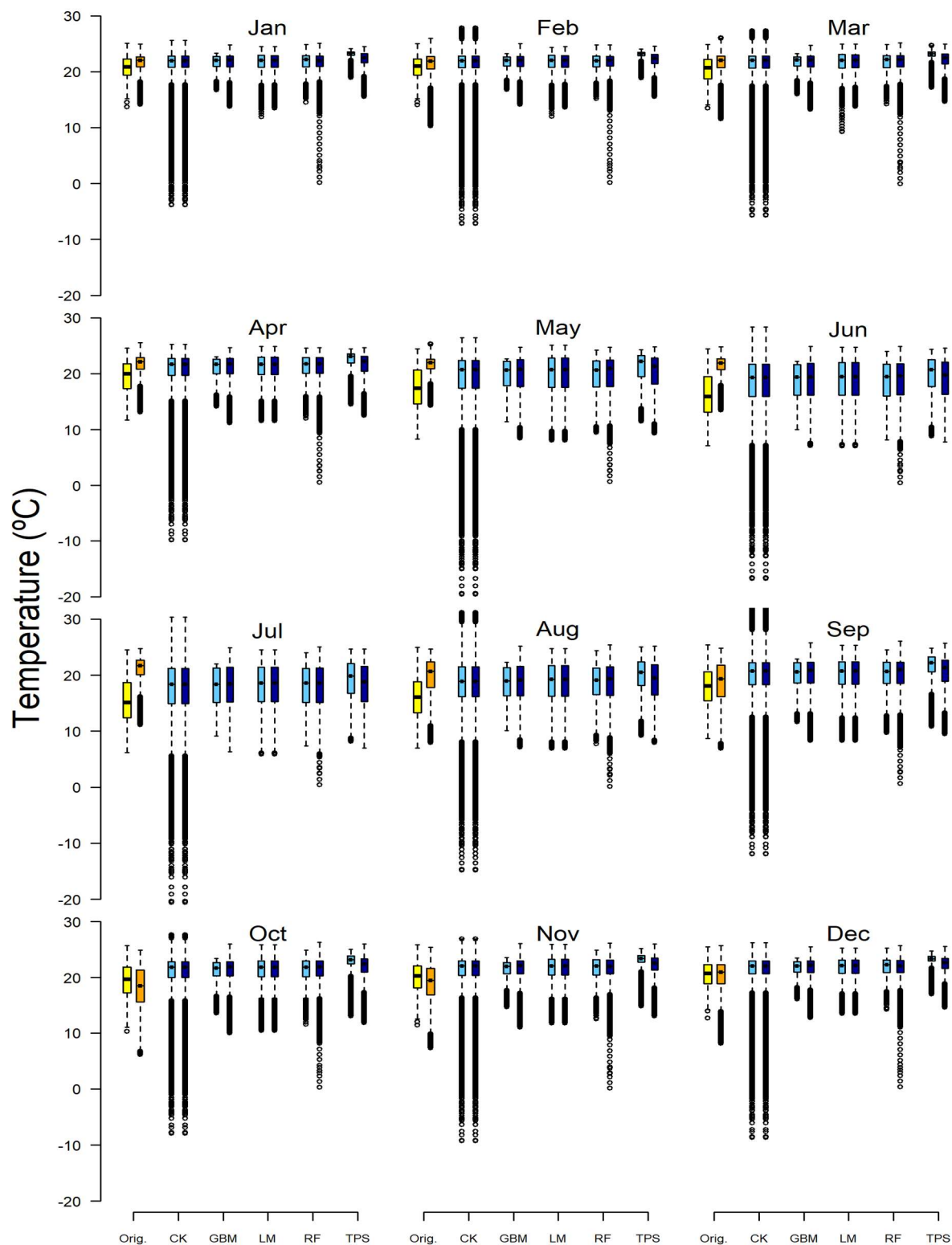
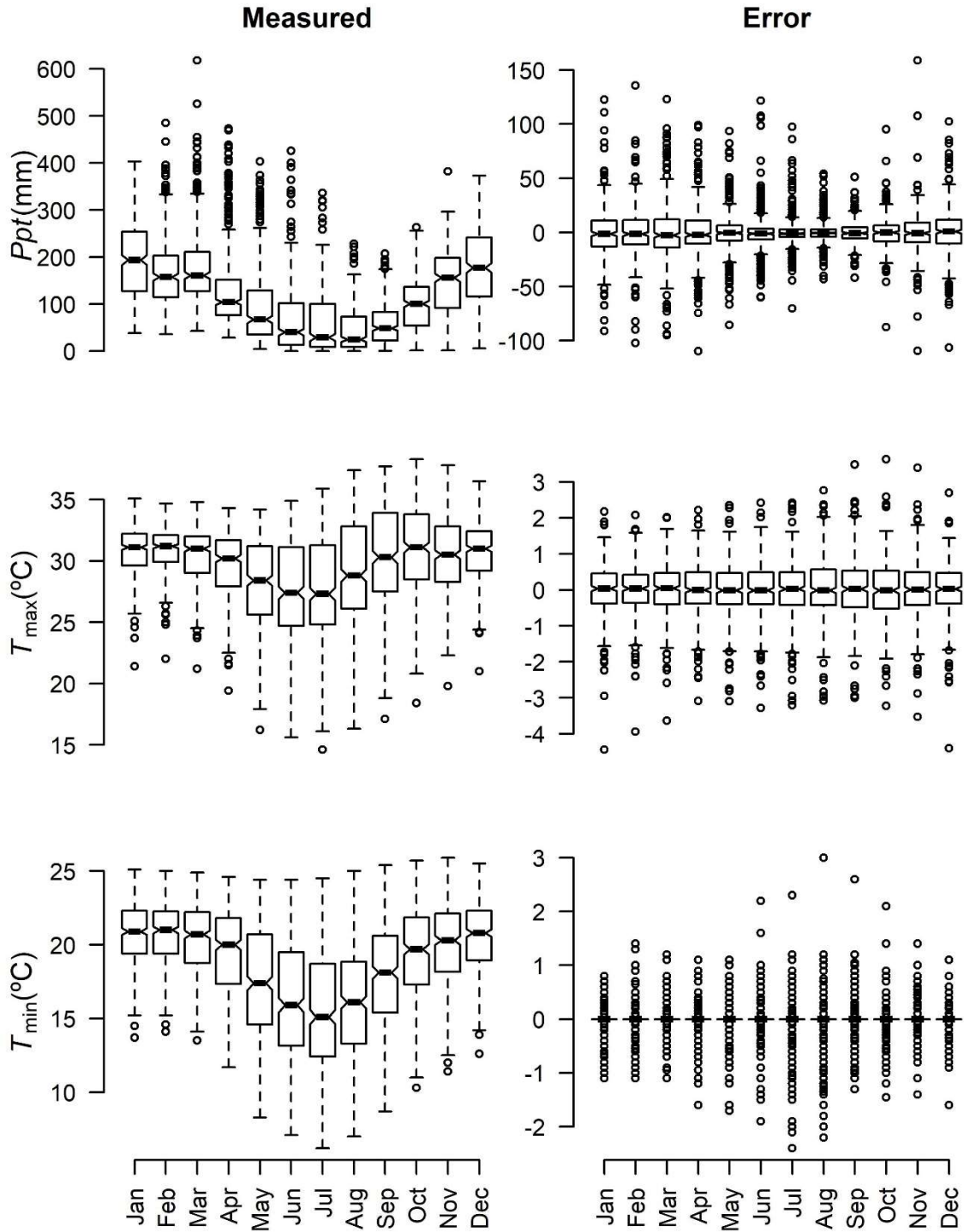


Figure B7. Comparison of the mean monthly $Ppts$, T_{max} and T_{min} provided by the meteorological weather system managed by the Brazilian National Institute of Meteorology and their difference respect the corresponding values in BrazilClim.



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with the Global Organization for Earth System Science Portals; (2) the NOAA/OAR/ESRL PSL, Boulder, Colorado, USA, which provides the CPC Global Temperature data; (3) the Climate Hazards Center of the UC Santa Barbara, for the CHIRPS v 2.0 data; (4) the Goddard Earth Sciences Data and Information Services Center (GES DISC), for the TRMM 3B43 data; (5) the Land Processes Distributed Active Archive Center (LP DAAC) of the NASA Earth Observing System, for the MOD11C3 data; (6) the Japan Meteorological Agency, for the JRA55 data; and (7) the National Institute of Meteorology of Brazil, for the climatic information measured on-field. PRP also thanks the scholarship from the Organization of American States through its Partnerships Program for Education and Training of the Coimbra Group of Brazilian Universities (OAS/PAEC/GCUB).

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