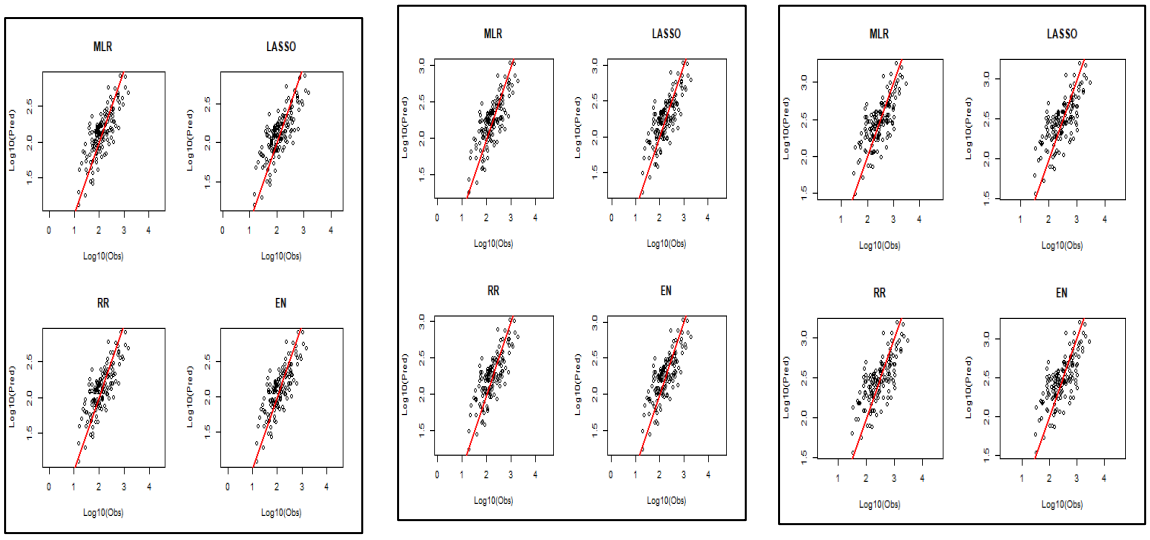
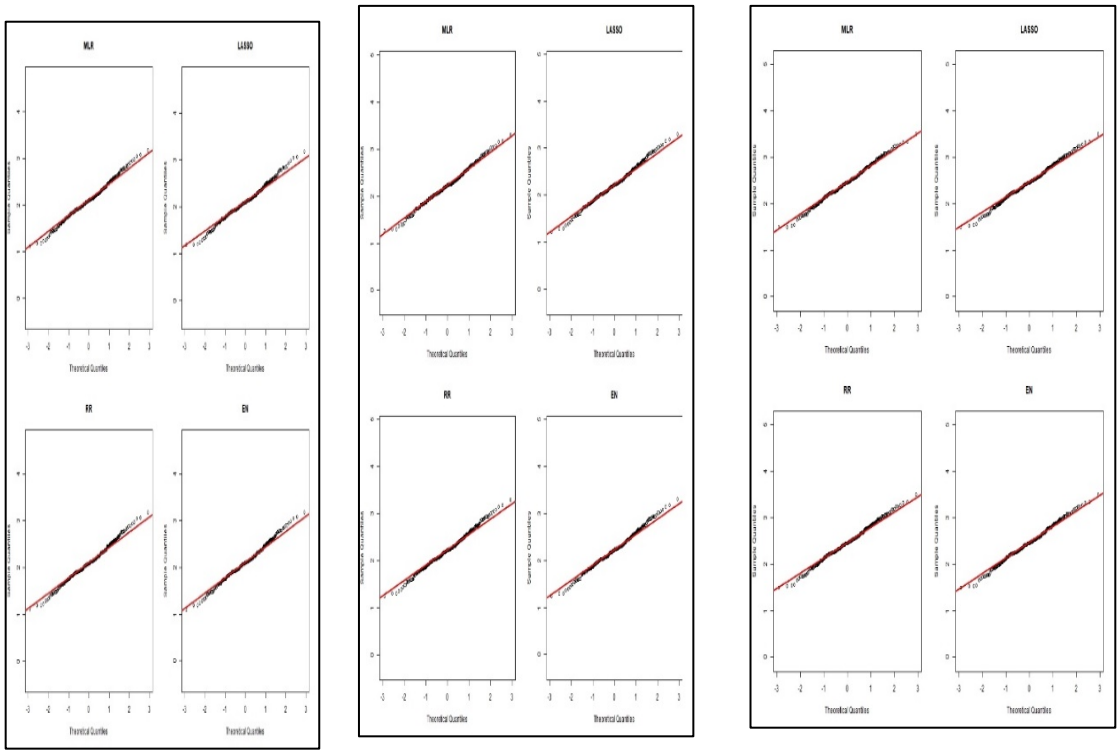
Supplementary Section



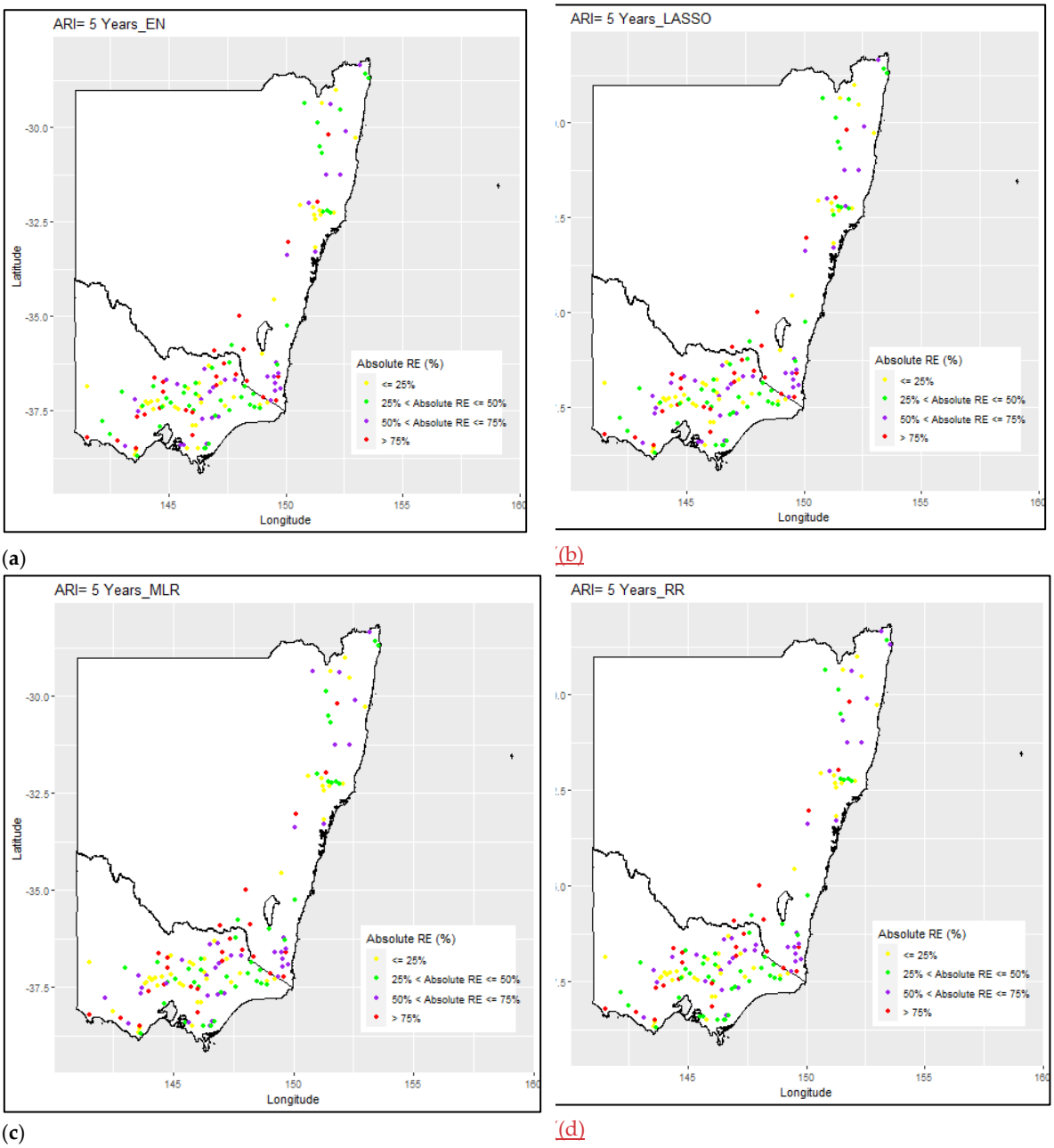
(**a**) (**b**) **(c)**

Figure S1. Observed versus predicted flood quantiles (m^3/s) for different regression models: (**a**) ARI = 5 years; (**b**) ARI = 10 years; (c) ARI = 50 years.



(**a**) (**b**) **(c)**

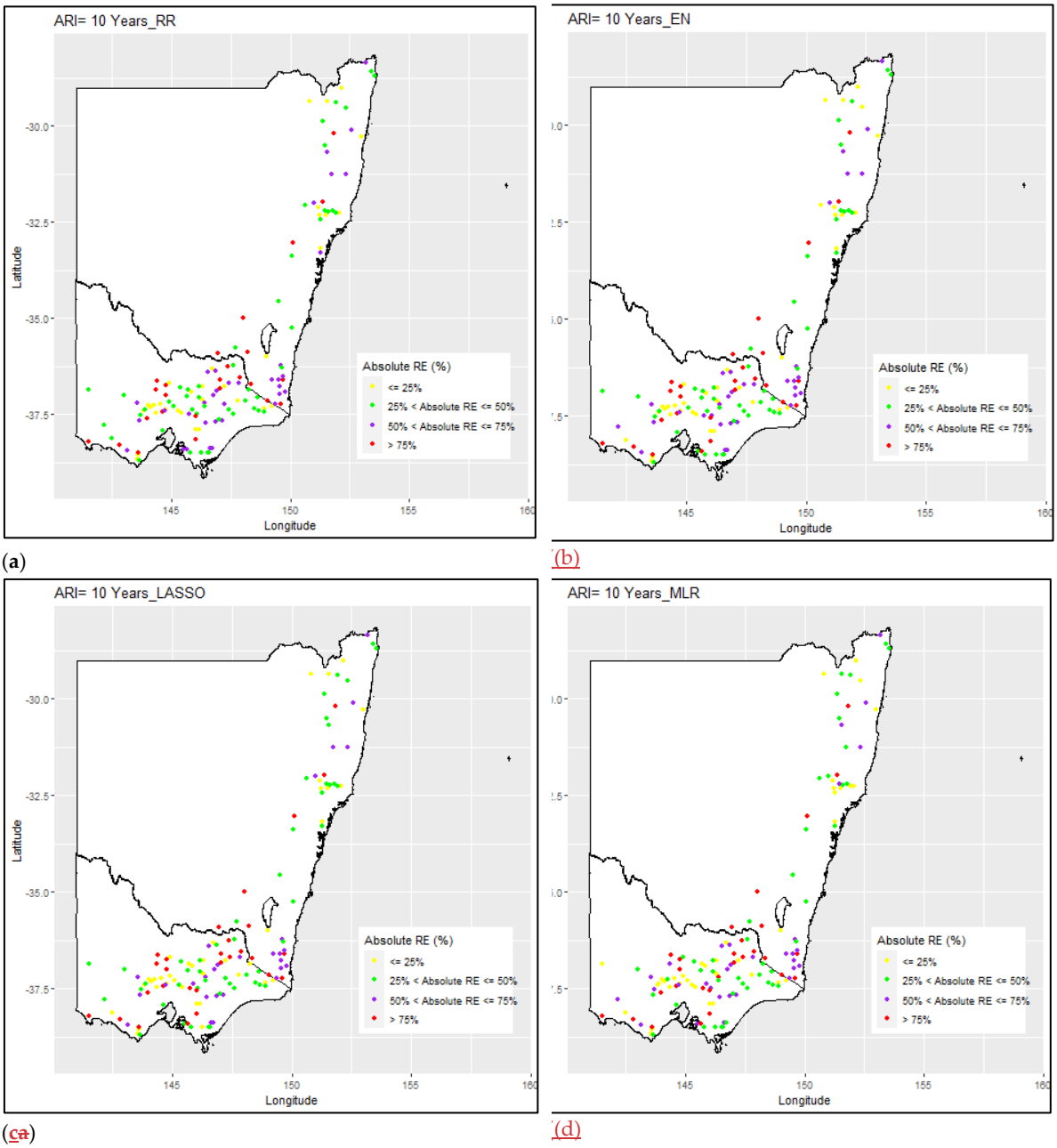
Figure S2. Residual quantile–quantile plot for different regression models: (**a**) ARI = 5 years; (**b**) ARI = 10 years; **(c)** ARI = 50 years.



(**a**) (b)

(**c**) (d)

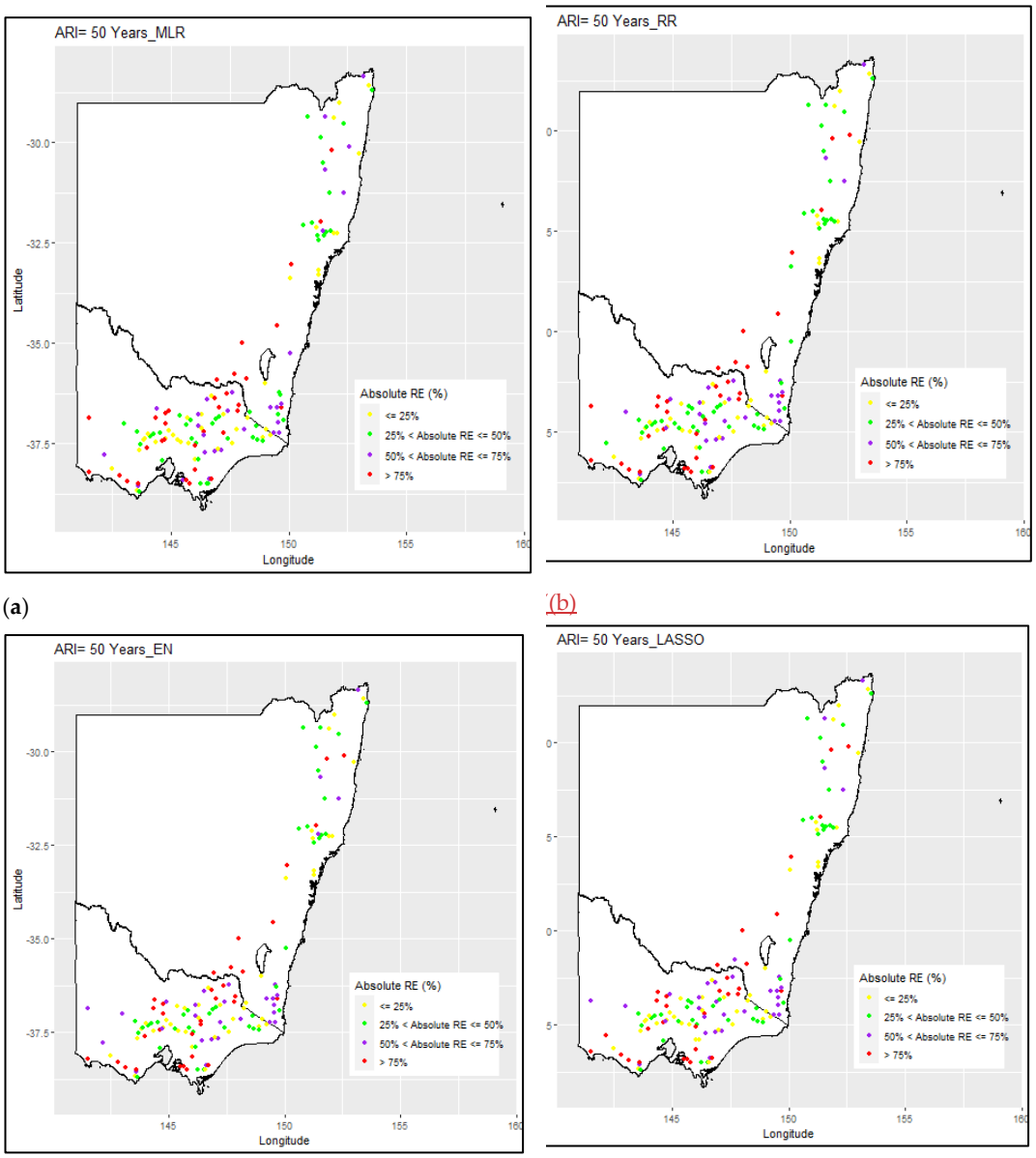
Figure S3. Spatial distribution of absolute RE_r values for different regression models for ARI = 5 years: (**a**) RR; (**b**) EN; (**c**) LASSO; (**d**) MLR.



(**a**) (b)

(ca) (d)

Figure S4. Spatial distribution of absolute RE_r values for different regression models for ARI = 10 years: (**a**) RR; (**b**) EN; (**c**) LASSO; (**d**) MLR.



(**a**) (b)

(c) (d)

Figure S5. Spatial distribution of absolute RE_r values for different regression models for ARI = 50 years: (**a**) RR; (**b**) EN; (**c**) LASSO; (**d**) MLR.

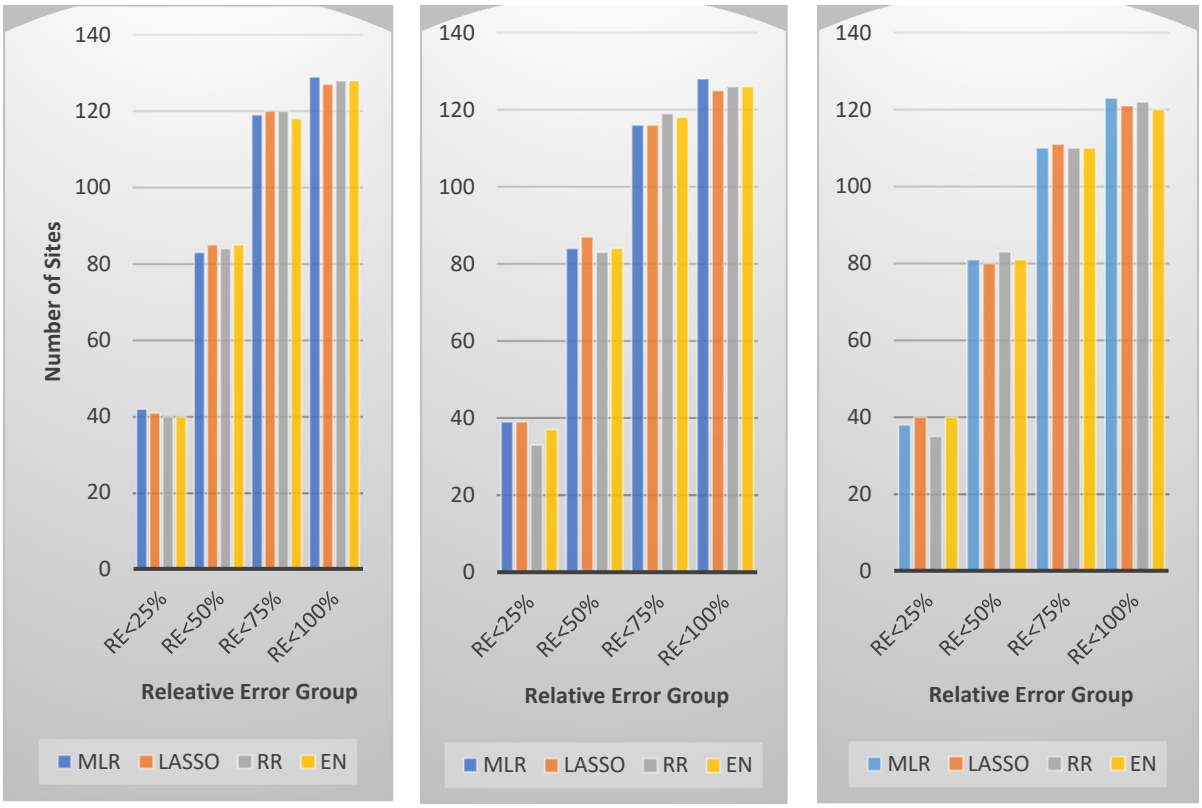


Figure S6. Cumulative count of sites having a range of different RE_r (%) for different regression models: (**a**) ARI = 5 years; (**b**) ARI = 10 years; **(c)** ARI = 50 years.

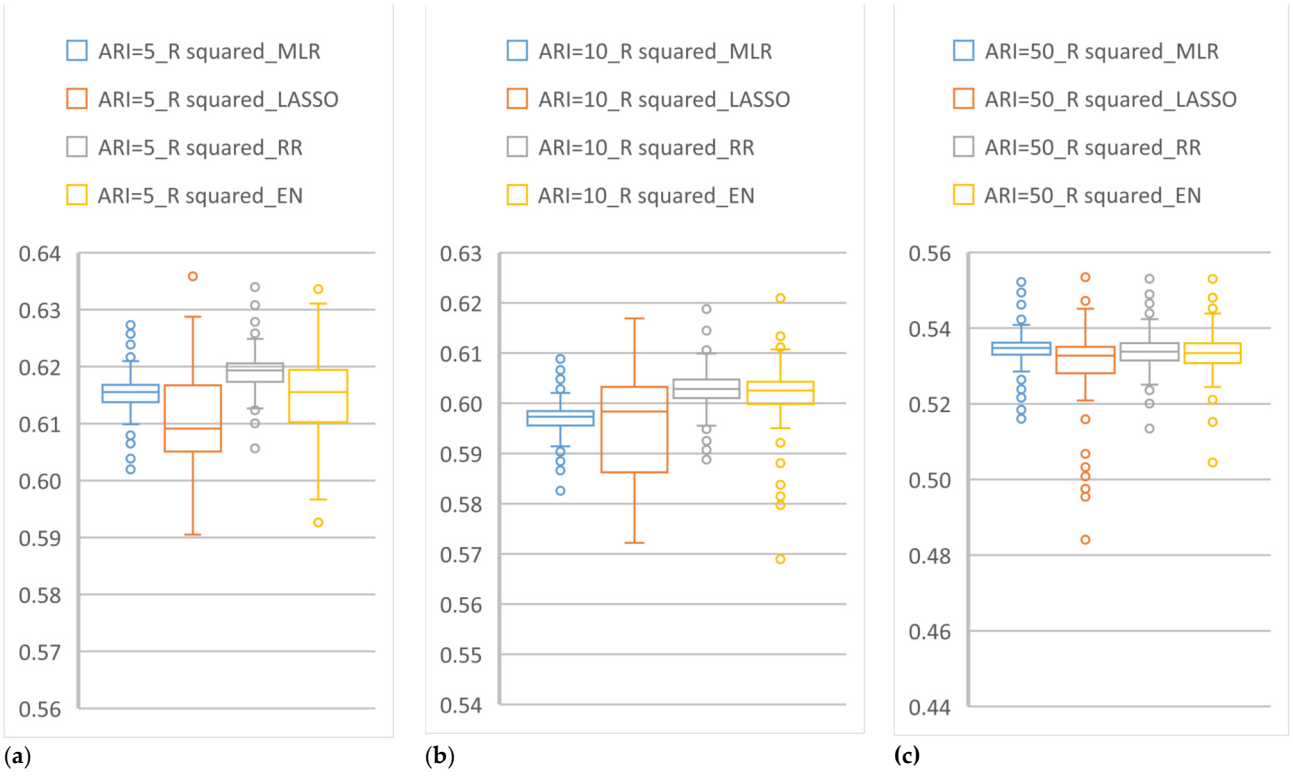
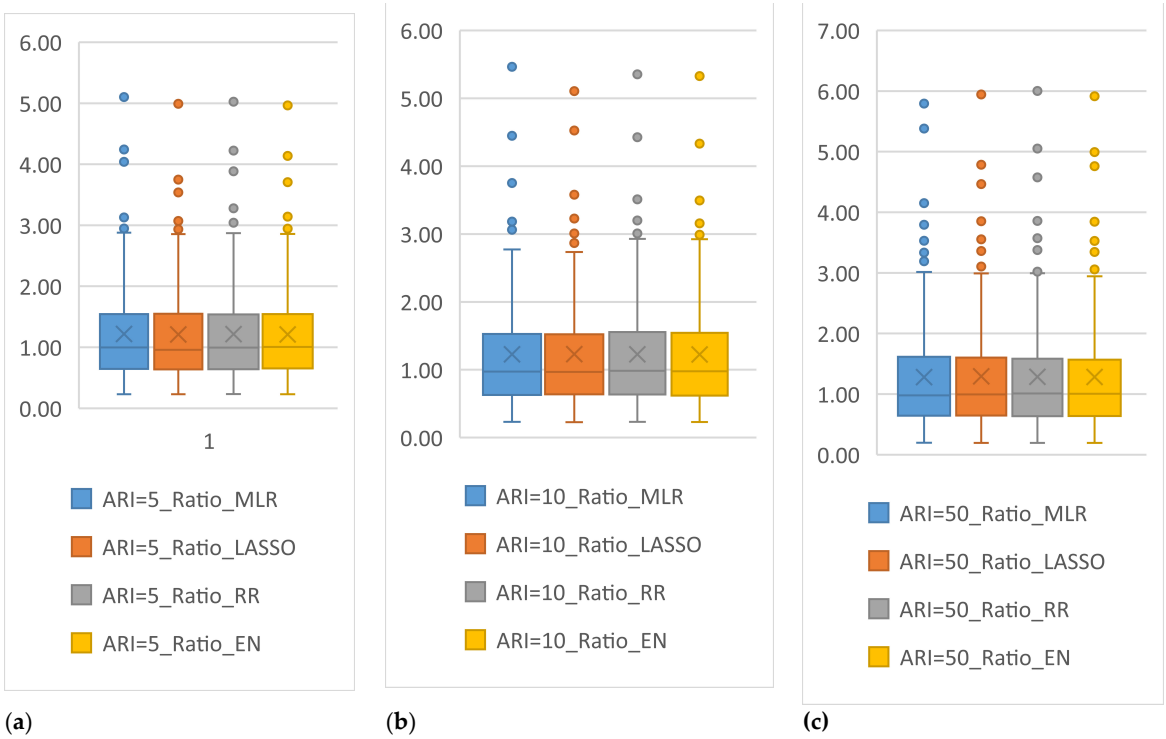
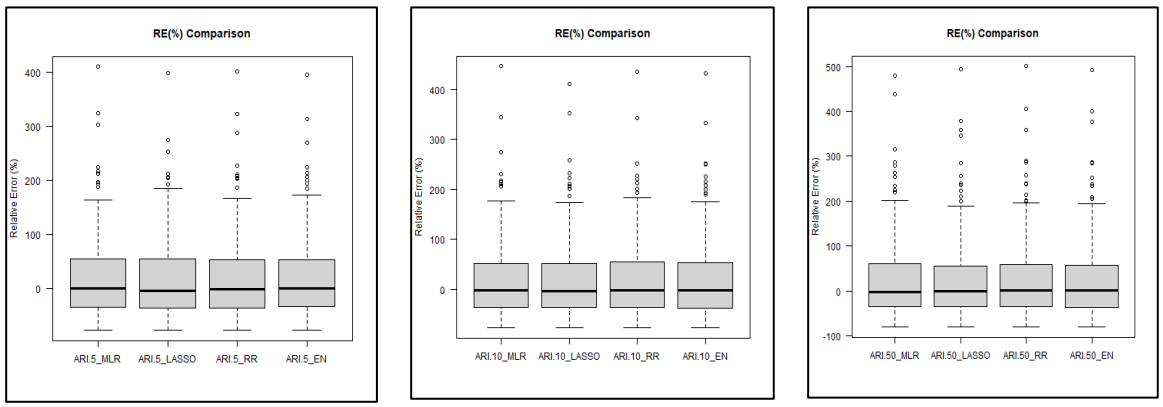


Figure S7. R^2 plots based on LOOCV for different regression models: (**a**) ARI = 5 years; (**b**) ARI = 10 years; **(c)** ARI = 50 years.



(**a**) (**b**) (**c**)

Figure S8. Ratio plots using leave-one-out cross-validation based on POT3 model: (**a**) ARI = 5 years; (**b**) ARI = 10 years; **(c)** ARI = 50 years.



(**a**) (**b**) (**c**)

Figure S9. Boxplot of RE_r values for different regression models: (**a**) ARI = 5 years; (**b**) ARI = 10 years; **(c)** ARI = 50 years.

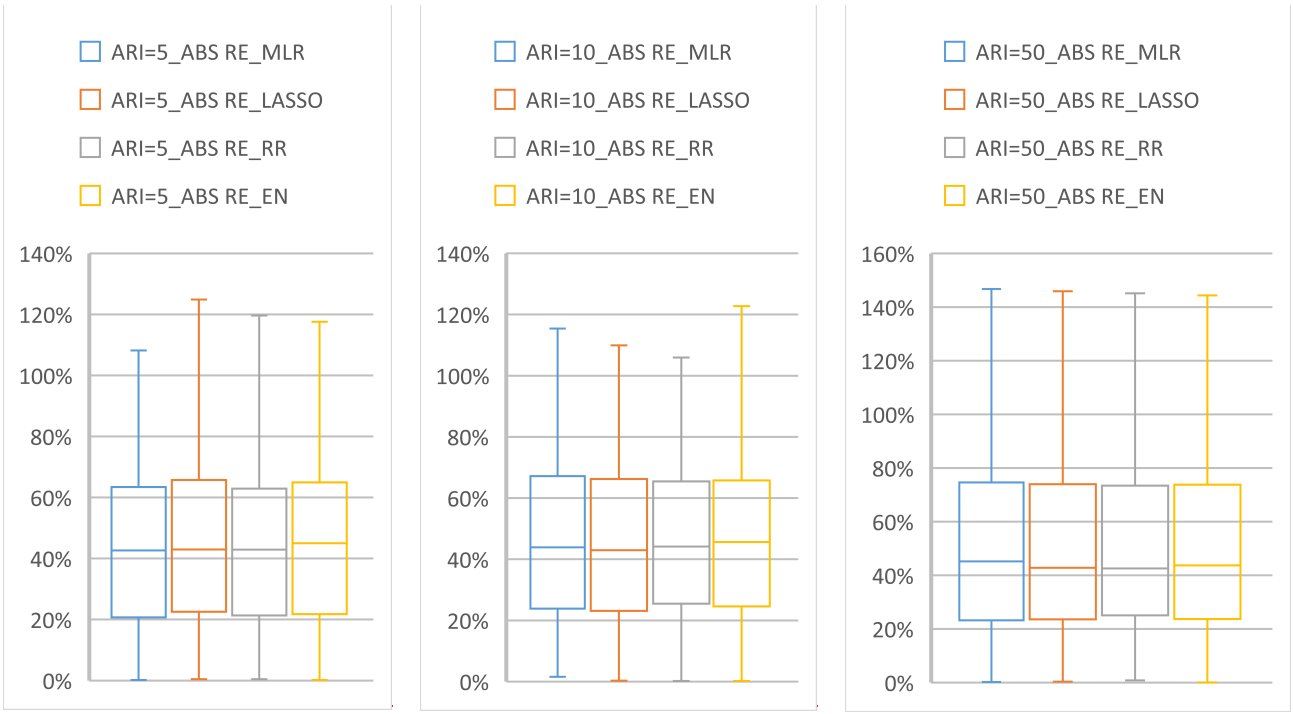


Figure S10. Boxplot of RE_m values for different regression models: **(a)** ARI = 5 years; **(b)** ARI = 10 years; **(c)** ARI = 50 years. .