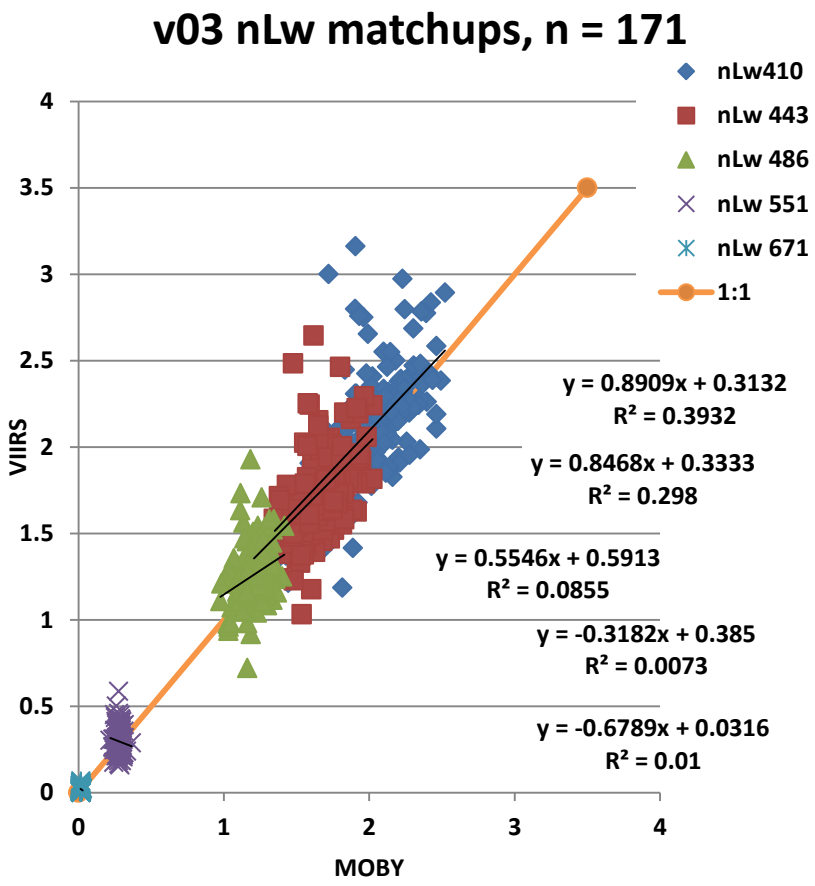
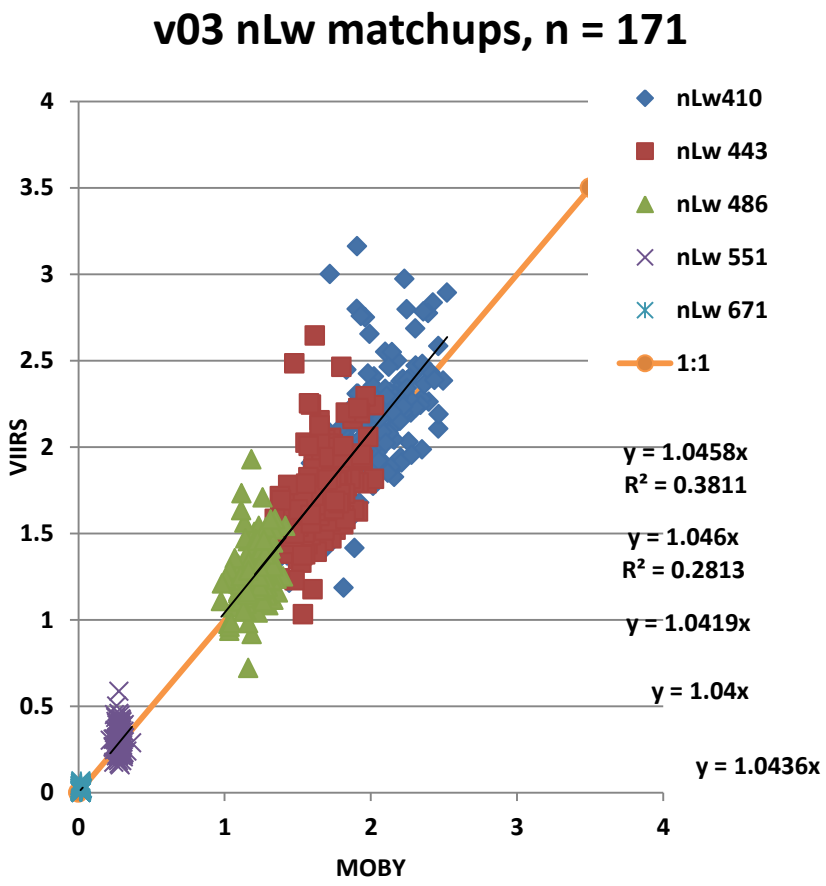
V-file Matchup comparisons

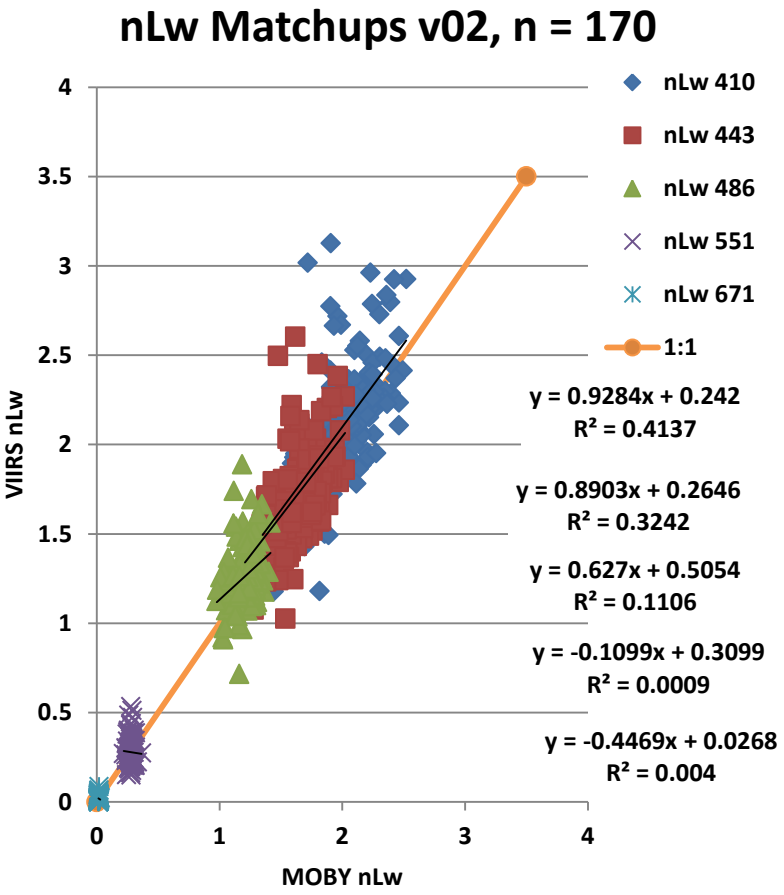
Where does this take us?

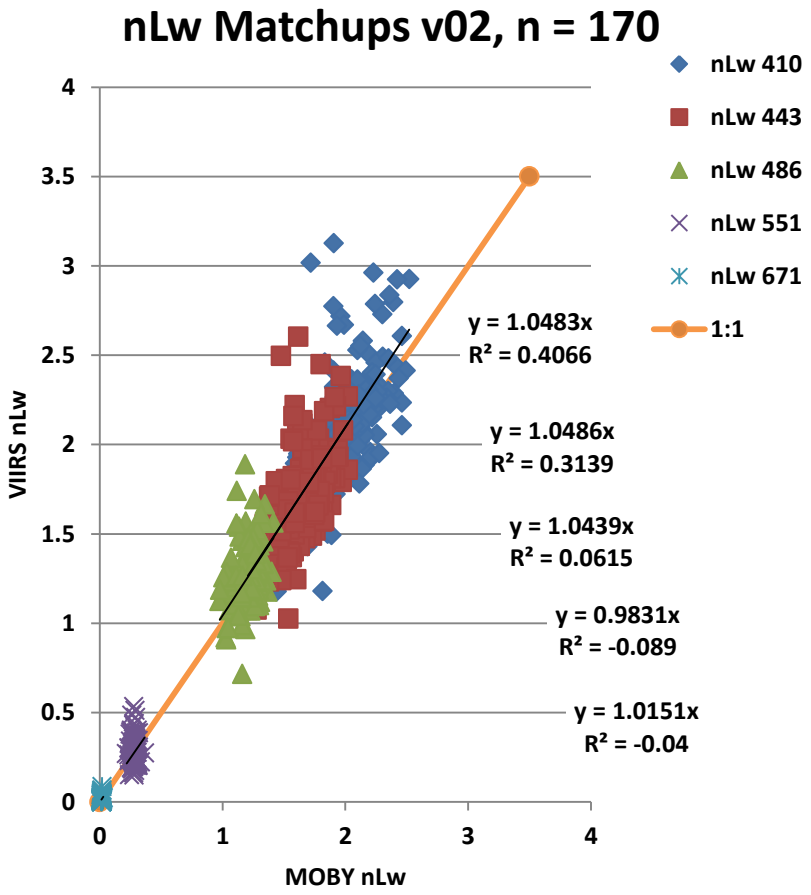
V03 (g_{745} = 0.97)


v03 nLw matchups, n = 171
nLw410
nLw 443
nLw 486
nLw 551
nLw 671
1:1
y = 0.8909x + 0.3132
R² = 0.3932
y = 0.8468x + 0.3333
R² = 0.298
y = 0.5546x + 0.5913
R² = 0.0855
y = -0.3182x + 0.385
R² = 0.0073
y = -0.6789x + 0.0316
R² = 0.01
VIIRS
MOBY
0
0.5
1
1.5
2
2.5
3
3.5
4


v03 nLw matchups, n = 171
nLw410
nLw 443
nLw 486
nLw 551
nLw 671
1:1
y = 1.0458x
R² = 0.3811
y = 1.046x
R² = 0.2813
y = 1.0419x
y = 1.04x
y = 1.0436x
VIIRS
MOBY
0
0.5
1
1.5
2
2.5
3
3.5
4

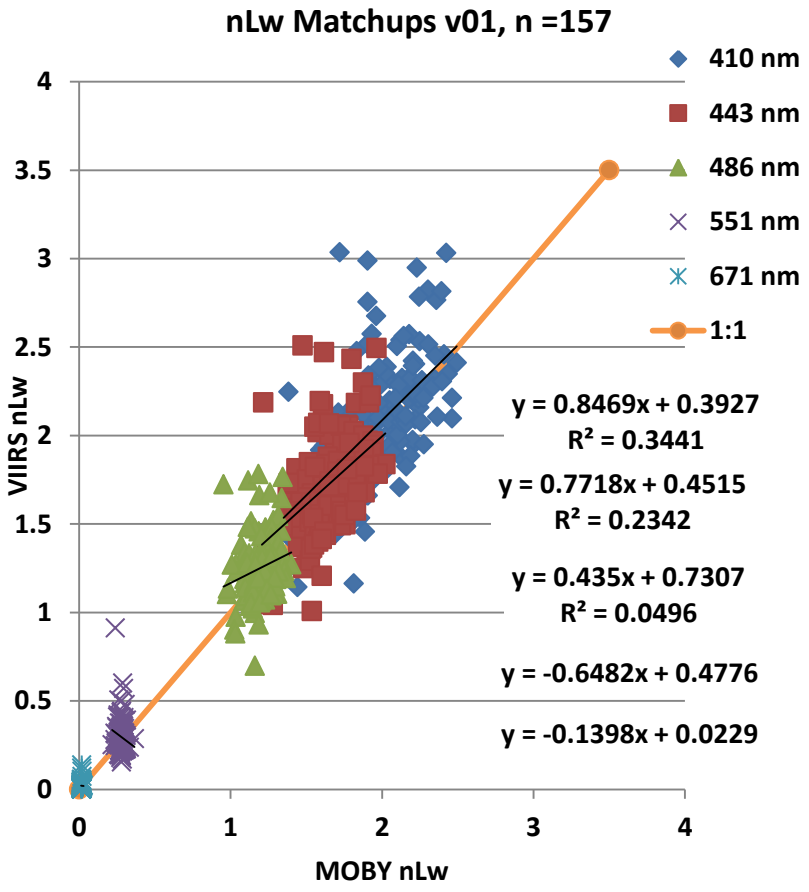
V02 (g_{745} = 0.98)

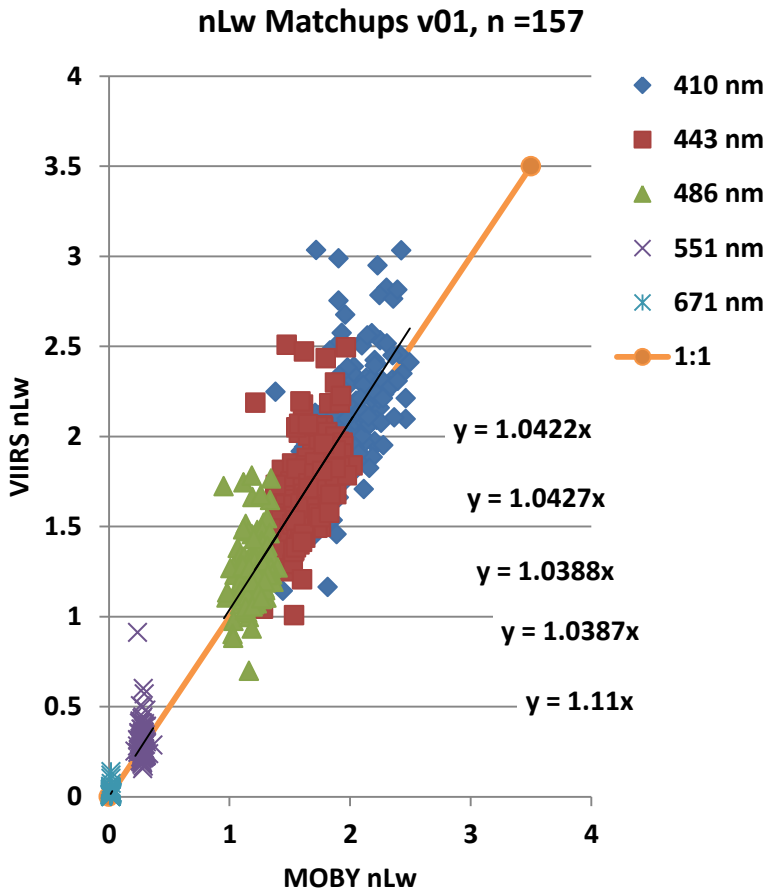




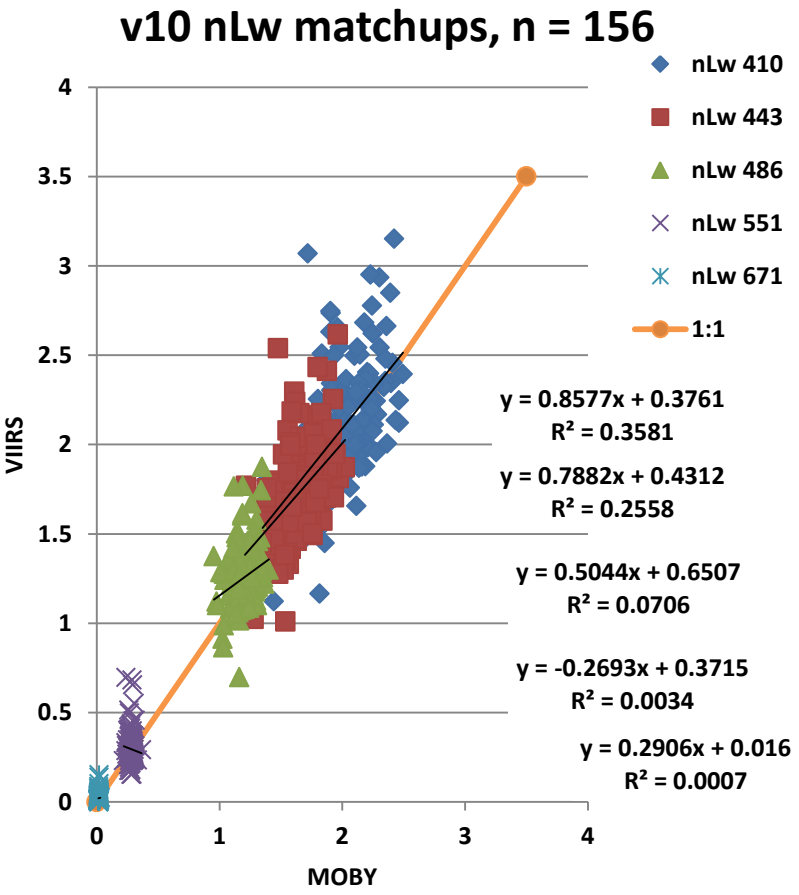
Watch the spread on the 551 nm. This v02 run seems to be best.

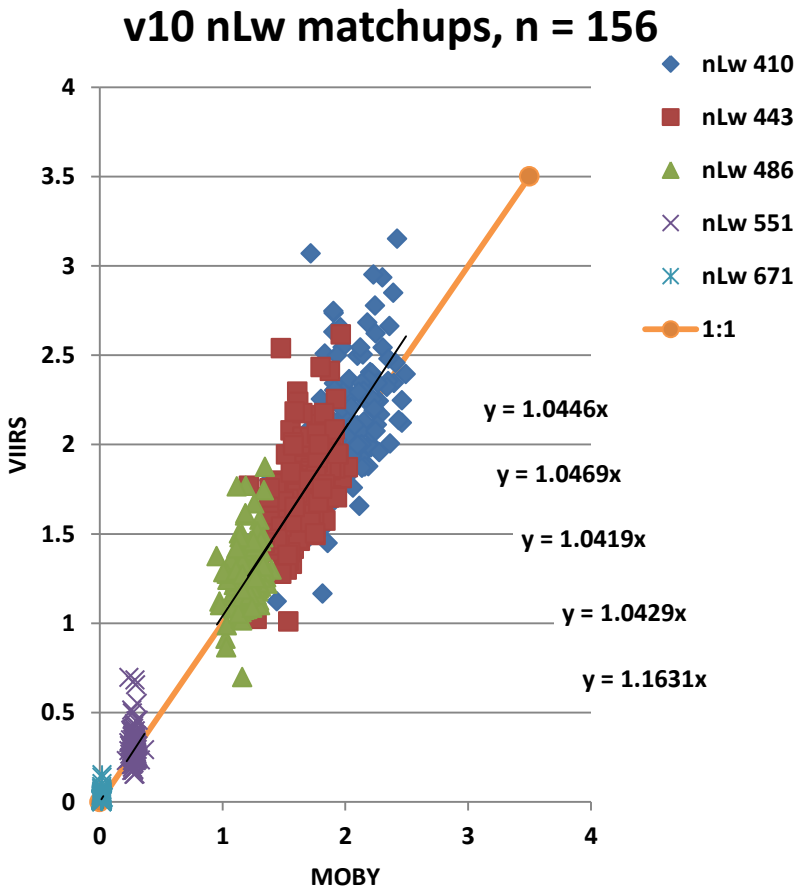
V01 (g_{745} = 0.99)


nLw Matchups v01, n =157
410 nm
443 nm
486 nm
551 nm
671 nm
1:1
y = 0.8469x + 0.3927
R² = 0.3441
y = 0.7718x + 0.4515
R² = 0.2342
y = 0.435x + 0.7307
R² = 0.0496
y = -0.6482x + 0.4776
y = -0.1398x + 0.0229
VIIRS nLw
MOBY nLw
0
0.5
1
1.5
2
2.5
3
3.5
4

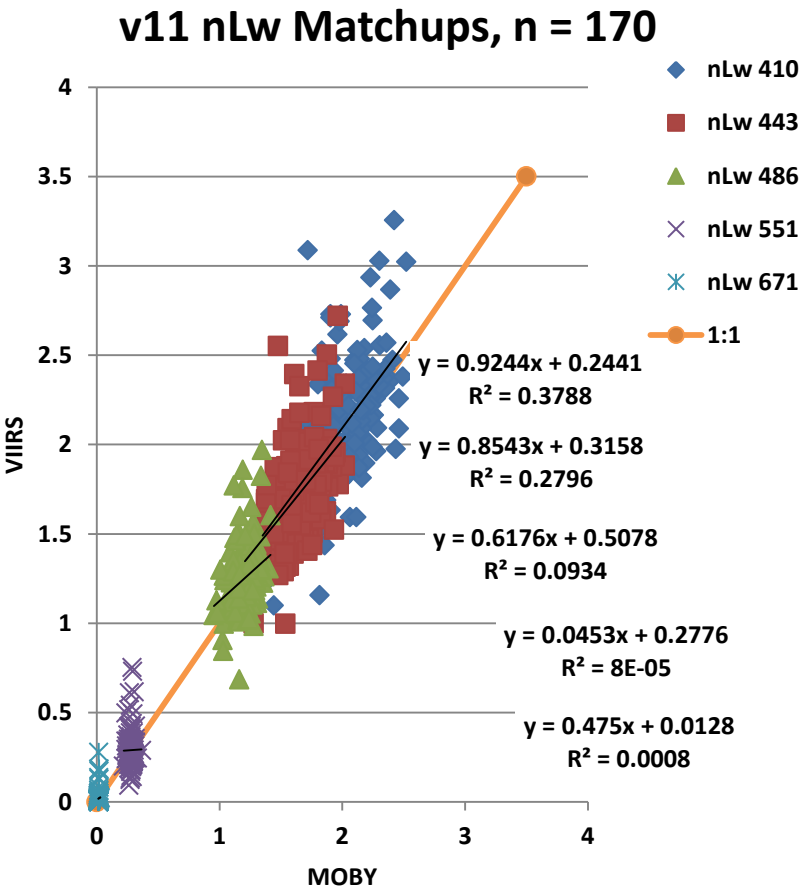

nLw Matchups v01, n =157
410 nm
443 nm
486 nm
551 nm
671 nm
1:1
y = 1.0422x
y = 1.0427x
y = 1.0388x
y = 1.0387x
y = 1.11x
VIIRS nLw
MOBY nLw
0
0.5
1
1.5
2
2.5
3
3.5
4

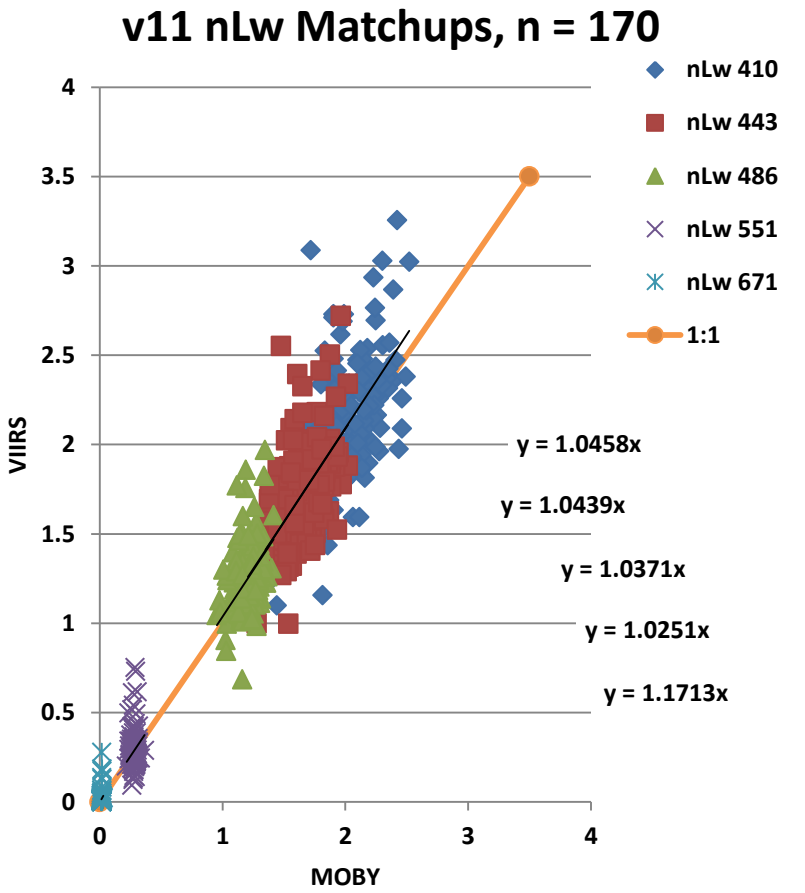
V10 (g_{745}=1.0)


v10 nLw matchups, n = 156
nLw 410
nLw 443
nLw 486
nLw 551
nLw 671
1:1
y = 0.8577x + 0.3761
R² = 0.3581
y = 0.7882x + 0.4312
R² = 0.2558
y = 0.5044x + 0.6507
R² = 0.0706
y = -0.2693x + 0.3715
R² = 0.0034
y = 0.2906x + 0.016
R² = 0.0007
VIIRS
MOBY
0
0.5
1
1.5
2
2.5
3
3.5
4


v10 nLw matchups, n = 156
nLw 410
nLw 443
nLw 486
nLw 551
nLw 671
1:1
y = 1.0446x
y = 1.0469x
y = 1.0419x
y = 1.0429x
y = 1.1631x
VIIRS
MOBY
0
0.5
1
1.5
2
2.5
3
3.5
4

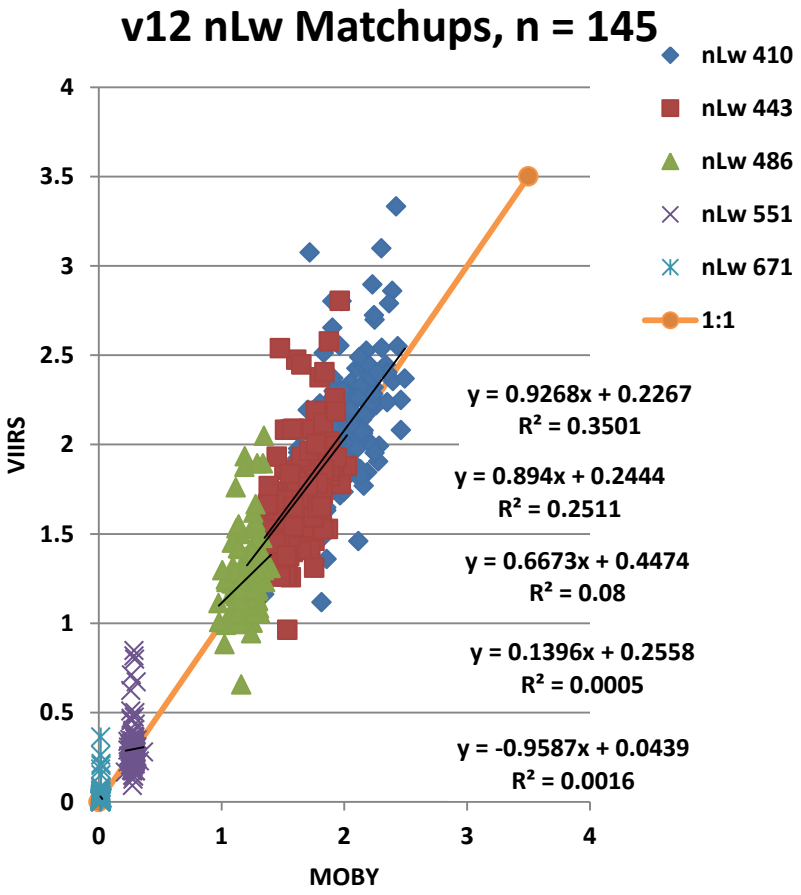
V11 (g_{745} = 1.01)

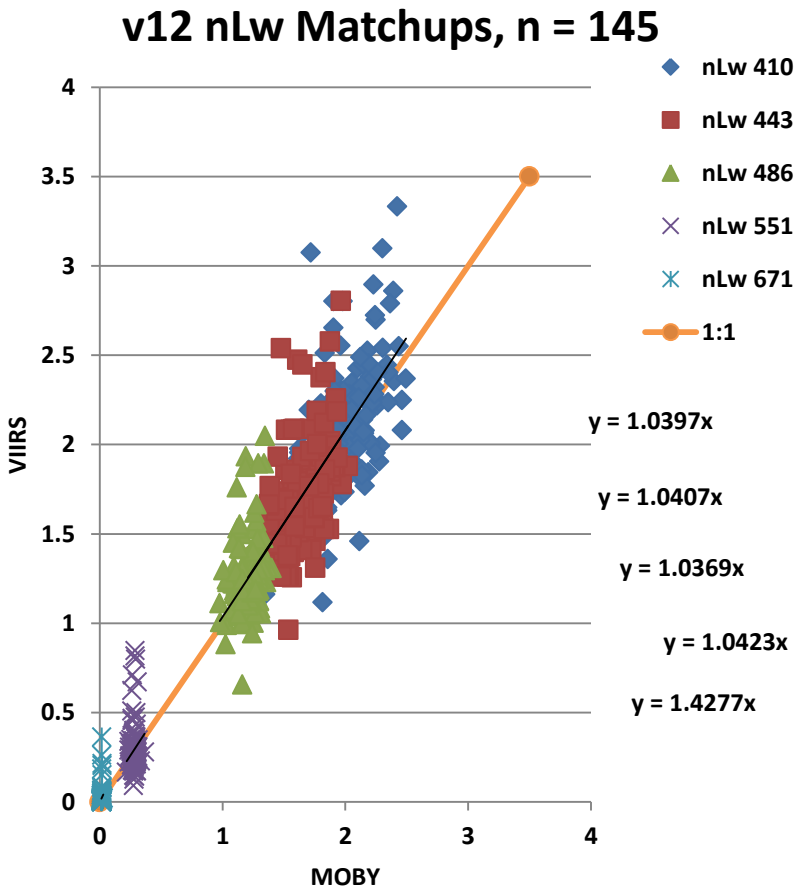




Watch the spread on the 551 and 671 nm. This doesn't seem to happen in the v02 run.

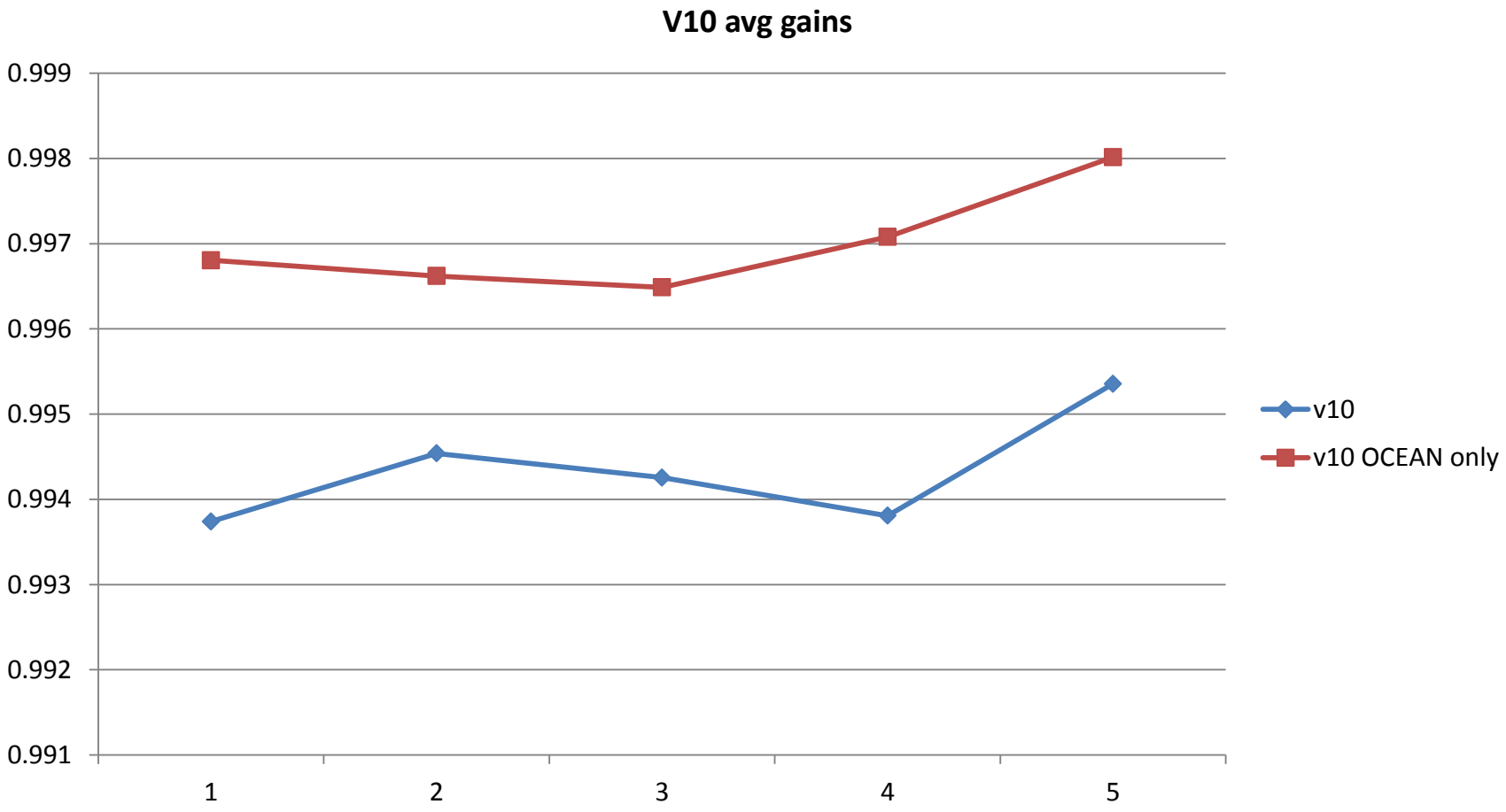
V12 (v_{745} = 1.02)



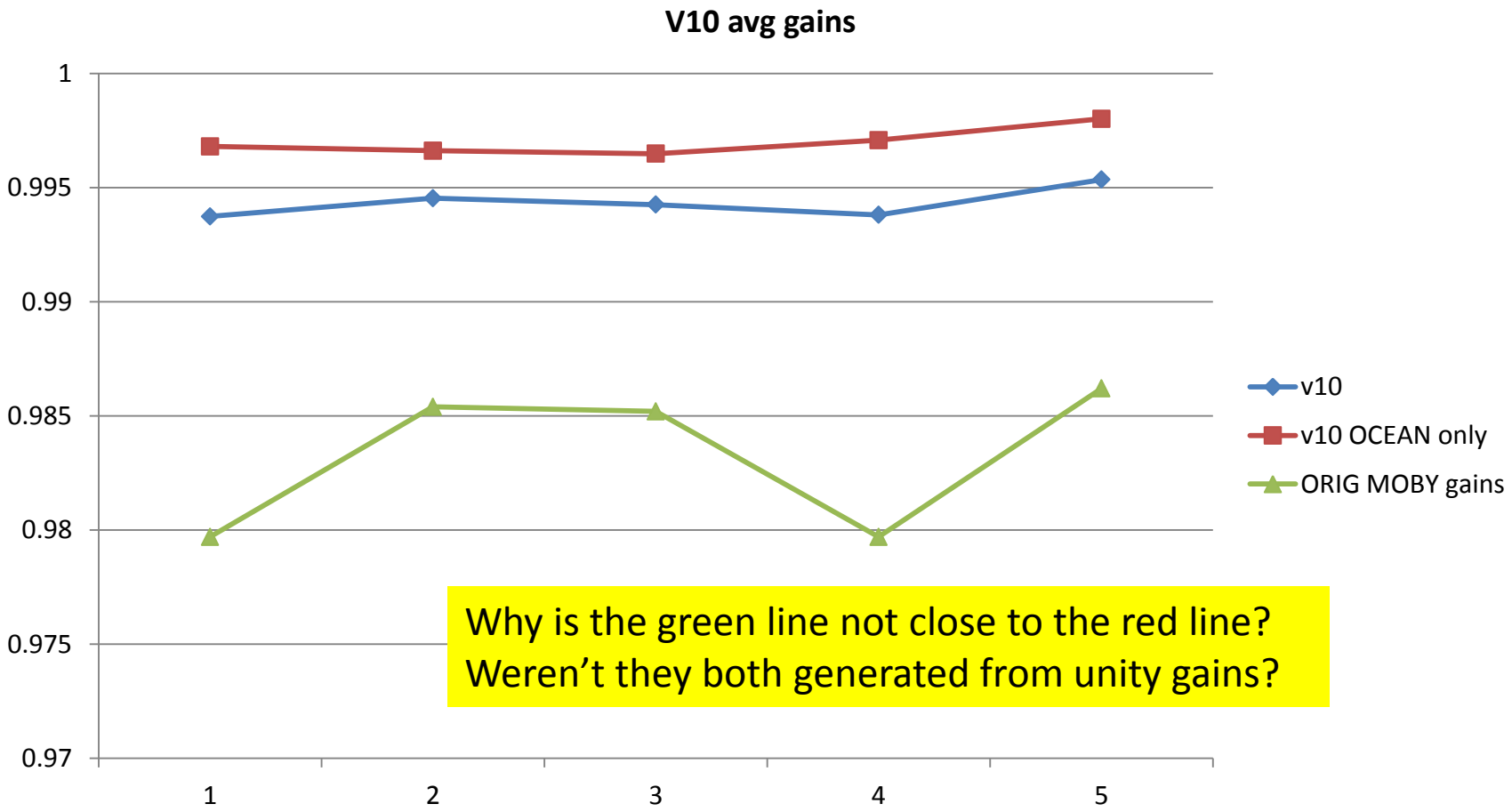


Watch the spread on the 551 and 671 nm. This doesn't seem to happen in the v02 run.

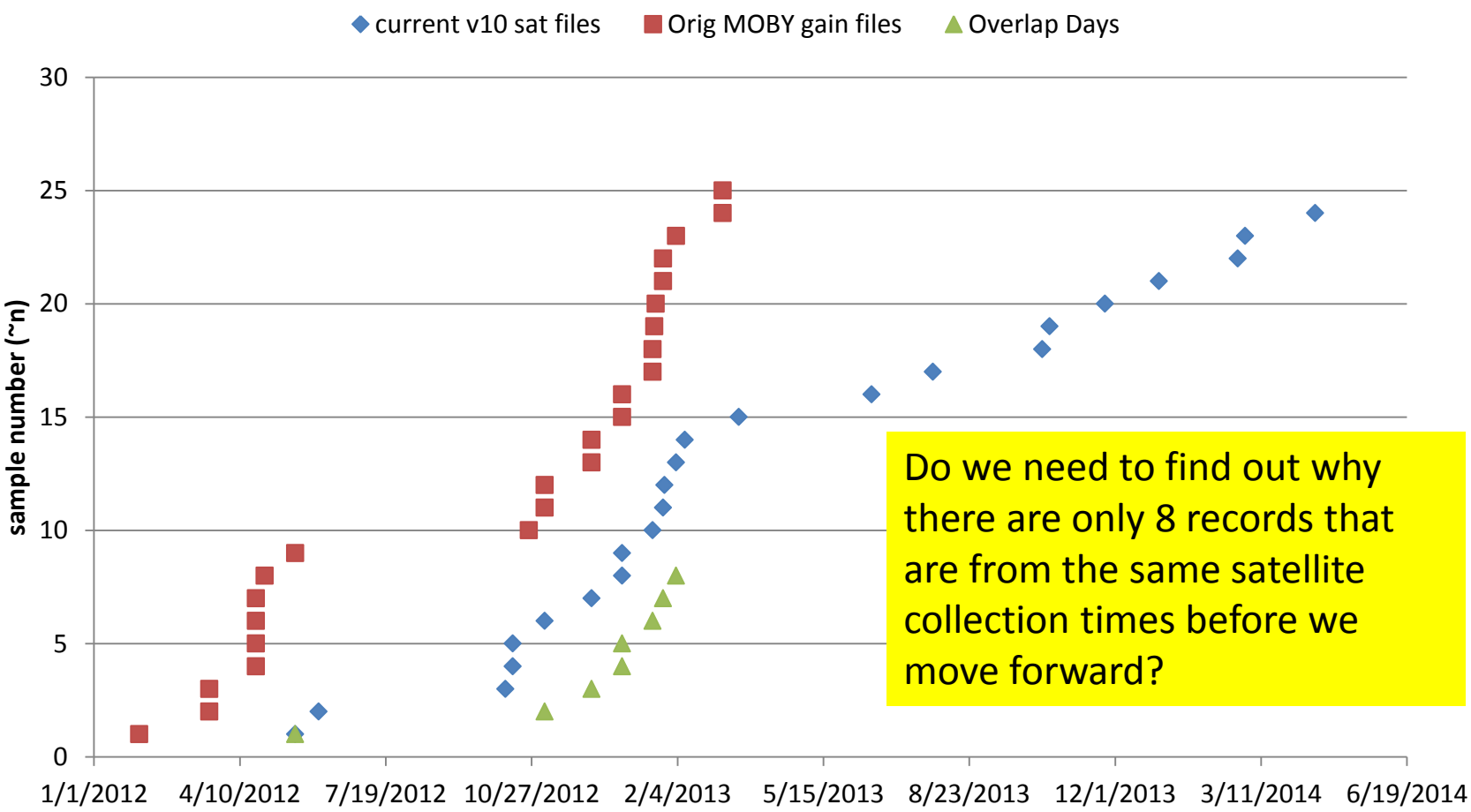
The 745nm = 0.98 looks the "best" from the slopes of the matchups, but its not definitive. (The r2 are worthless w/ b=0.) So I decided to see what the gains were doing. These are the gains from the v10 run. The blue is just the average of all points in the matchup and the red is screened (flags/angles). In every instance (v12-v01), removing the flagged data pushes the gains up closer to 1.



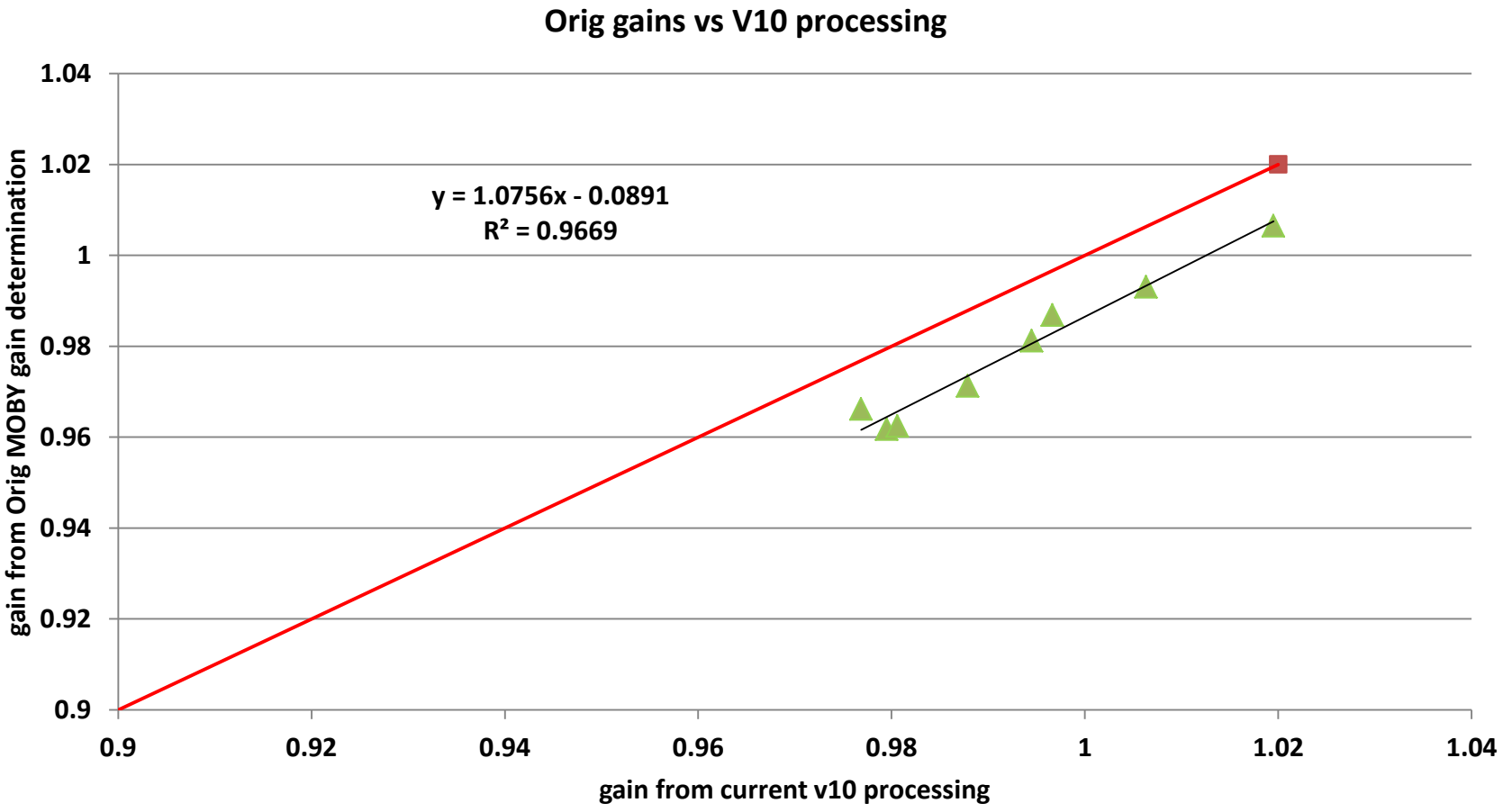
The v10 run is everything set to 1. It should correlate well with the original MOBY gains that we are using. The green line is that g01 ViCal.



I can say, in part the v10 is not consistent with the orig MOBY gains (g01) because we are not using the same data. The blue are the dates of the v10 records, n = 24. The red are the dates of the orig MOBY determination, n = 25. The green are the dates where the two are the same, i.e same time stamp on infile.



Where we have overlapping matchups, we can compare the gain results from 2013 ViCal run today's v-file01, the numeric results are different.



The sum of the differences in the end to end gain determination process /b/ ~Apr2013 and today (Sept2014) are in part responsible for the difference in the gains. Different records, different APS, different input files (ex. CLASS vs AFWA).

RDR

- **We are assuming there are no changes at this level**

SDR

- **AFWA v CLASS – change in the infile; ex. CLASS is aggregated where AFWA was not**
- **F/h LUT calibration > we never got reprocessed SDRs**
- **Delta c implemented June 2014 and RSB AutoCal has an unknown effect**

APS/vical.rb

- **Mirror side update, correct mirror normal**
- **viCal script update: 25km mean**
- **MOBY data recalibrated (Voss)**

ViCal (Jen)

- **Different records go into the evaluation. Since screening is critical, we want to maintain consistency in the records that go into evaluation. Of 25 possible exact matches, we have 8.**

Gains

Vicarious Gains

http://oceancolor.gsfc.nasa.gov/VALIDATION/gains.html

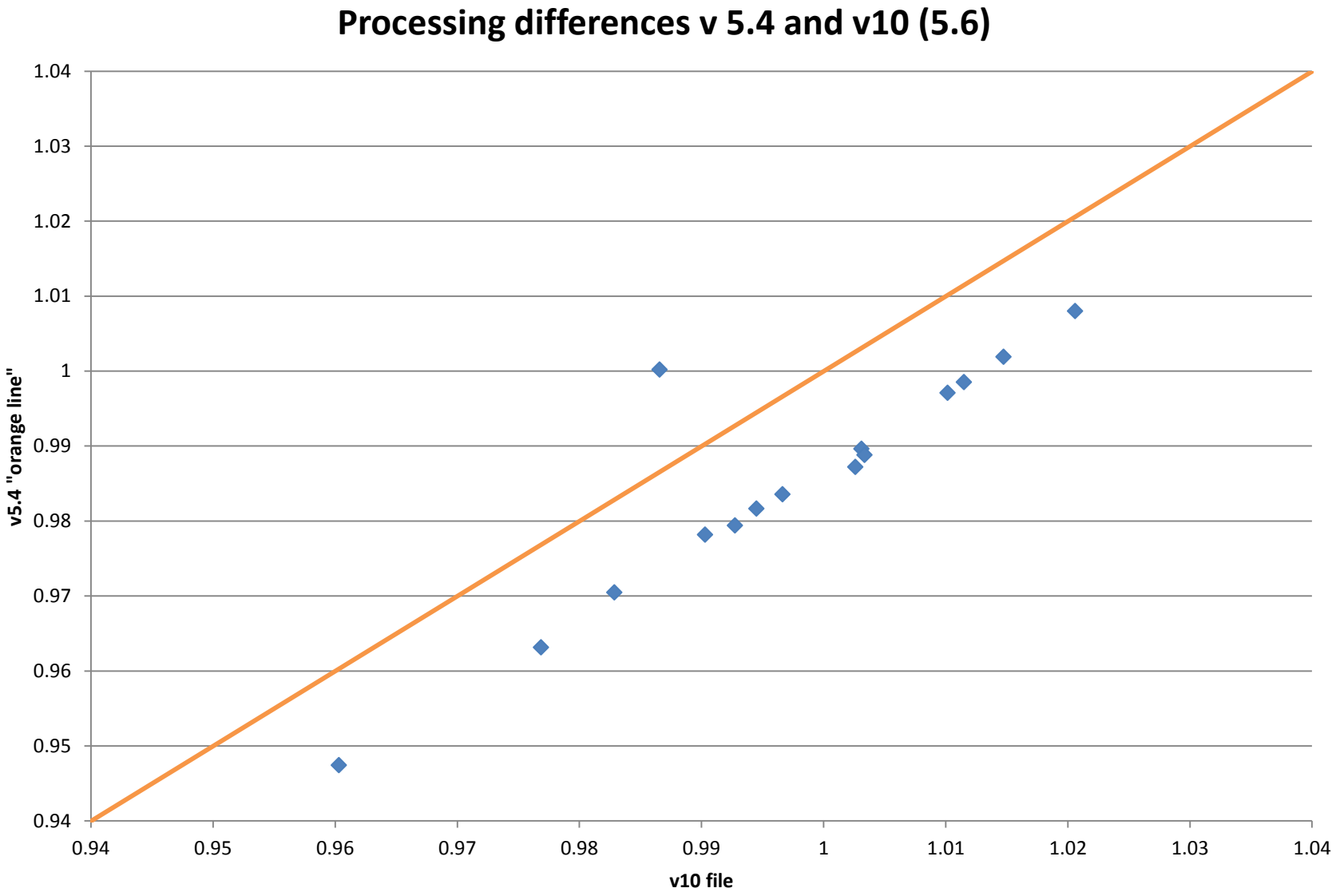
- The top of the atmosphere (TOA) radiances for each band measured by MODIS or SeaWiFS are compared with MOBY (Marine Optical Buoy) insitu match-up radiance values that have been propagated to the TOA using the current atmospheric correction parameters.

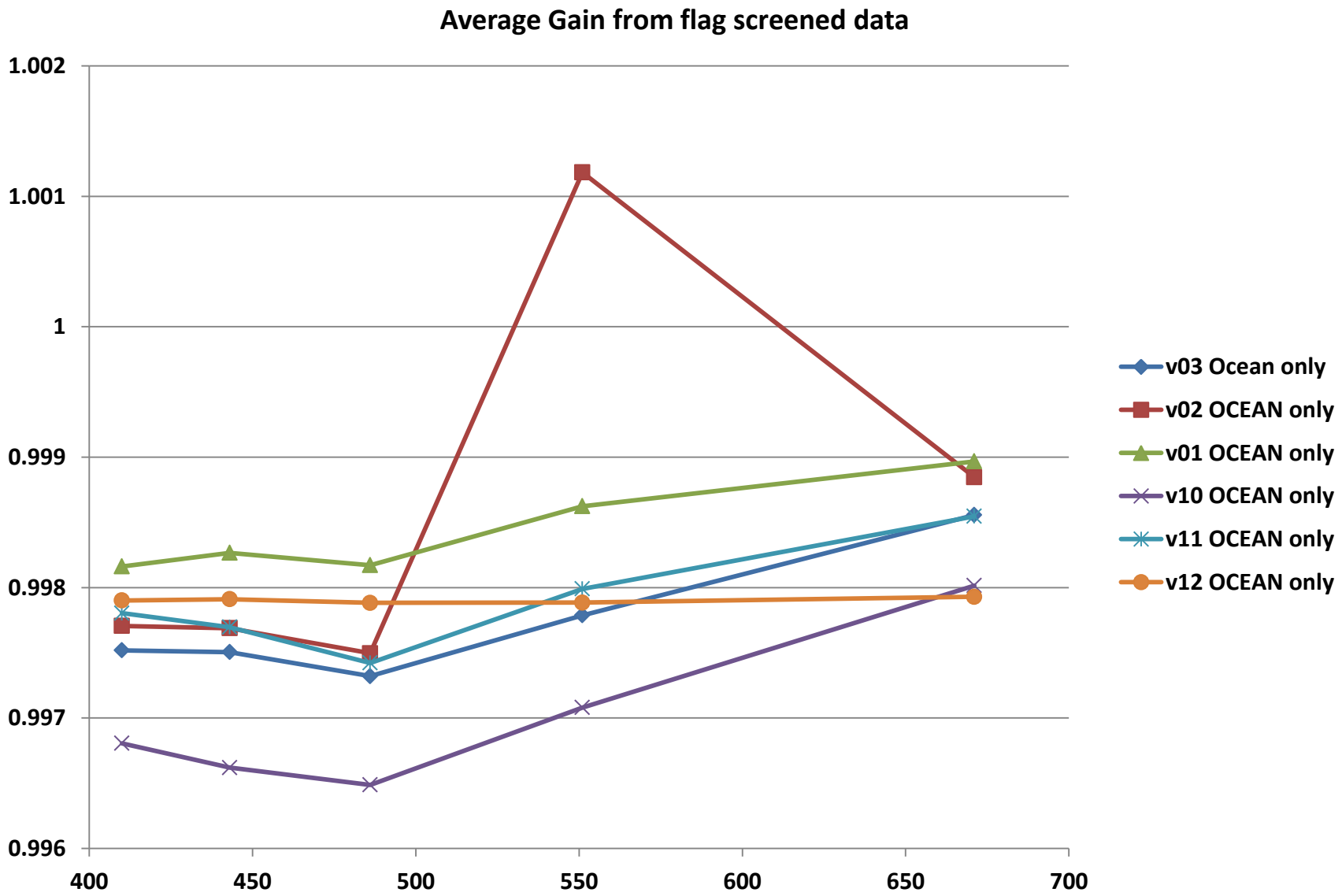
- It is assumed that the values at MOBY have only small uncertainties and predict what the values measured at the satellite should be. Therefore the difference between the satellite values and the MOBY values gives us the calibration gains.

- **Every time a change is made to the data processing methodology, the vicarious gains have to be updated. Once calculated, the gains are then utilized in the data processing stream.**

We need to settle on what to do about the 745 calibration and then reprocess to get new gains. Do we need to reprocess everything?? And what (if anything) do we do about not having the ability to reprocess at the SDR?

Back up


Processing differences v 5.4 and v10 (5.6)
v5.4 "orange line"
v10 file
1.04
1.03
1.02
1.01
1
0.99
0.98
0.97
0.96
0.95
0.94
0.94
0.95
0.96
0.97
0.98
0.99
1
1.01
1.02
1.03
1.04


Average Gain from flag screened data
1.002
1.001
1
0.999
0.998
0.997
0.996
400
450
500
550
600
650
700
v03 Ocean only
v02 OCEAN only
v01 OCEAN only
v10 OCEAN only
v11 OCEAN only
v12 OCEAN only