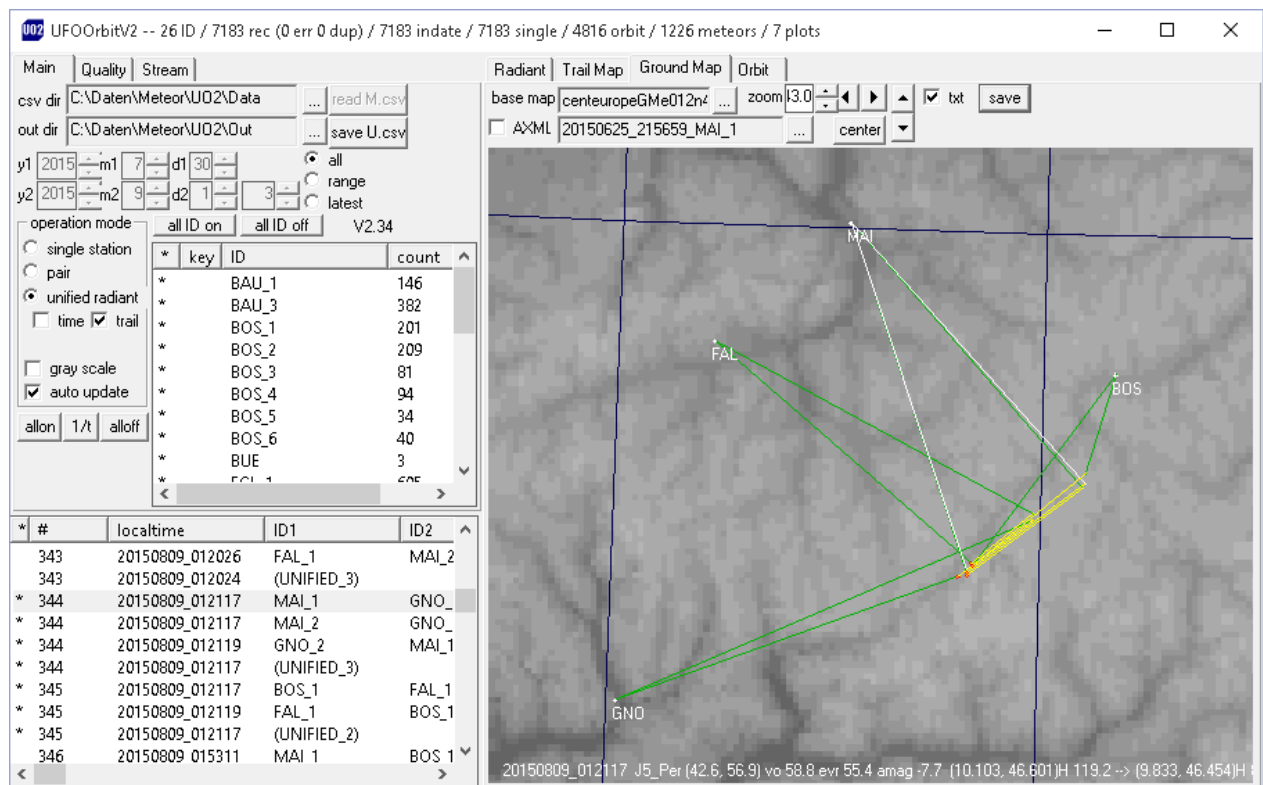


M20150809_012117, Perseid, -6.3 mag



VirtualDub with filter: bob doubler (bff, none-fields) 142 images, 100 useful

IRIS AVI convert → 150809_1..105

>add2 150809_40

>mult 0.025

>save 150809_b

>reindex 150809_r 50 1 50

>load r50

>sub2 r 150809_b b 0 50

>load b41

>savejpg 150809b41 2

ImageTools old values

Rename AF5 → 0809d_1..50

>load b41

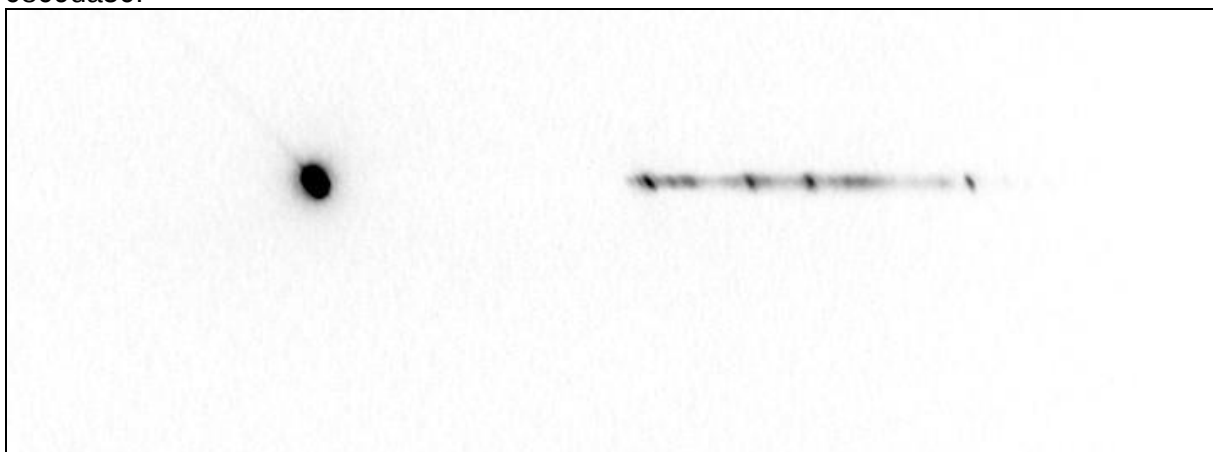


```

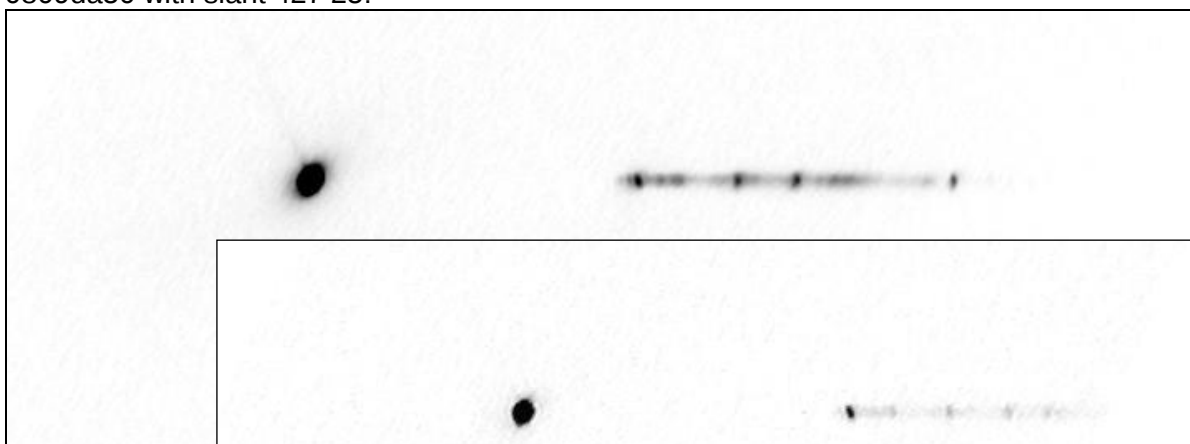
>load 0809d_1
>register 0809d_r 50
>load r10
>add2 r 50
>save 0809da30
>save 0809da40
>save 0809da50
>load 0809da50
>slant 427 25
>l_add 422 432
>l_plot

```

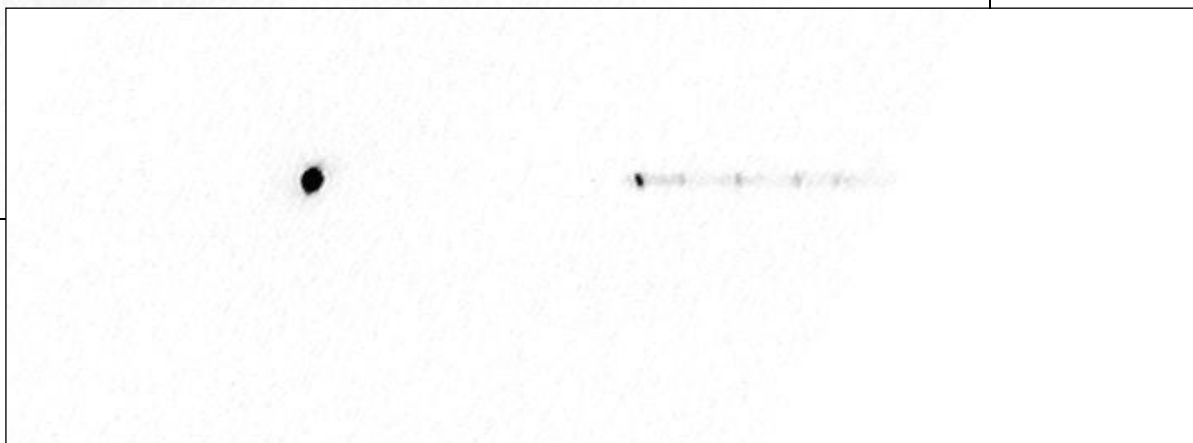
0809da50:



0809da50 with slant 427 25:



0809d40
single field:



Slant does not work perfectly!

Single field:

```

>load r40          not saturated, before flash!
>slant 427 25
>l_add 422 432
>l_plot
>save 0809d40

```

```
>load r40
>slant 427 25
>save 0809d40
>savejpg 0809d40 2
```

Adding spectra increases FWHM from 3.5 to 4 pixels
Sigma from 7.9 to 48 as expected

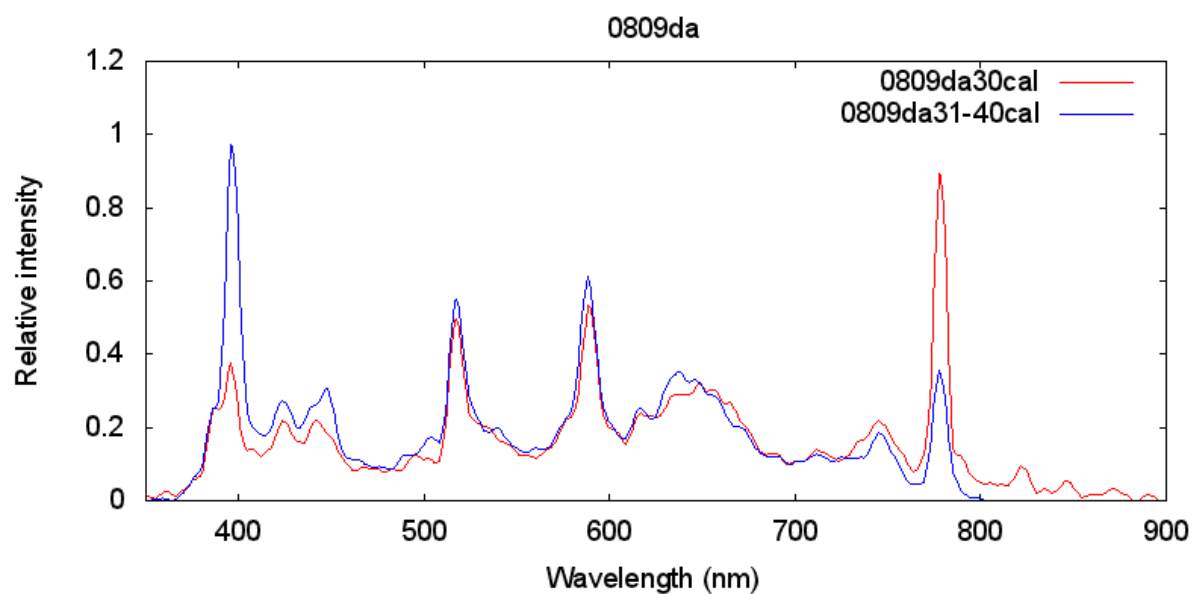
Adding 10 spectra 31-40 → sigma = 24

```
>load 0809da40
>sub 0809da30 0
>save 0809da31-40
>slant 427 25
>save 0809da31-40s
>l_add 422 432
>l_plot
```

ISIS calibration 0809da31-40:

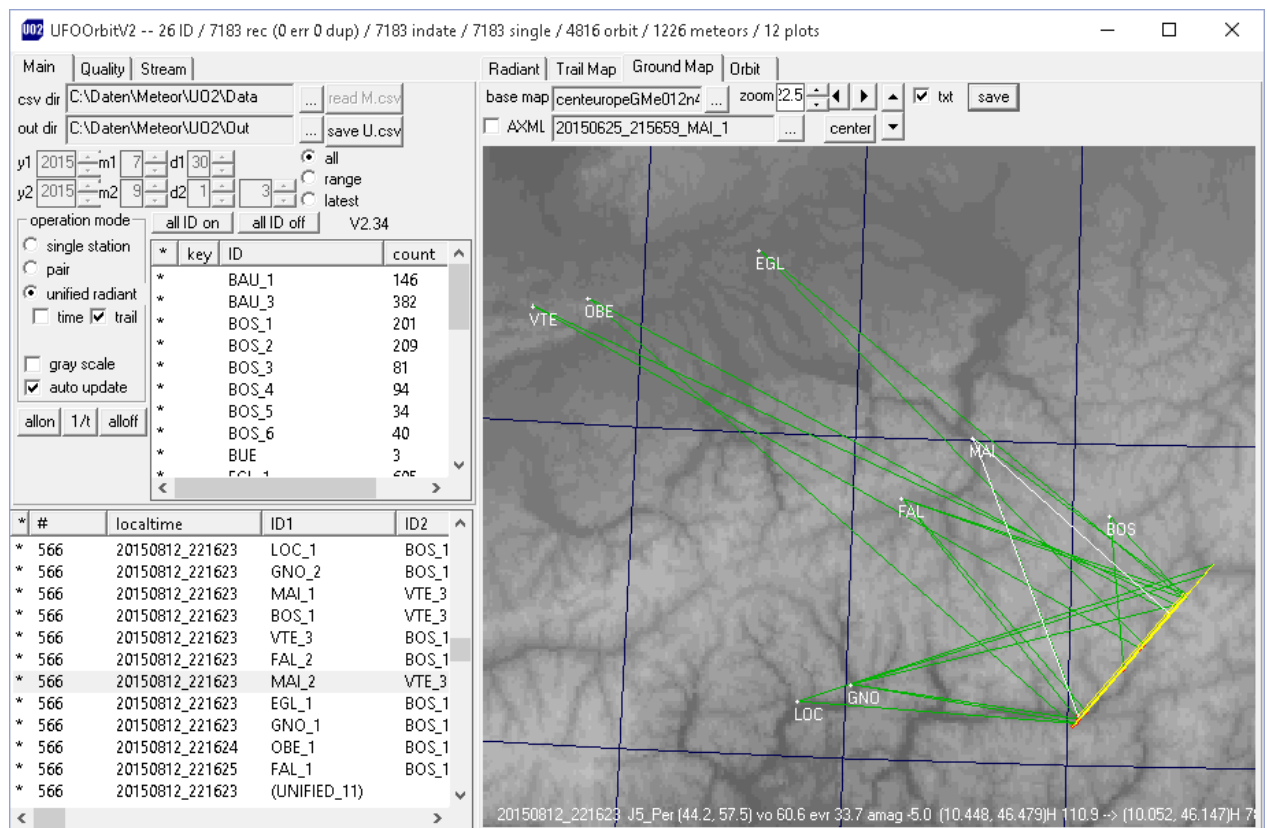
Lambda	O - C
0.167	-0.167
588.282	0.718
517.822	-0.022
777.928	-0.528

RMS = 0.641 2.009 nm/pixel



Peak	da30cal	395.5 nm
	da31-40	396.6 nm
	Ca II ref.	393.4, 396.8

Meteor 20150812_221623, Perseid, -4.3 mag



Observed by 11 cameras!



VirtualDub BobDoubler

IRIS AVI convert a1..a100 used

>load a52

>add2 a 40

>mult 0.025

>save 0812b

>reindex a r 51 1 50

>load r1

>load r50

>sub2 r 0812b 0821_ 0 50

>load 0812_47

→ 0812_1 .. 50

→ peak

```
>savejpg 0812_47 2
```

Dold:

Meteor Spectra X

File(s) v
 C:\Daten\Meteor\spectrum\Meteor\M20150812\0812_1.fit

Scaling factor in y Suffix

Center of symmetry x

Center of symmetry y

3rd order coeff.

5th order coeff.

☐ $r' = r (1 + \dots)$
☒ $r = r' (1 + \dots)$

Files 31 .. 50 transformed → o812dold_

```
>register 0812dold_ 0812ro 20
```

```
>load 0812ro5
```

```
>slant2 0812ro s 375 30 20
```

```
>add2 s 20
```

```
>save 0812olda31-50
```

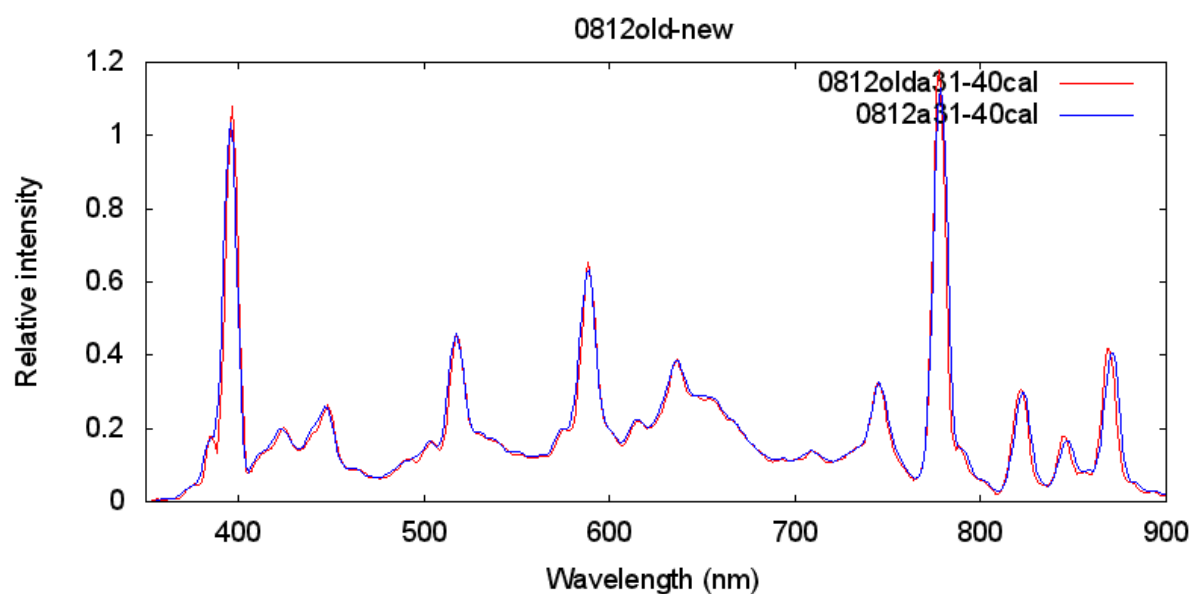
```
>l_add 365 385
```

```
>l_plot
```

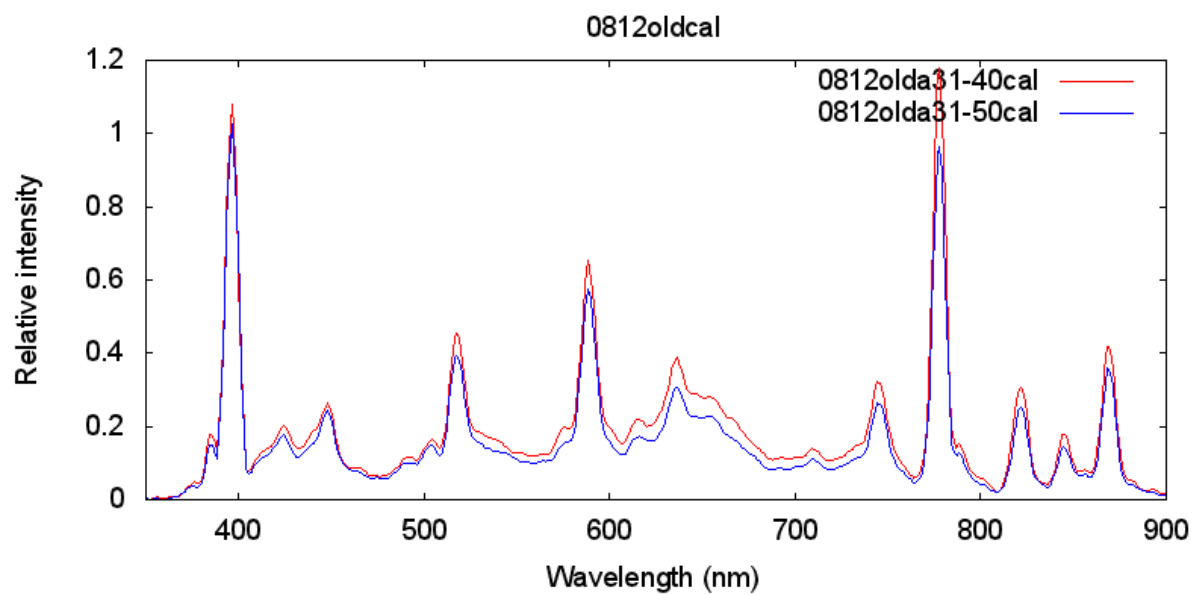
```
>load 0812olda31-40
```

dolda31-40		dolda31-50:	
Lambda	- O - C	Lambda	- O - C
0.039	-0.039	0.069	-0.069
588.645	0.355	588.680	0.320
517.942	-0.142	517.828	-0.028
777.574	-0.174	777.624	-0.224
RMS = 0.298	disp = 1.9996 better	RMS = 0.281	disp = 2.0007

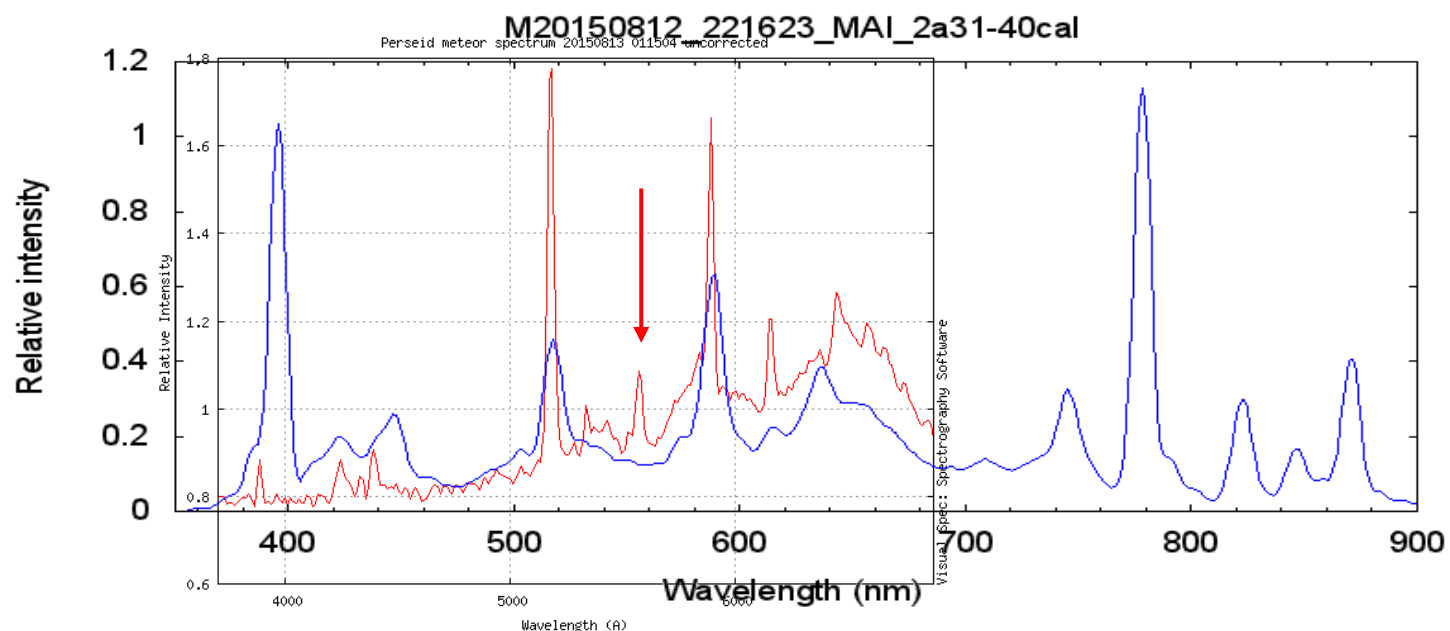
Old calibration is better, more lines!



Comparison 10 or 20 fields added:

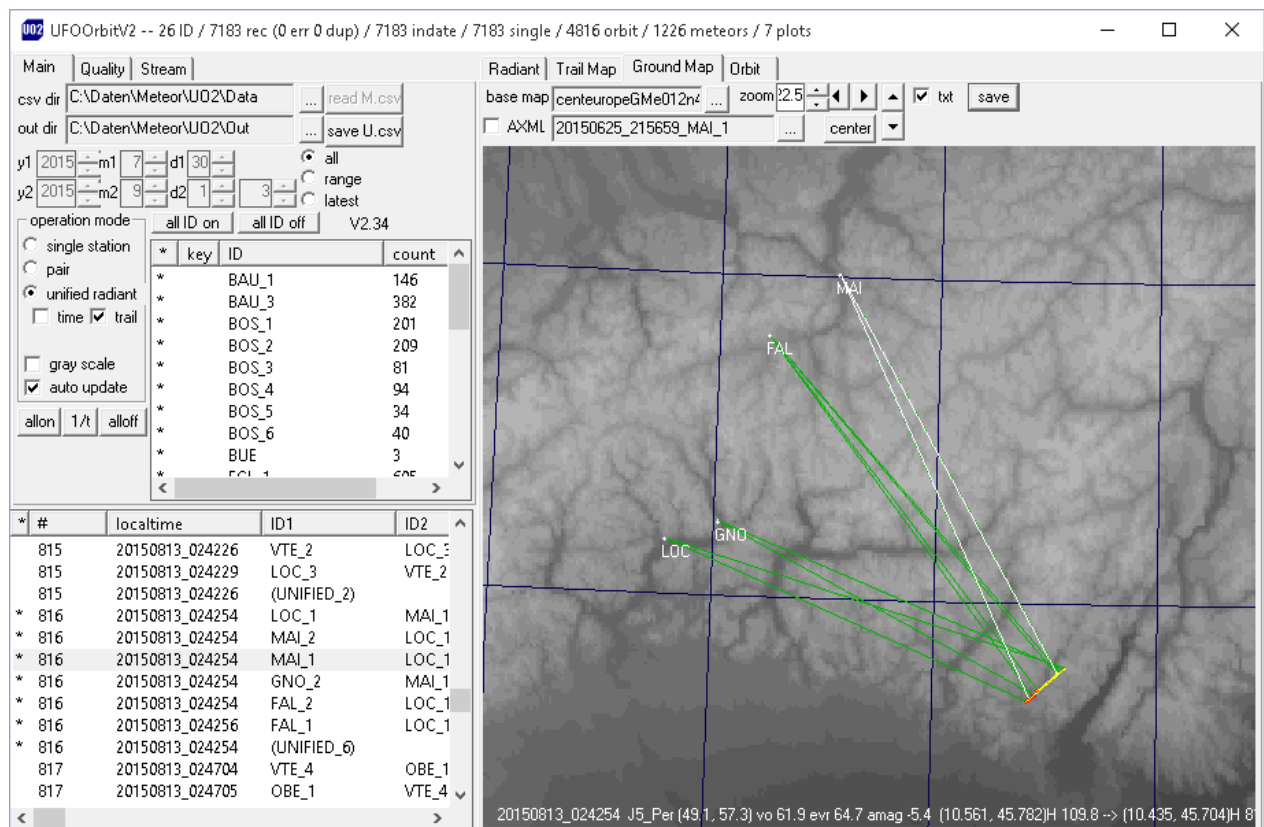


Comparison Bill Ward



557.7 nm [O I] missing in my spectra of meteor without trail (stacking, cut out narrow strip).

Meteor 20150813_024254, Perseid, -4.1 mag



```
>load a51
>add2 a 40
>mult 0.025
>save 0813b
>reindex a r 51 1 30
>load r1
>sub2 r 0813b 0813_0 30
Transform ImageTools, same as dold above
→0813d_1..30
```

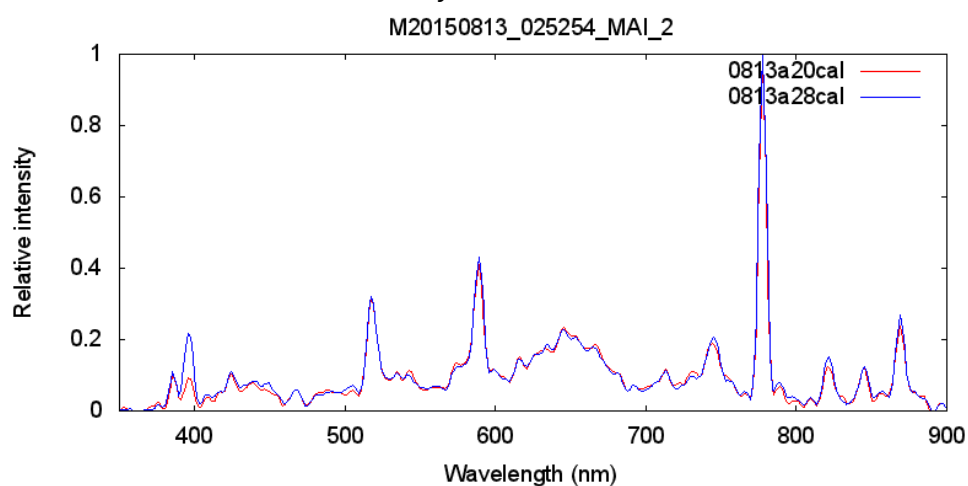
```

28 usable
>load 0813d_1
>register 0813d_r 30
>slant2 r s 292 12 28
>add2 s 20
>save 0813a20
>add2 s 28
>save 0813a28
>l_add 244 254
>l_plot
→ save 0813a20.dat, ...28.dat

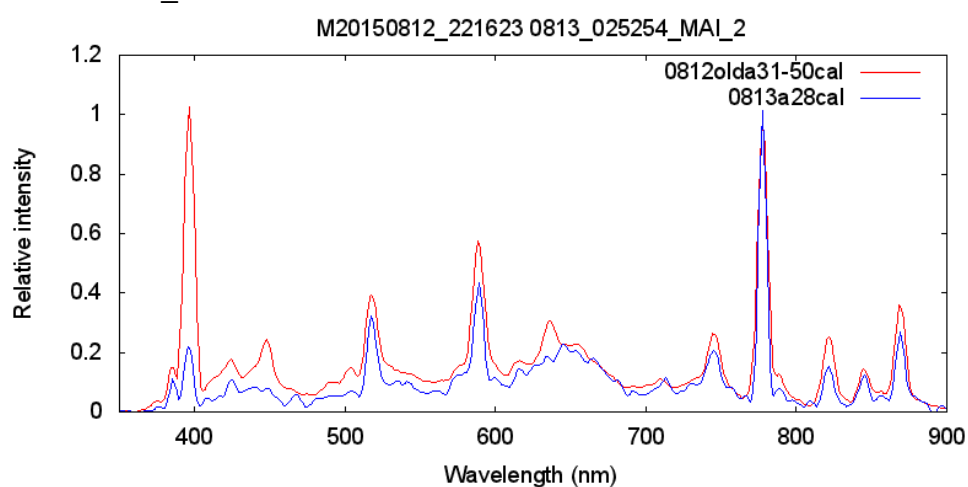
```

0813a20.dat ISIS 1 st order pol:		0813a28.dat	
Lambda	- O - C	Lambda	- O - C
0.031	-0.031	0.032	-0.032
588.664	0.336	588.774	0.226
517.951	-0.151	517.869	-0.069
777.554	-0.154	777.525	-0.125
RMS = 0.283nm	Disp0 = 1.9995	RMS = 0.191	disp0 = 1.9998

0813a20cal.fit, 28cal.fit division by 6000



Comparison with
M20150812_221623:



Line positions 2013a28, measured

```

385.609   Fe I
395.985   Ca II
424.548   Ca, Cr, Fe
467.164
744.658

```