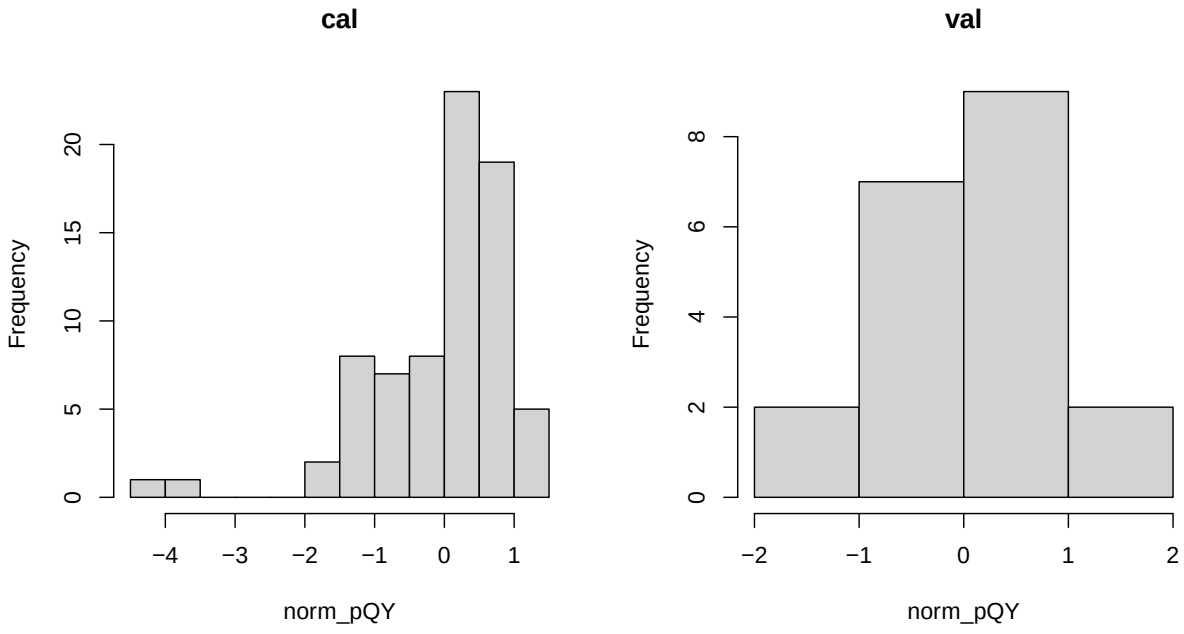
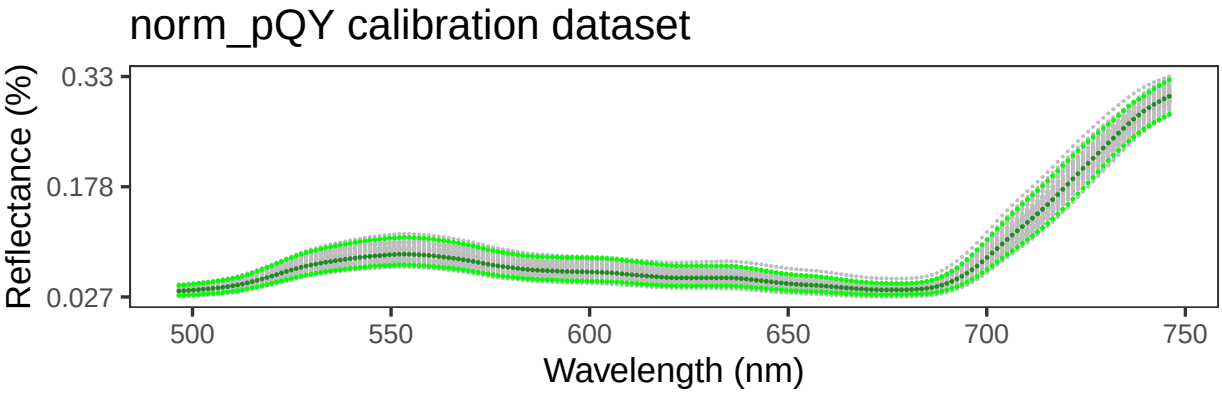
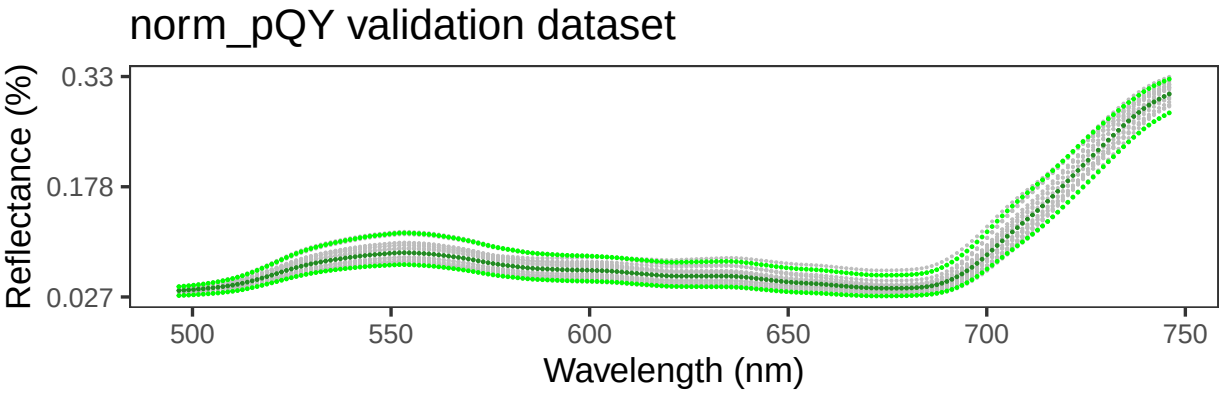
Use side-view HSI data to predict pQY

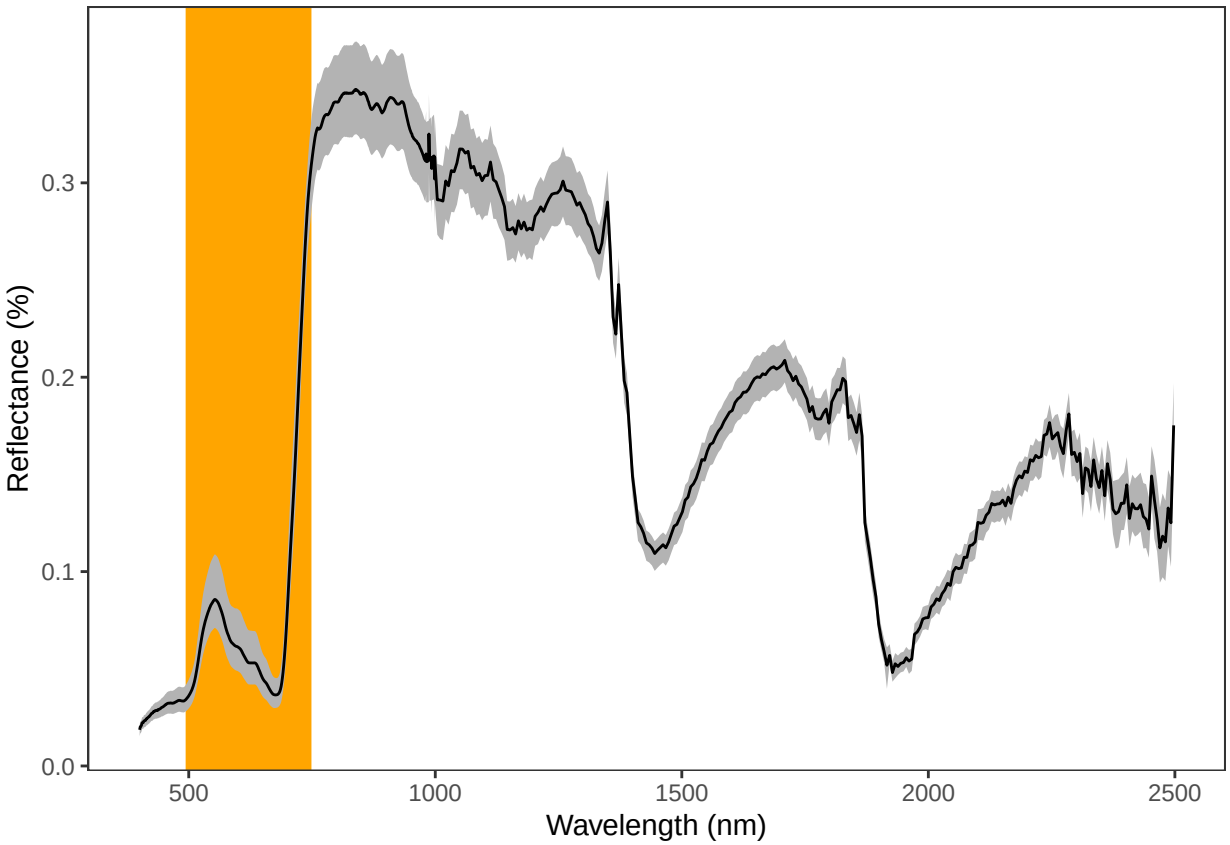
2023-08-08

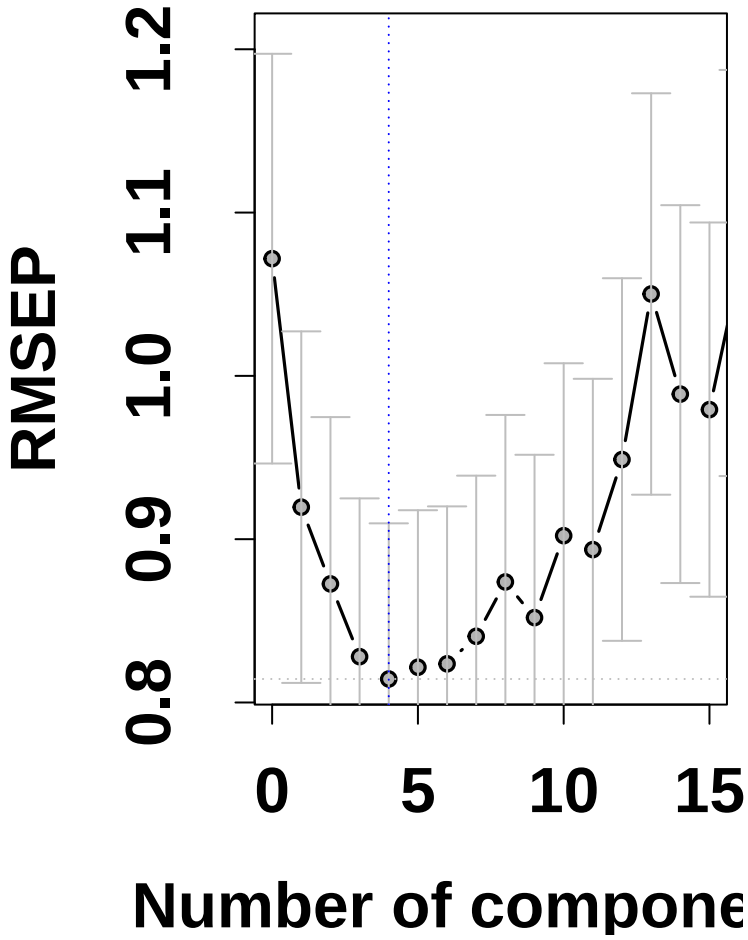
```
## $plsralg
## [1] "oscorespls"

##  [1] "924" "905" "903" "909" "919" "943" "915" "920" "939" "933" "947" "944"
## [13] "930" "922" "948" "945" "921" "918" "907" "928" "940" "926" "936" "916"
## [25] "927" "908" "910" "934" "914" "923" "946" "931" "935" "932" "942" "912"
## [37] "937" "970" "967" "956" "958" "991" "974" "964" "951" "976" "968" "950"
## [49] "986" "973" "969" "952" "962" "995" "982" "977" "993" "972" "957" "965"
## [61] "989" "988" "984" "953" "963" "961" "980" "954" "959" "981" "992" "979"
## [73] "966" "987"

##  [1] "902" "904" "906" "911" "913" "917" "925" "929" "938" "941" "955" "960"
## [13] "971" "975" "978" "983" "985" "990" "994" "996"

##          value       wv
## 83  0.05442085 500.2715
## 82  0.05041799 499.0432
## 278 0.04870021 744.6670
## 81  0.04790997 497.8151
## 80  0.04278140 496.5873
## 279 0.03805257 745.9452
```




norm_pQY calibration dataset
Reflectance (%)
0.33
0.178
0.027
500
550
600
650
700
750
Wavelength (nm)

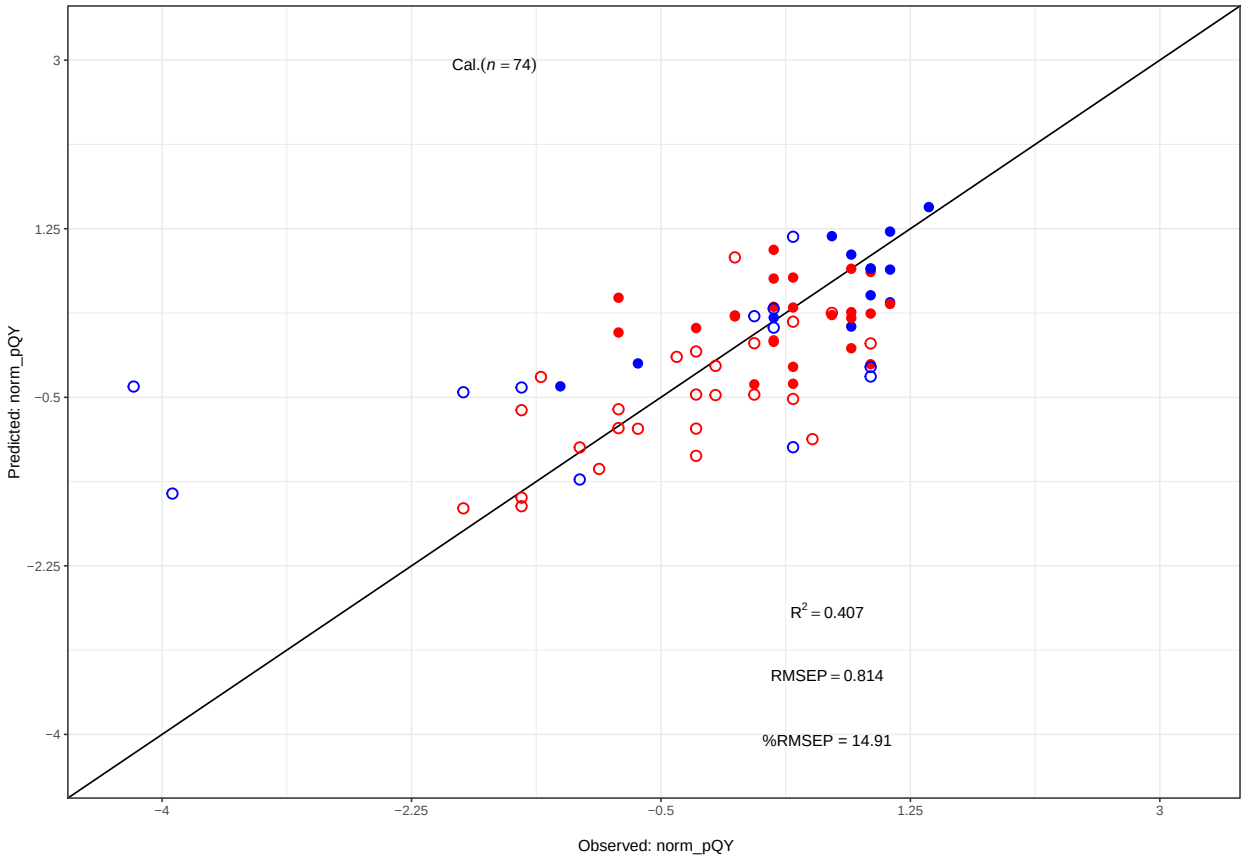

norm_pQY validation dataset
Reflectance (%)
0.33
0.178
0.027
500
550
600
650
700
750
Wavelength (nm)

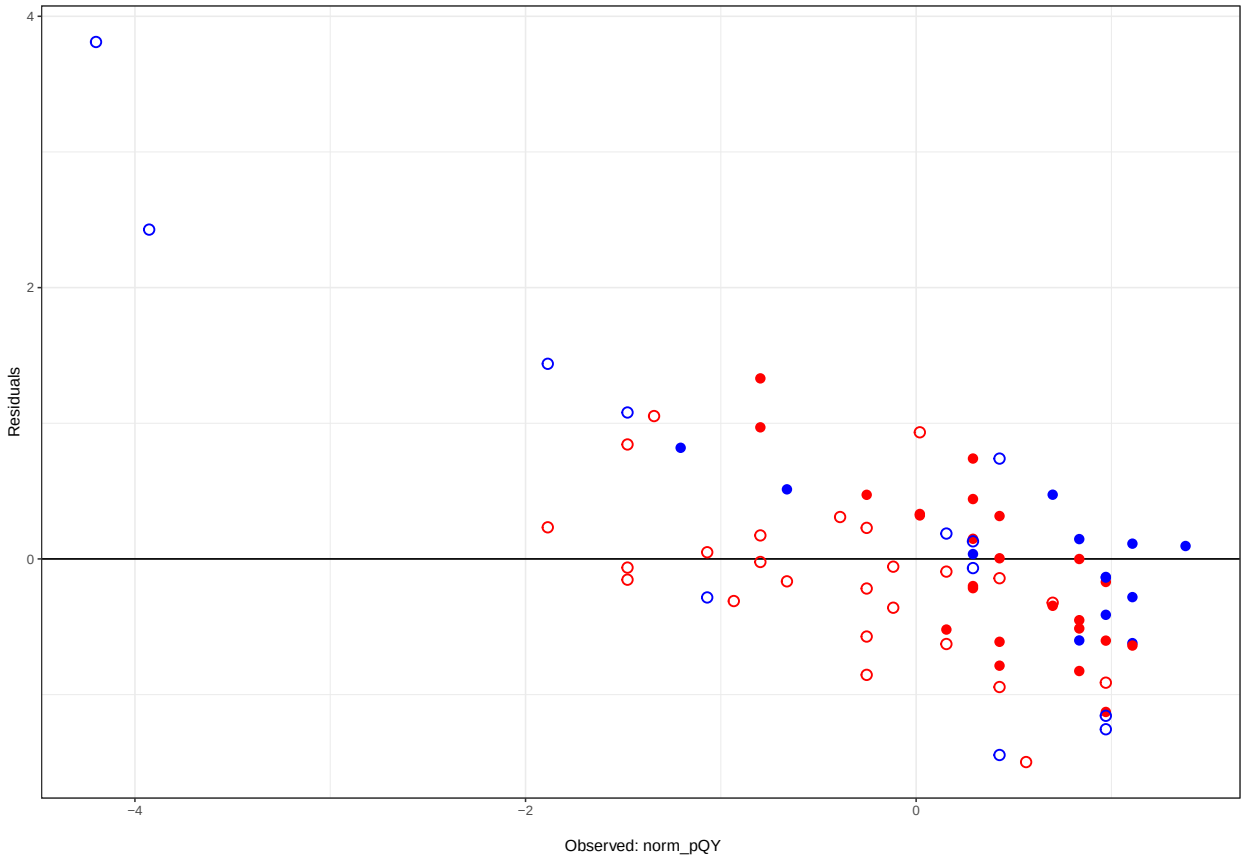

Reflectance (%)
0.0
0.1
0.2
0.3
500
1000
1500
2000
2500
Wavelength (nm)

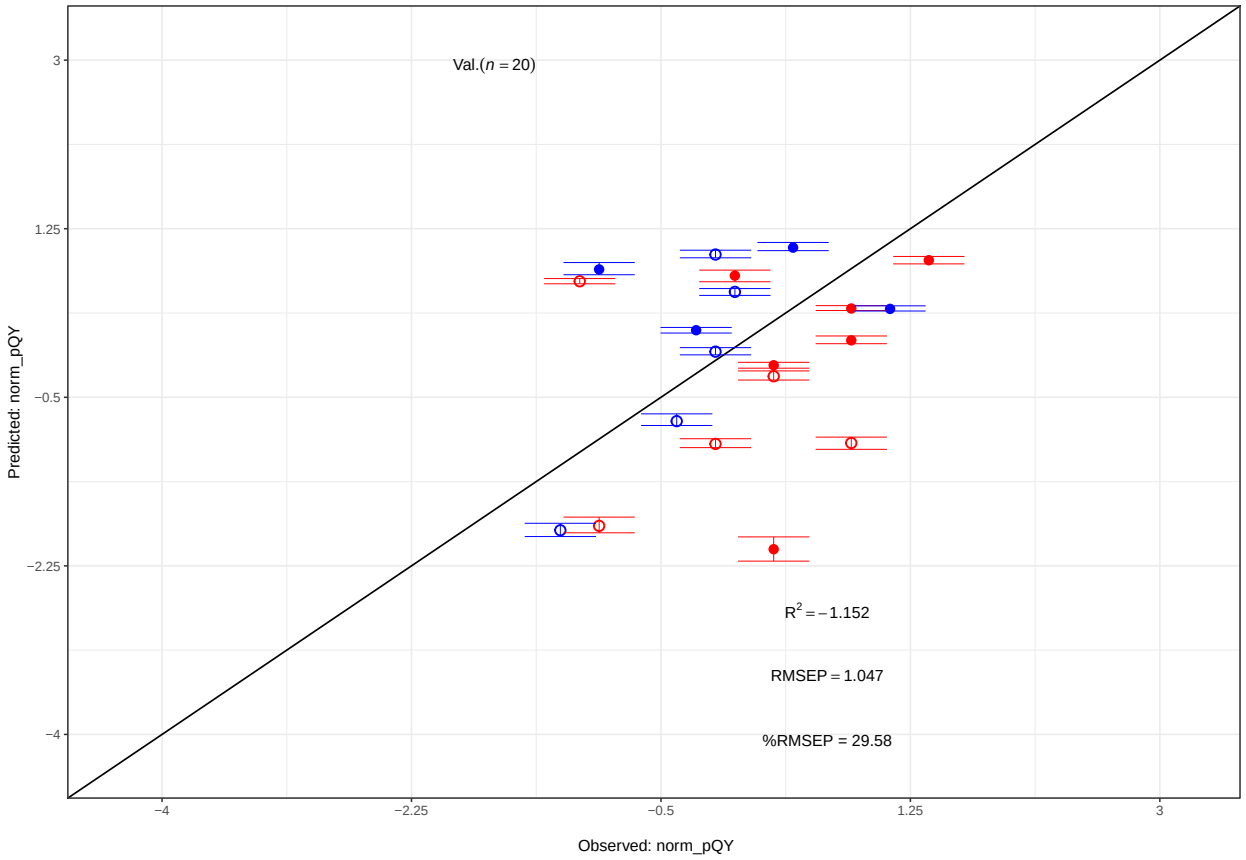


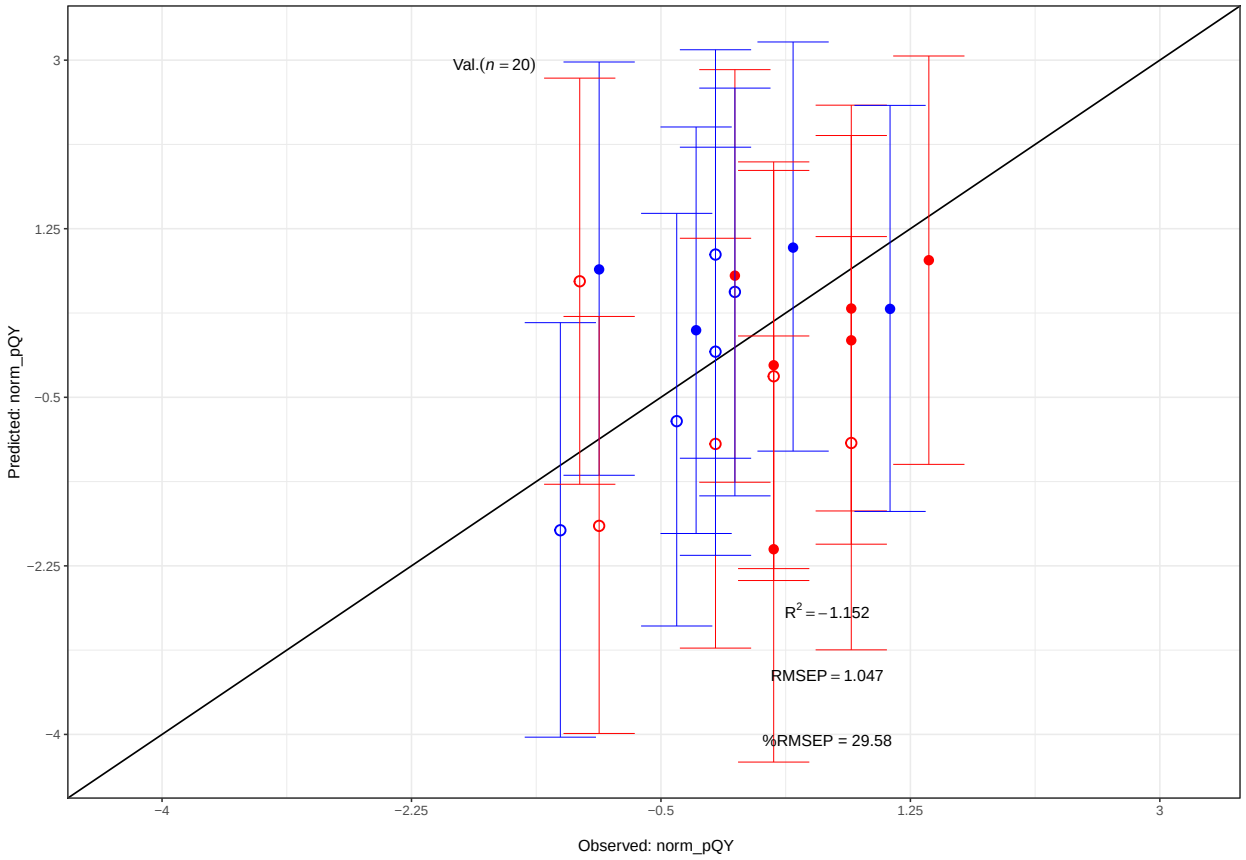

```
##   data_set     R2 RMSEP NRMSEP
## 1      cal  0.407 0.814 14.598
## 2      val -1.152 1.047 40.498
```

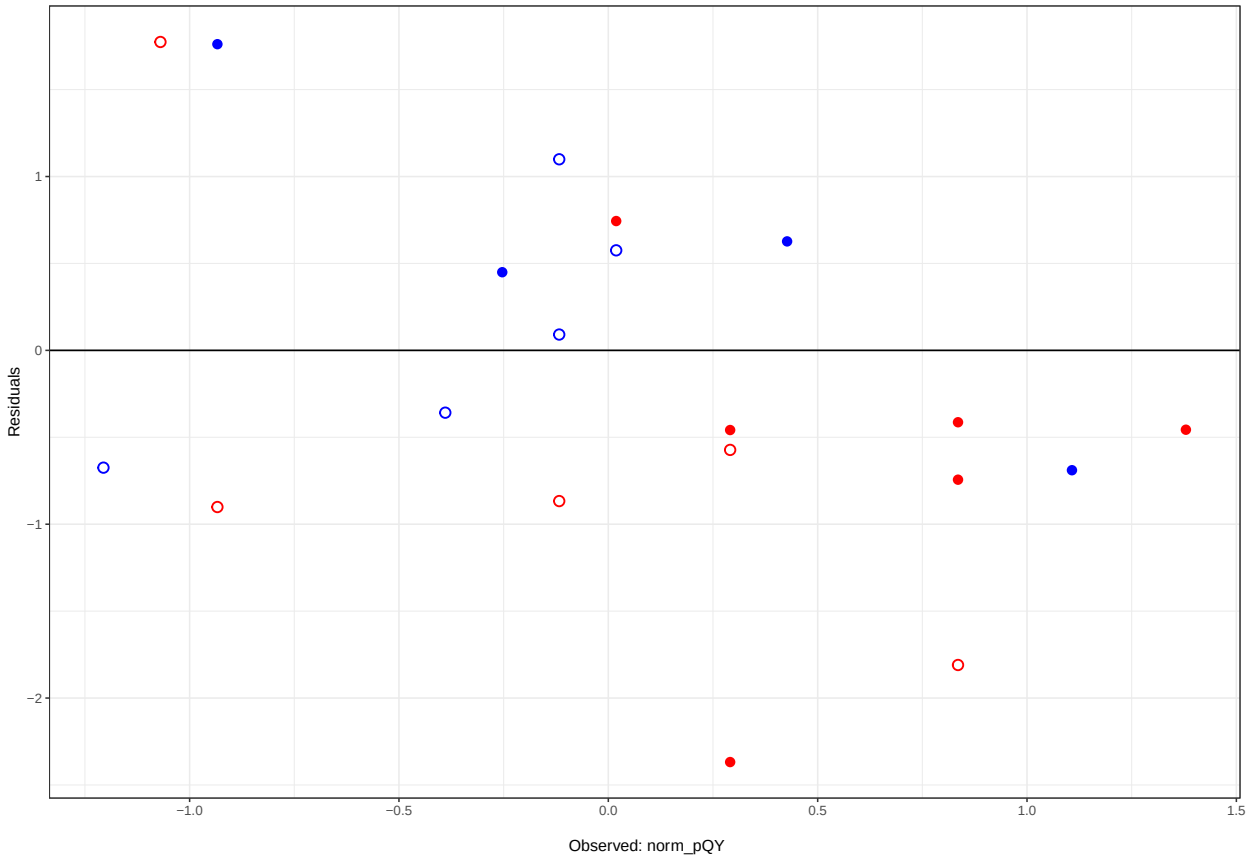
```
##     Observed  Predicted  Residuals Treatment Subpop       uci        lci
## 1 -0.9336476 0.82759941  1.7612471        N1    TRJ 0.8989070 0.77236442
## 2  0.8352166 0.42164628 -0.4135703        N1    IND 0.4517588 0.40094978
## 3  0.8352166 0.09125088 -0.7439657        N1    IND 0.1365472 0.05623014
## 4  0.0188177 0.76263920  0.7438215        N1    IND 0.8201679 0.69943894
## 5  1.3794825 0.92292397 -0.4565585        N1    IND 0.9620973 0.88481384
## 6  0.4270171 1.05387647  0.6268593        N1    TRJ 1.1075744 1.02258121
##        upi       lpi
## 1 2.980862 -1.309591
## 2 2.532674 -1.679965
## 3 2.217715 -2.024938
## 4 2.901572 -1.381965
## 5 3.043197 -1.196285
## 6 3.188852 -1.058696
```


Cal.(n = 74)
R2 = 0.407
RMSEP = 0.814
%RMSEP = 14.91
Predicted: norm_pQY
Observed: norm_pQY
3
1.25
−0.5
−2.25
−4
−4
−2.25
−0.5
1.25
3


4
2
0
Residuals
−4
−2
0
Observed: norm_pQY


Val.(n = 20)
Predicted: norm_pQY
Observed: norm_pQY
3
1.25
−0.5
−2.25
−4
−4
−2.25
−0.5
1.25
3
R² = −1.152
RMSEP = 1.047
%RMSEP = 29.58


Val.(n = 20)
R² = −1.152
RMSEP = 1.047
%RMSEP = 29.58
Predicted: norm_pQY
Observed: norm_pQY
3
1.25
−0.5
−2.25
−4
−4
−2.25
−0.5
1.25
3




```
##       Iteration Intercept X716.60937 X717.88204 X715.33695 X714.06479
## Seg 1         1 -5.614616  -5.723130  -5.597064  -5.846224  -5.889155
## Seg 2         2 -5.395894  -5.696148  -5.567539  -5.821598  -5.866758
## Seg 3         3 -5.536888  -5.721477  -5.594318  -5.845495  -5.890291
## Seg 4         4 -5.474144  -5.692506  -5.564148  -5.816856  -5.862501
## Seg 5         5 -5.537627  -5.665017  -5.530571  -5.791993  -5.844704
## Seg 6         6 -5.460329  -5.701645  -5.574184  -5.826163  -5.871530
```

```
##               coefs
## 716.60937 -5.701574
## 717.88204 -5.574801
## 715.33695 -5.825169
## 714.06479 -5.869917
## 719.15496 -5.376466
## 712.79288 -5.850258
```