

Supplementary

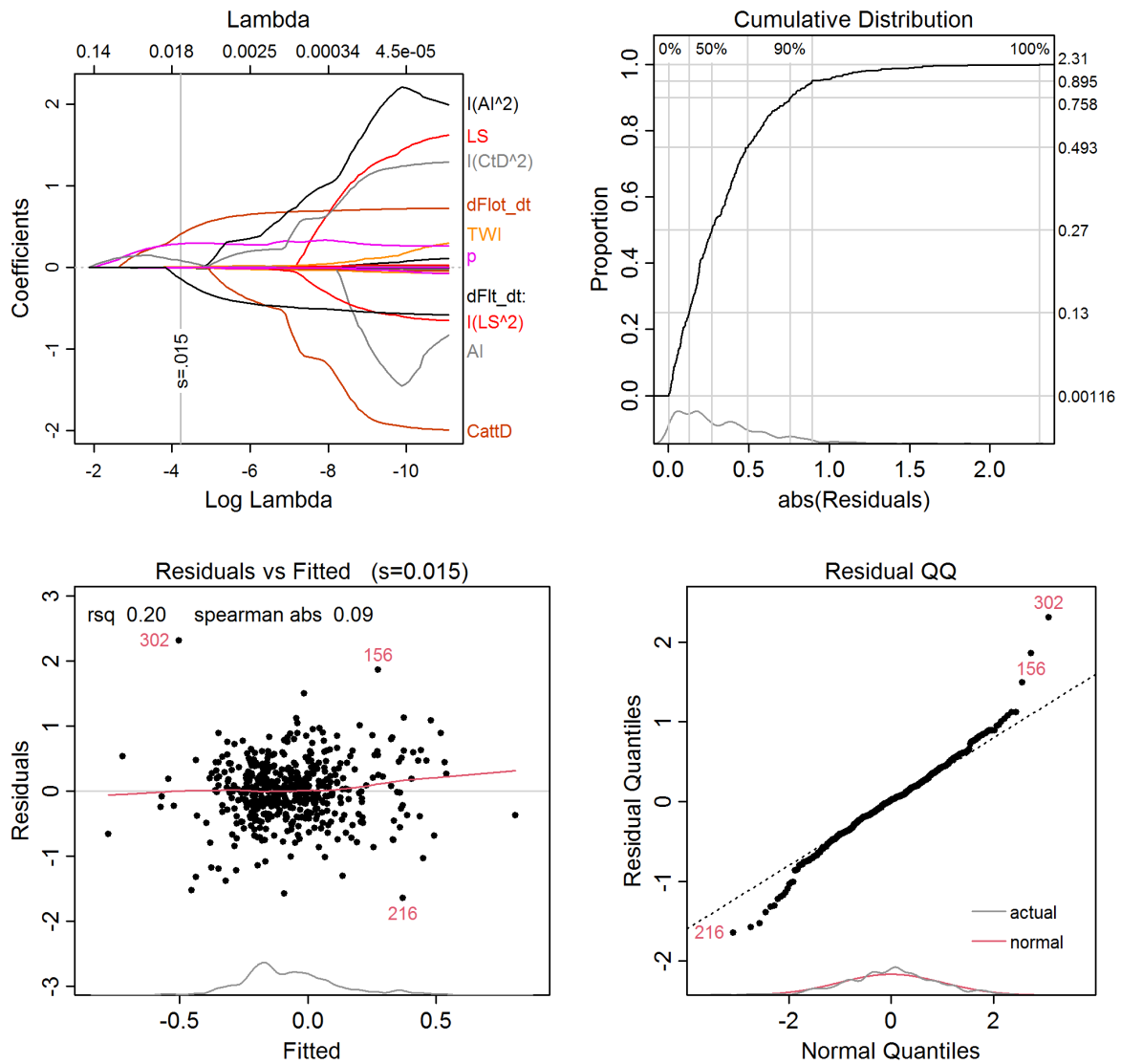


Figure S1. Diagnostic plots of LASSO regression.

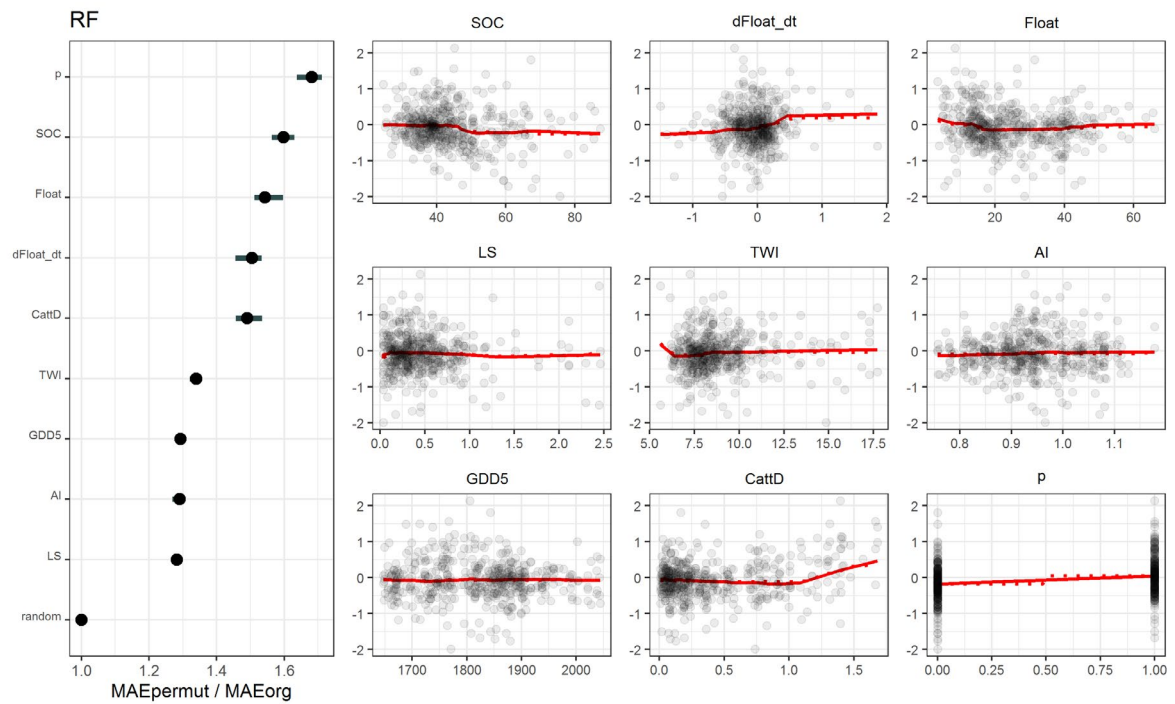


Figure S2. Permutation importance plot and partial dependence plots of RF model.

	dSOC_dt	dSOC_dt lasso
(Intercept)	-36.637 (38.961)	-0.104
SOC	0.837 (0.842)	-0.004
dFloat_dt	0.749*** (0.120)	0.408
Float	-0.060 (0.030)	0
LS	1.957* (0.764)	0
TWI	0.614 (0.397)	0.009
AI	13.127 (30.087)	0
GDD5	0.028 (0.052)	0
CattD	-2.270* (1.090)	0
p	0.271 (0.198)	0.293
LS^2	-0.731* (0.293)	0
TWI^2	-0.023 (0.018)	0
AI^2	-5.508 (15.966)	0
GDD5^2	-0.000 (0.000)	0
Float^2	0.001	0

	dSOC_dt	dSOC_dt lasso
	(0.001)	
CattD^2	1.420*	0.083
	(0.703)	
SOC * LS^2	0.019**	0
	(0.006)	
SOC * TWI^2	0.000	0
	(0.000)	
SOC * AI^2	0.177	0
	(0.340)	
SOC * GDD5^2	0.000	0
	(0.000)	
SOC * Float^2	-0.000	0
	(0.000)	
SOC * CattD^2	-0.019	0.002
	(0.016)	
SOC:LS	-0.048**	0
	(0.017)	
SOC:TWI	-0.013	0
	(0.009)	
SOC:AI	-0.389	-0.002
	(0.635)	
SOC:GDD5	-0.001	0
	(0.001)	
SOC:Float	0.001	0
	(0.001)	
SOC:CattD	0.040	0
	(0.025)	
SOC:p	-0.000	0
	(0.004)	
dFloat dt:p	-0.617***	-0.139
	(0.157)	
RMSE	0.448	
MAE	0.339	
R2	0.283	
RMSE_cv	1.533	
MAE_cv	0.909	
R2_cv	-13.094	
zMoransI	-0.64	
rvarSph_nugget	0.064	
rvarSph_sill	0.015	
rvarSph_range	42604.7	
family	gaussian	
link	identity	
zeroinfl	NULL	
overdisp	NULL	
RMSElasso	0.474	
MAElasso	0.355	
R2lasso	0.196	
RMSElasso_cv	0.495	
MAElasso_cv	0.363	
R2lasso_cv	0.047	
RMSErf	0.213	
MAErf	0.157	
R2rf	0.838	
RMSErf_cv	0.492	
MAErf_cv	0.362	

	dSOC_dt dSOC_dt lasso
R2rf_cv	0.056
zMoransIrf	-1.07
Obs_Min	-1.98123
Obs_1Q	-0.36054
Obs_Median	-0.08035
Obs_Mean	-0.06691
Obs_3Q	0.20159
Obs_Max	2.13341
varSph_nugget	0.276
varSph_sill	0.102
varSph_range	1279333
AIC	656.950
Num. obs.	483
***p < 0.001; **p < 0.01; *p < 0.05	

Table S1. Regression LASSO model results vs OLS regression.