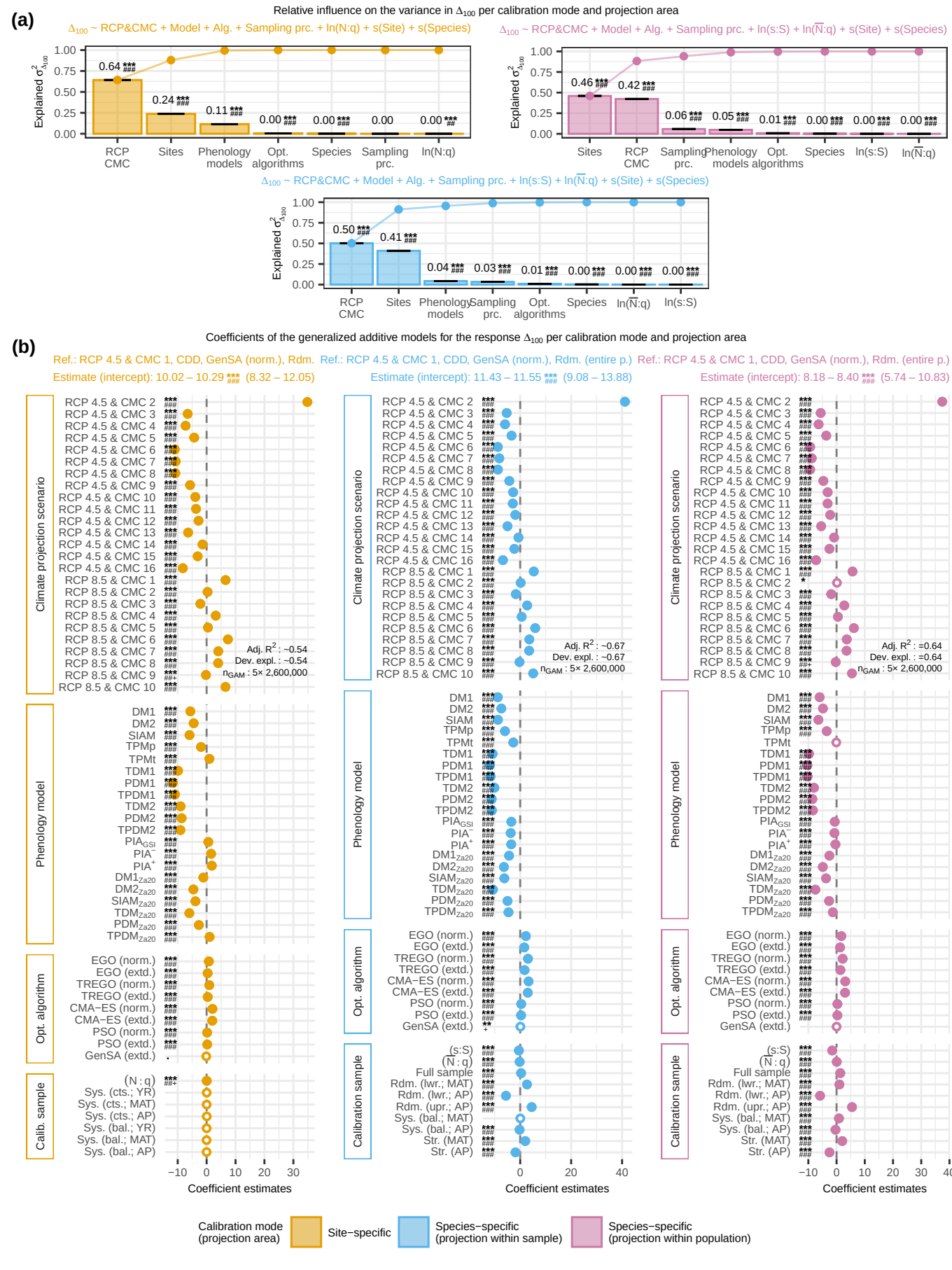
(a)
Relative influence on the variance in Δ100 per calibration mode and projection area
Δ100 ~ RCP&CMC + Model + Alg. + Sampling prc. + ln(N:q) + s(Site) + s(Species)
Explained σ²Δ100
0.64 ***###
0.24 ***###
0.11 ***###
0.00 ***###
0.00 ***###
0.00
0.00 ***##
RCP CMC
Sites
Phenology models
Opt. algorithms
Species
Sampling prc.
ln(N:q)
Δ100 ~ RCP&CMC + Model + Alg. + Sampling prc. + ln(s:S) + ln(N̄:q) + s(Site) + s(Species)
0.46 ***###
0.42 ***###
0.06 ***###
0.05 ***###
0.01 ***###
0.00 ***###
0.00 ***###
0.00 ***###
Sites
RCP CMC
Sampling prc.
Phenology models
Opt. algorithms
Species
ln(s:S)
ln(N̄:q)
Δ100 ~ RCP&CMC + Model + Alg. + Sampling prc. + ln(s:S) + ln(N̄:q) + s(Site) + s(Species)
0.50 ***###
0.41 ***###
0.04 ***###
0.03 ***###
0.01 ***###
0.00 ***###
0.00 ***###
0.00 ***###
RCP CMC
Sites
Phenology models
Sampling prc.
Opt. algorithms
Species
ln(N̄:q)
ln(s:S)
(b)
Coefficients of the generalized additive models for the response Δ100 per calibration mode and projection area
Ref.: RCP 4.5 & CMC 1, CDD, GenSA (norm.), Rdm.
Estimate (intercept): 10.02 – 10.29 ***### (8.32 – 12.05)
Ref.: RCP 4.5 & CMC 1, CDD, GenSA (norm.), Rdm. (entire p.)
Estimate (intercept): 11.43 – 11.55 ***### (9.08 – 13.88)
Ref.: RCP 4.5 & CMC 1, CDD, GenSA (norm.), Rdm. (entire p.)
Estimate (intercept): 8.18 – 8.40 ***### (5.74 – 10.83)
Climate projection scenario
RCP 4.5 & CMC 2
RCP 4.5 & CMC 3
RCP 4.5 & CMC 4
RCP 4.5 & CMC 5
RCP 4.5 & CMC 6
RCP 4.5 & CMC 7
RCP 4.5 & CMC 8
RCP 4.5 & CMC 9
RCP 4.5 & CMC 10
RCP 4.5 & CMC 11
RCP 4.5 & CMC 12
RCP 4.5 & CMC 13
RCP 4.5 & CMC 14
RCP 4.5 & CMC 15
RCP 4.5 & CMC 16
RCP 8.5 & CMC 1
RCP 8.5 & CMC 2
RCP 8.5 & CMC 3
RCP 8.5 & CMC 4
RCP 8.5 & CMC 5
RCP 8.5 & CMC 6
RCP 8.5 & CMC 7
RCP 8.5 & CMC 8
RCP 8.5 & CMC 9
RCP 8.5 & CMC 10
Adj. R² : ~0.54
Dev. expl. : ~0.54
nGAM : 5× 2,600,000
Adj. R² : ~0.67
Dev. expl. : ~0.67
nGAM : 5× 2,600,000
Adj. R² : ≈0.64
Dev. expl. : ≈0.64
nGAM : 5× 2,600,000
Phenology model
DM1
DM2
SIAM
TPMp
TPMt
TDM1
PDM1
TPDM1
TDM2
PDM2
TPDM2
PIAGSI
PIA⁻
PIA⁺
DM1Za20
DM2Za20
SIAMZa20
TDMZa20
PDMZa20
TPDMZa20
Opt. algorithm
EGO (norm.)
EGO (extd.)
TREGO (norm.)
TREGO (extd.)
CMA−ES (norm.)
CMA−ES (extd.)
PSO (norm.)
PSO (extd.)
GenSA (extd.)
Calib. sample
(N : q)
Sys. (cts.; YR)
Sys. (cts.; MAT)
Sys. (cts.; AP)
Sys. (bal.; YR)
Sys. (bal.; MAT)
Sys. (bal.; AP)
(s:S)
(N : q)
Full sample
Rdm. (lwr.; MAT)
Rdm. (lwr.; AP)
Rdm. (upr.; AP)
Sys. (bal.; MAT)
Sys. (bal.; AP)
Str. (MAT)
Str. (AP)
Coefficient estimates
Calibration mode (projection area)
Site−specific
Species−specific (projection within sample)
Species−specific (projection within population)