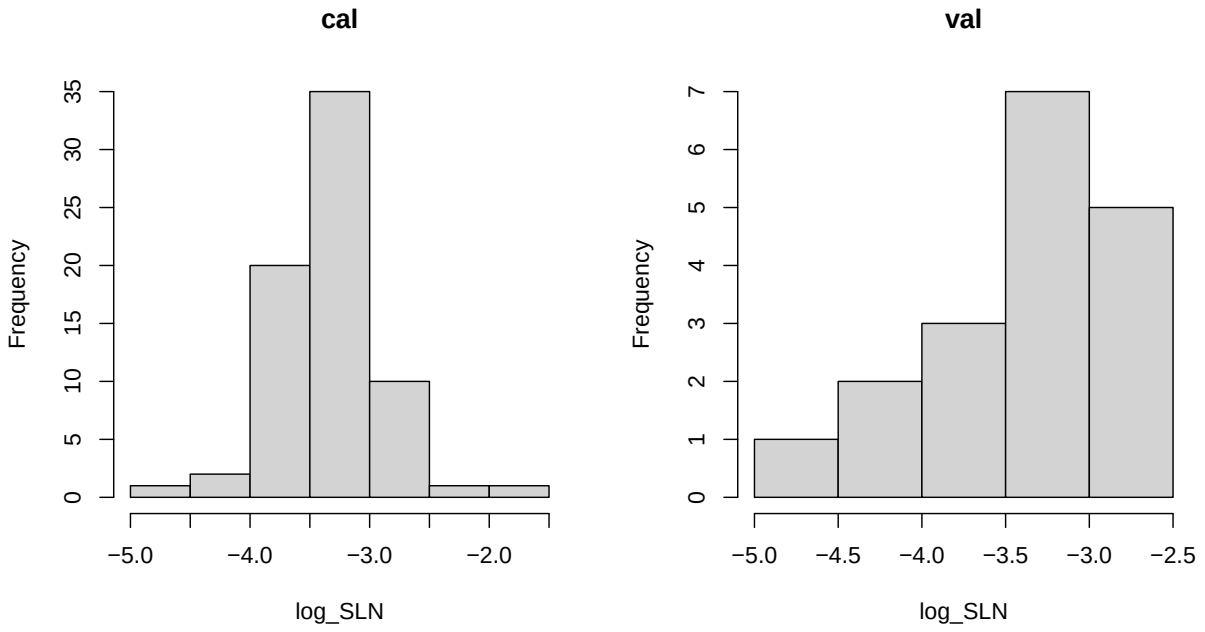
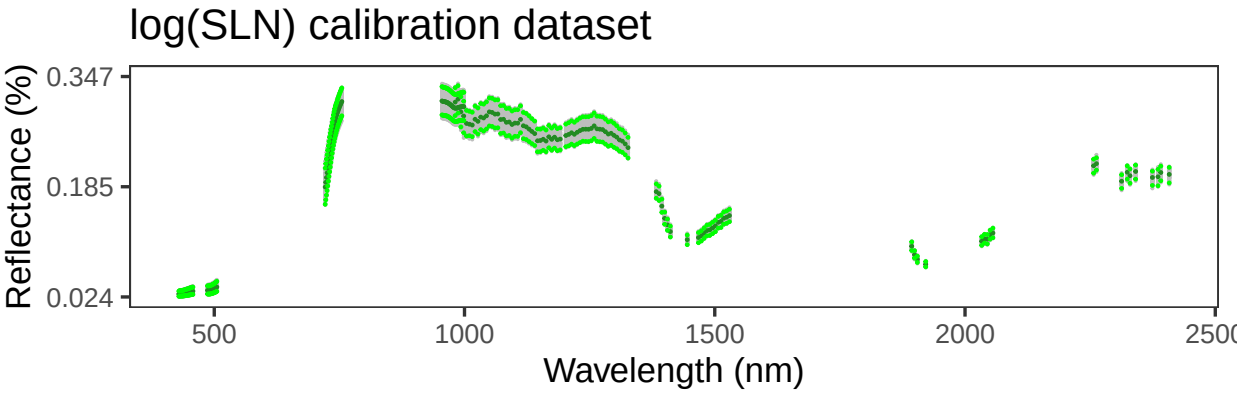
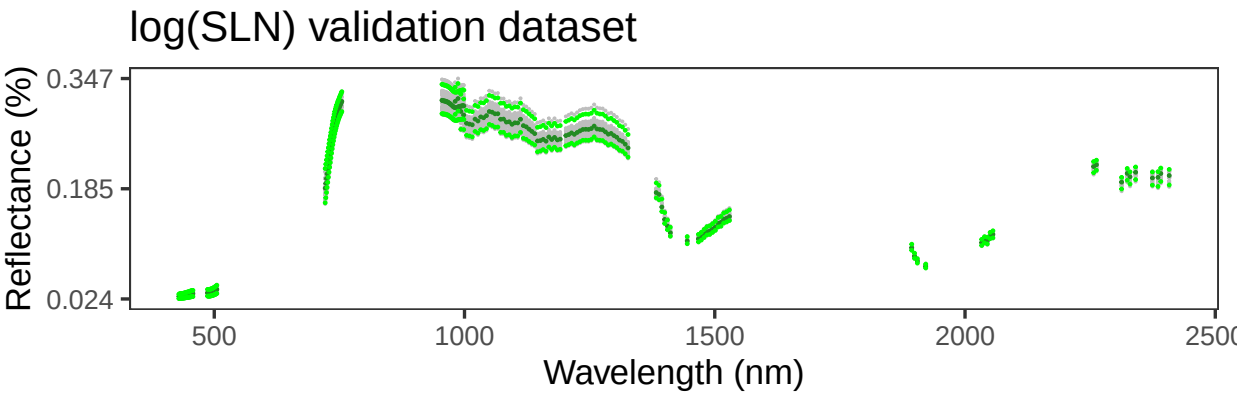
Use side-view HSI data to predict SLN

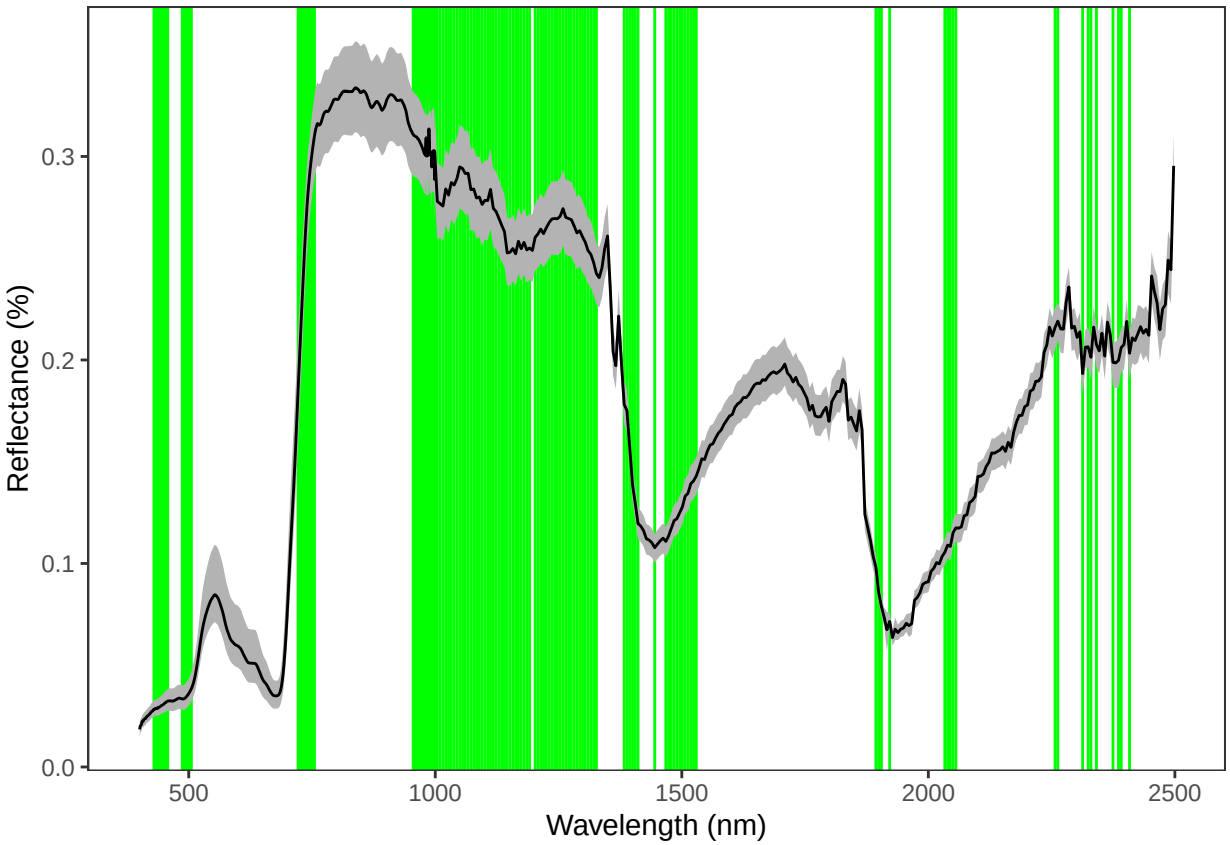
2023-08-08

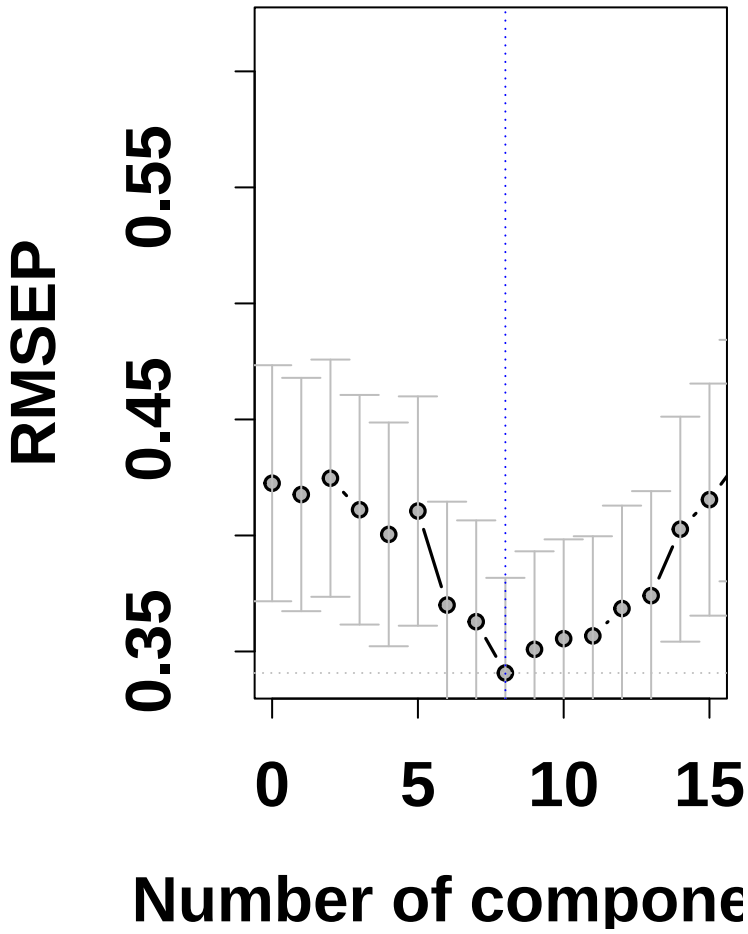
```
## $plsralg
## [1] "oscorespls"

##  [1] "940" "902" "927" "903" "931" "910" "948" "928" "930" "936" "908" "906"
## [13] "919" "917" "925" "929" "907" "915" "933" "945" "923" "922" "947" "935"
## [25] "937" "918" "943" "911" "920" "924" "909" "916" "944" "914" "912" "971"
## [37] "982" "970" "975" "954" "992" "991" "963" "985" "977" "968" "955" "996"
## [49] "950" "974" "990" "993" "953" "952" "967" "959" "987" "973" "980" "966"
## [61] "995" "972" "979" "957" "989" "984" "951" "978" "965" "958"

##  [1] "904" "905" "921" "926" "932" "934" "941" "942" "946" "956" "960" "962"
## [13] "969" "981" "983" "986" "988" "994"

##          value        wv
## 569 0.02740414 1518.0900
## 260 0.02690337  721.7016
## 440 0.02688053  955.0698
## 725 0.02634238 2391.2300
## 560 0.02623091 1467.5100
## 535 0.02616734 1326.7500
```




log(SLN) calibration dataset
Reflectance (%)
0.347
0.185
0.024
500
1000
1500
2000
Wavelength (nm)

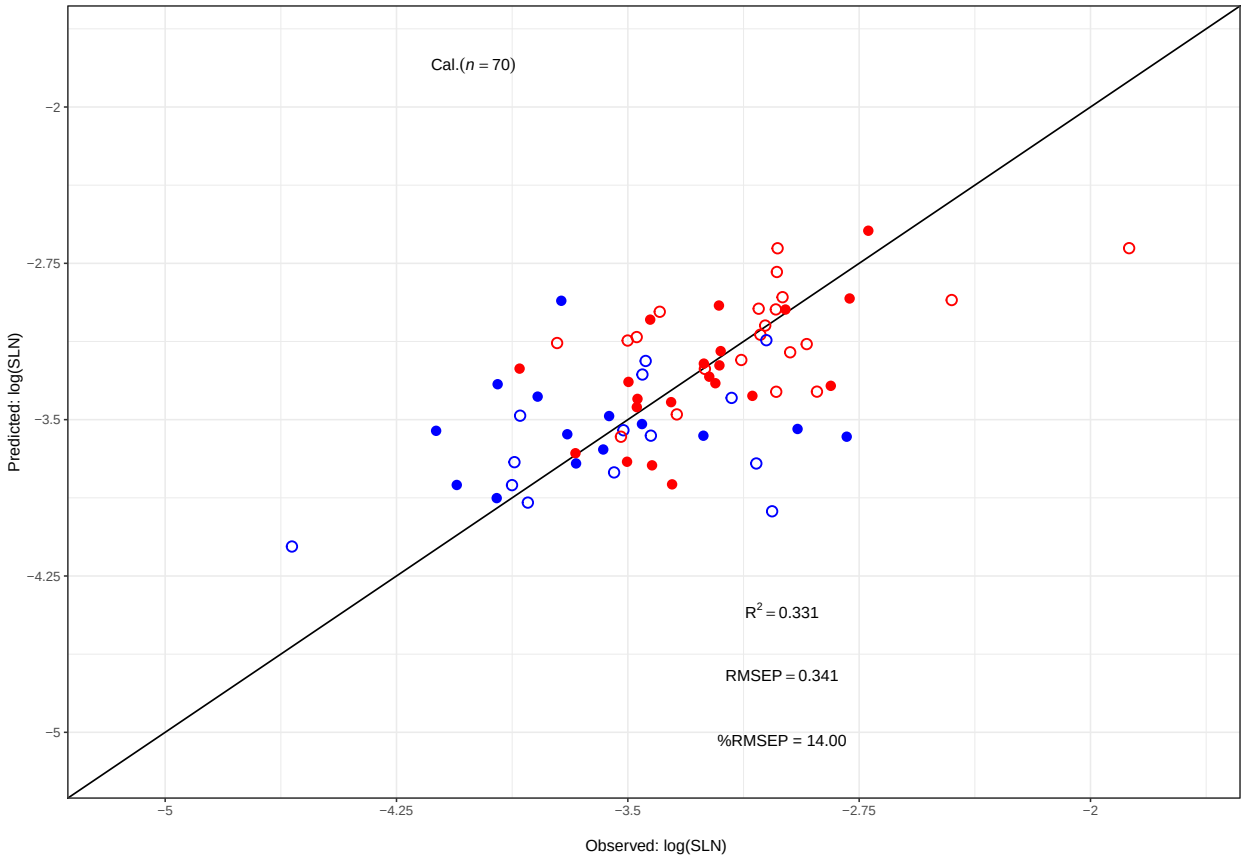

log(SLN) validation dataset
Reflectance (%)
0.347
0.185
0.024
500
1000
1500
2000
Wavelength (nm)

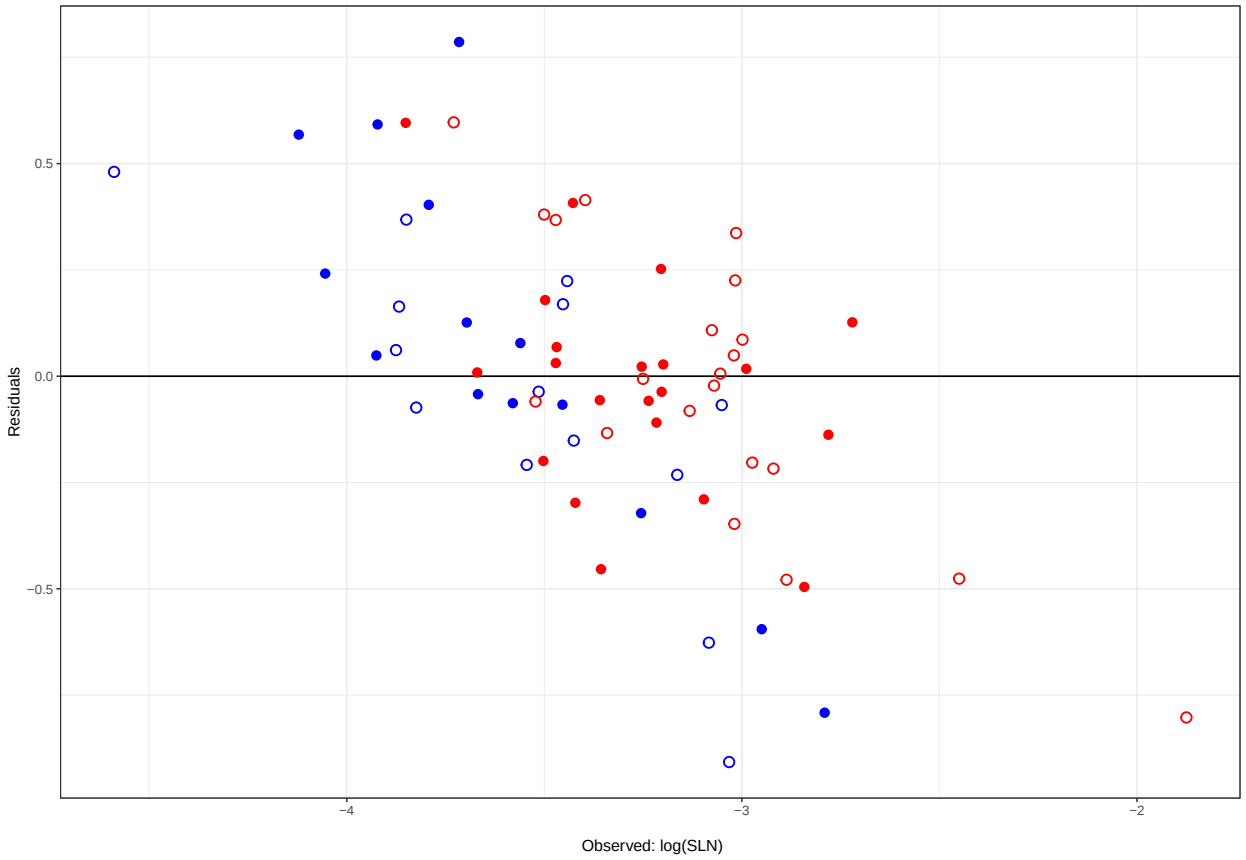

Reflectance (%)
0.0
0.1
0.2
0.3
500
1000
1500
2000
2500
Wavelength (nm)

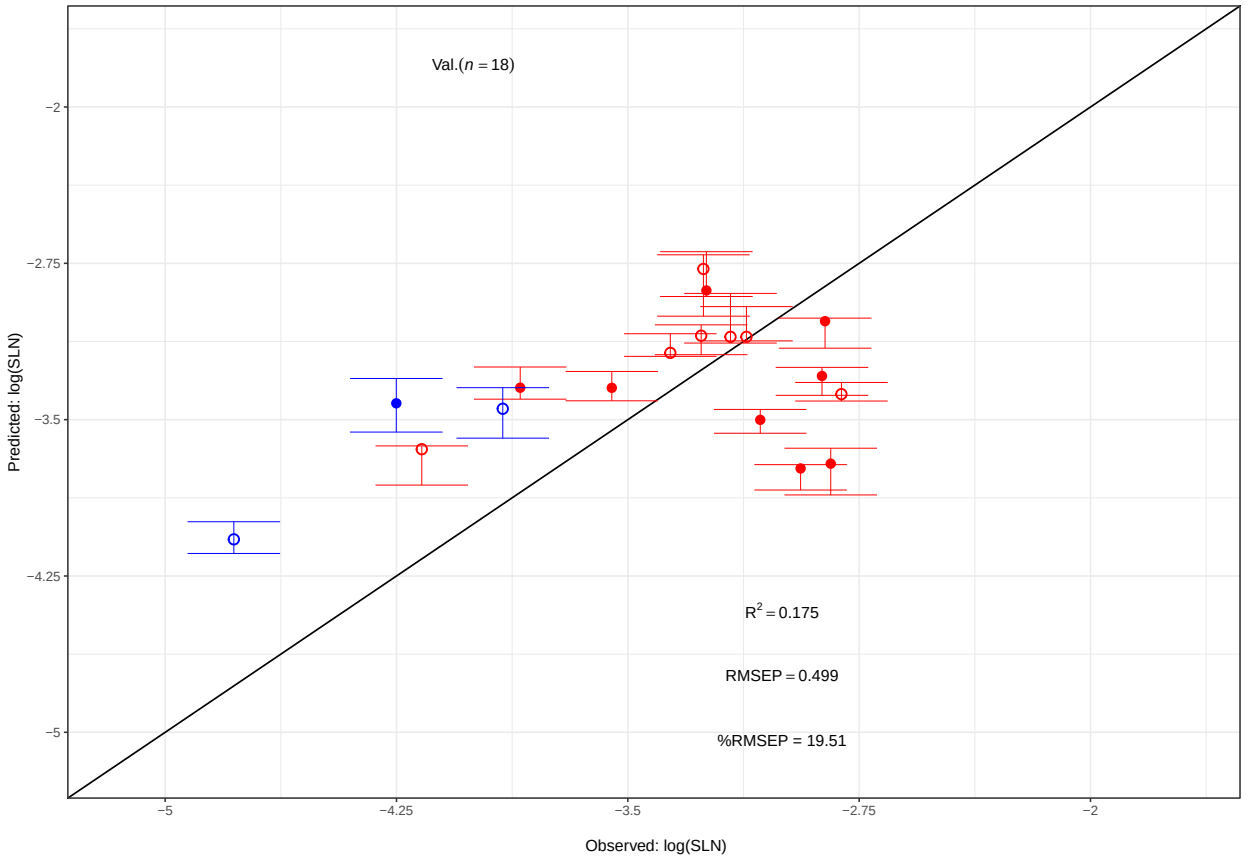


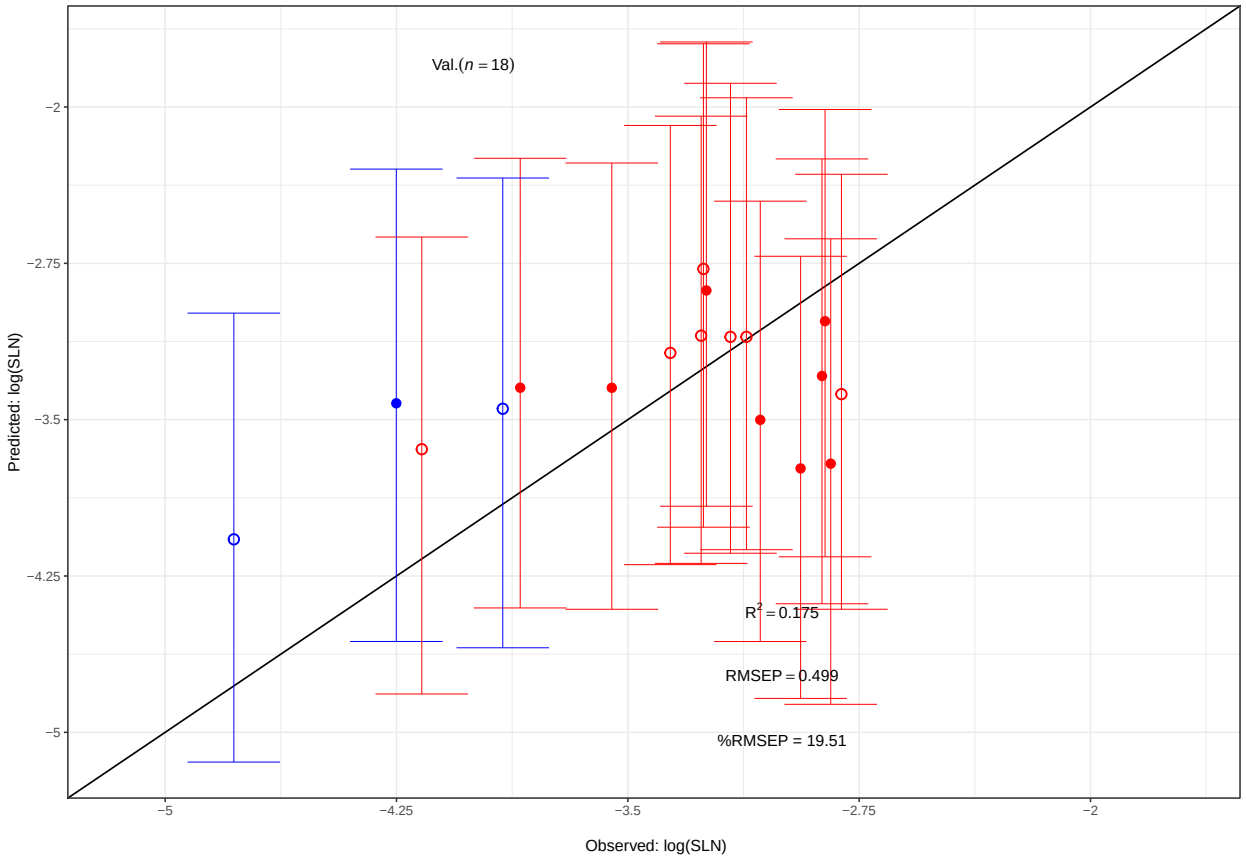

```
##   data_set    R2 RMSEP NRMSEP
## 1      cal 0.331 0.341 12.553
## 2      val 0.175 0.499 25.353
```

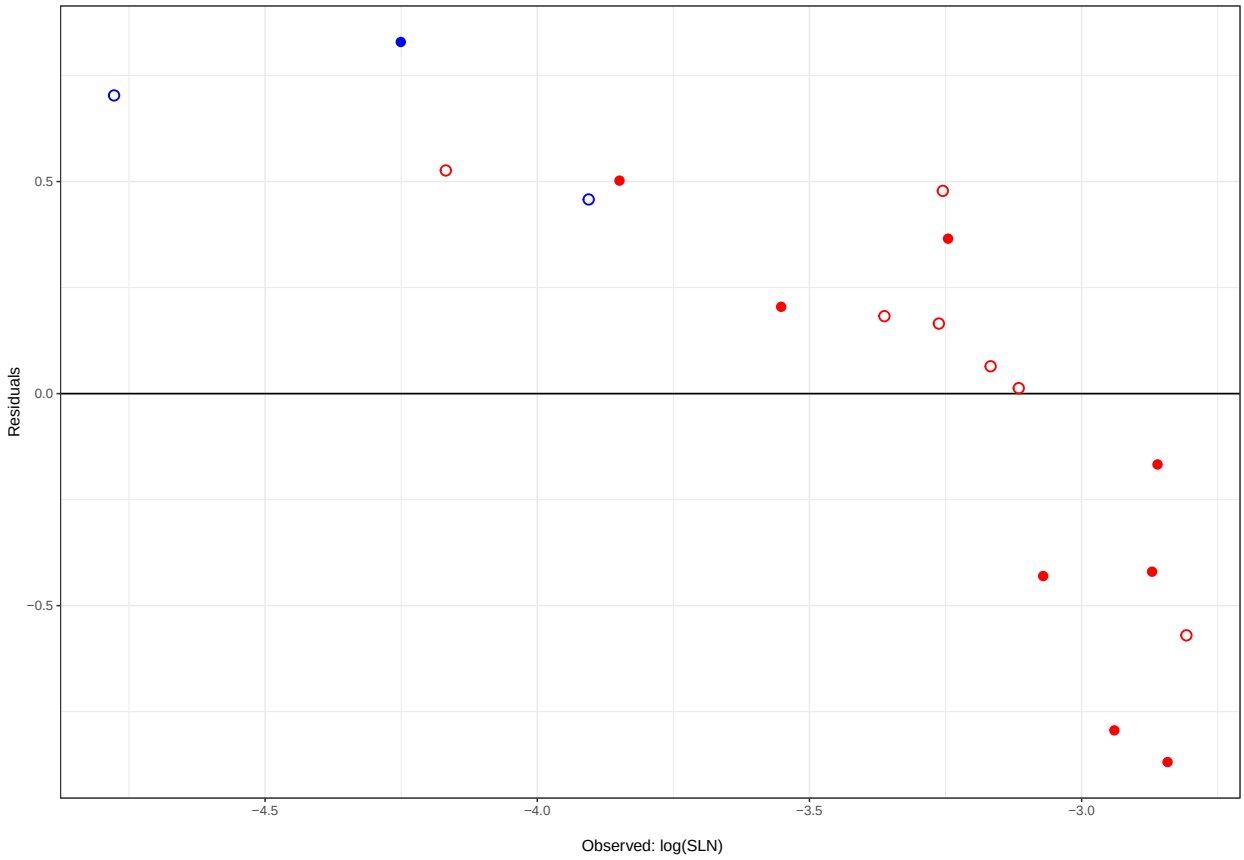
```
##    Observed Predicted  Residuals Treatment Subpop       uci       lci       upi
## 1 -2.860595 -3.027599 -0.1670035        N1    IND -3.012910 -3.157079 -2.011908
## 2 -3.070720 -3.500972 -0.4302519        N1    IND -3.451003 -3.565176 -2.451715
## 3 -2.939904 -3.733993 -0.7940895        N1    IND -3.715753 -3.837620 -2.716073
## 4 -3.245383 -2.880103  0.3652795        N1    IND -2.694111 -2.909196 -1.687981
## 5 -3.848949 -3.346711  0.5022384        N1    IND -3.247445 -3.401708 -2.245849
## 6 -3.551999 -3.347307  0.2046923        N1    IND -3.268796 -3.409556 -2.268634
##         lpi
## 1 -4.158082
## 2 -4.564464
## 3 -4.837299
## 4 -3.915326
## 5 -4.403304
## 6 -4.409718
```


Cal.(n = 70)
−2
−2.75
−3.5
−4.25
−5
Predicted: log(SLN)
−5
−4.25
−3.5
−2.75
−2
Observed: log(SLN)
R2 = 0.331
RMSEP = 0.341
%RMSEP = 14.00


0.5
0.0
−0.5
Residuals
−4
−3
−2
Observed: log(SLN)


Val.(n = 18)
Predicted: log(SLN)
Observed: log(SLN)
−2
−2.75
−3.5
−4.25
−5
R² = 0.175
RMSEP = 0.499
%RMSEP = 19.51


Val.(n = 18)
R² = 0.175
RMSEP = 0.499
%RMSEP = 19.51
Predicted: log(SLN)
Observed: log(SLN)
−2
−2.75
−3.5
−4.25
−5
−5
−4.25
−3.5
−2.75
−2




```
##       Iteration Intercept   X998.47  X992.79     X987.1  X1049.59
## Seg 1         1 -9.573198 16.957513 19.54718 -0.5278132  5.303269
## Seg 2         2 -8.235991 10.417589 17.39476 -4.9854265  8.994685
## Seg 3         3 -9.240031  9.907058 20.51614 -1.4140763  8.266170
## Seg 4         4 -8.769102  8.945495 21.67798 -1.4009929  9.110979
## Seg 5         5 -8.286034  8.748976 20.64457 -3.3599427  9.836987
## Seg 6         6 -8.422274  4.908238 22.27677 -2.2854654 10.185705
```

```
##              coefs
## 998.47    9.072560
## 992.79   21.716571
## 987.1    -1.338233
## 1049.59   8.618368
## 1100.64  10.817324
## 1145.96 -5.256617
```