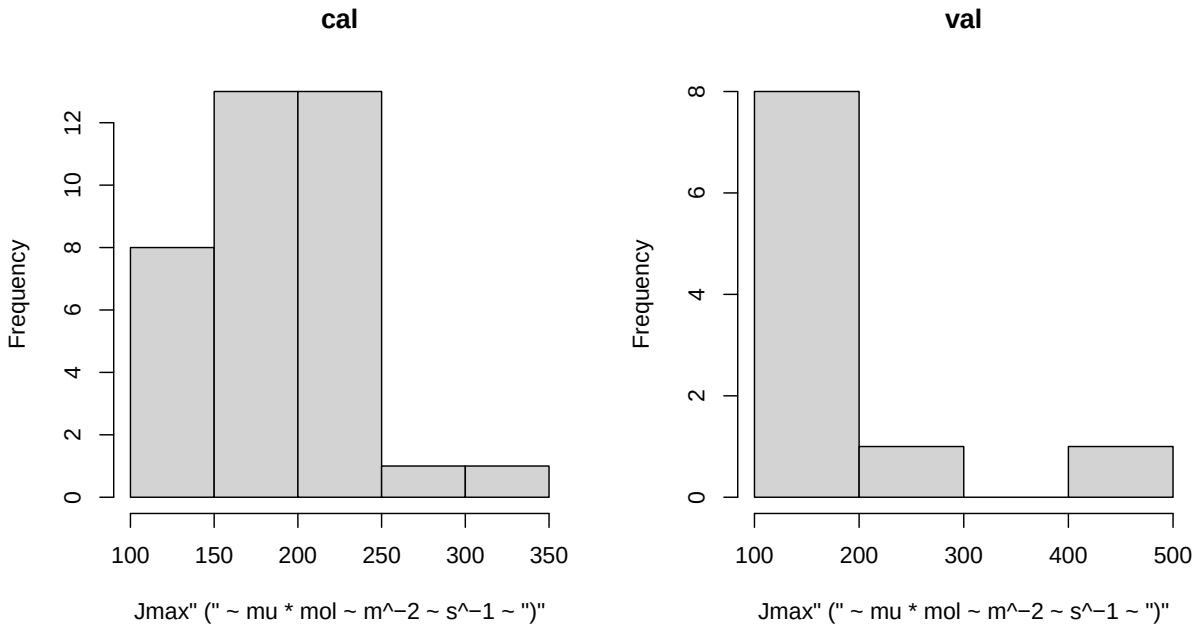
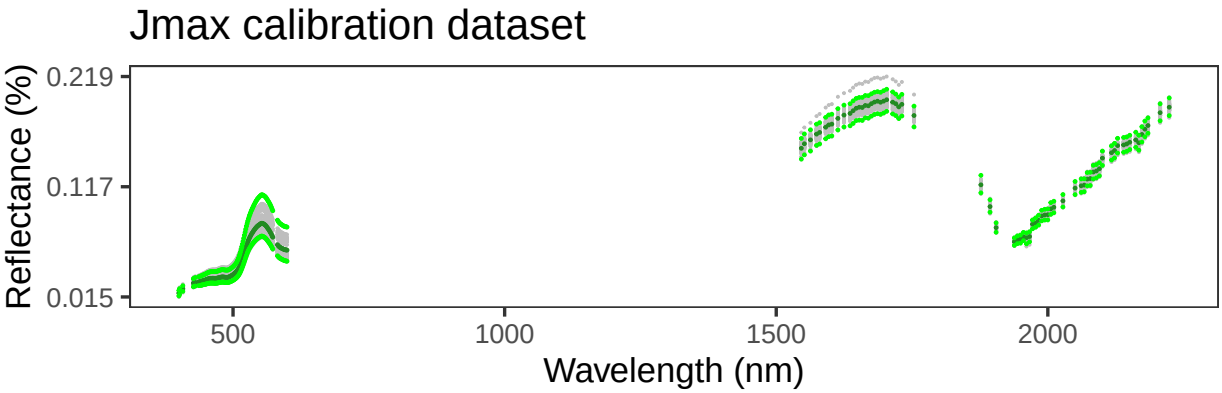
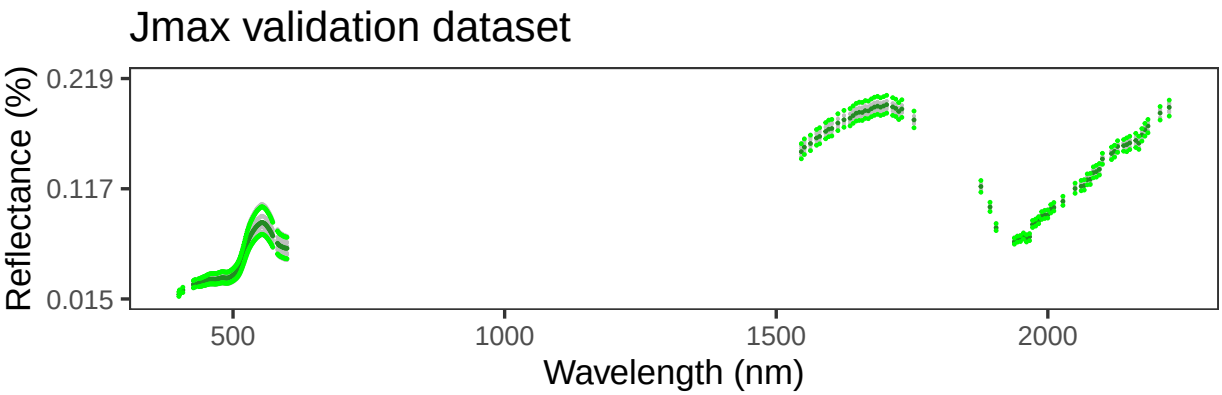
Use side-view HSI data to predict Jmax on W9

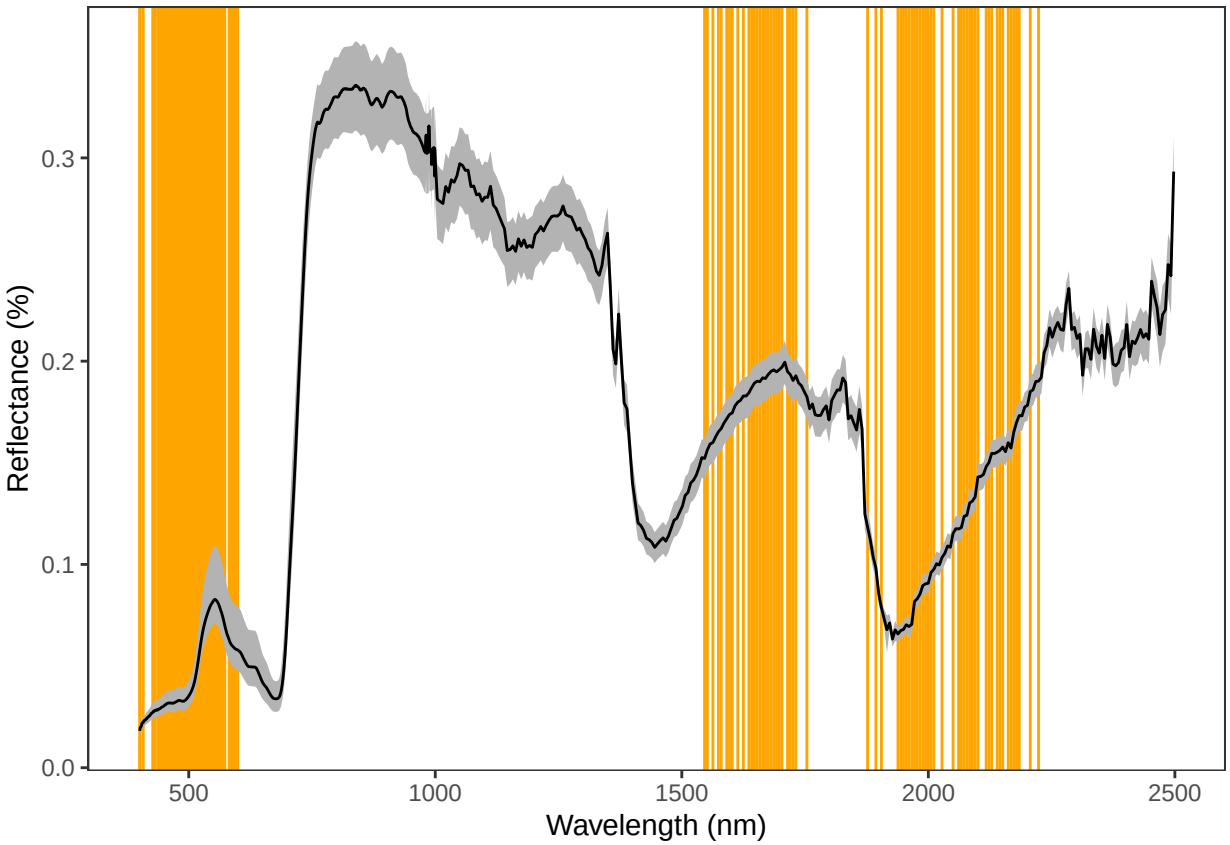
2023-08-08

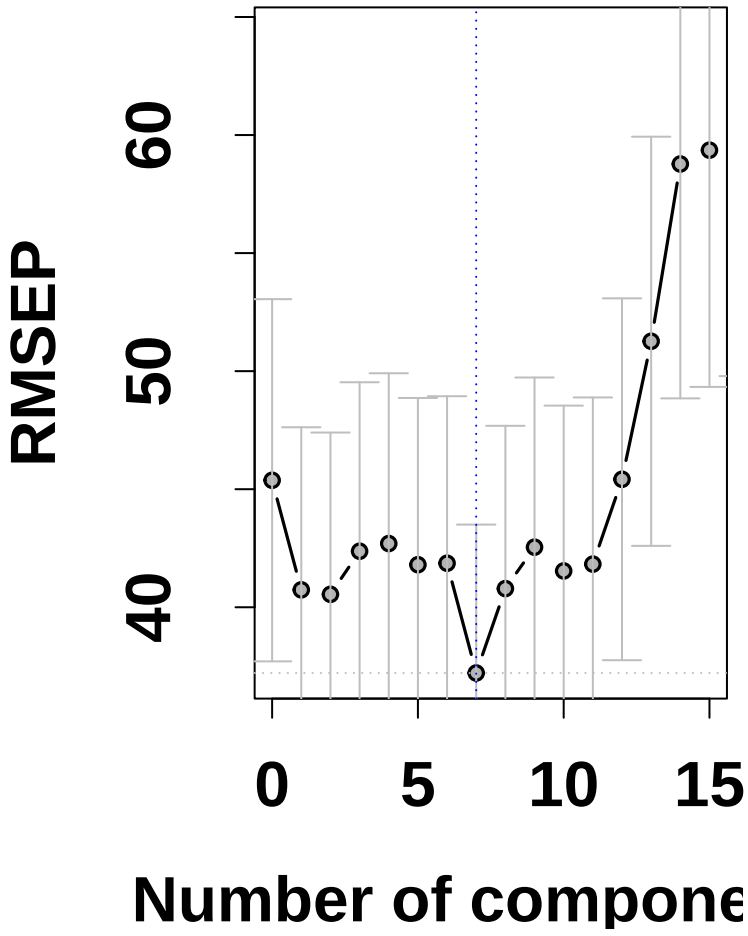
```
## $plsralg
## [1] "oscorespls"

##  [1] "909" "933" "927" "942" "918" "947" "926" "906" "939" "946" "924" "940"
## [13] "941" "931" "908" "913" "944" "948" "910" "930" "959" "957" "994" "992"
## [25] "974" "955" "991" "982" "983" "969" "962" "987" "986" "990" "985" "954"

##  [1] "923" "929" "932" "934" "935" "938" "956" "963" "989" "993"

##          value        wv
## 33  0.05671843  439.1664
## 163 0.05618651  599.3645
## 1   0.05613419  400.3933
## 142 0.05607313  573.1947
## 667 0.05596623 2066.9600
## 602 0.05591948 1703.2500
```




Jmax calibration dataset
Reflectance (%)
0.219
0.117
0.015
500
1000
1500
2000
Wavelength (nm)

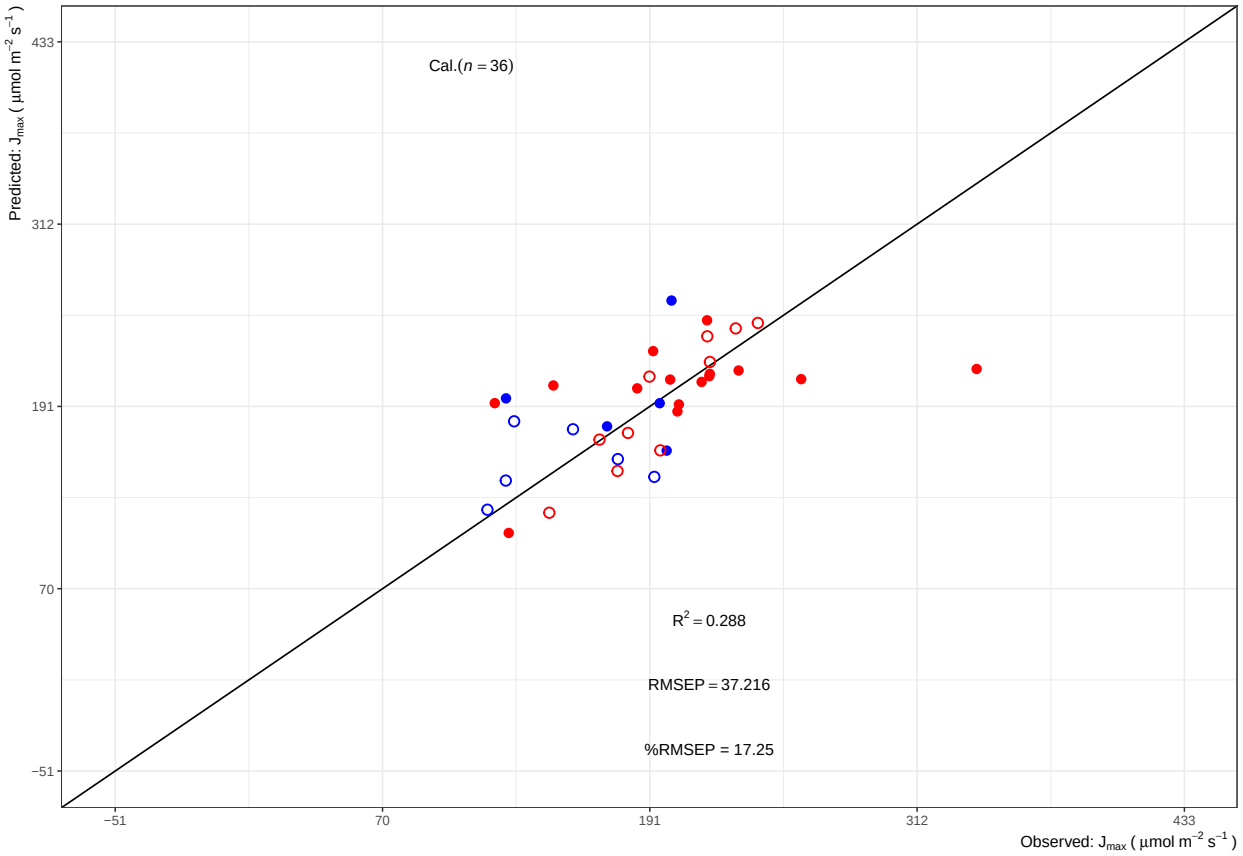

Jmax validation dataset
Reflectance (%)
0.219
0.117
0.015
500
1000
1500
2000
Wavelength (nm)

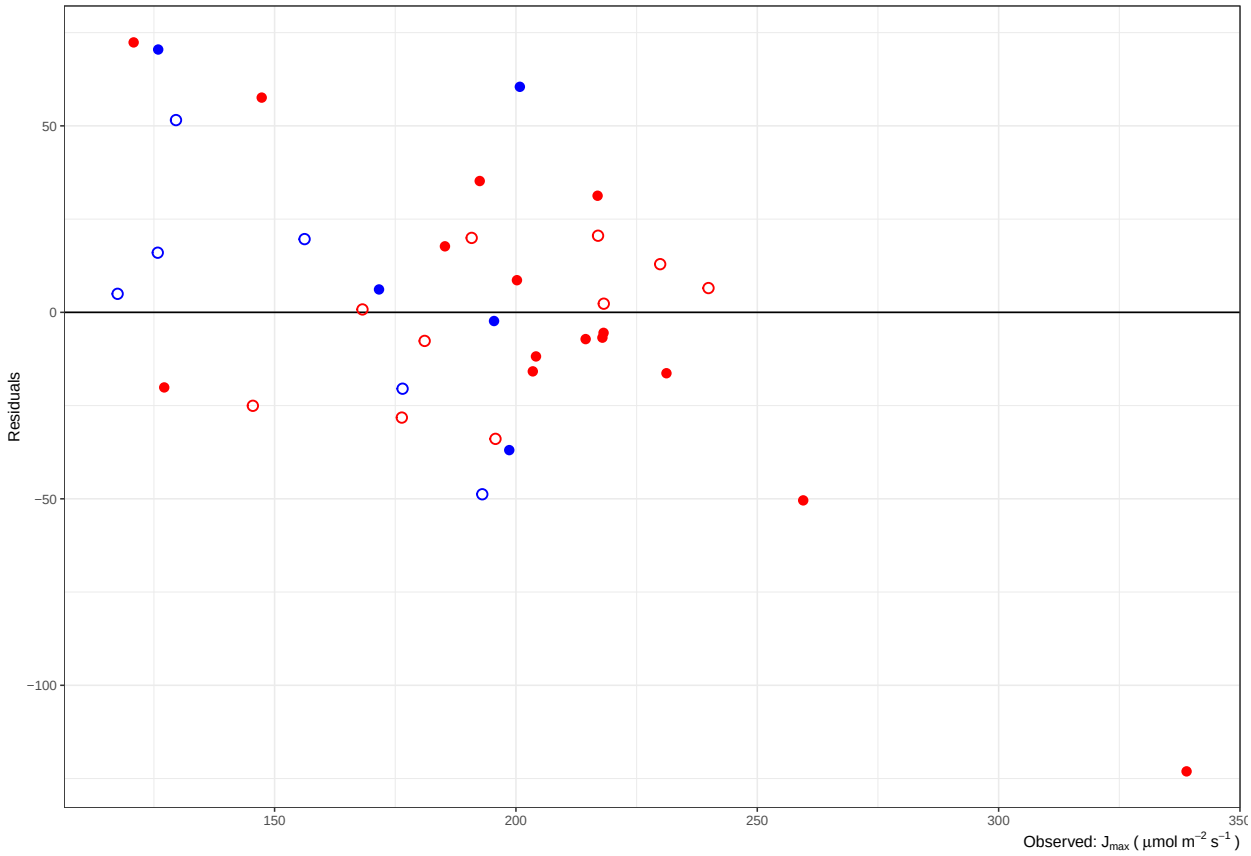

Reflectance (%)
0.0
0.1
0.2
0.3
500
1000
1500
2000
2500
Wavelength (nm)

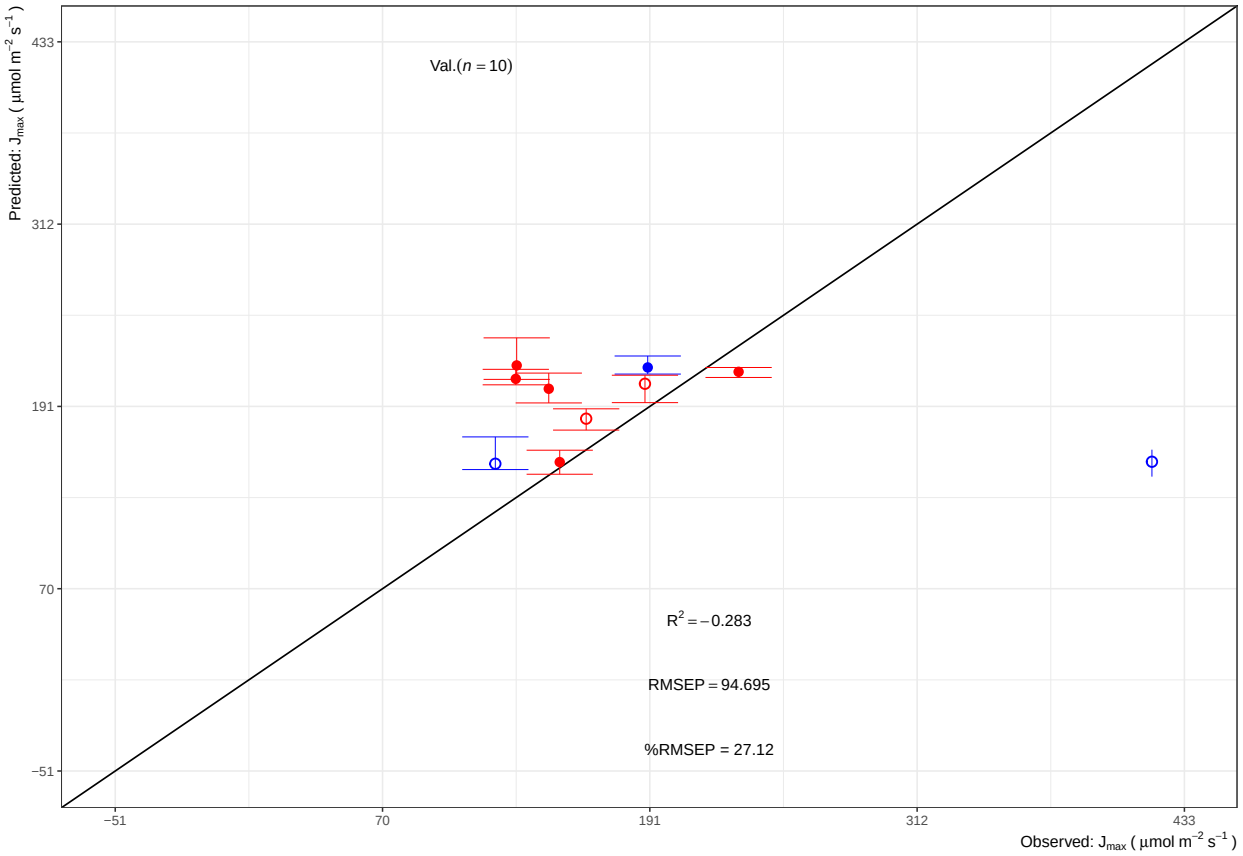


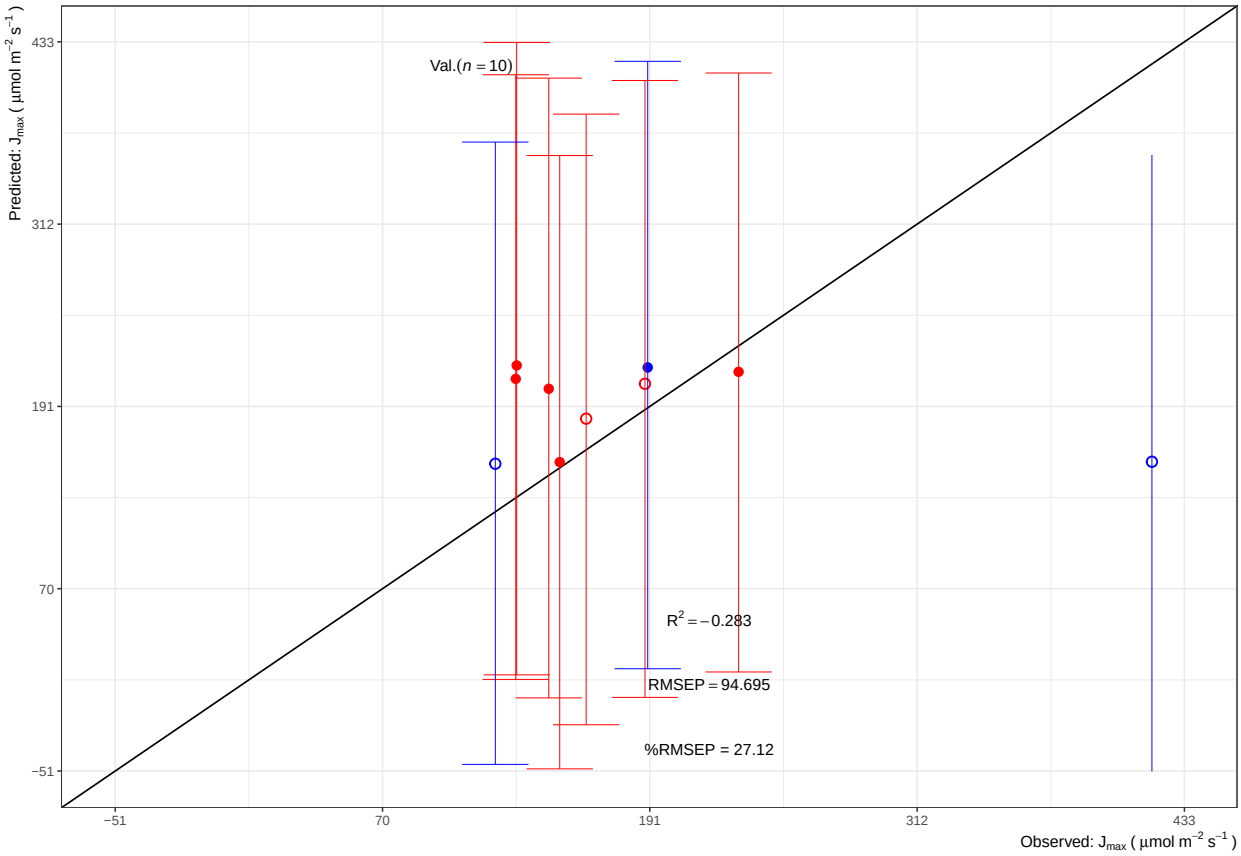

```
##   data_set     R2  RMSEP NRMSEP
## 1      cal  0.288 37.216 16.805
## 2      val -0.283 94.695 31.858
```

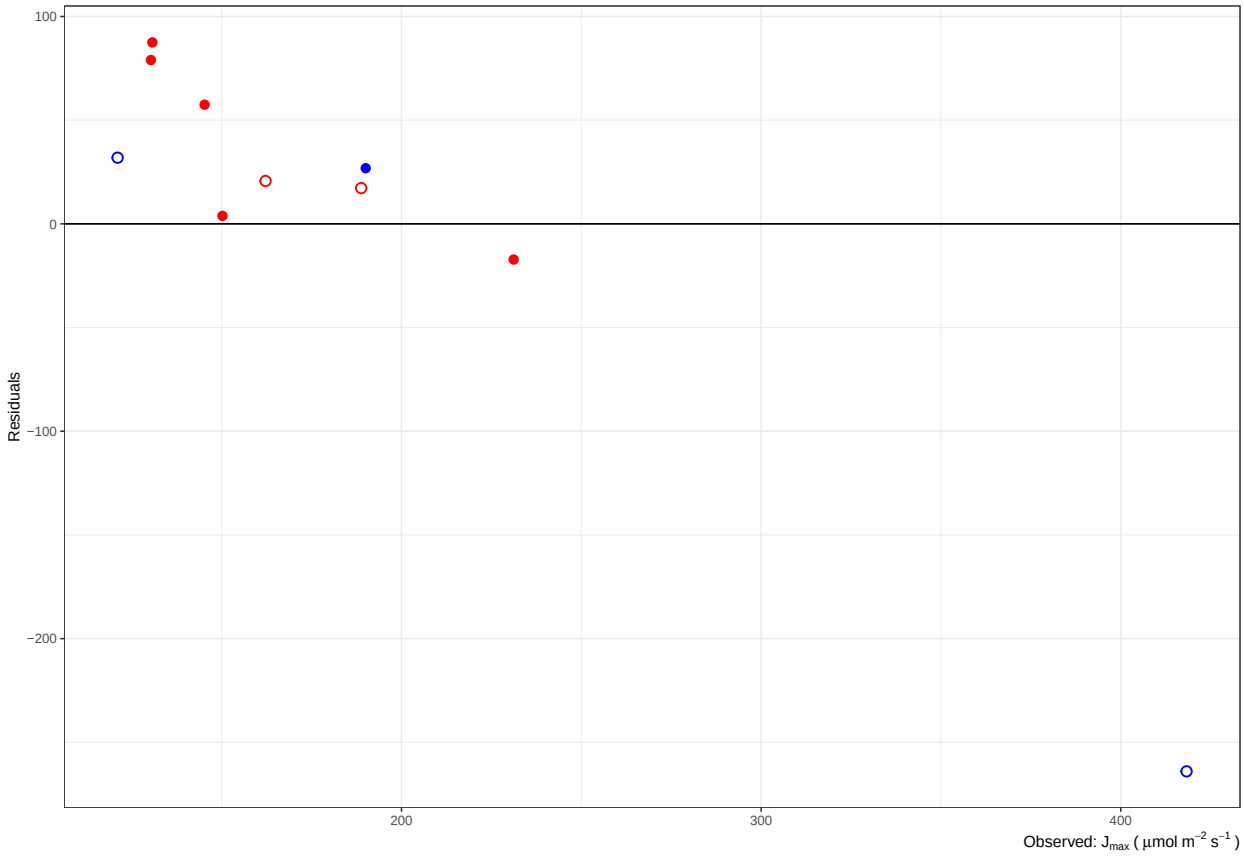
```
##   Observed Predicted  Residuals Treatment Subpop      uci      lci      upi
## 1 231.1903  213.9790 -17.211316        N1    IND 216.8425 210.2229 412.3220
## 2 130.7234  218.2183  87.494833        N1    IND 236.5104 208.9500 432.6223
## 3 145.2490  202.7175  57.468515        N1    IND 213.1225 193.3323 408.9101
## 4 150.2102  154.0534   3.843207        N1    IND 161.9454 145.9974 357.5279
## 5 130.3127  209.3056  78.992899        N1    IND 215.6331 205.3391 411.1436
## 6 190.0461  216.8765  26.830388        N1    TRJ 224.4836 212.4672 420.0681
##          lpi
## 1  14.743360
## 2  12.838126
## 3  -2.455273
## 4 -49.585135
## 5   9.828604
## 6  16.882718
```


Cal.(n = 36)
R2 = 0.288
RMSEP = 37.216
%RMSEP = 17.25
Predicted: Jmax (µmol m−2 s−1)
Observed: Jmax (µmol m−2 s−1)
433
312
191
70
−51
−51
70
191
312
433


Residuals
50
0
−50
−100
150
200
250
300
Observed: J_{max} (µmol m^{-2} s^{-1})


Val.(n = 10)
R2 = −0.283
RMSEP = 94.695
%RMSEP = 27.12
Predicted: Jmax (µmol m−2 s−1)
Observed: Jmax (µmol m−2 s−1)
433
312
191
70
−51
−51
70
191
312
433


Predicted: J_{max} (µmol m^{-2} s^{-1})
433
312
191
70
−51
Val.(n = 10)
R^2 = −0.283
RMSEP = 94.695
%RMSEP = 27.12
−51
70
191
312
433
Observed: J_{max} (µmol m^{-2} s^{-1})




```
##       Iteration Intercept   X2005.47   X2100.5 X511.33808 X510.10745
## Seg 1         1  197.6819 -1127.9700 -2353.182   1570.135   1444.122
## Seg 2         2  280.9251  -958.1547 -2378.686   1539.086   1391.873
## Seg 3         3  139.1313 -1223.9528 -2184.341   1597.127   1462.965
## Seg 4         4  124.0012 -1141.3968 -3138.178   1386.398   1289.643
## Seg 5         5  554.9584 -1097.8358 -1420.813   1255.371   1147.147
## Seg 6         6  213.6408 -1146.0394 -2605.915   1615.395   1484.998
```

```
##                coefs
## 2005.47   -1112.561
## 2100.5    -2168.887
## 511.33808  1599.225
## 510.10745  1470.962
## 512.56898  1691.898
## 513.80012  1838.071
```