Nebencal runs on Y1 S82 and SPT-W (lots of plots)

Anne Bauer

Nebencal config

```
calibrations:

    - id_strings : ['exposureid']
      outfilenames : ['nebencal_exp_zps_r']
      nside : 8
      max_dets : 2500
      operands : [1]

    - id_strings : ['ccd']
      outfilenames : ['nebencal_ccd_zps_r']
      nside : 8
      max_dets : 2500
      operands : [1]
```

This is what I've been doing lately as default

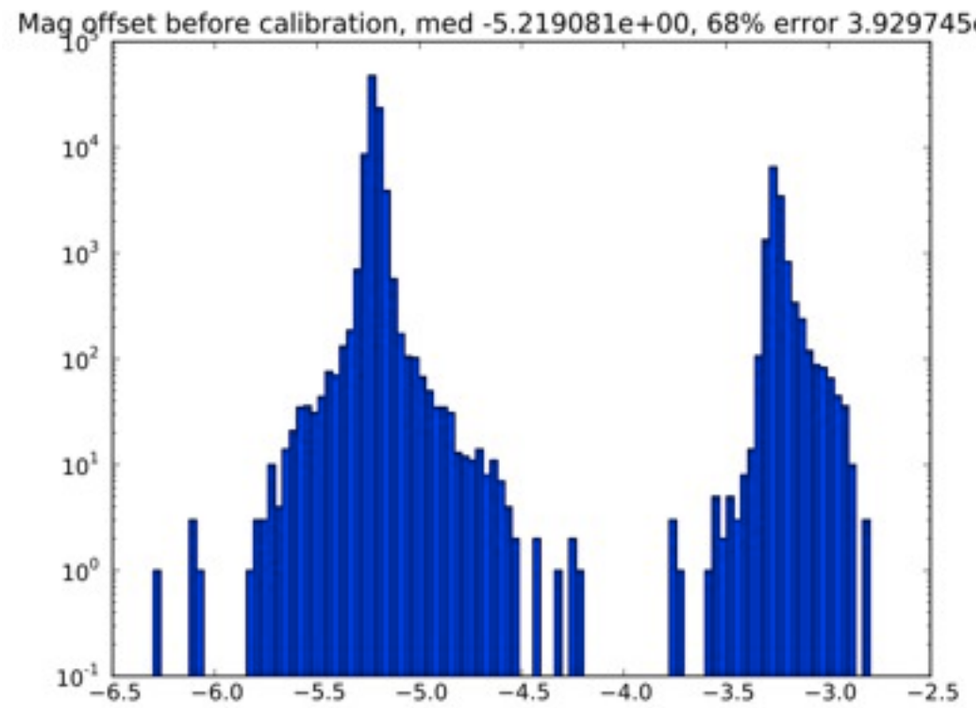
You can also calibrate as a linear function of an operand

```
calibrations:

    - id_strings : ['exposureid']
      outfilenames : ['nebencal_exp_zps_r']
      nside : 8
      max_dets : 2500
      operands : ['focalplane_radius']
```

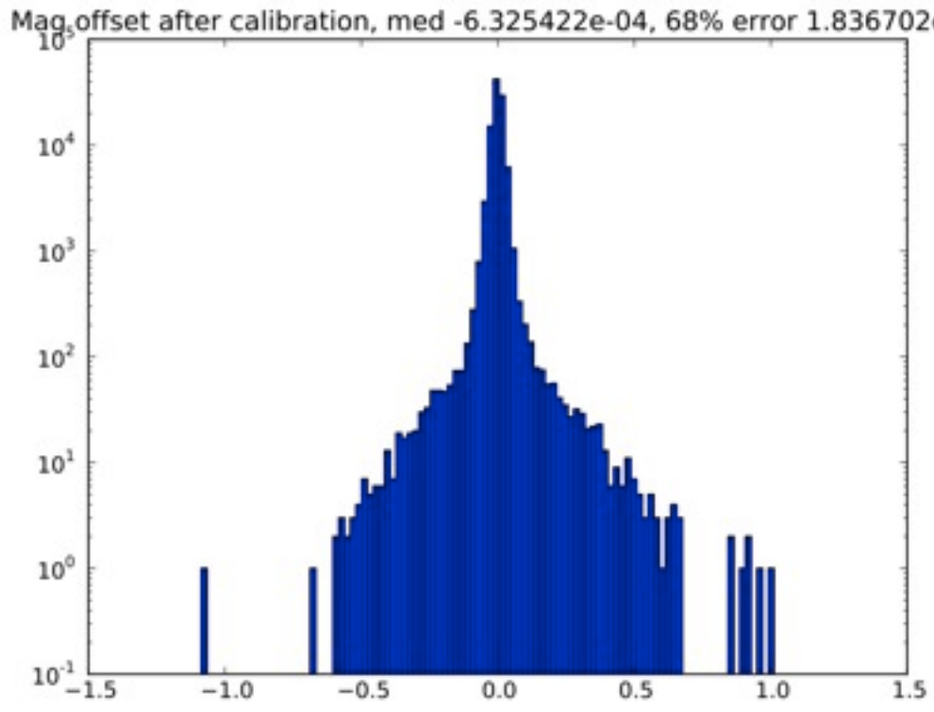
This is the star flat algorithm

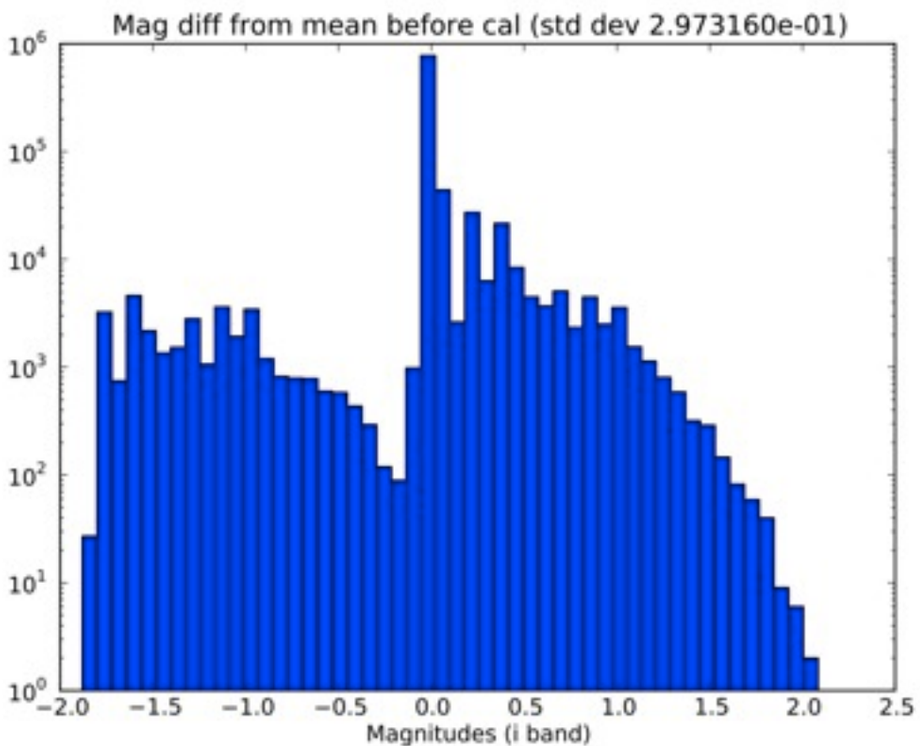
```
calibrations:

    - id_strings : ['superpixel', 'image_id']
      outfilenames : ['nebencal_spx_zps_r', 'nebencal_img_zps_r']
      nside : 8
      max_dets : 2500
      operands : [1]
```

Stripe 82 i band



external





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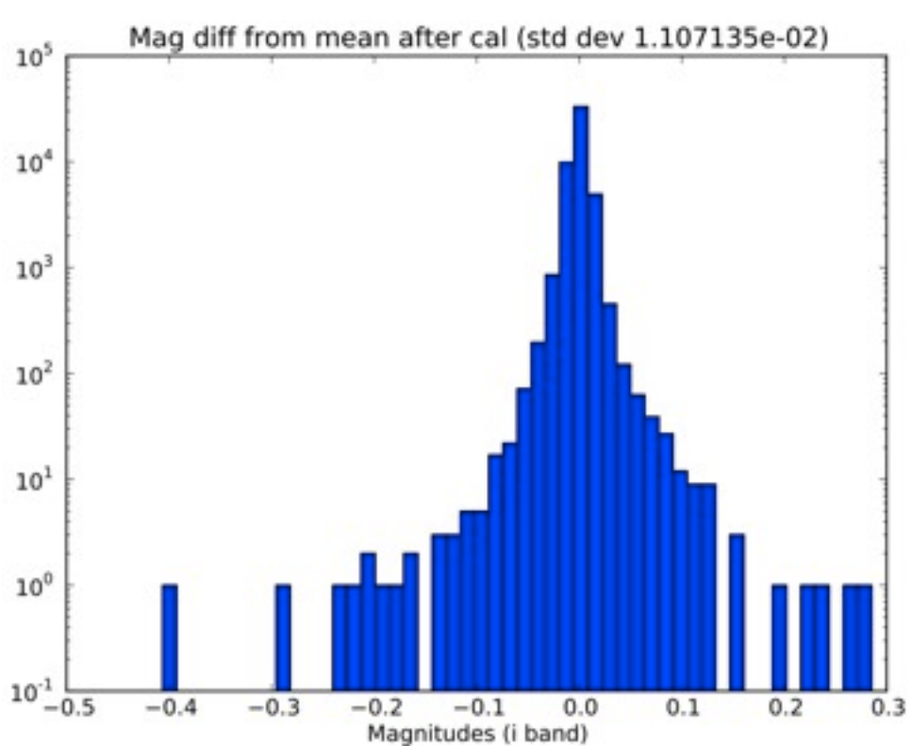
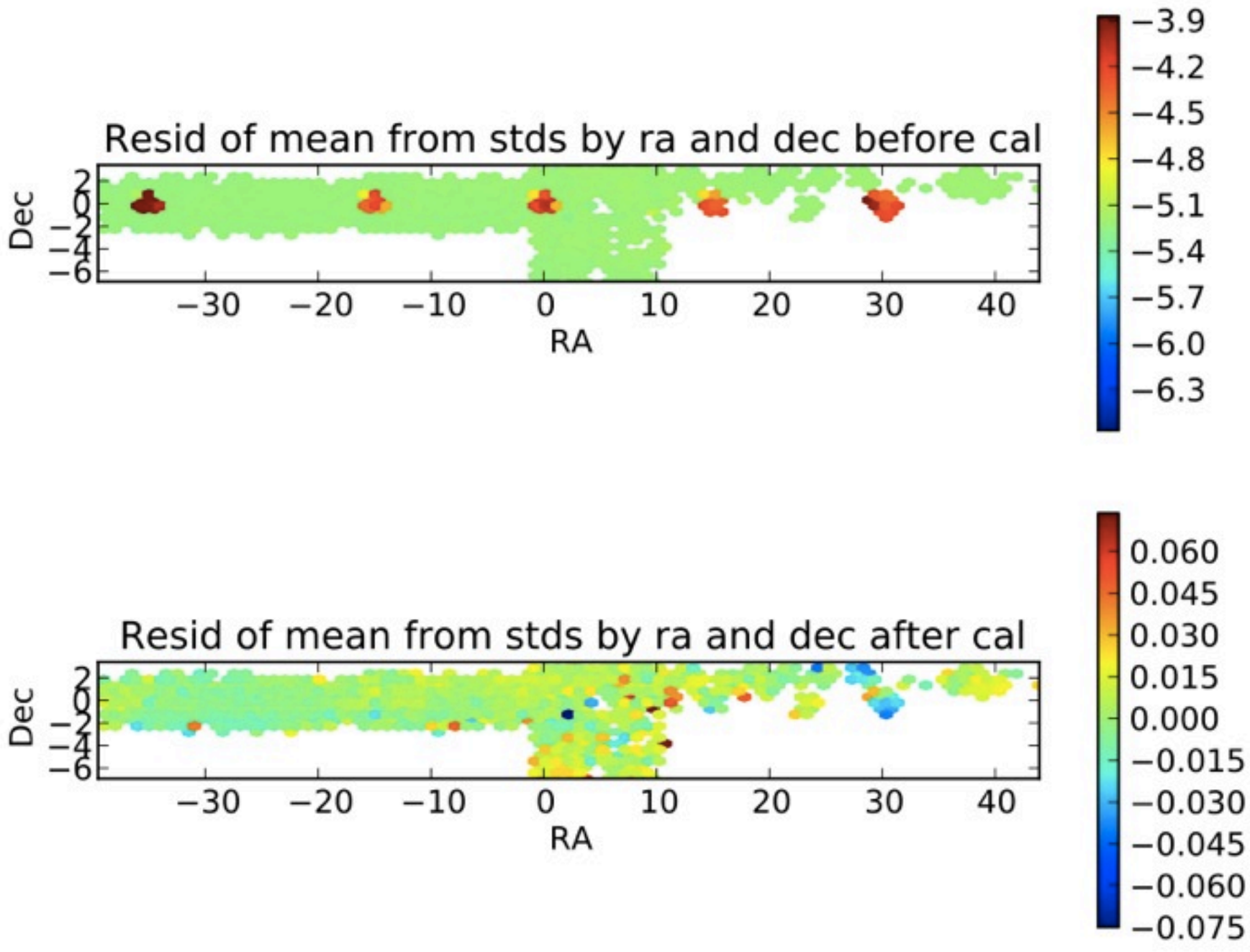
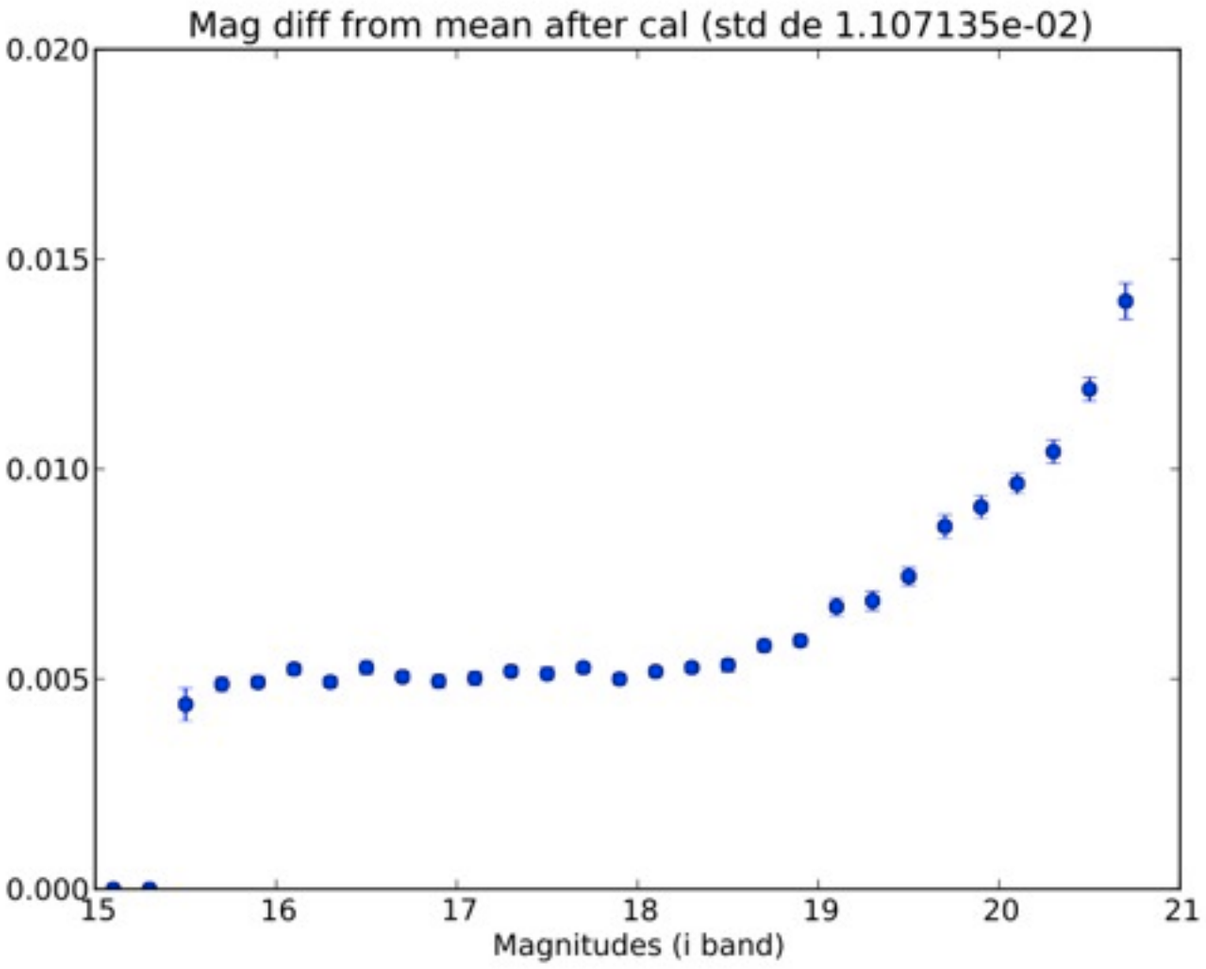
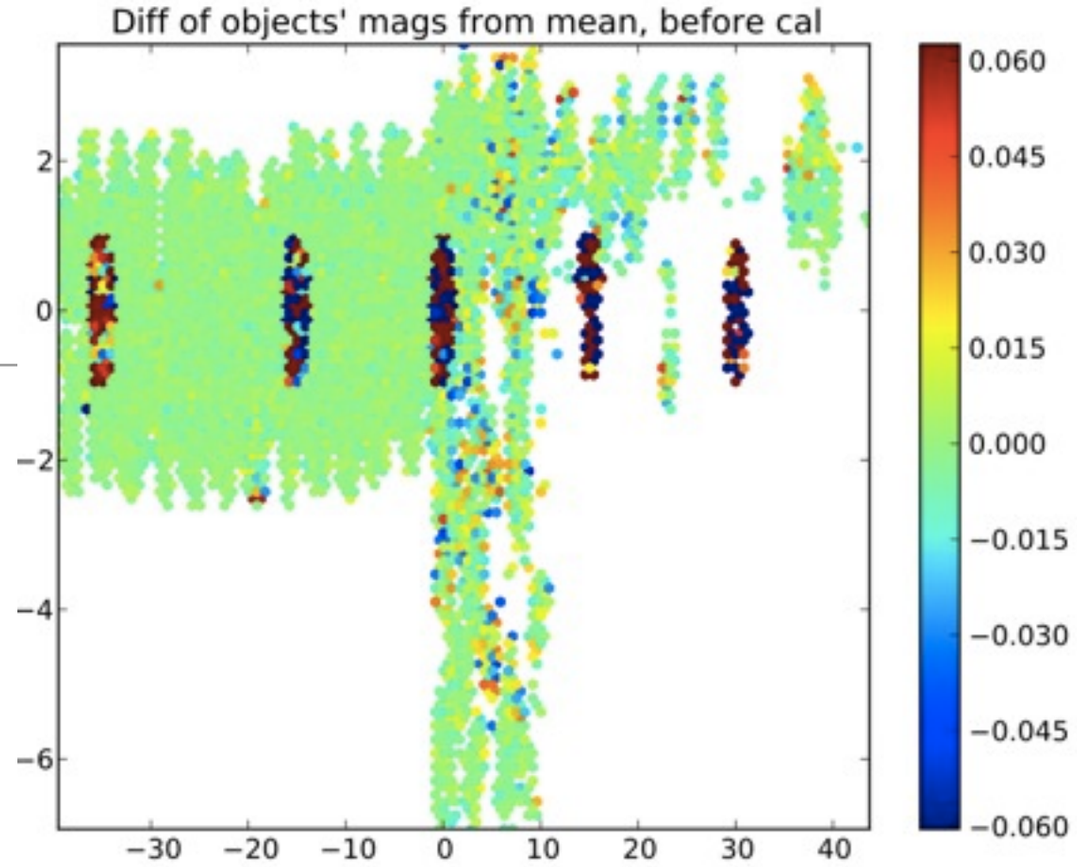


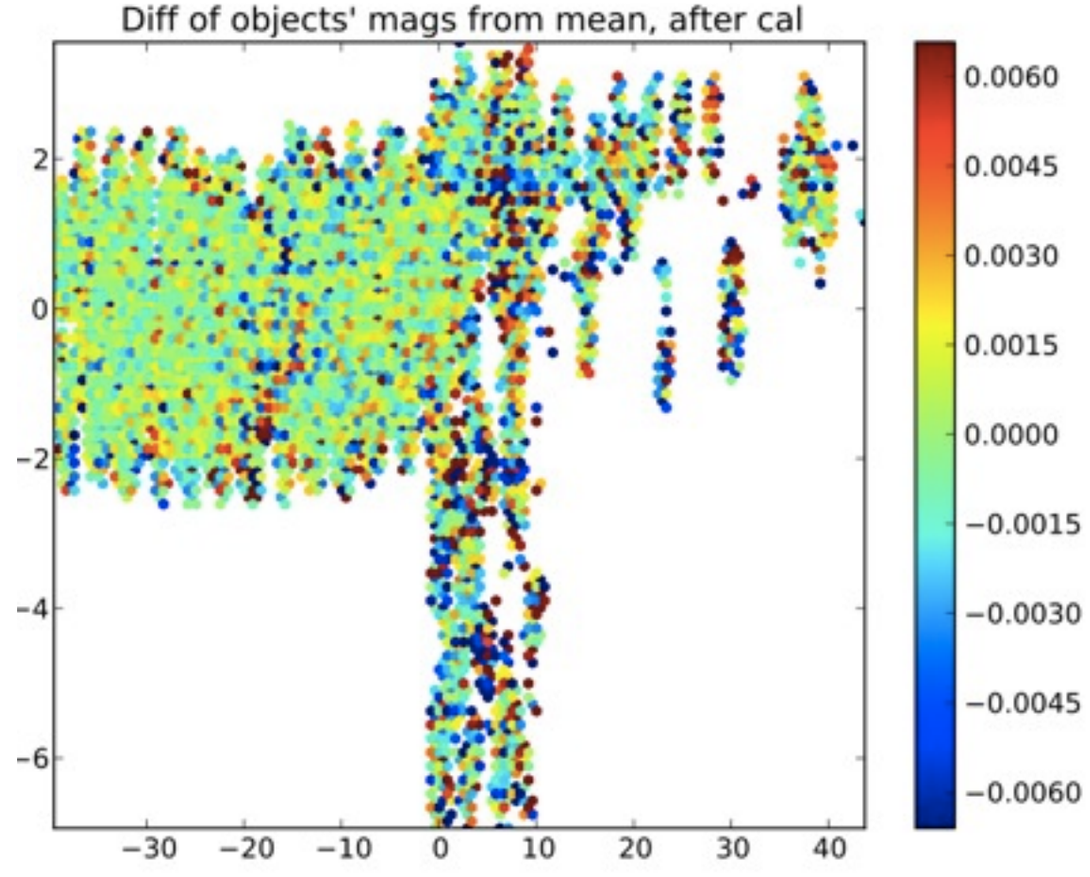
Stripe 82 i band



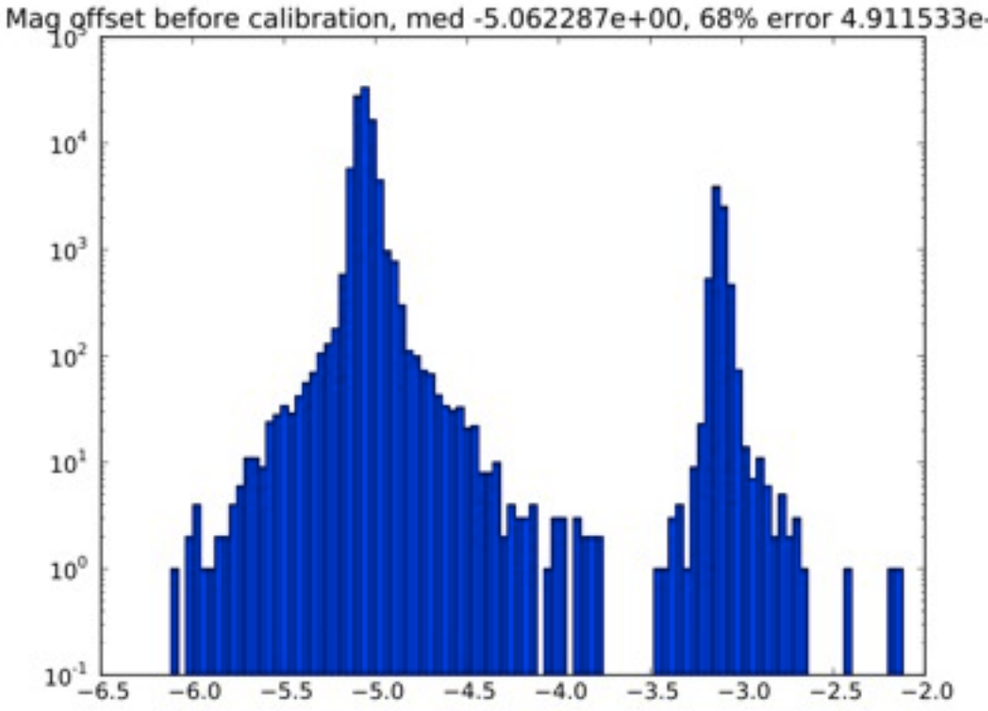
Stripe 82 i band







Stripe 82 g band



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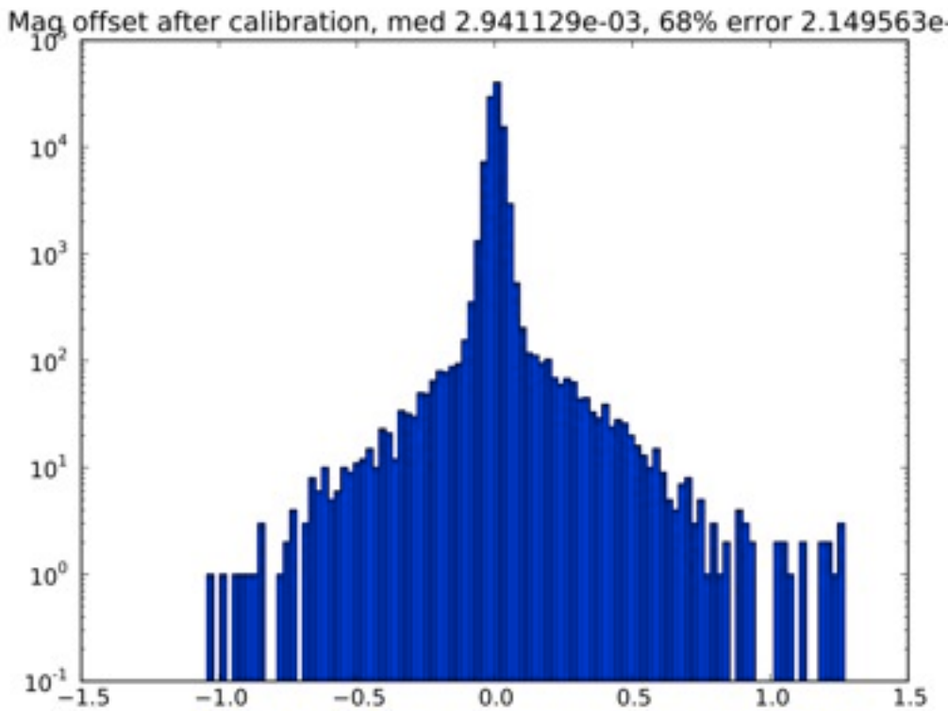

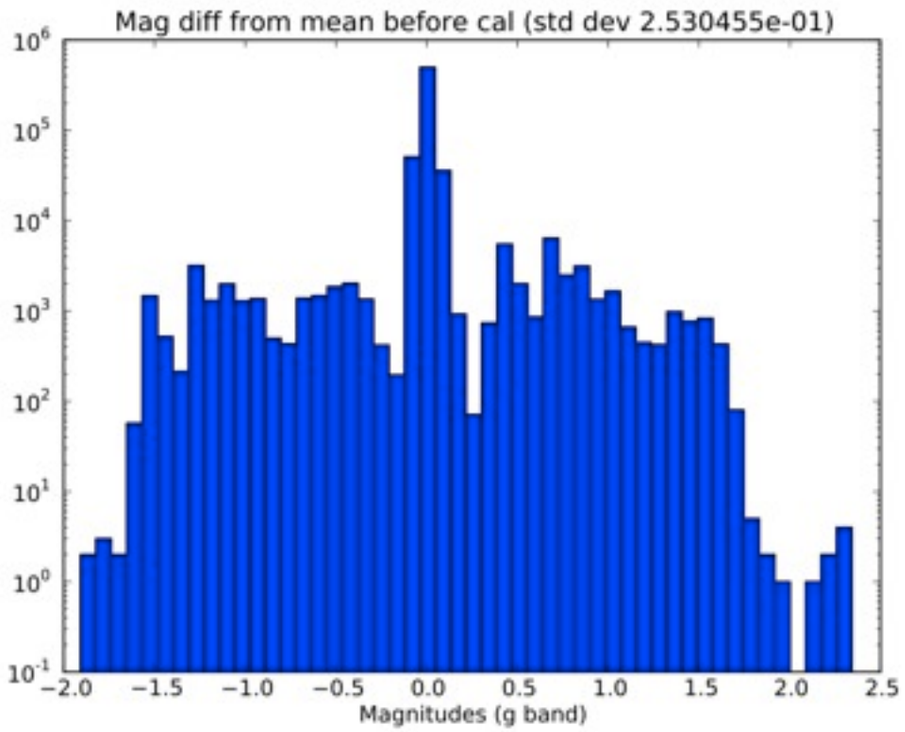

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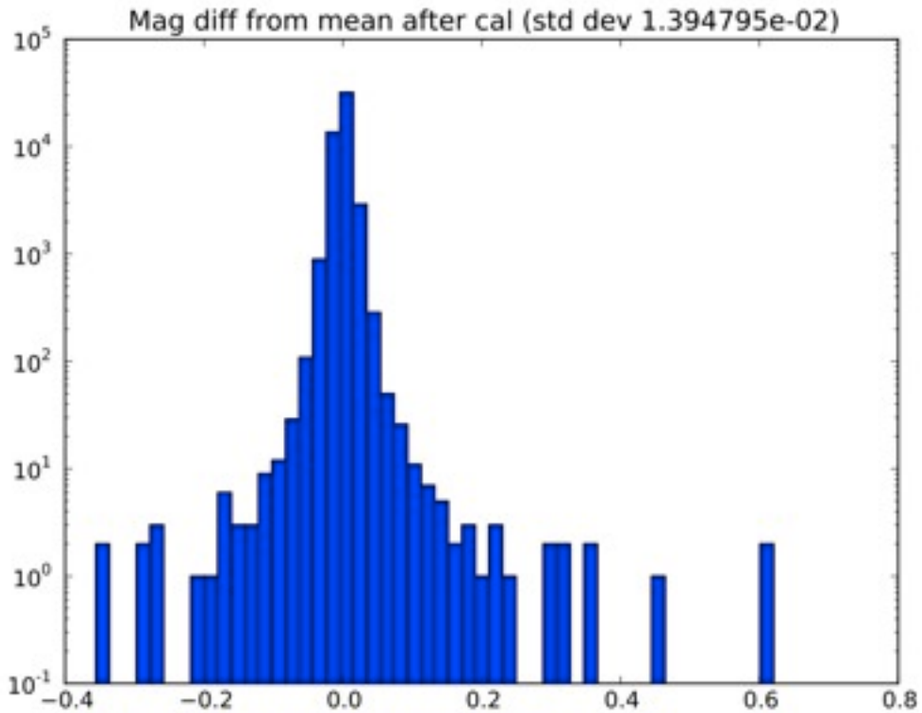

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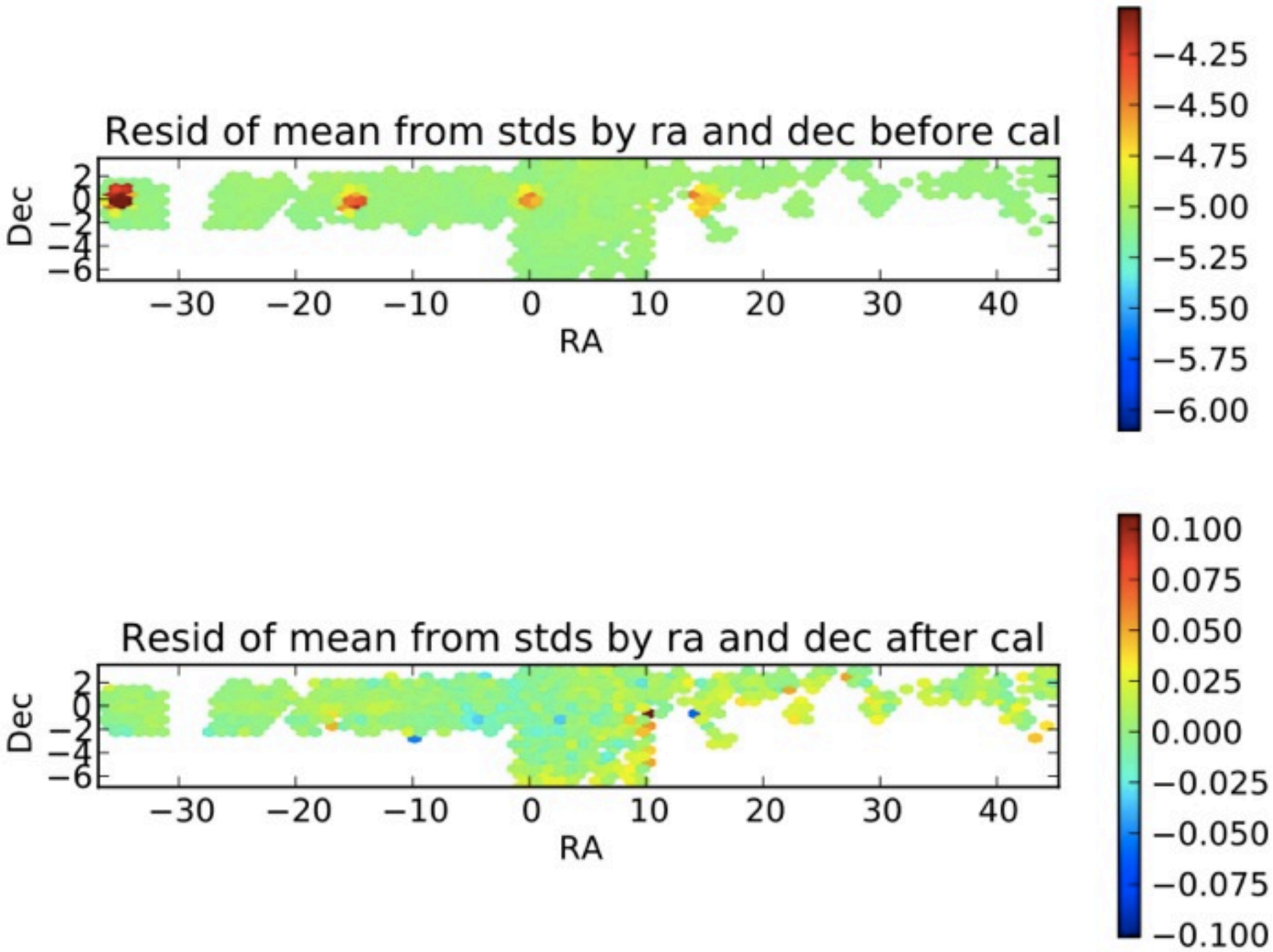
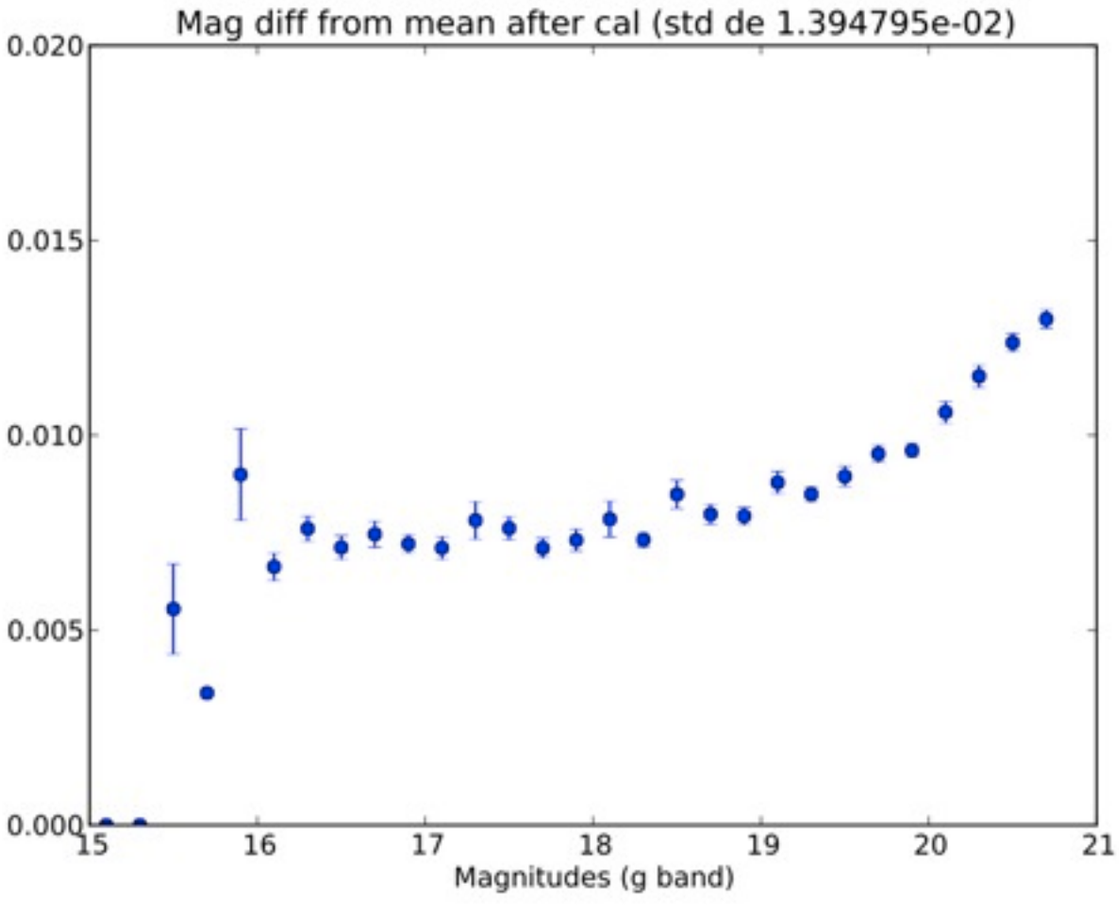
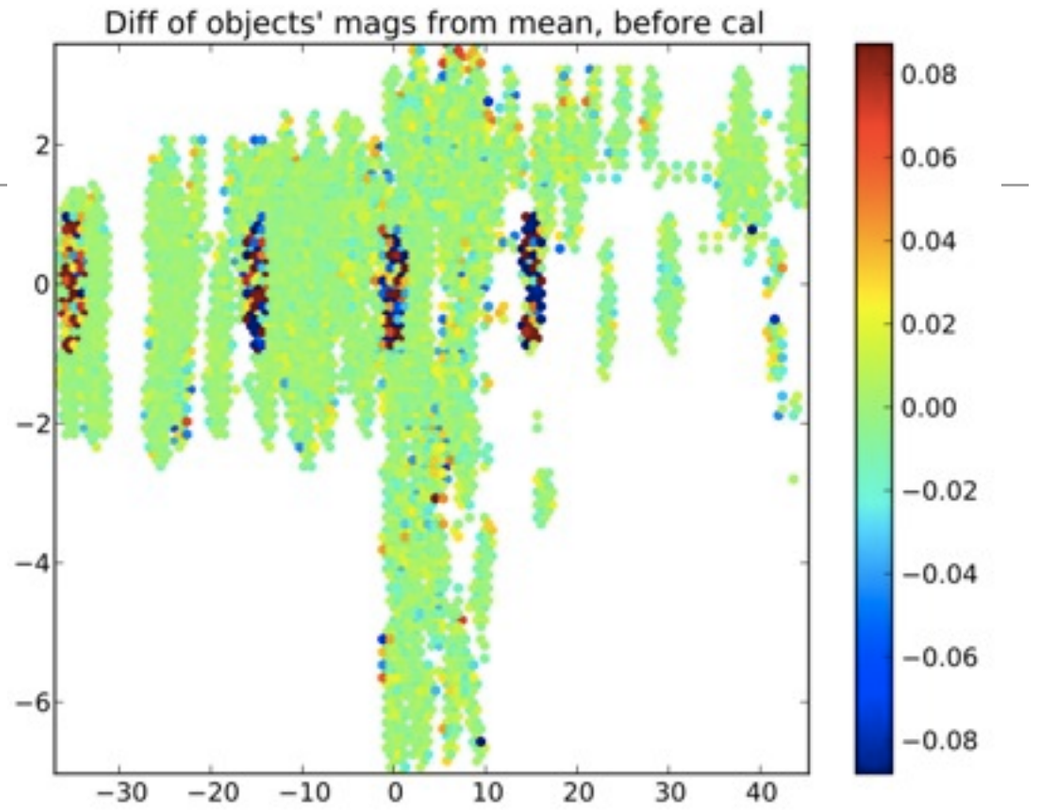
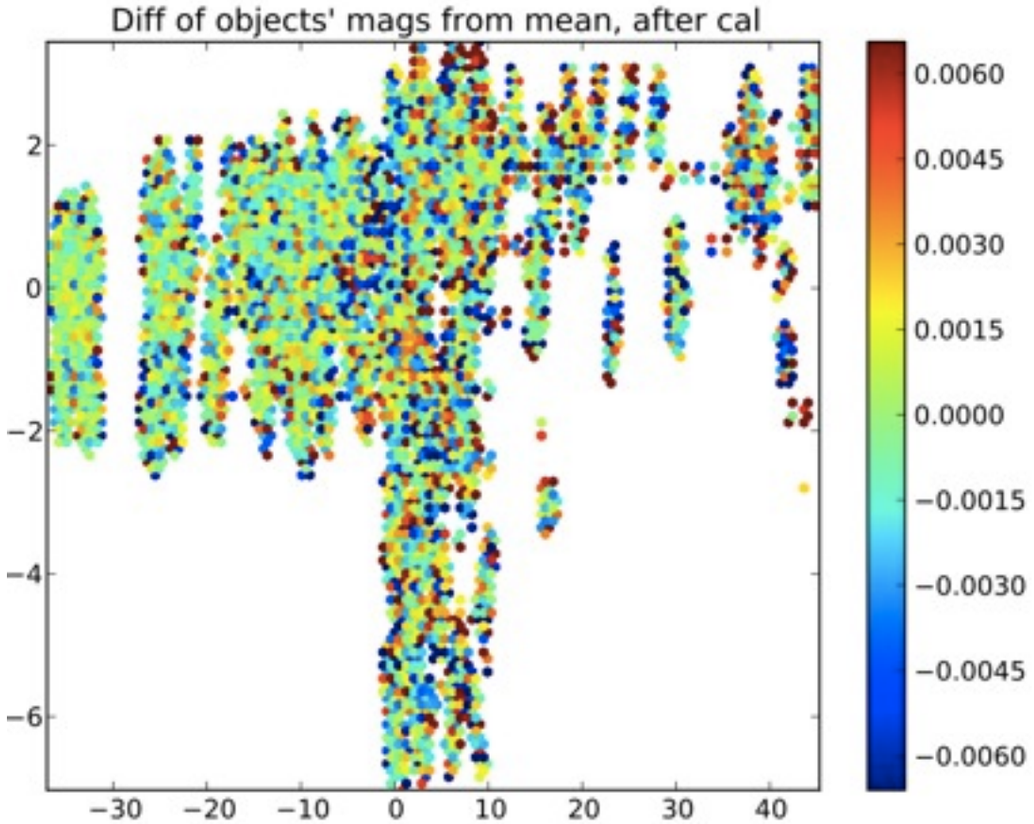


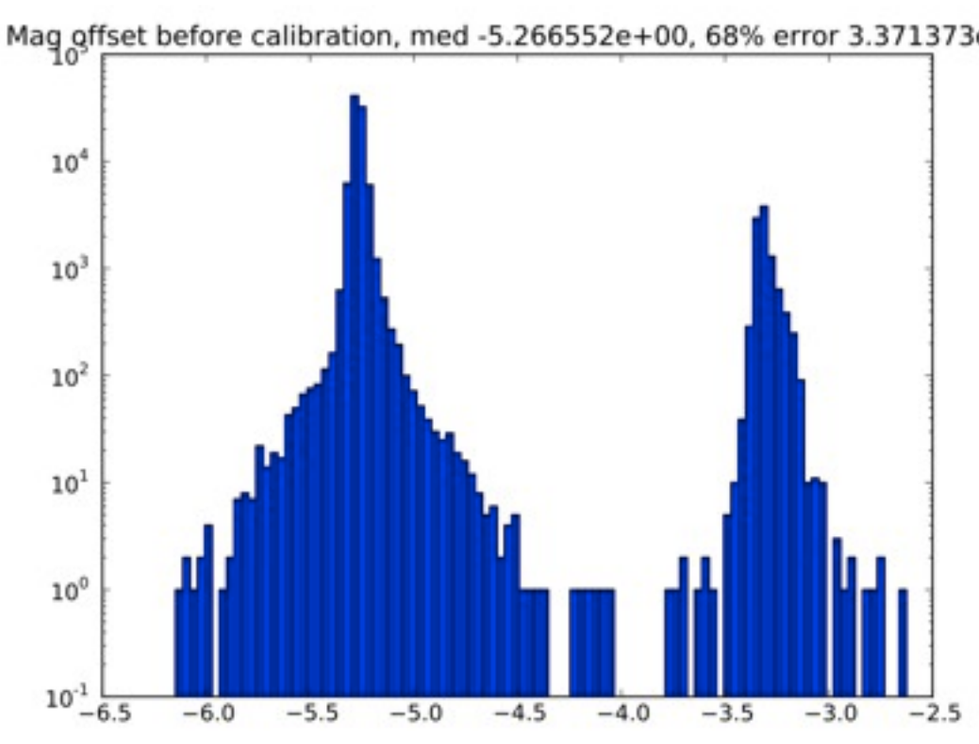
Stripe 82 g band







Stripe 82 r band



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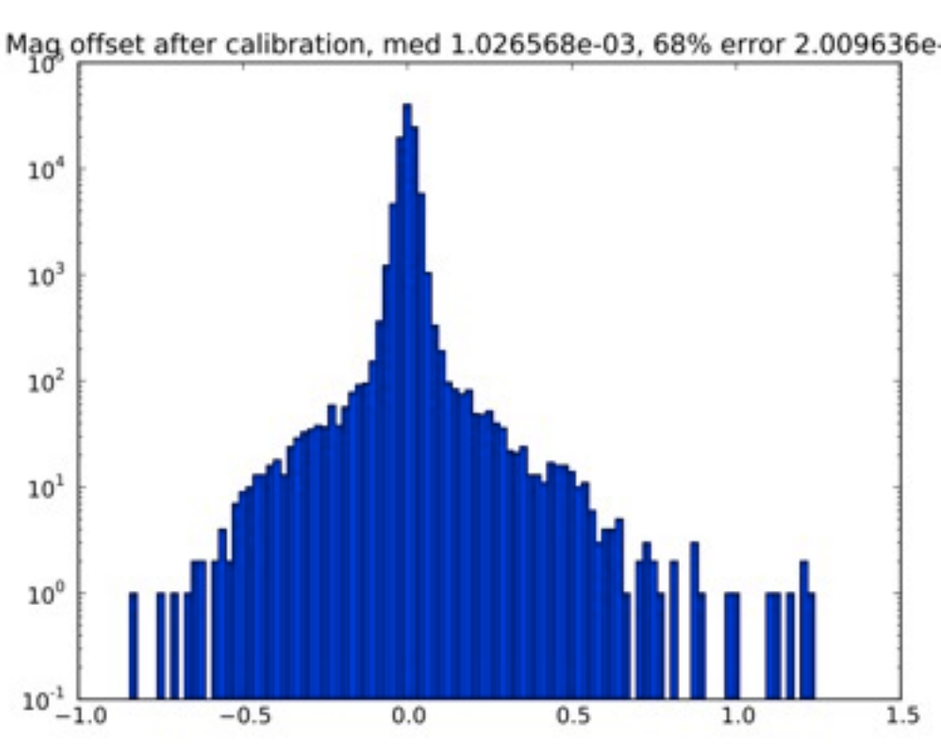

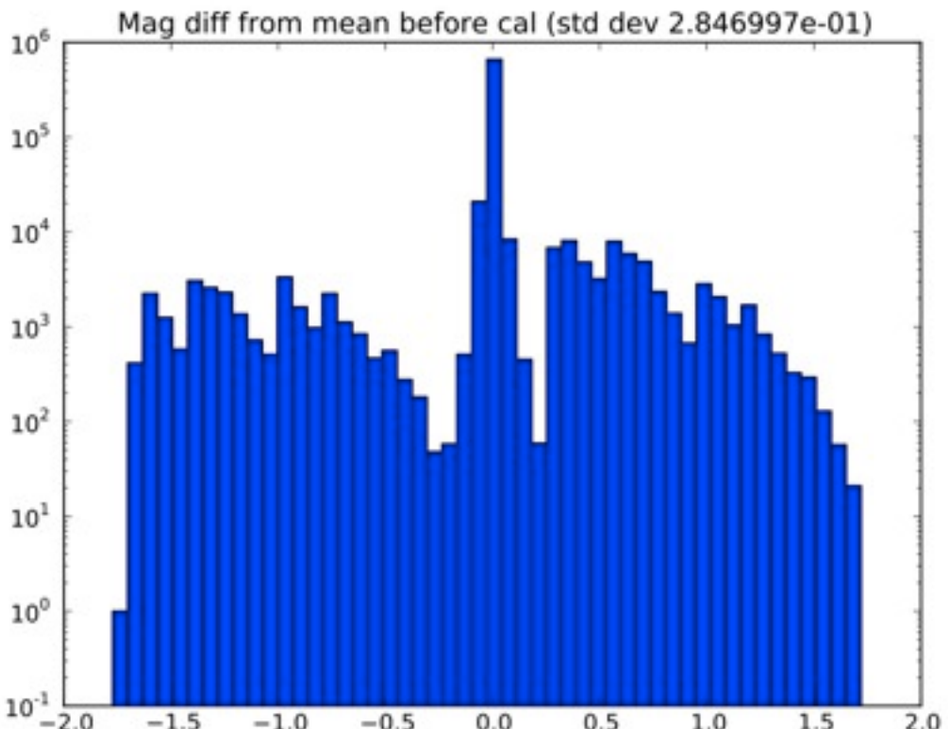

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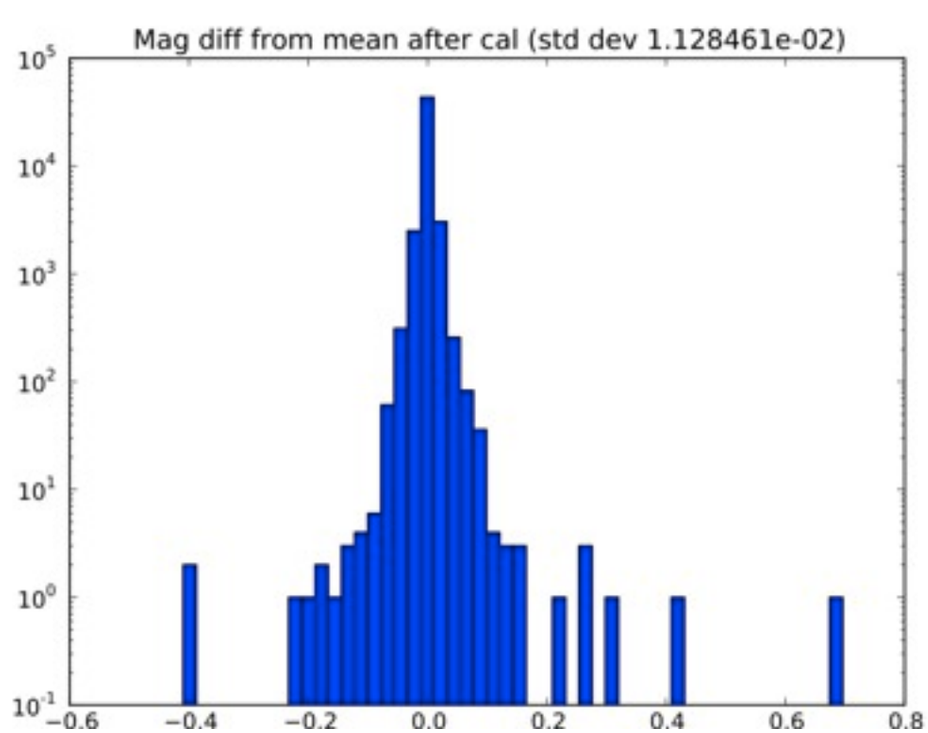
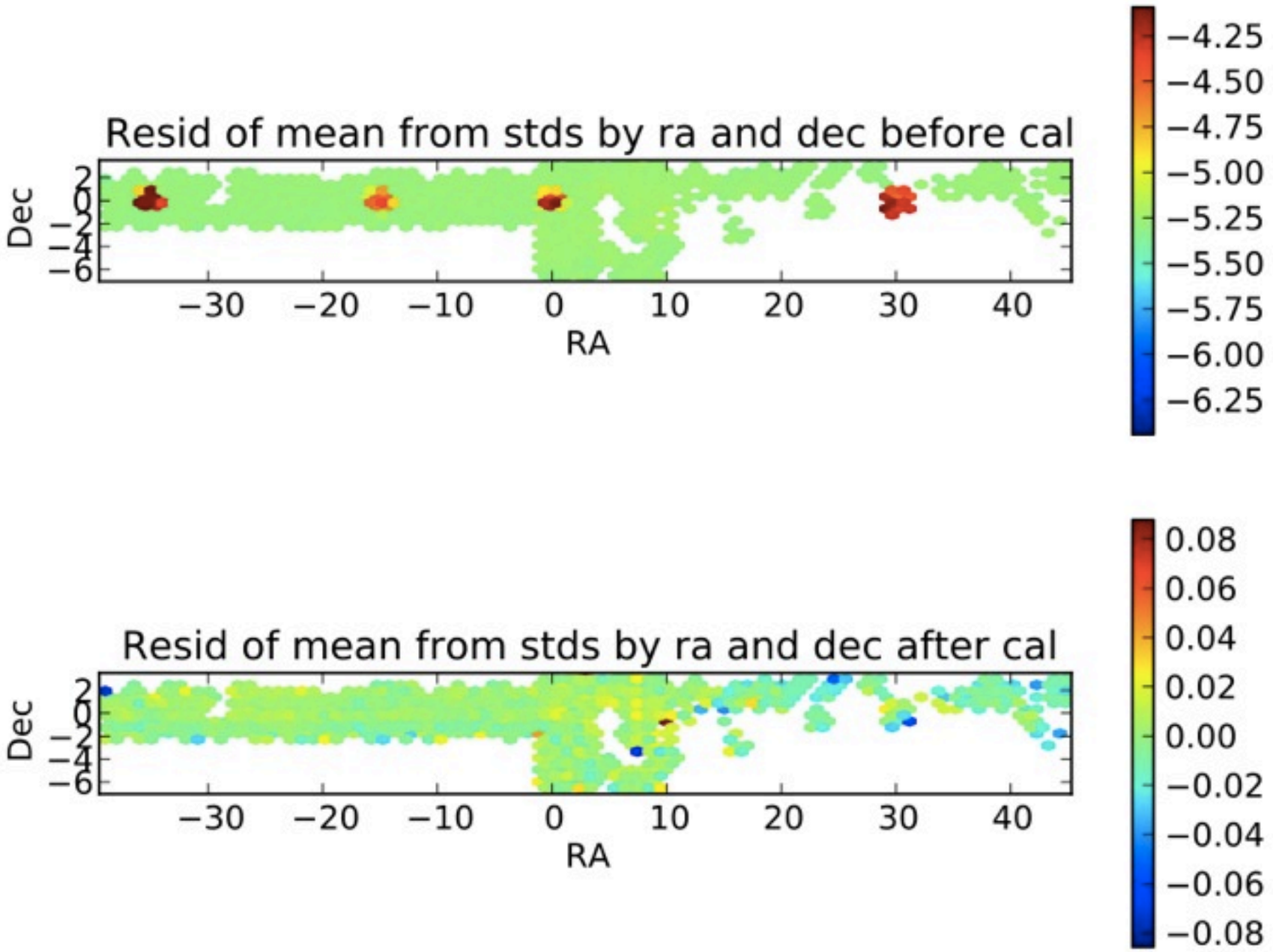


Stripe 82 r band



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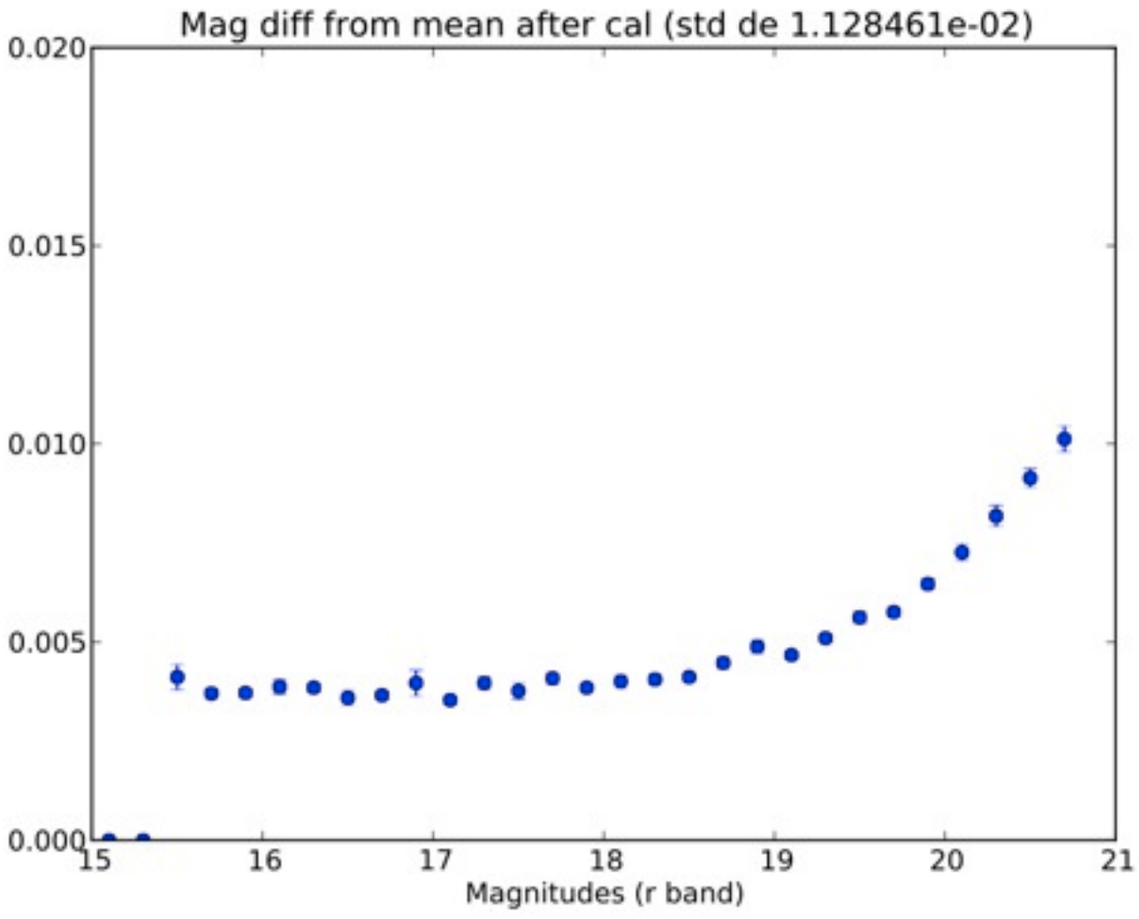
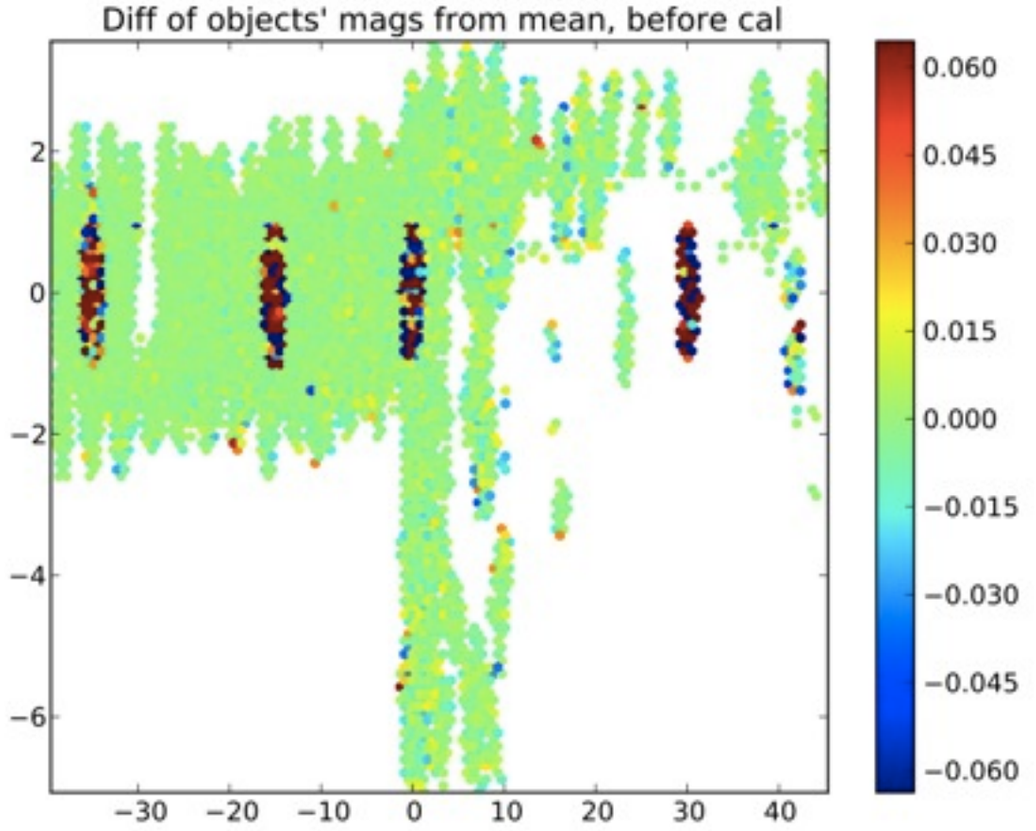
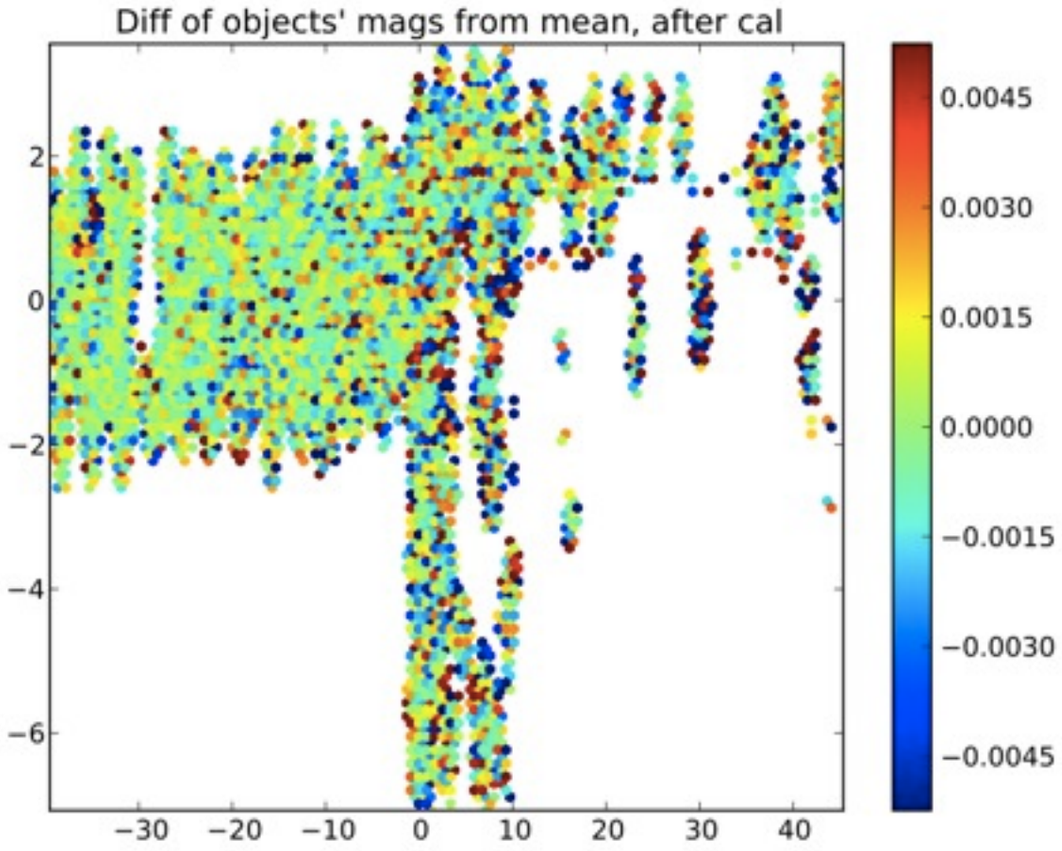
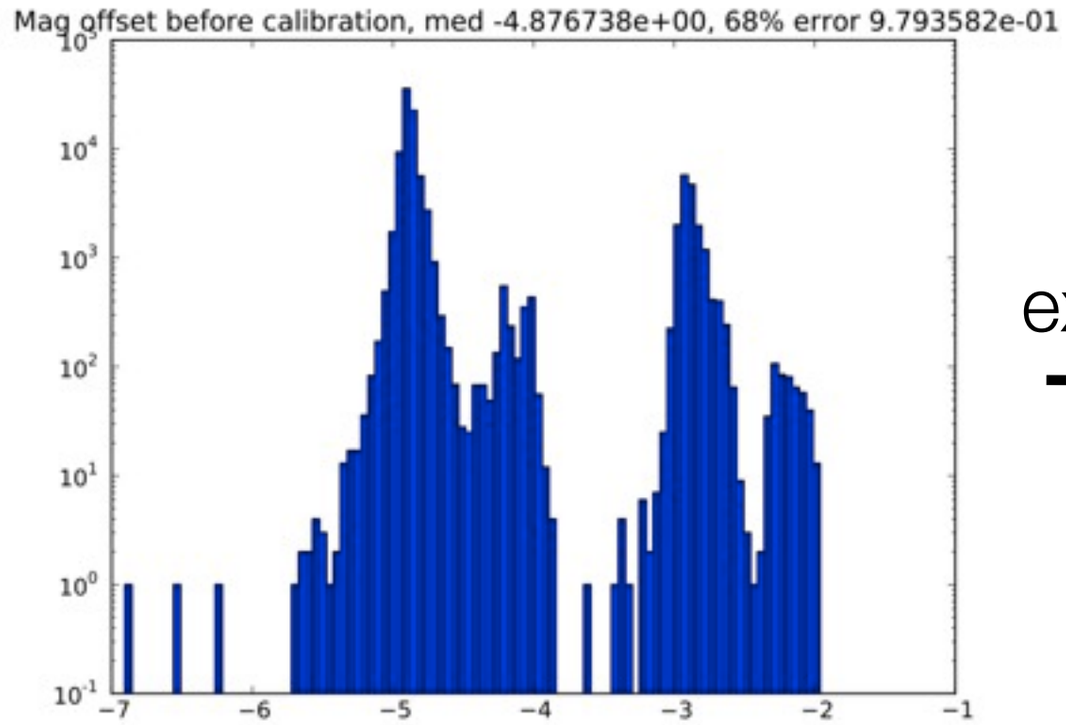


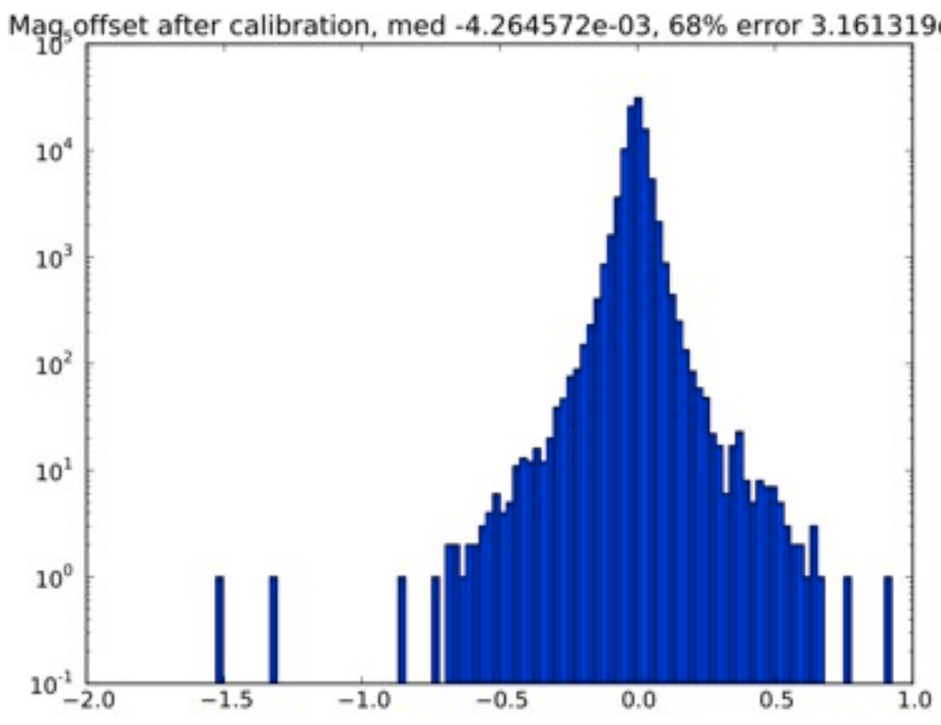


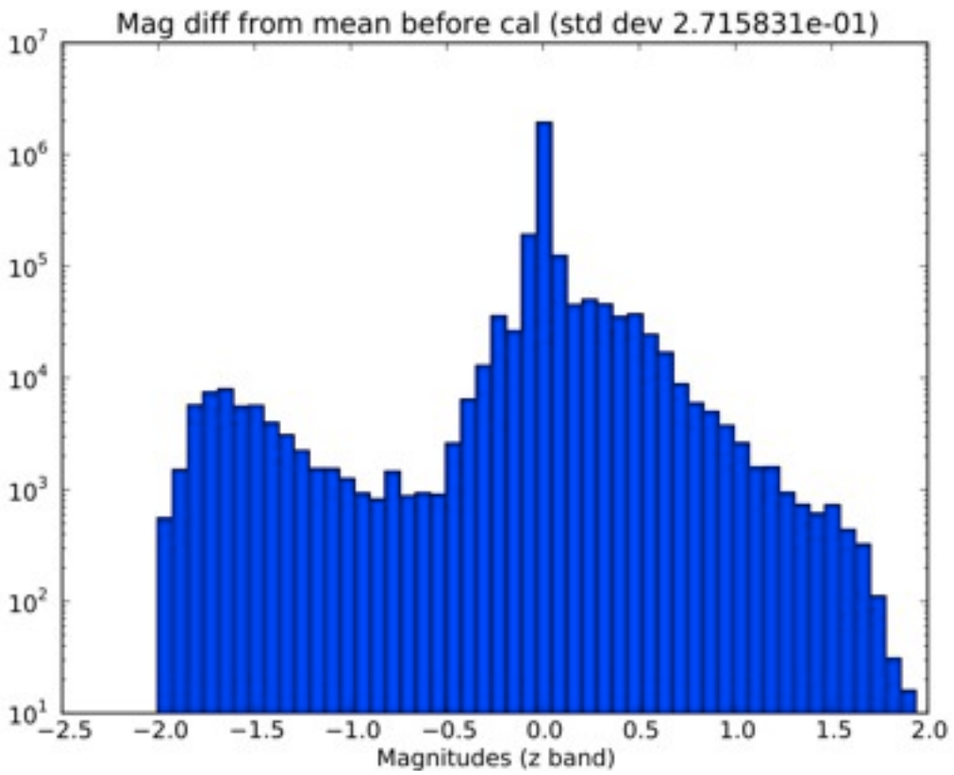


Stripe 82 z band



external





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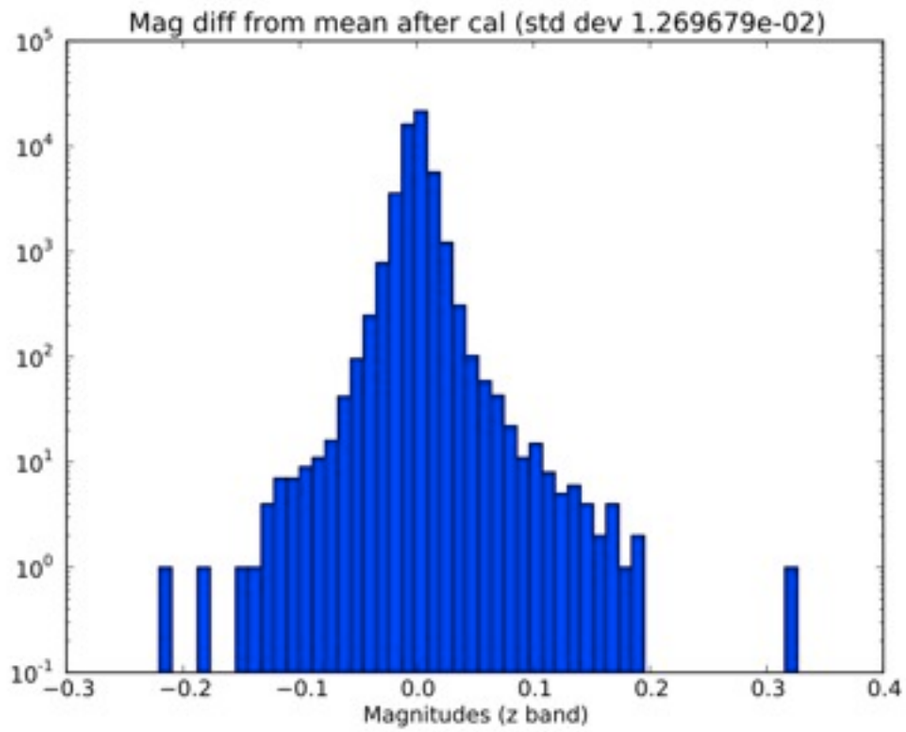

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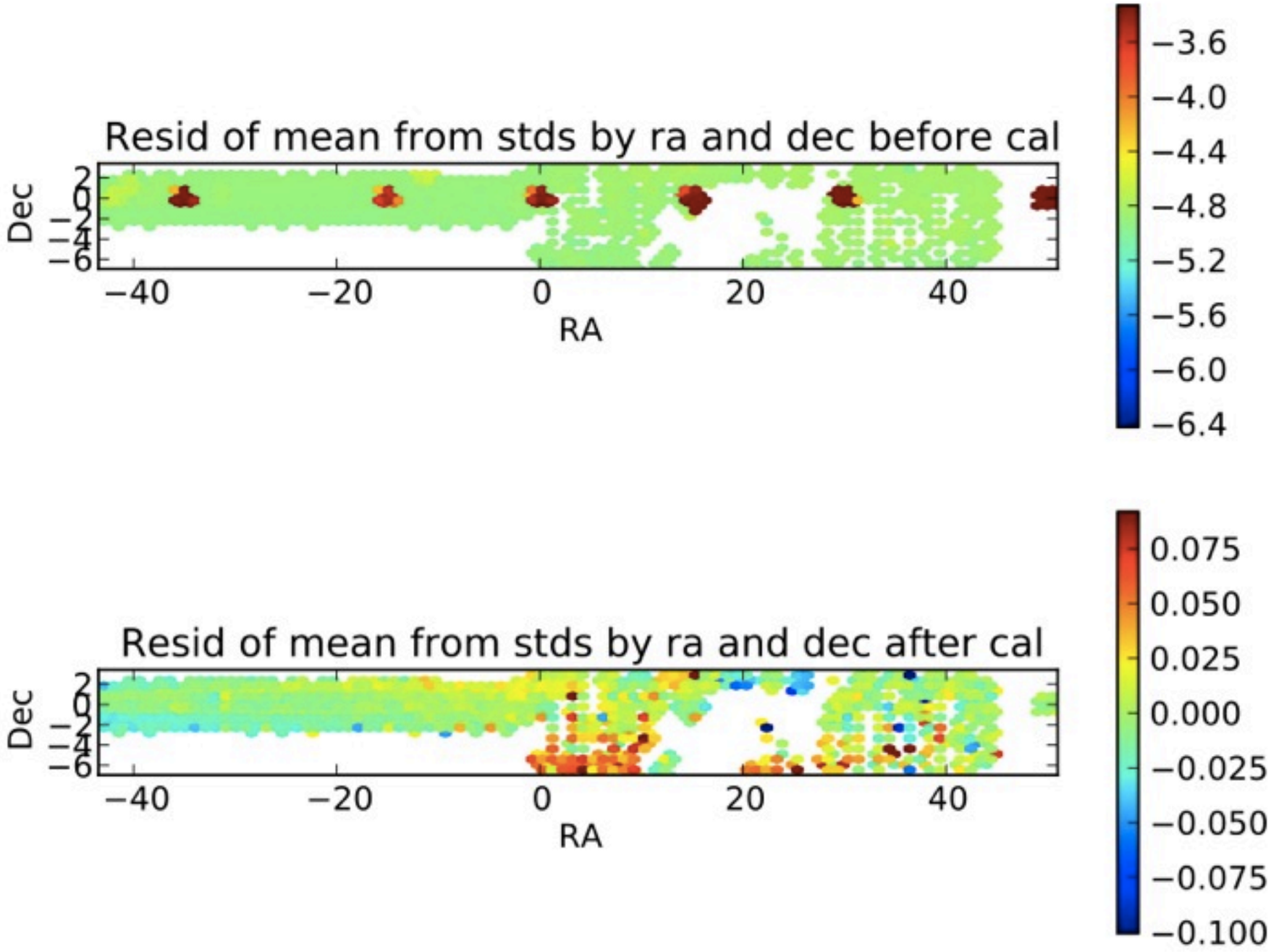

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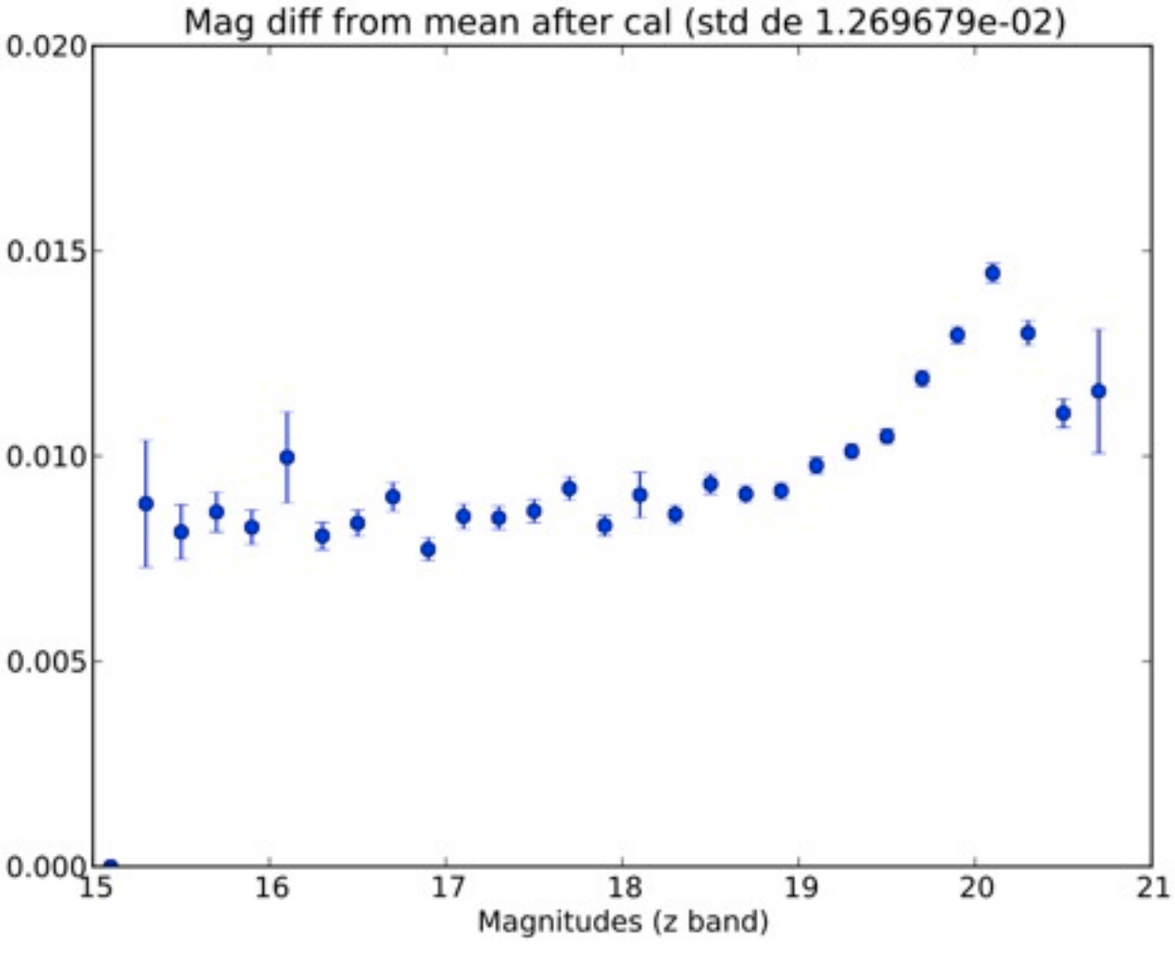
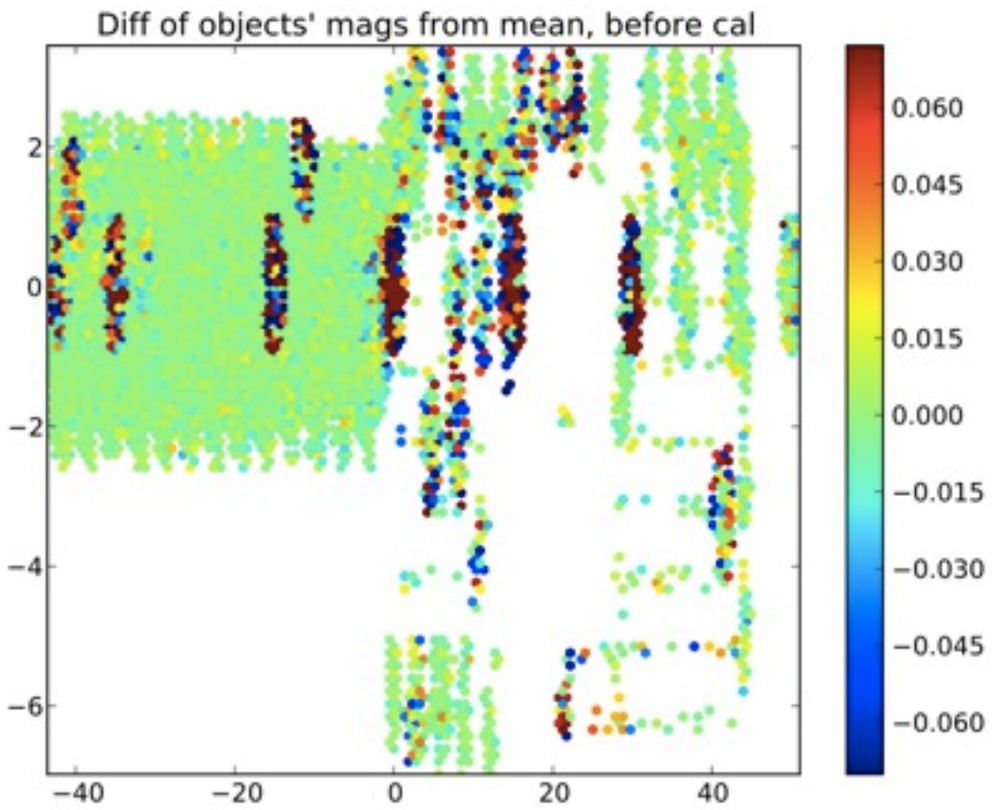
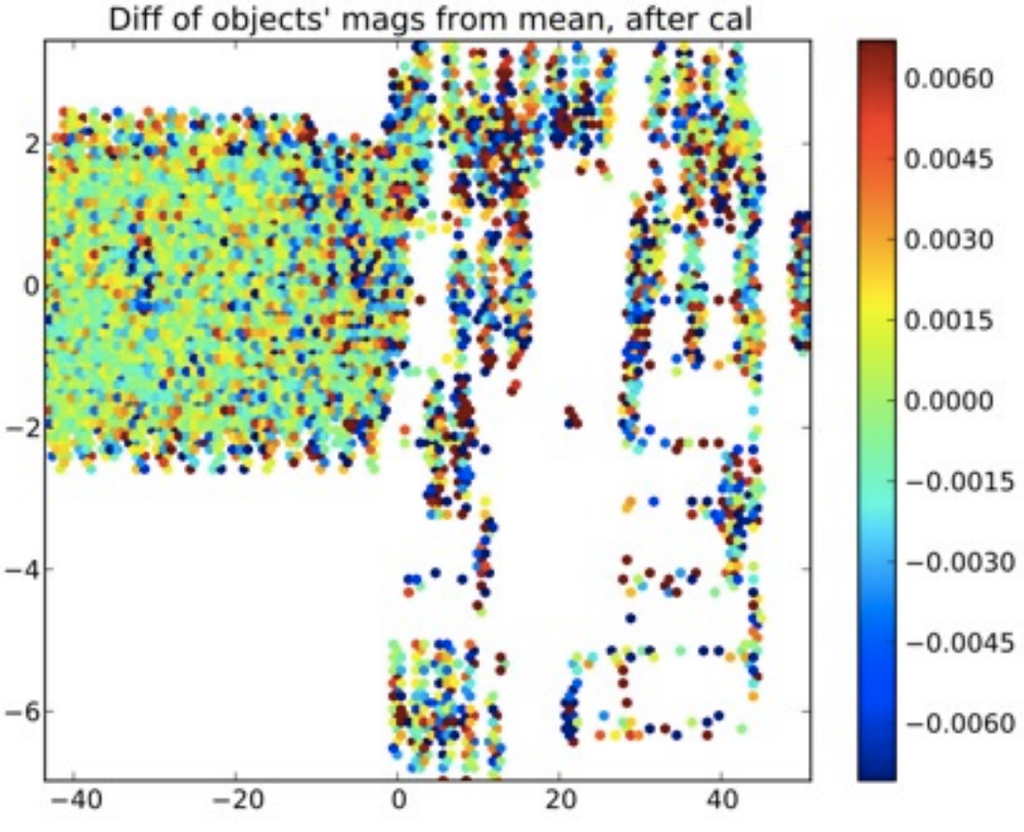
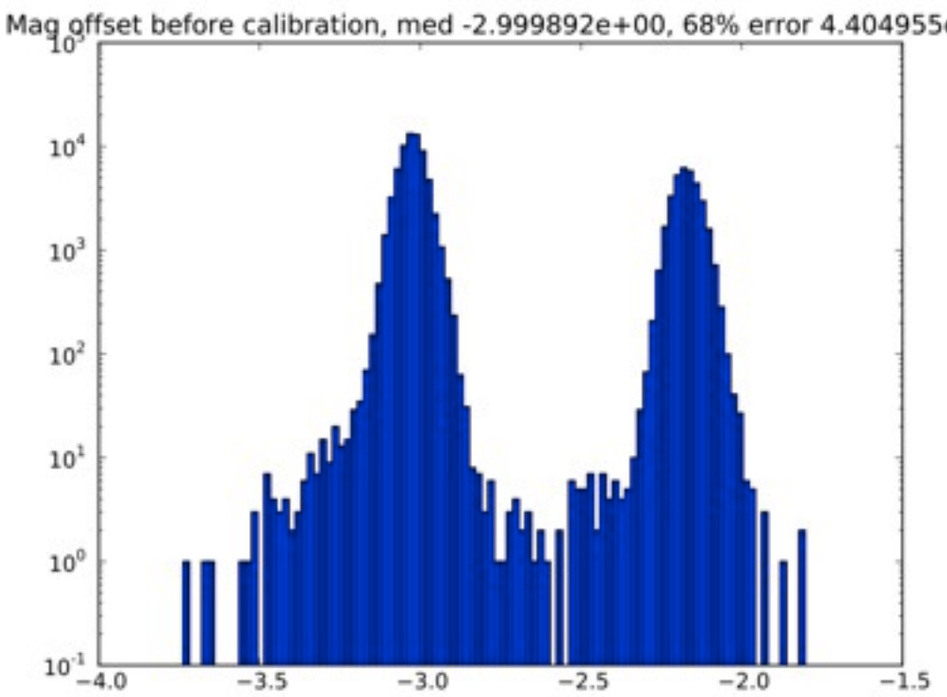


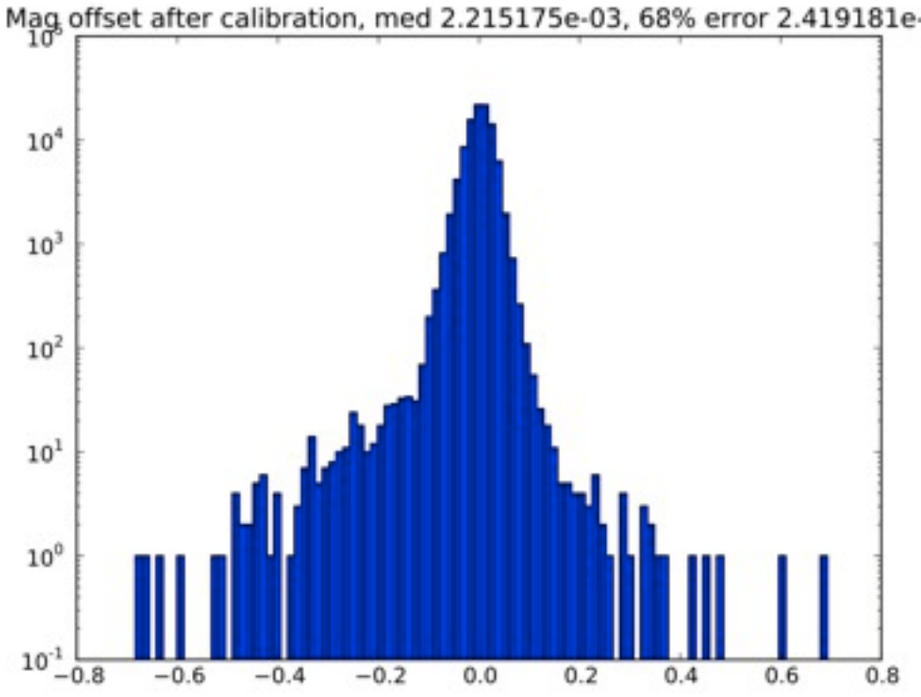


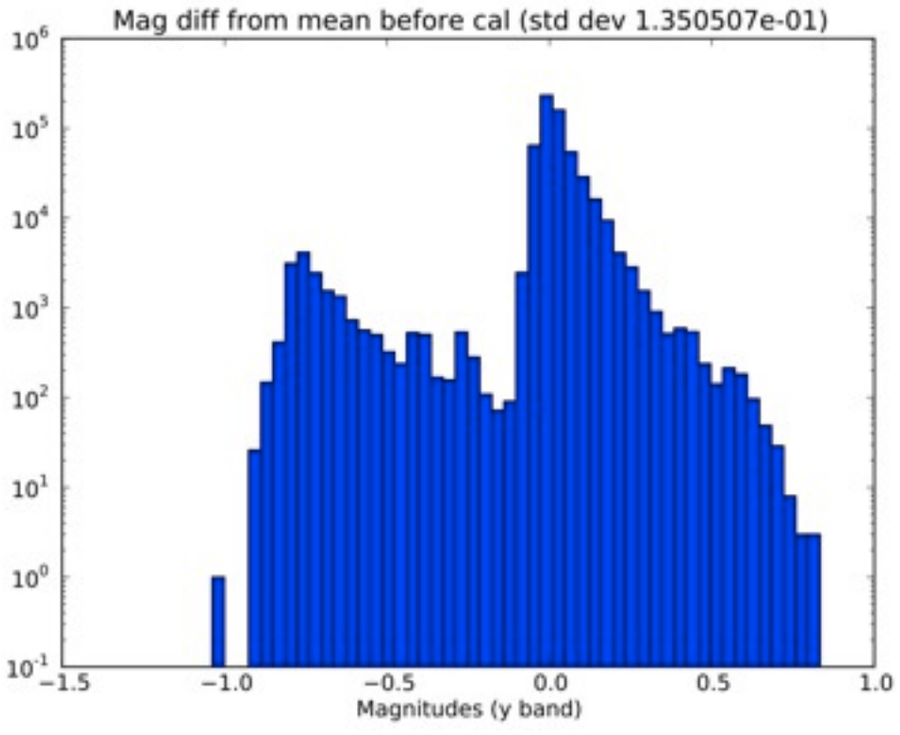


Stripe 82 y band

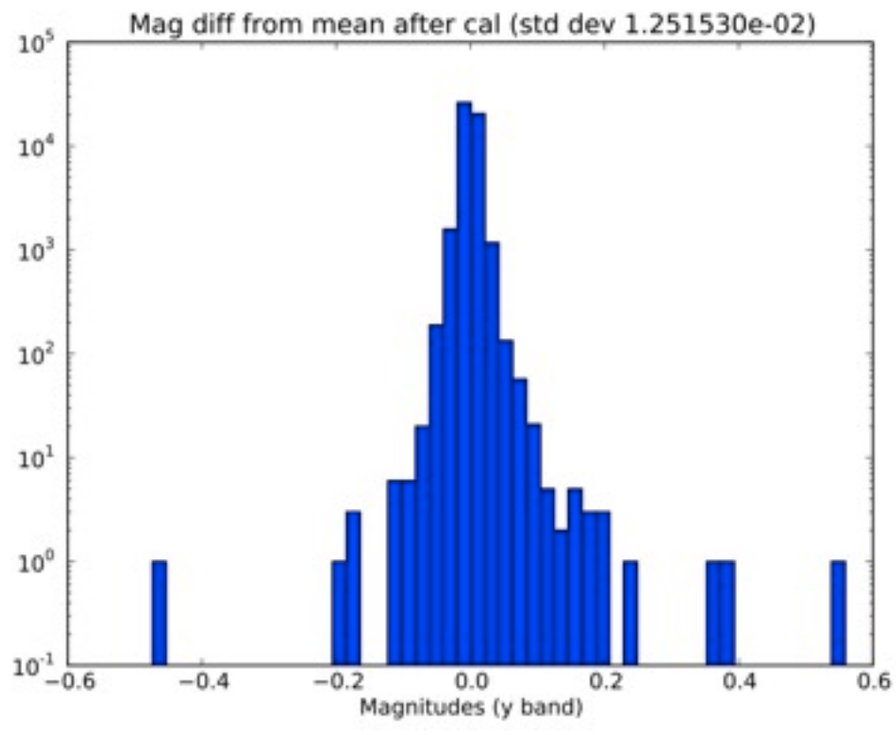


external

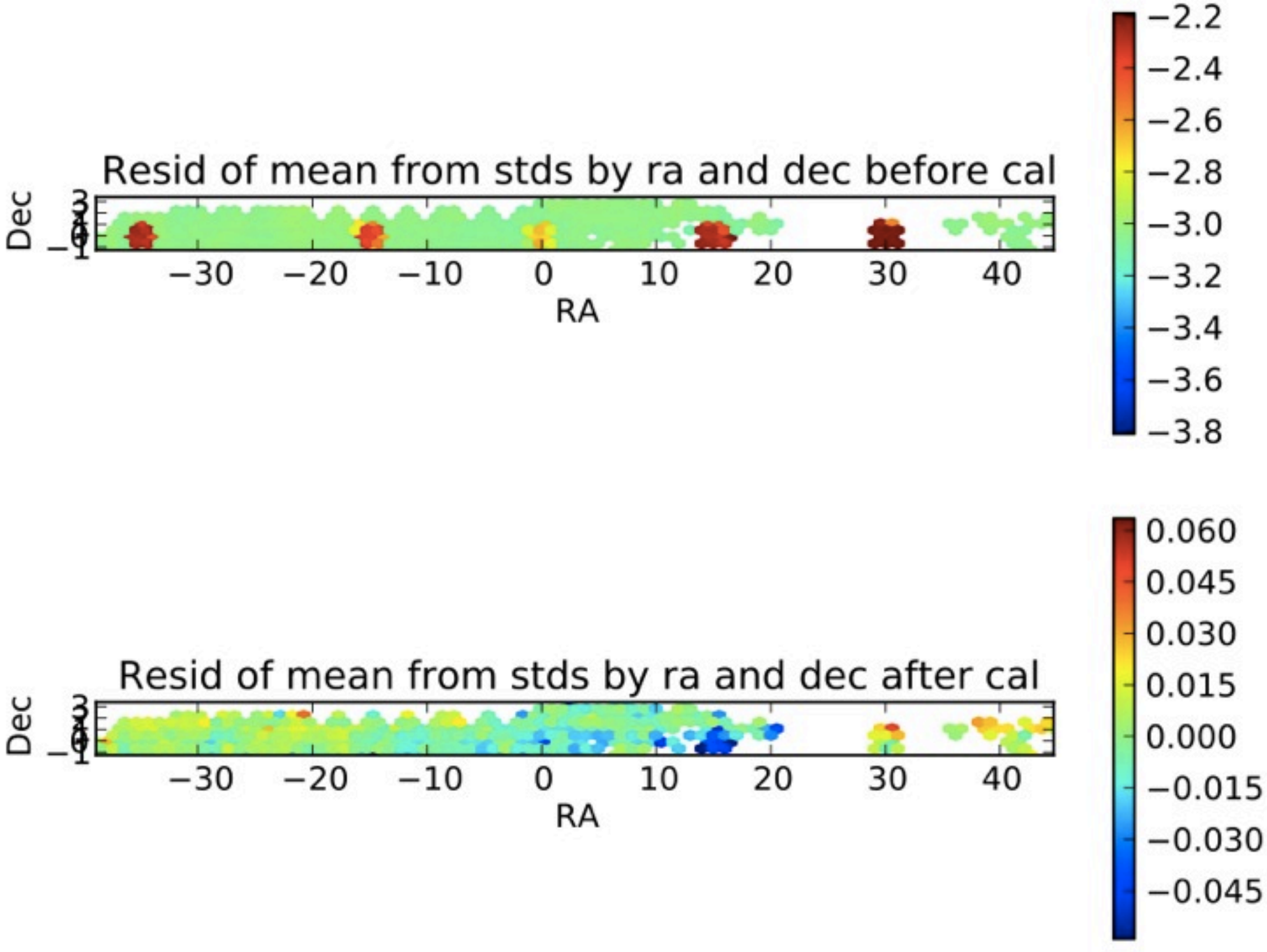




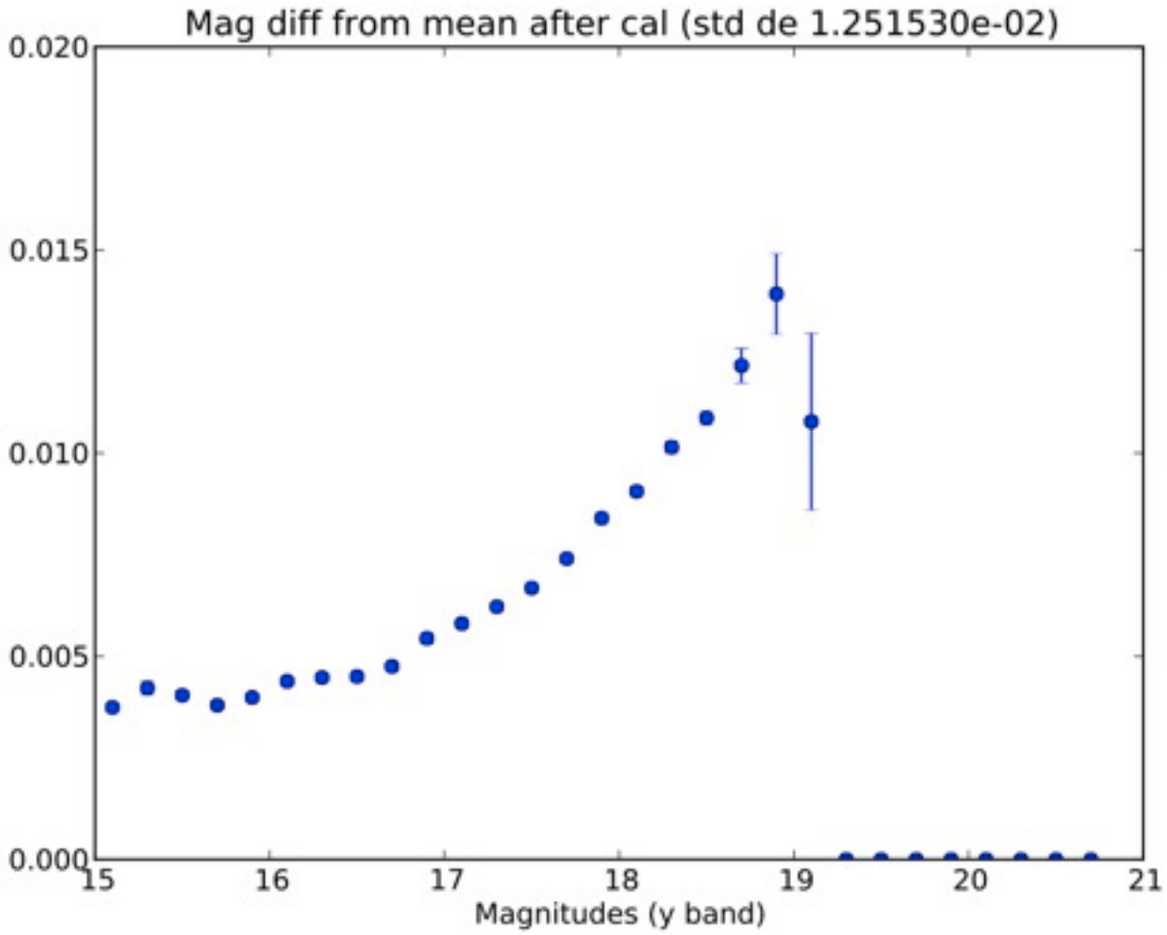
internal

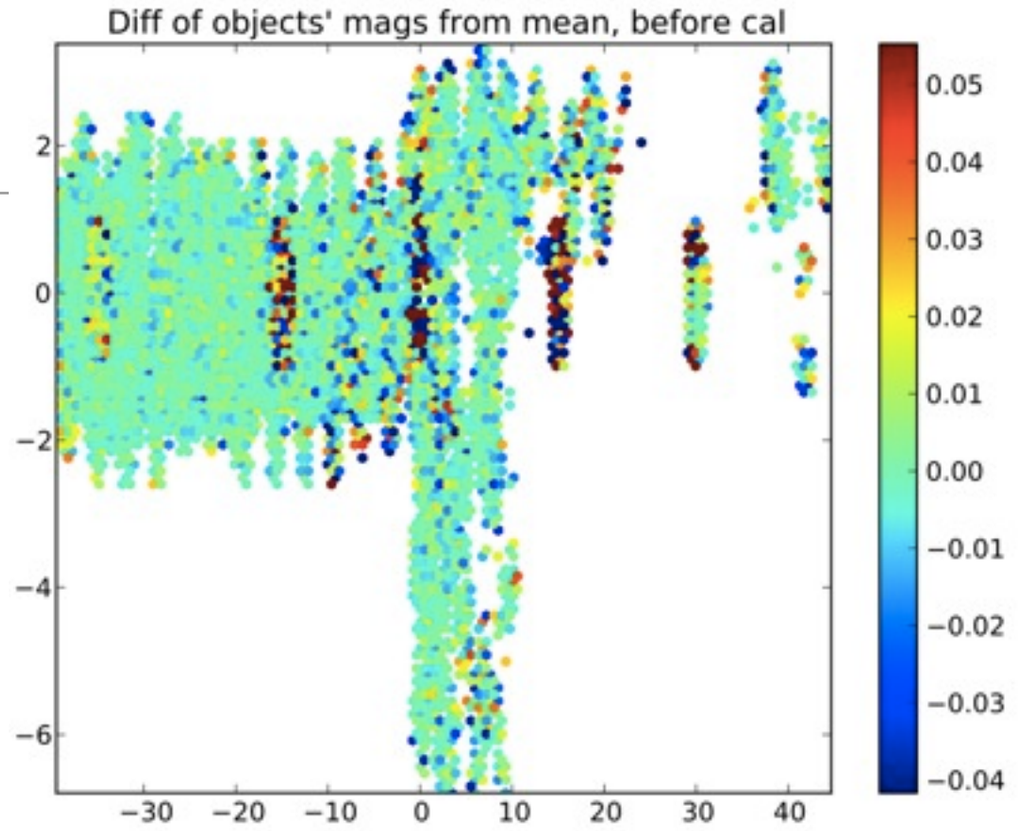


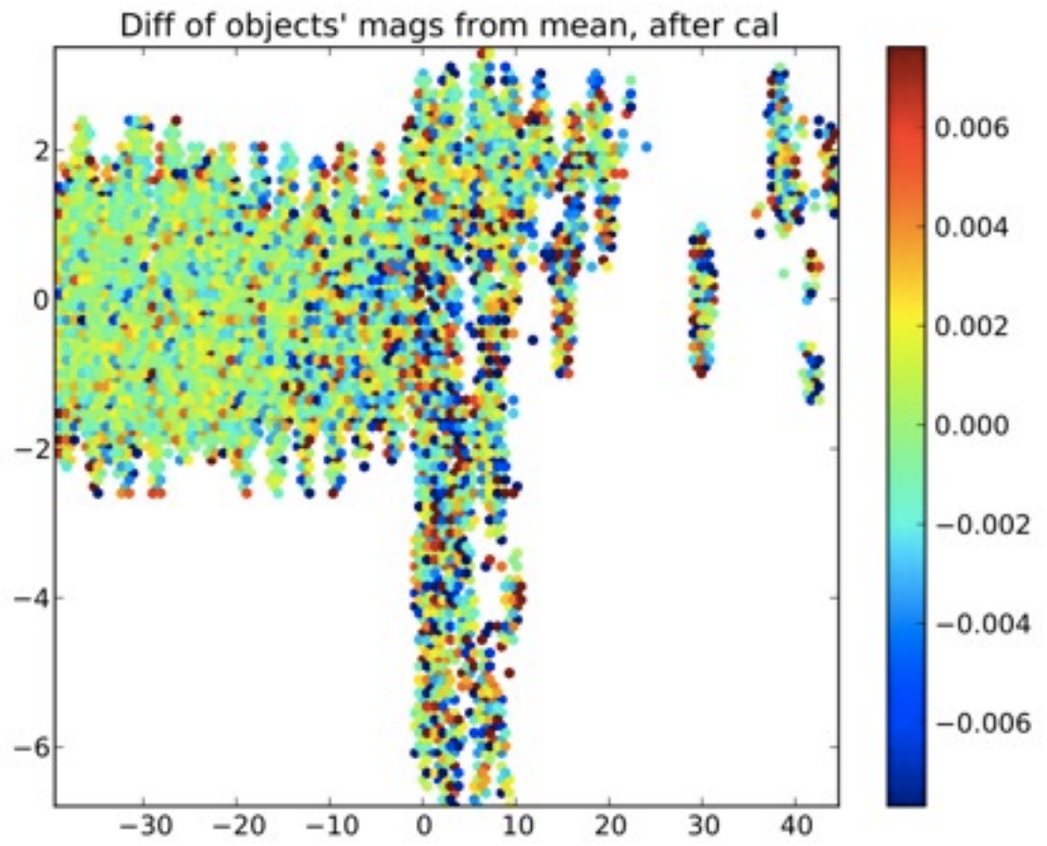
Stripe 82 y band



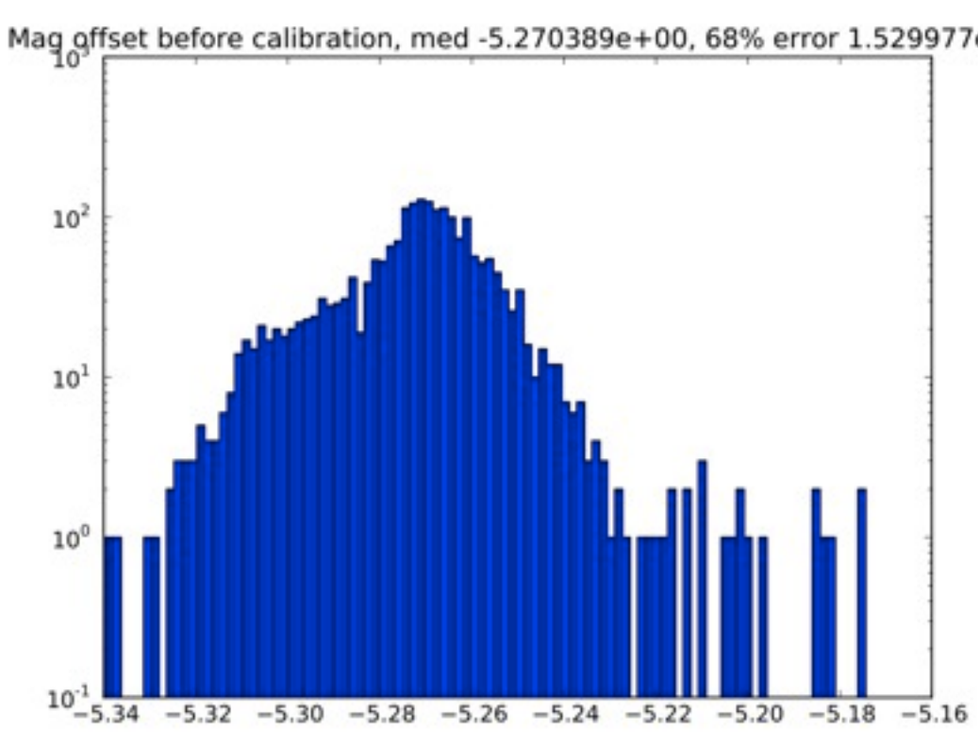
Stripe 82 y band







SPT-W r band



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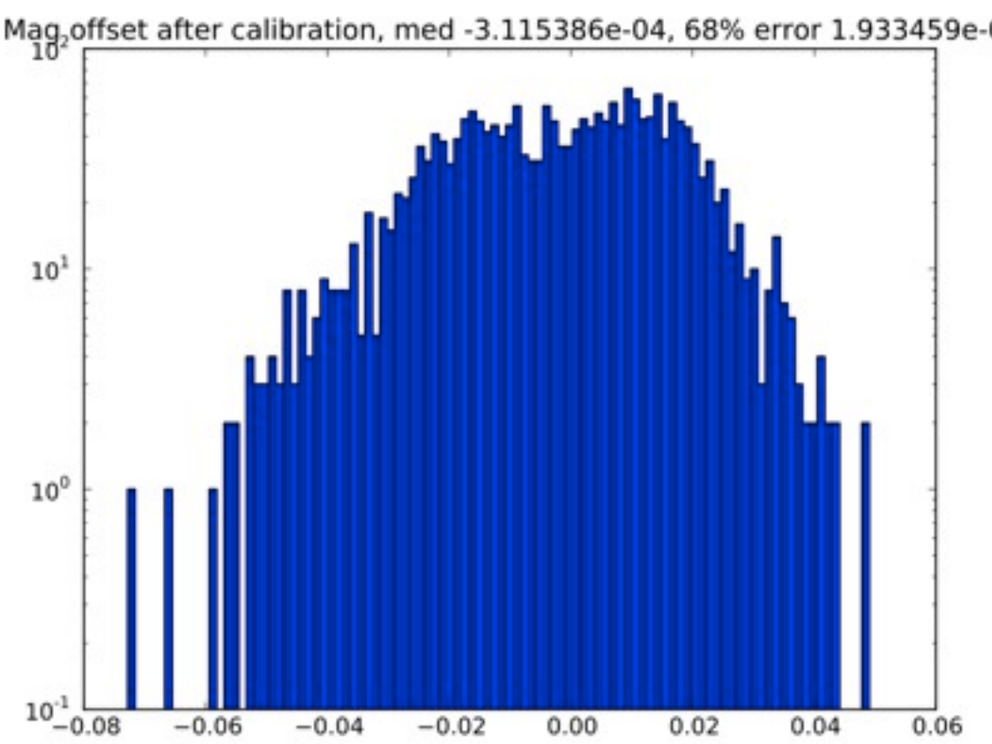
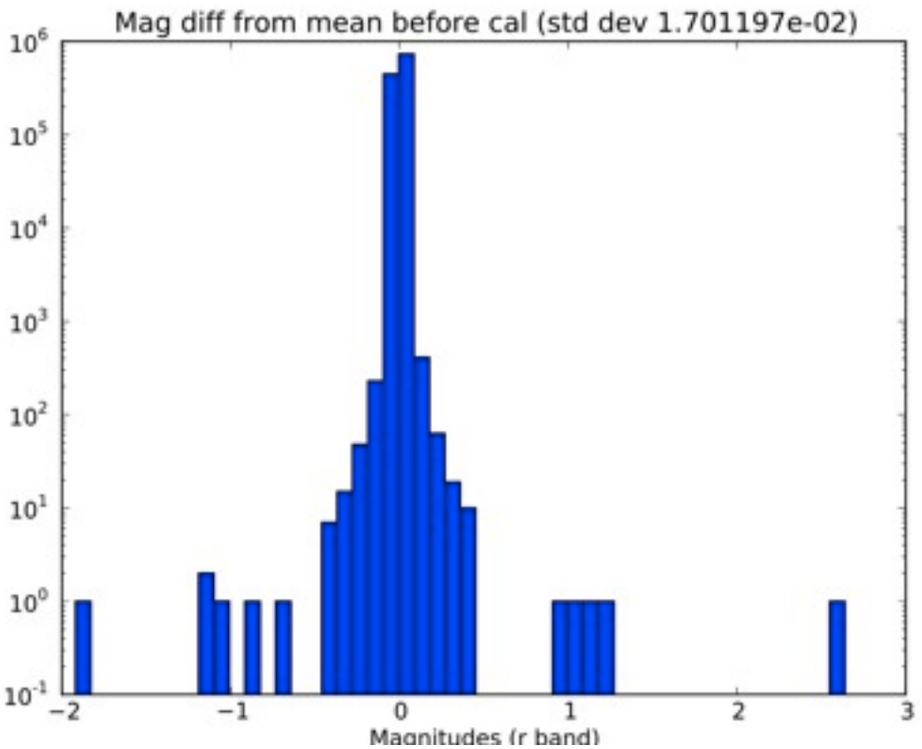
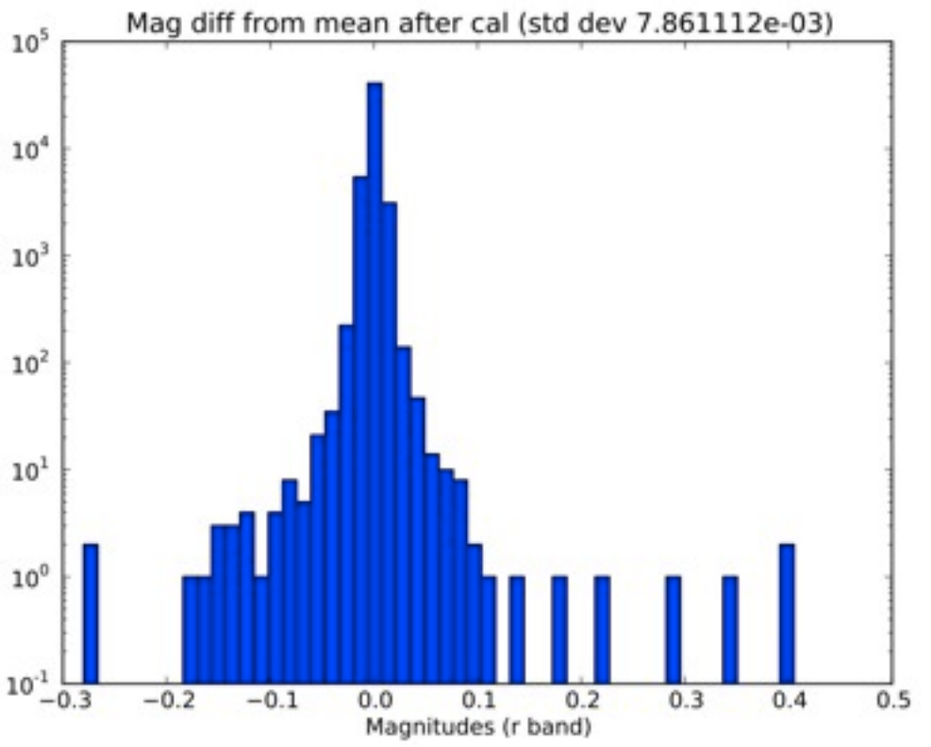
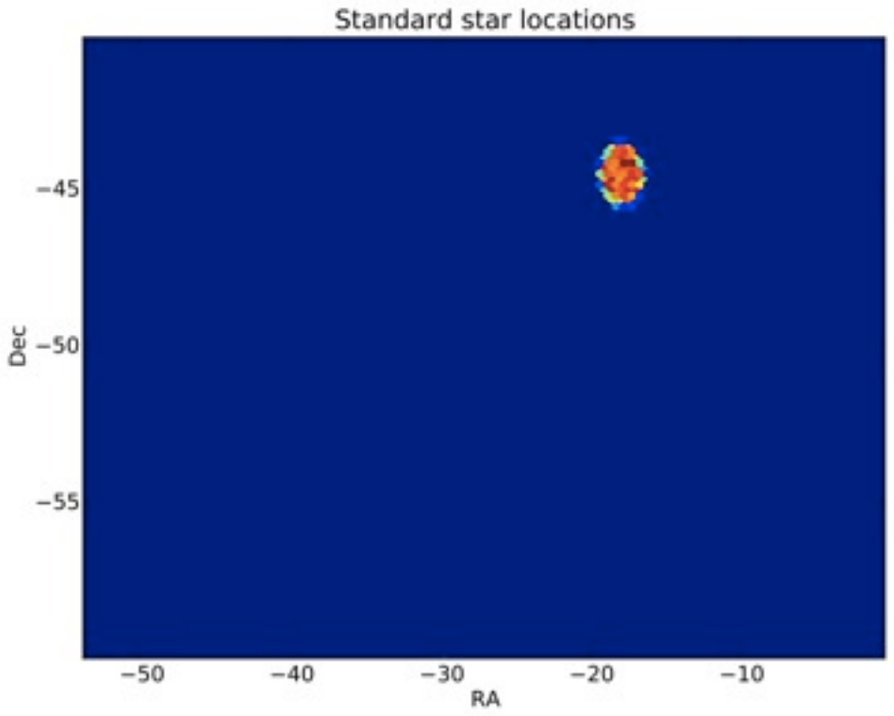


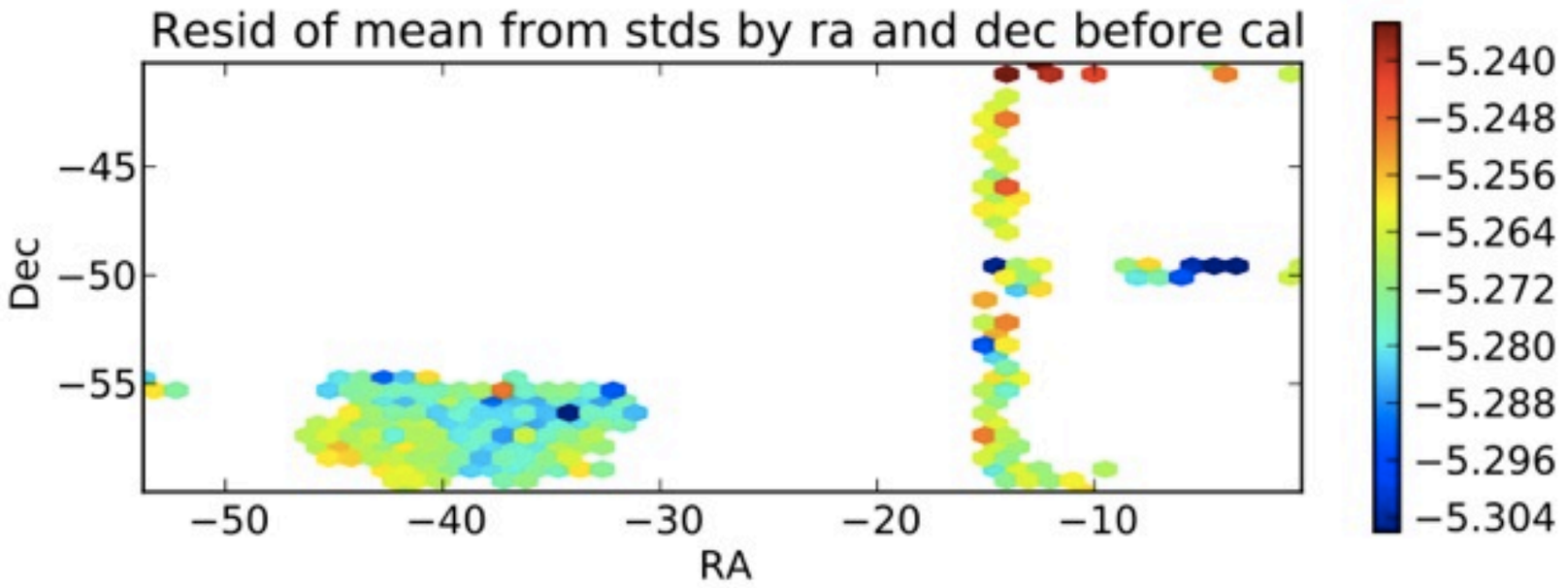


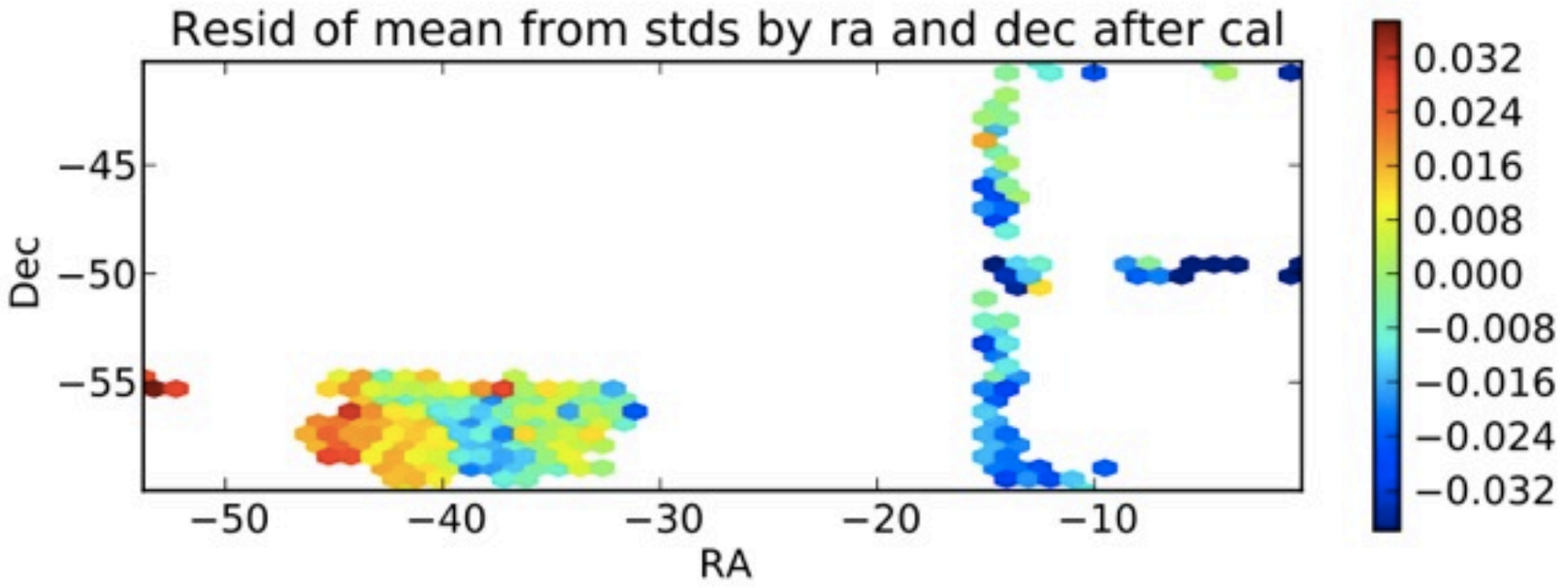
internal



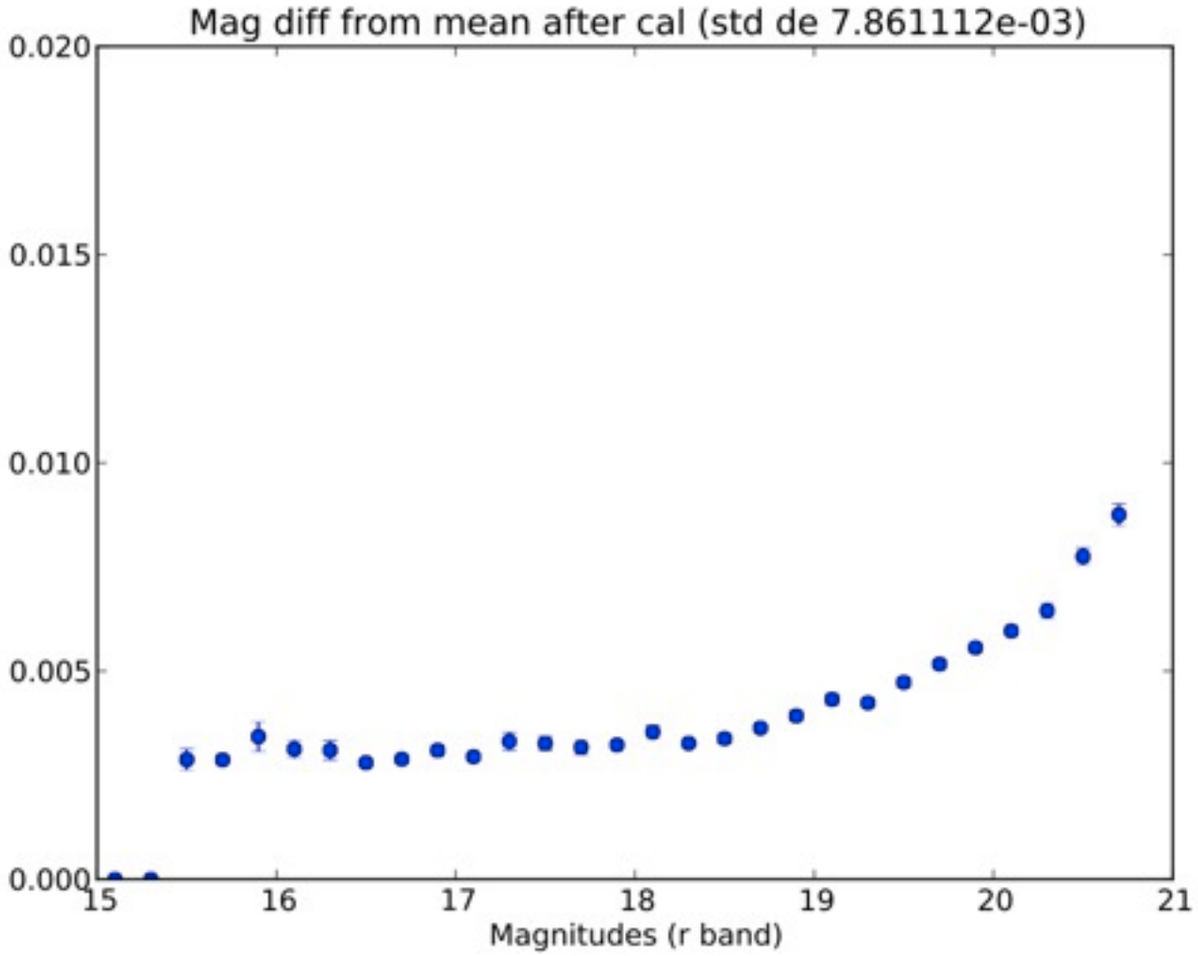
SPT-W r band

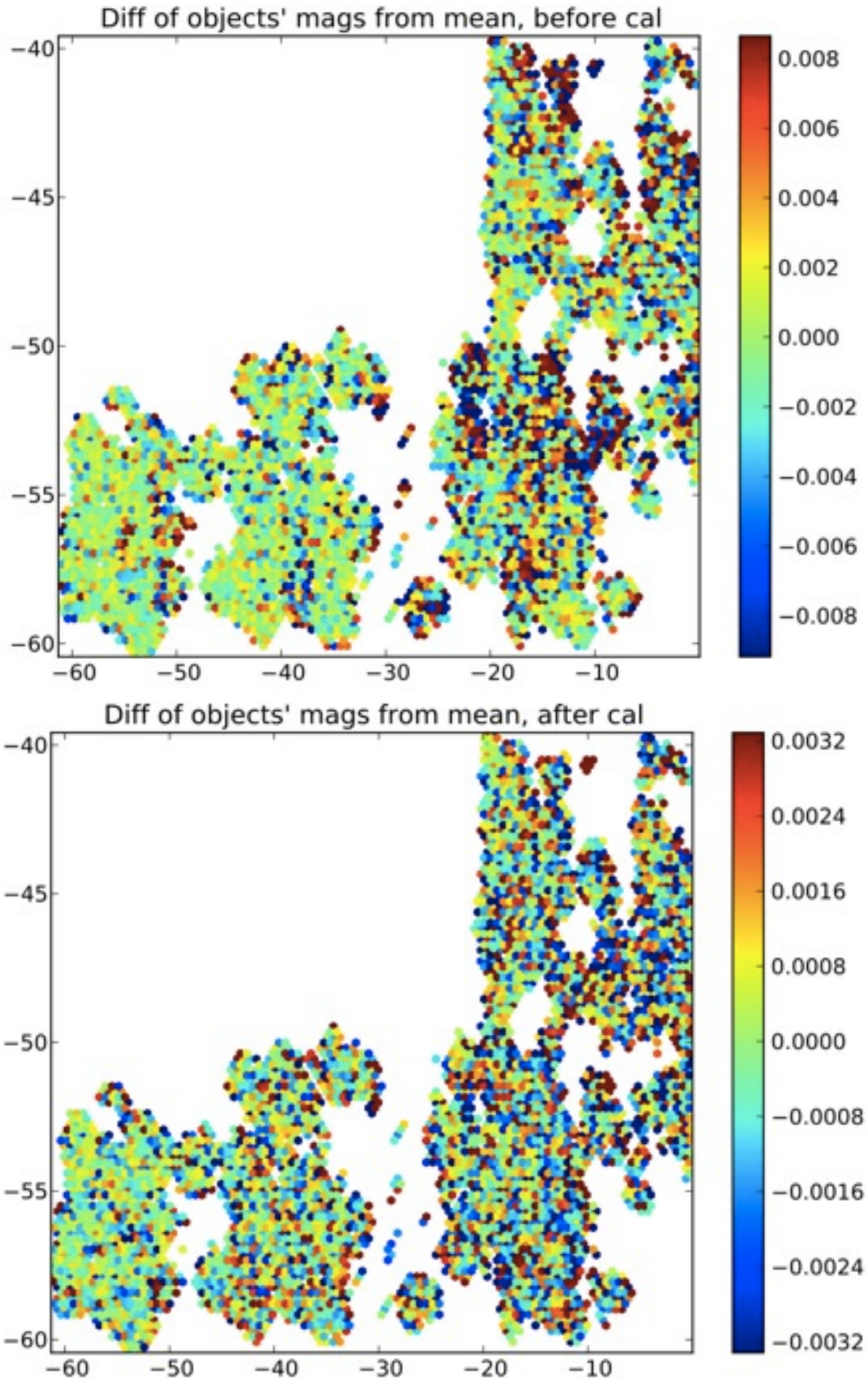

Standard star locations
−45
−50
−55
Dec
−50
−40
−30
−20
−10
RA


Resid of mean from stds by ra and dec before cal
−45
−50
−55
Dec
−50
−40
−30
−20
−10
RA
−5.240
−5.248
−5.256
−5.264
−5.272
−5.280
−5.288
−5.296
−5.304

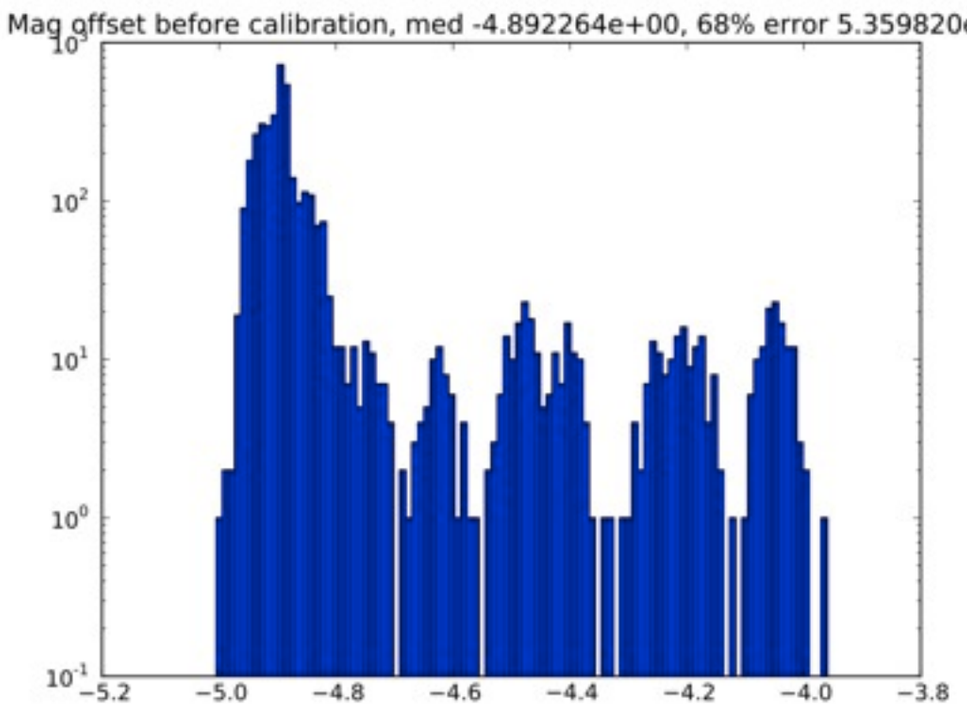

Resid of mean from stds by ra and dec after cal
−45
−50
−55
Dec
−50
−40
−30
−20
−10
RA
0.032
0.024
0.016
0.008
0.000
−0.008
−0.016
−0.024
−0.032

SPT-W r band

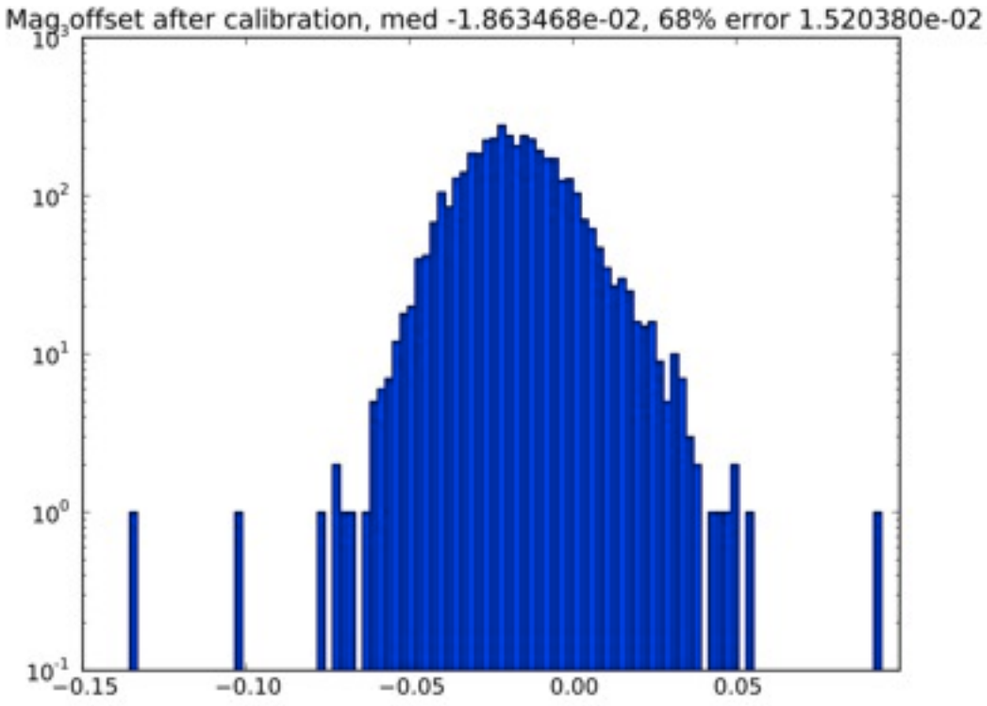

Mag diff from mean after cal (std de 7.861112e-03)
0.020
0.015
0.010
0.005
0.000
15
16
17
18
19
20
21
Magnitudes (r band)

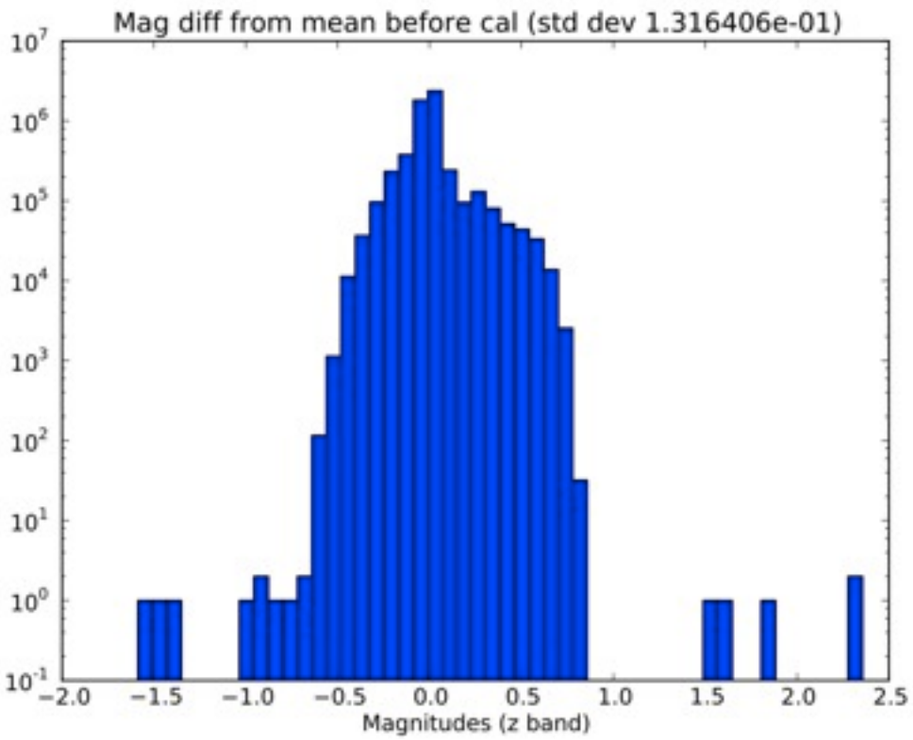

Diff of objects' mags from mean, before cal
−40
−45
−50
−55
−60
−60
−50
−40
−30
−20
−10
0.008
0.006
0.004
0.002
0.000
−0.002
−0.004
−0.006
−0.008
Diff of objects' mags from mean, after cal
0.0032
0.0024
0.0016
0.0008
0.0000
−0.0008
−0.0016
−0.0024
−0.0032

SPT-W z band

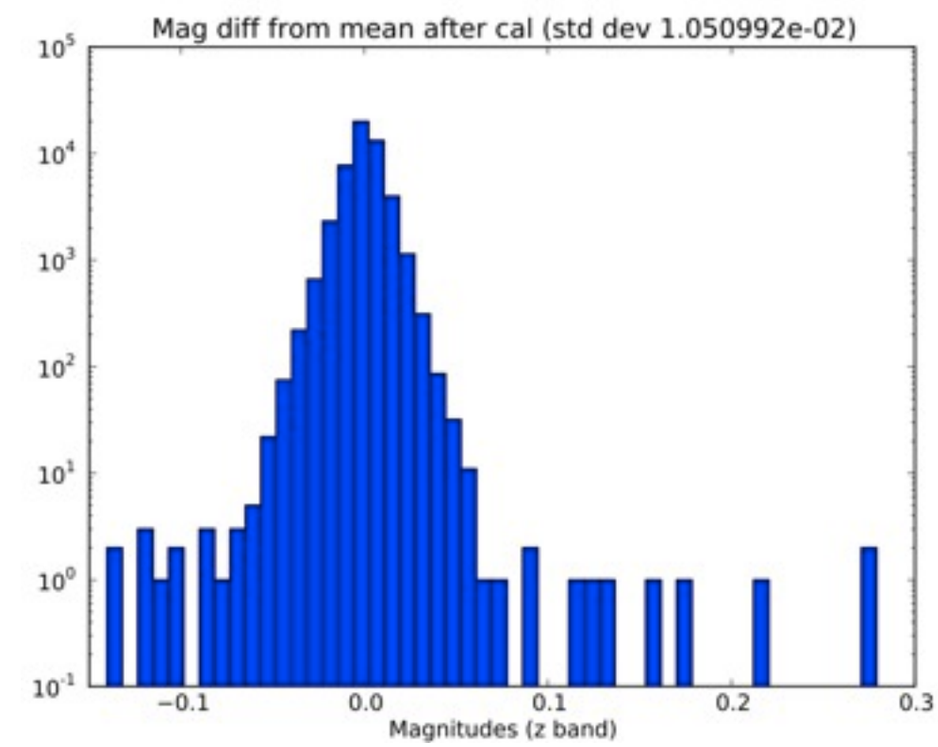


external

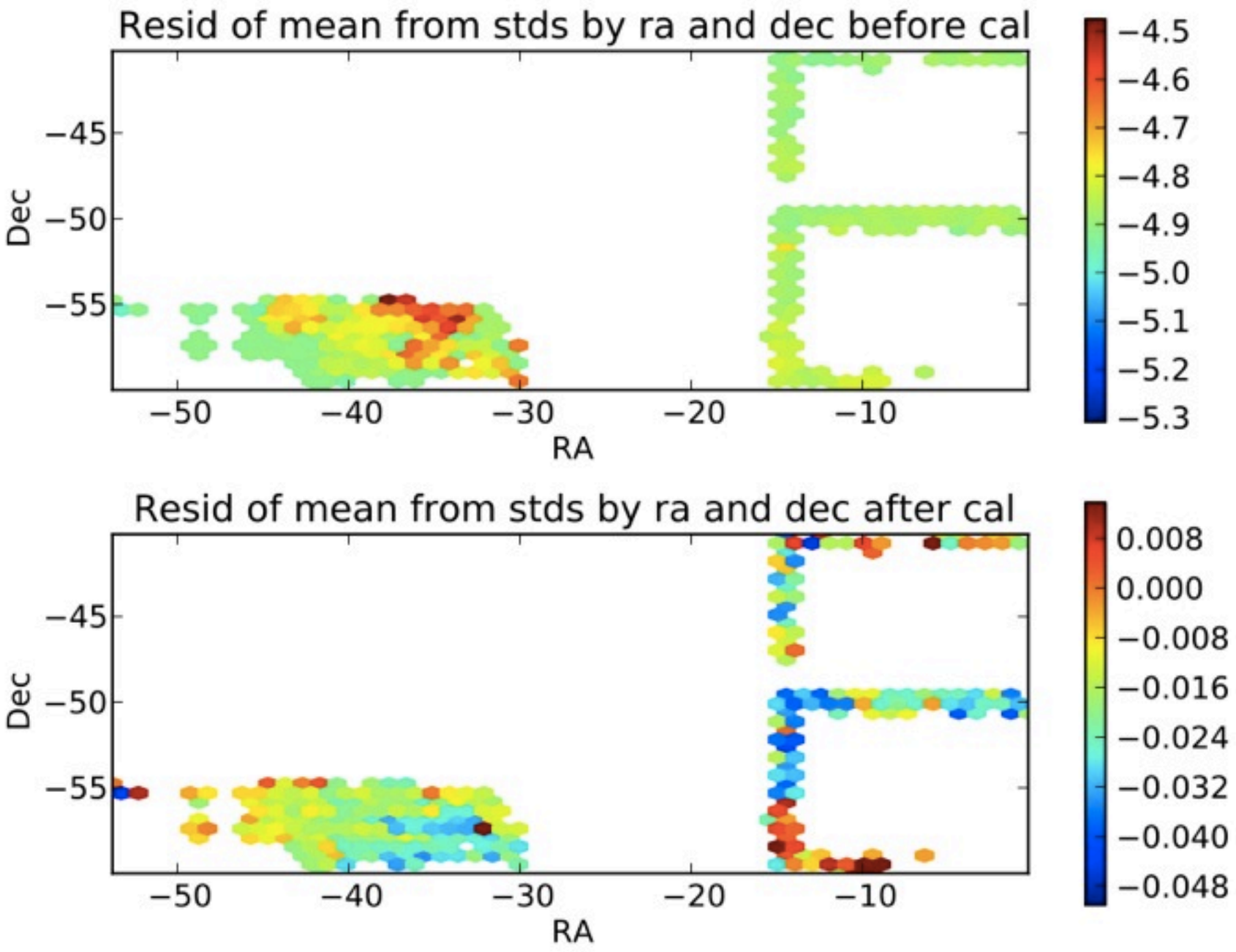




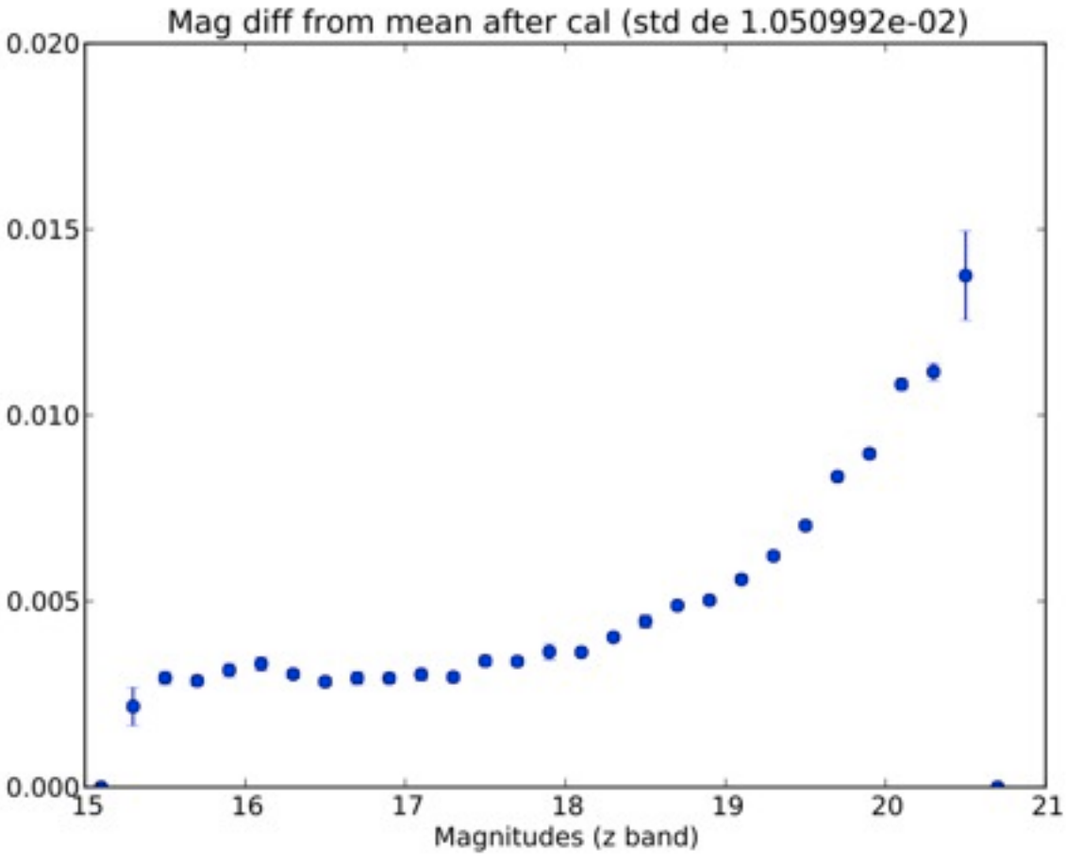
internal

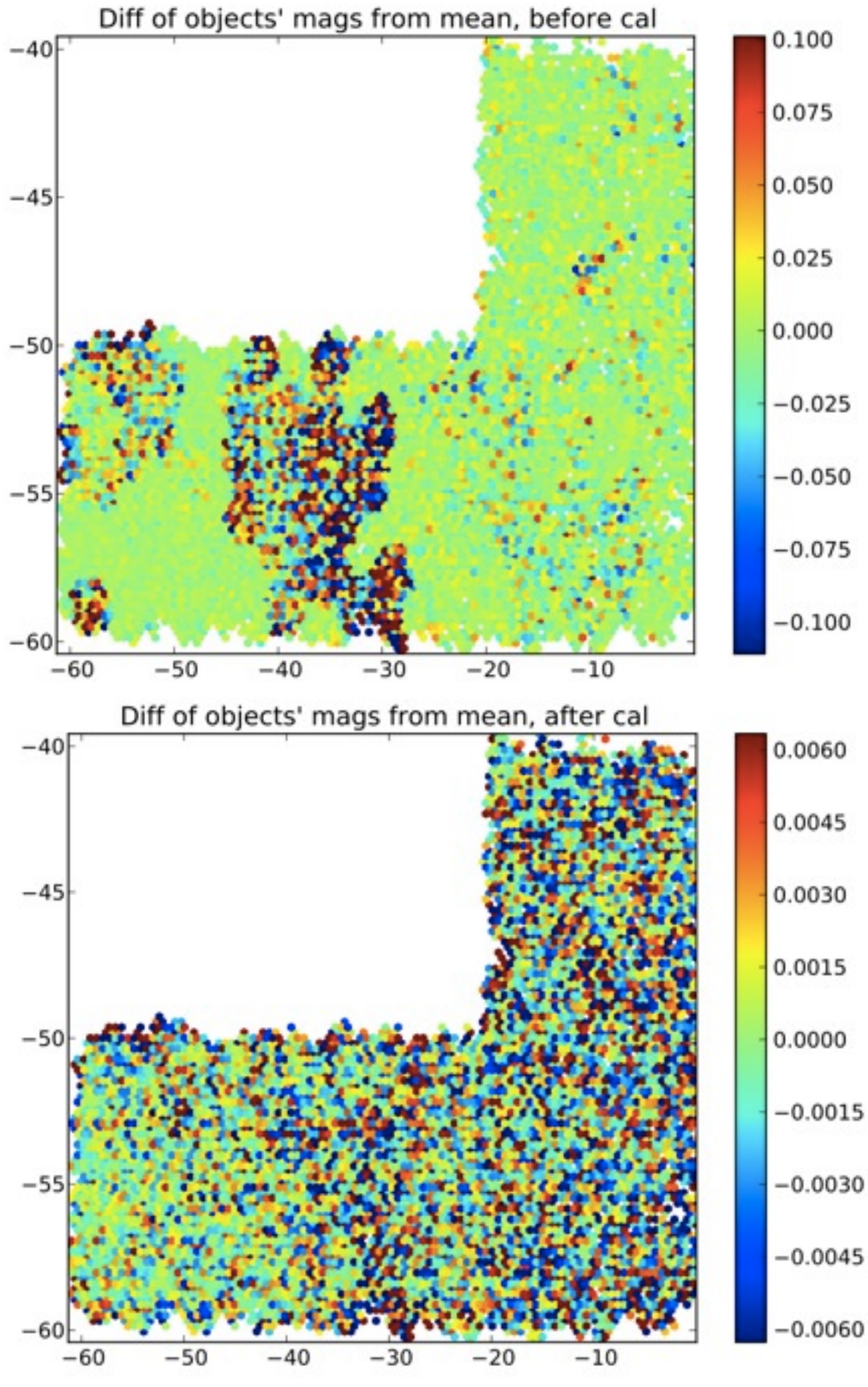


SPT-W z band

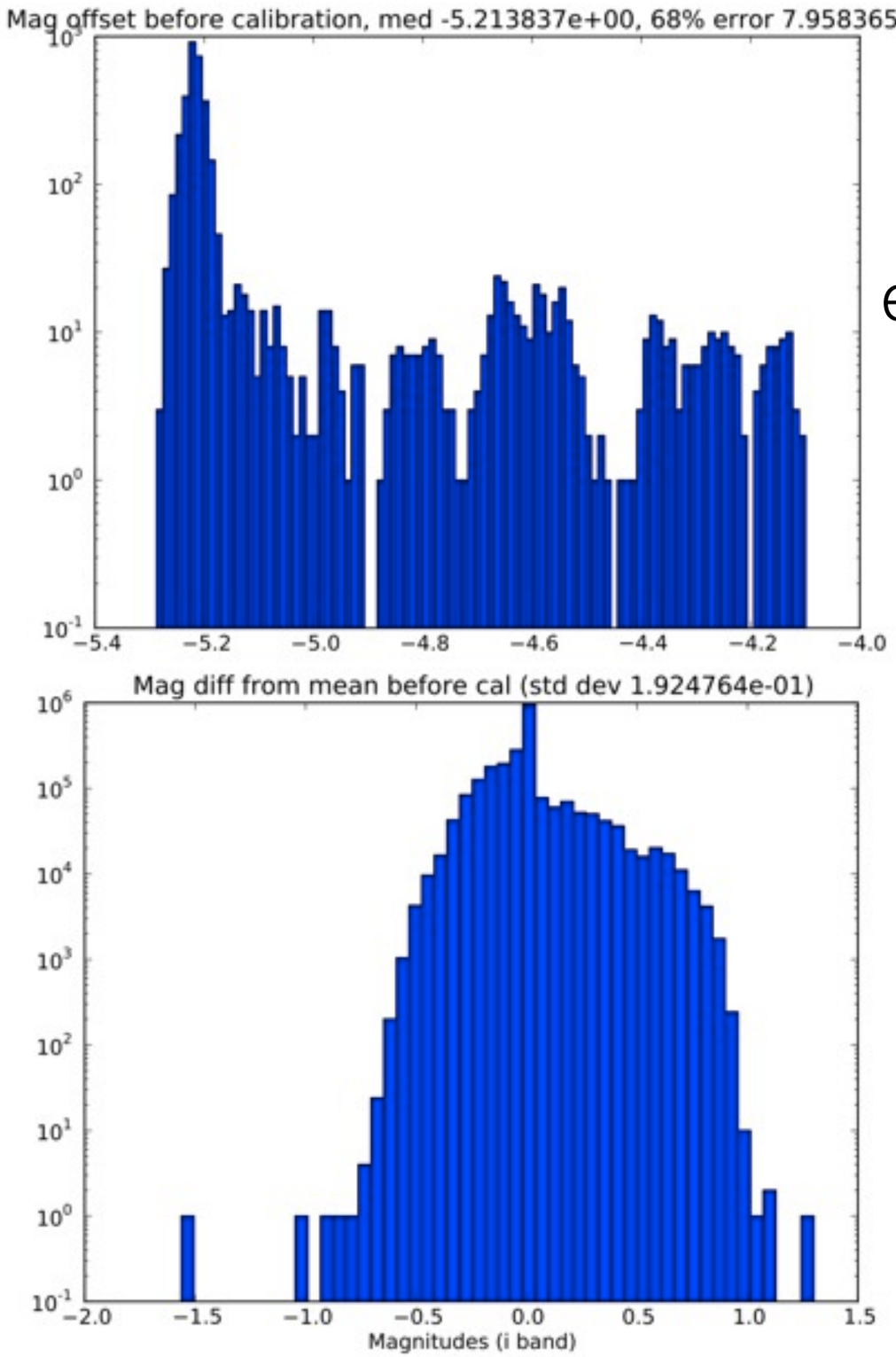

Resid of mean from stds by ra and dec before cal
Dec
−45
−50
−55
−50
−40
−30
−20
−10
RA
−4.5
−4.6
−4.7
−4.8
−4.9
−5.0
−5.1
−5.2
−5.3
Resid of mean from stds by ra and dec after cal
Dec
−45
−50
−55
−50
−40
−30
−20
−10
RA
0.008
0.000
−0.008
−0.016
−0.024
−0.032
−0.040
−0.048

SPT-W z band

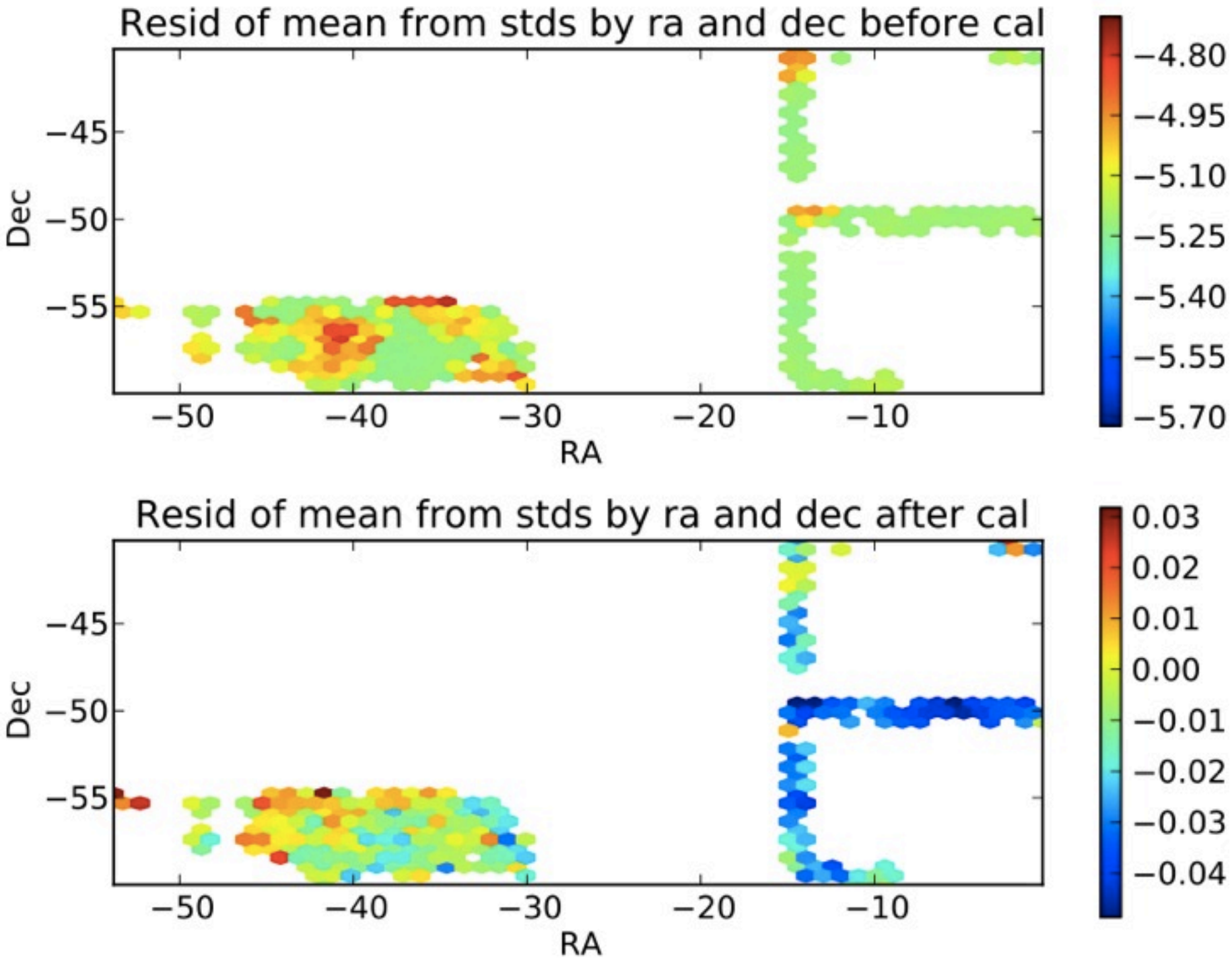

Mag diff from mean after cal (std de 1.050992e-02)
0.020
0.015
0.010
0.005
0.000
15
16
17
18
19
20
21
Magnitudes (z band)


Diff of objects' mags from mean, before cal
−40
−45
−50
−55
−60
−60
−50
−40
−30
−20
−10
0.100
0.075
0.050
0.025
0.000
−0.025
−0.050
−0.075
−0.100
Diff of objects' mags from mean, after cal
−40
−45
−50
−55
−60
−60
−50
−40
−30
−20
−10
0.0060
0.0045
0.0030
0.0015
0.0000
−0.0015
−0.0030
−0.0045
−0.0060

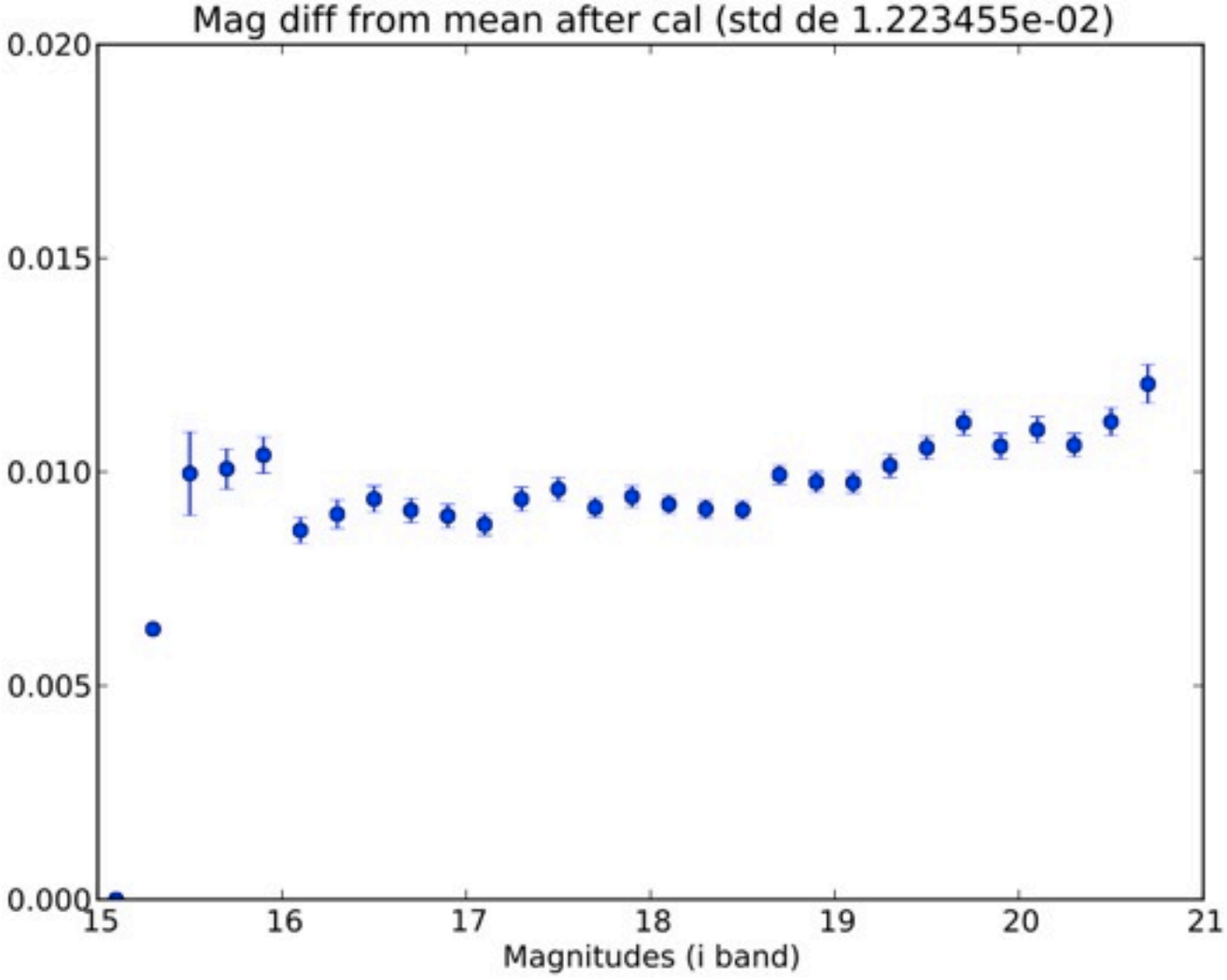
SPT-W i band

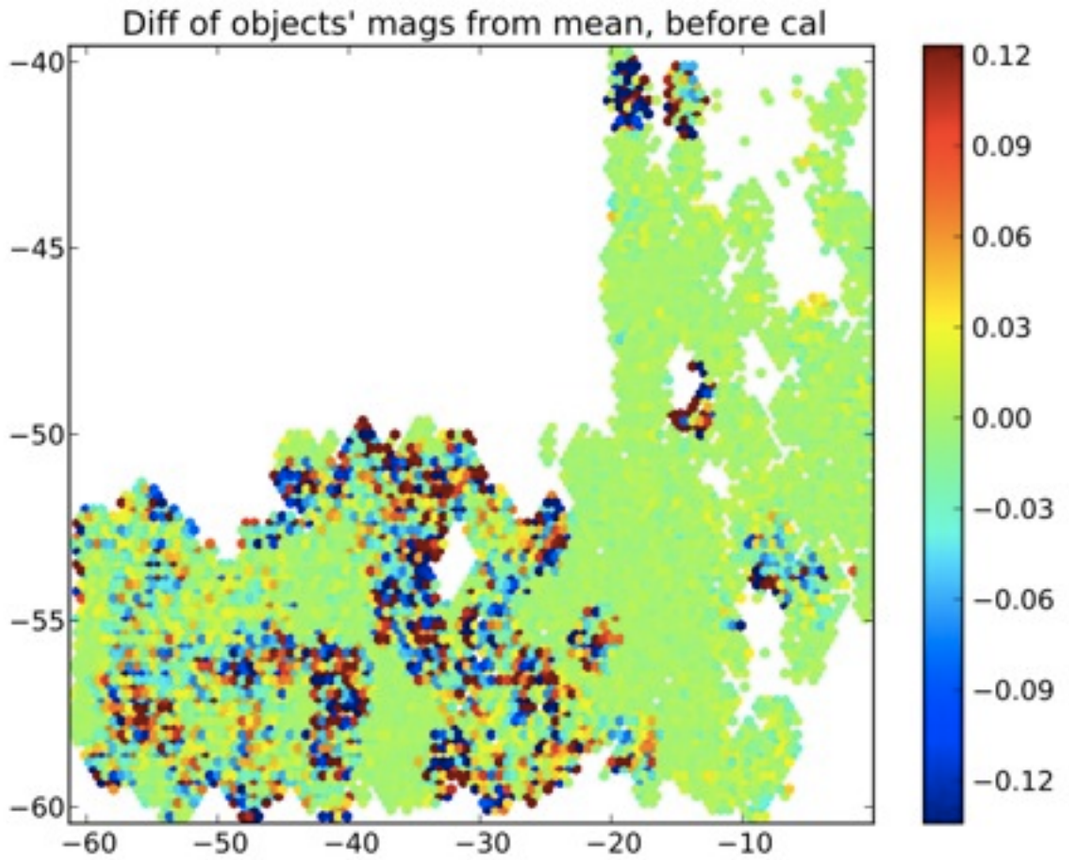

Mag offset before calibration, med -5.213837e+00, 68% error 7.958365e-02
Mag offset after calibration, med -8.500784e-03, 68% error 1.828649e-02
external
Mag diff from mean before cal (std dev 1.924764e-01)
Mag diff from mean after cal (std dev 1.223455e-02)
internal
Magnitudes (i band)
Magnitudes (i band)

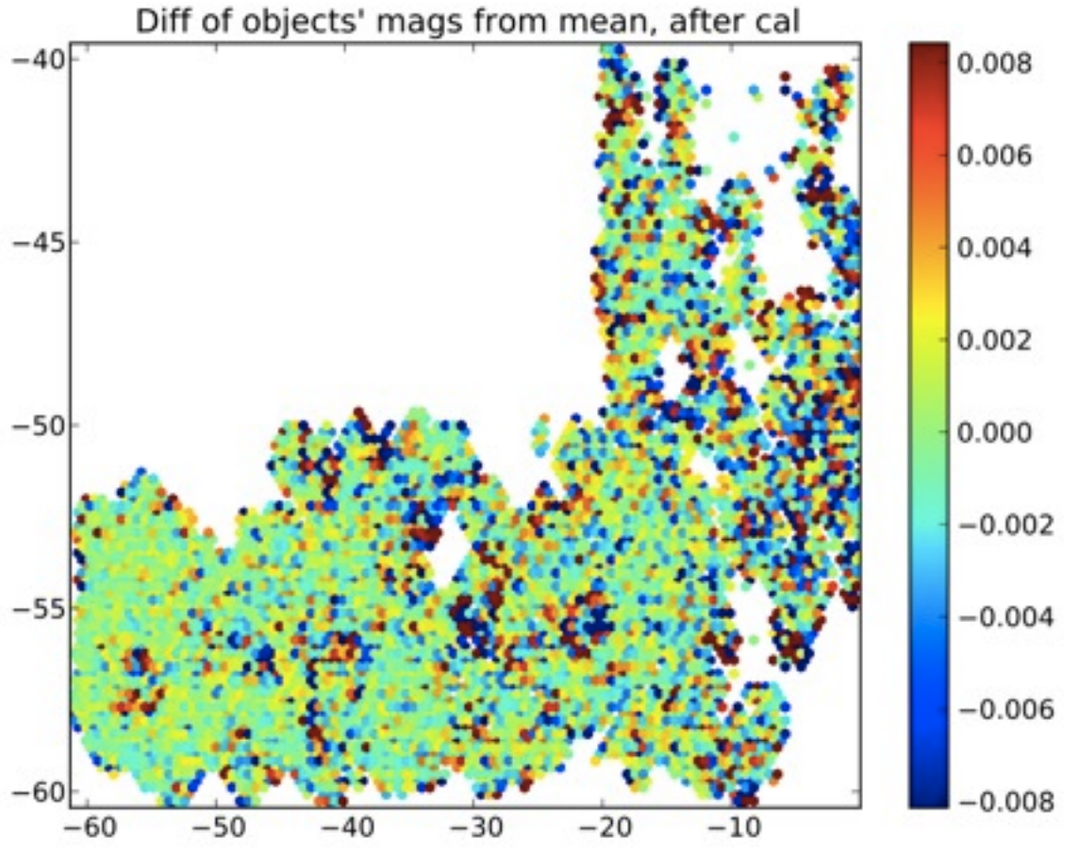
SPT-W i band


Resid of mean from stds by ra and dec before cal
Dec
−45
−50
−55
−50
−40
−30
−20
−10
RA
−4.80
−4.95
−5.10
−5.25
−5.40
−5.55
−5.70
Resid of mean from stds by ra and dec after cal
Dec
−45
−50
−55
−50
−40
−30
−20
−10
RA
0.03
0.02
0.01
0.00
−0.01
−0.02
−0.03
−0.04

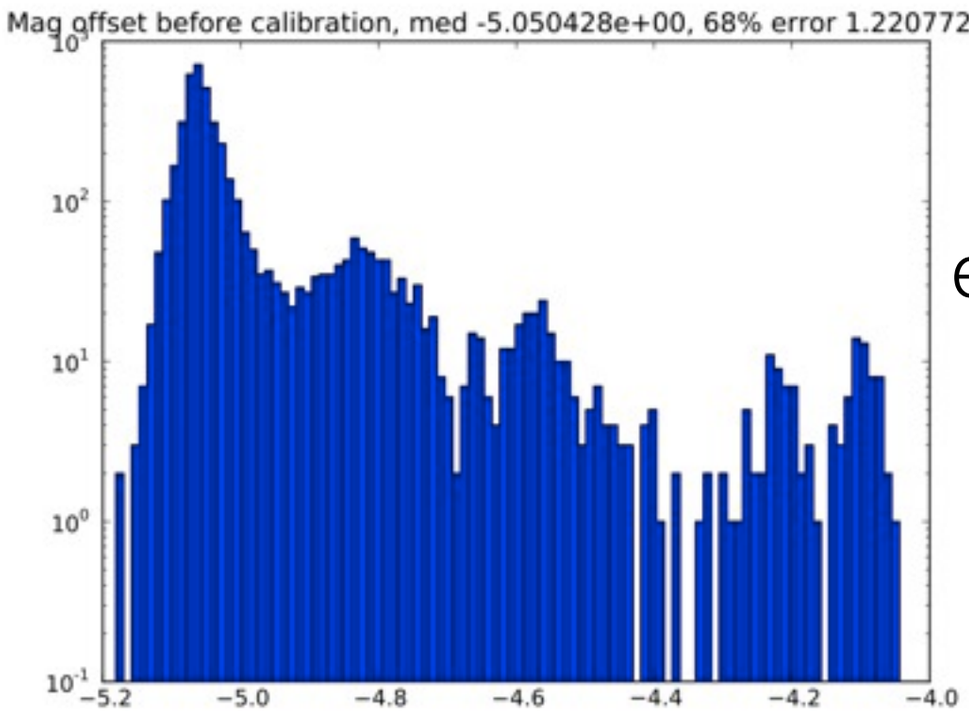
SPT-W i band


Mag diff from mean after cal (std de 1.223455e-02)
0.020
0.015
0.010
0.005
0.000
15
16
17
18
19
20
21
Magnitudes (i band)

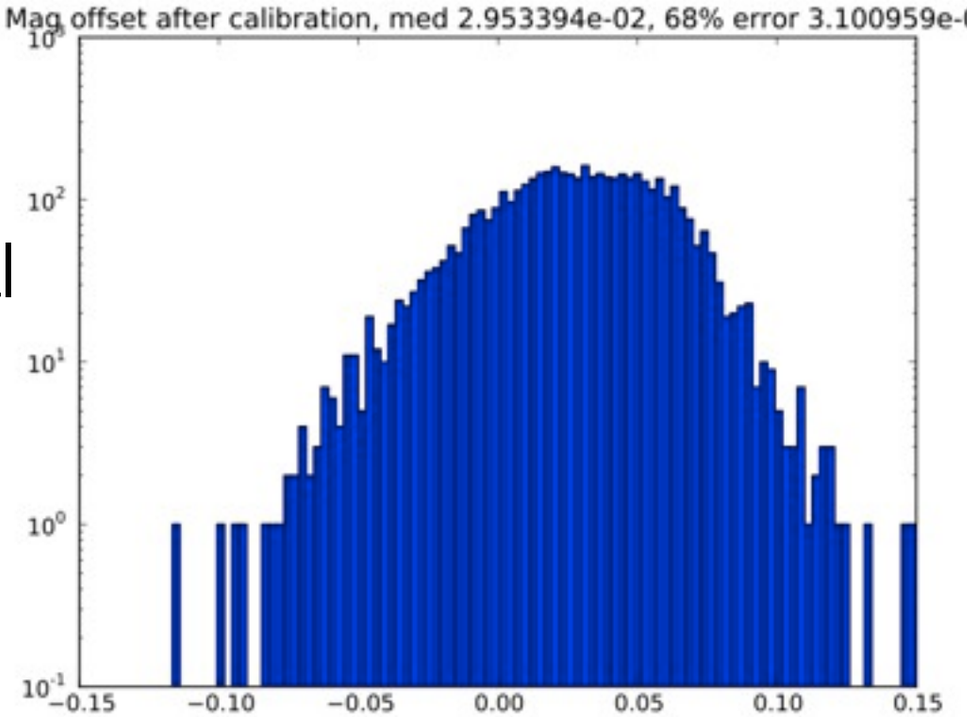

Diff of objects' mags from mean, before cal
−40
−45
−50
−55
−60
−60
−50
−40
−30
−20
−10
0.12
0.09
0.06
0.03
0.00
−0.03
−0.06
−0.09
−0.12

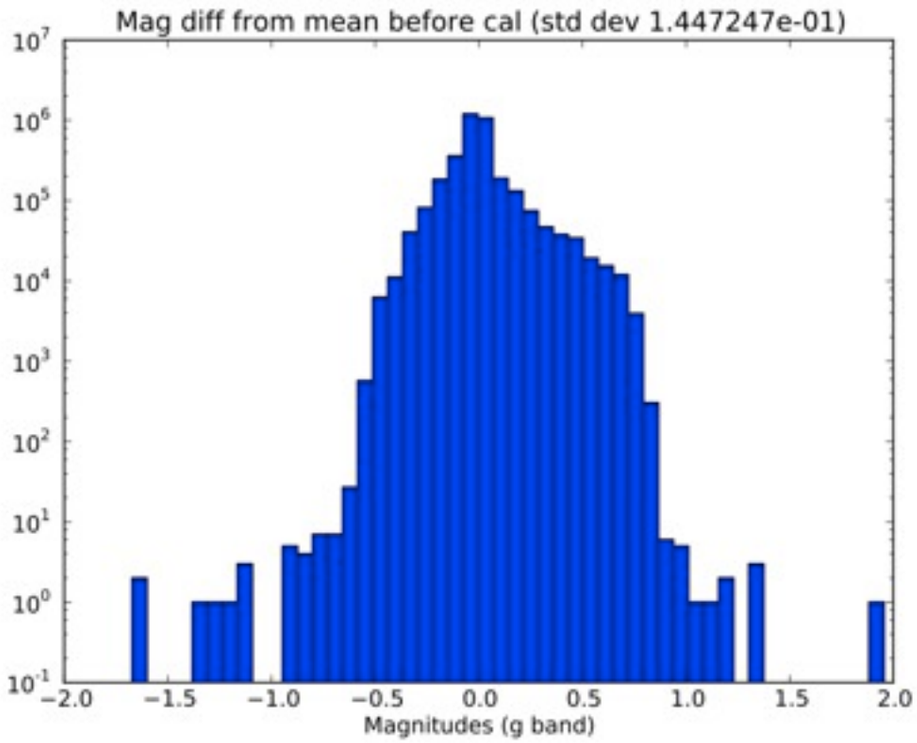

Diff of objects' mags from mean, after cal
−40
−45
−50
−55
−60
−60
−50
−40
−30
−20
−10
0.008
0.006
0.004
0.002
0.000
−0.002
−0.004
−0.006
−0.008

SPT-W g band

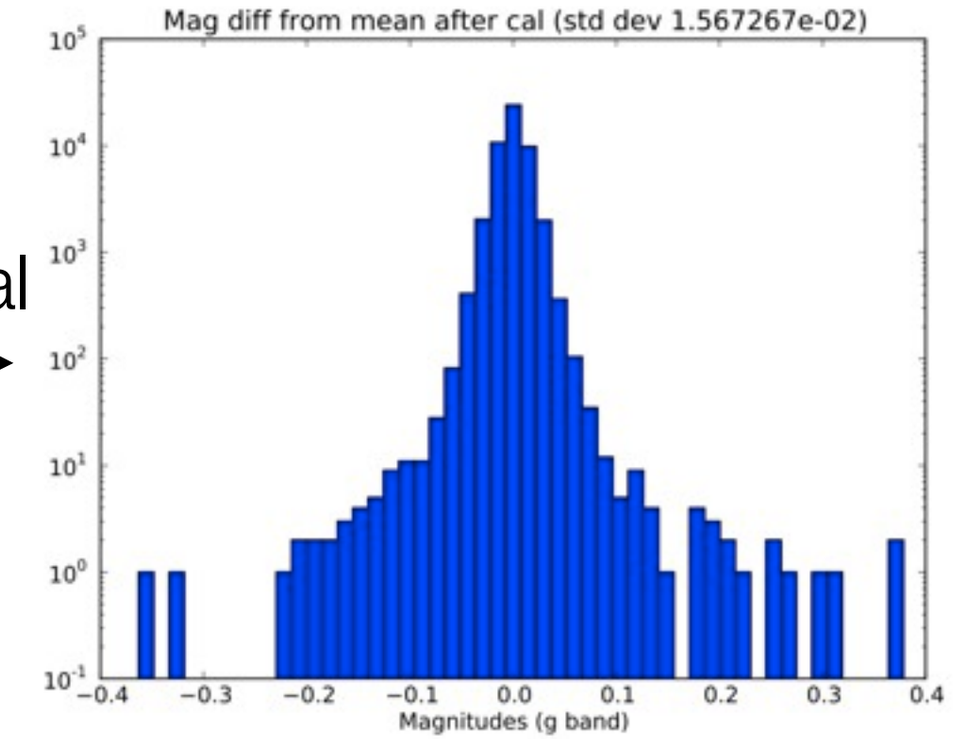


external

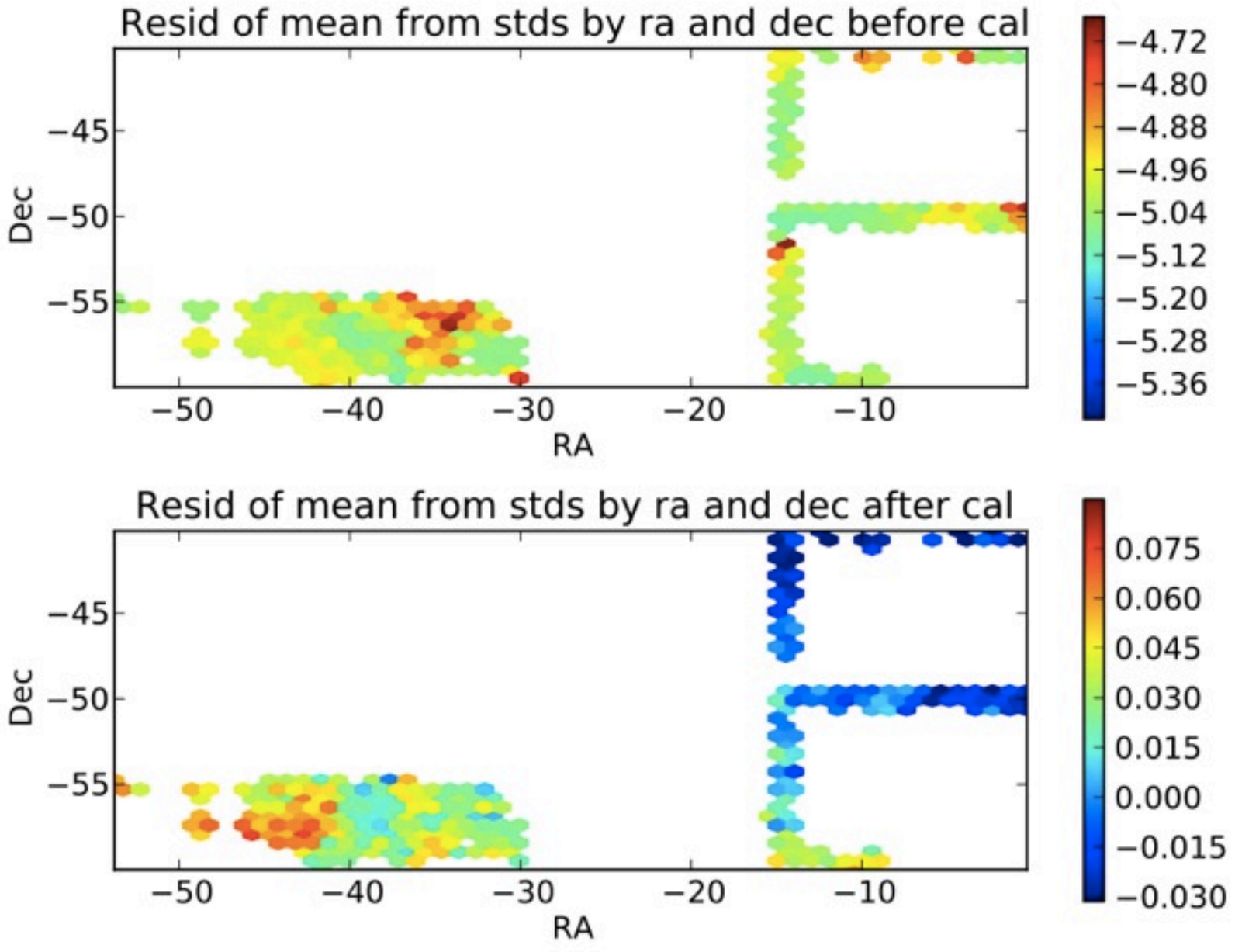




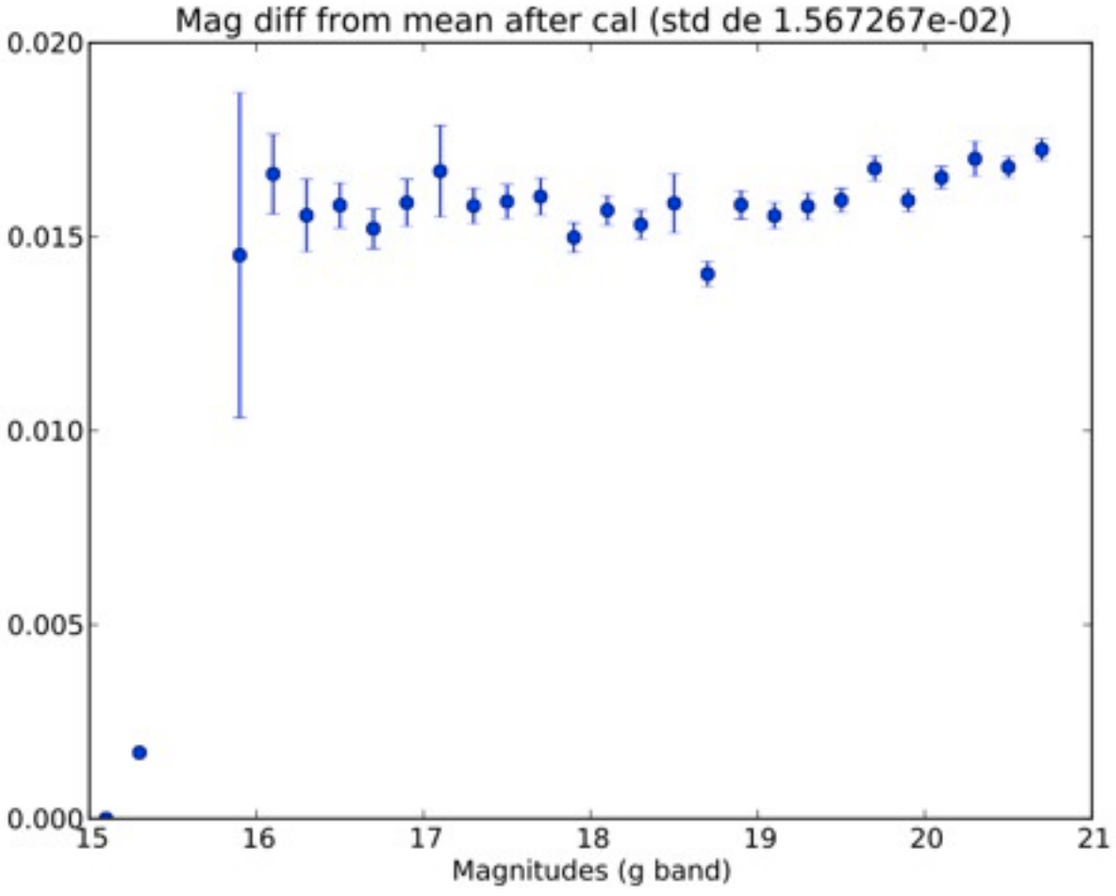
internal

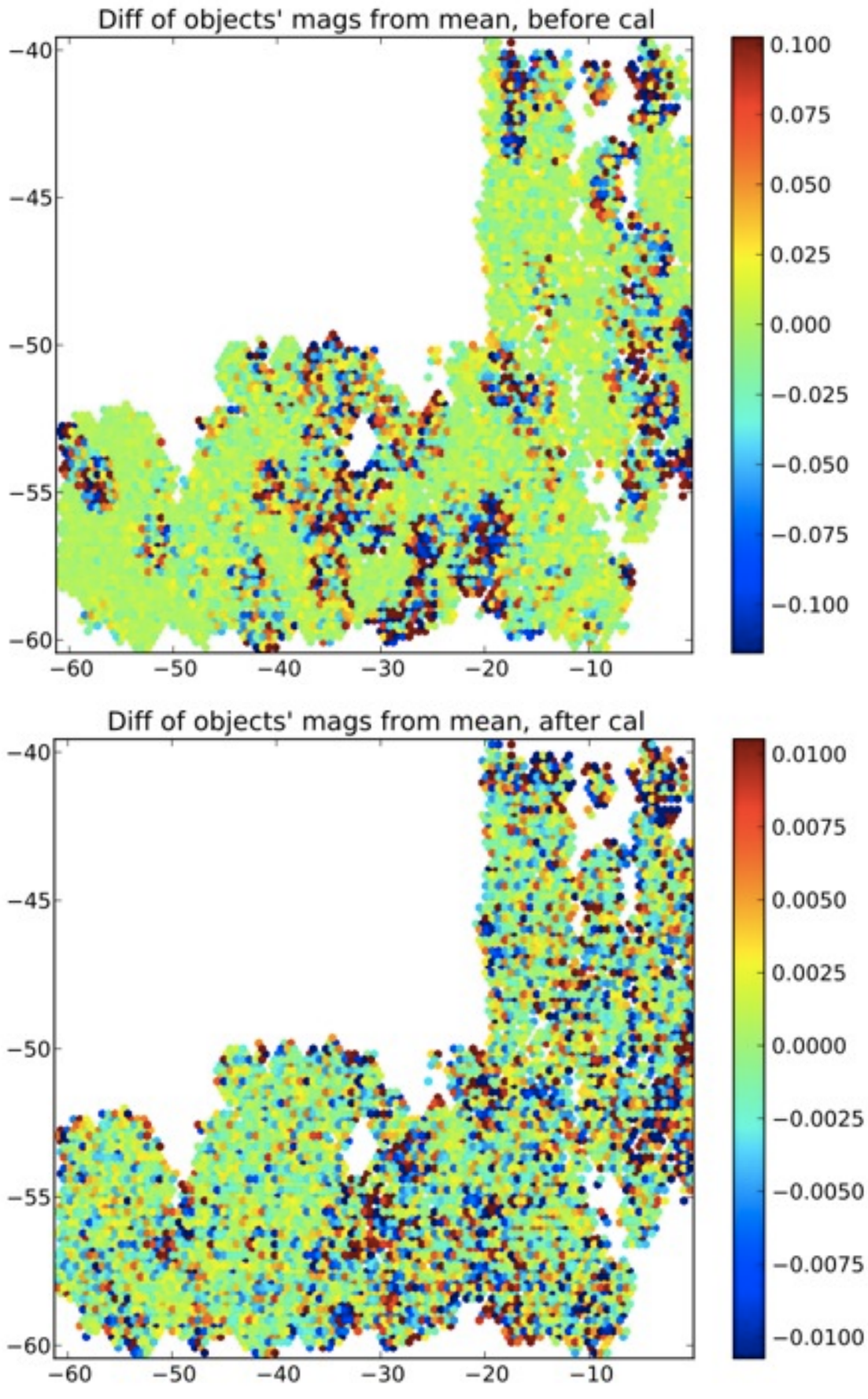


SPT-W g band

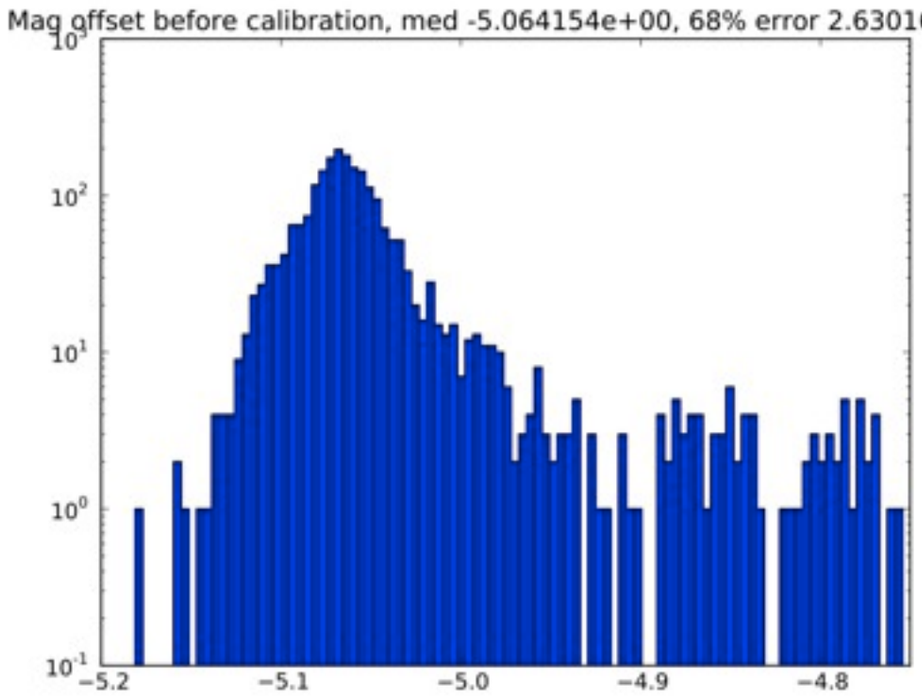

Resid of mean from stds by ra and dec before cal
Dec
−45
−50
−55
−50
−40
−30
−20
−10
RA
−4.72
−4.80
−4.88
−4.96
−5.04
−5.12
−5.20
−5.28
−5.36
Resid of mean from stds by ra and dec after cal
Dec
−45
−50
−55
−50
−40
−30
−20
−10
RA
0.075
0.060
0.045
0.030
0.015
0.000
−0.015
−0.030

SPT-W g band

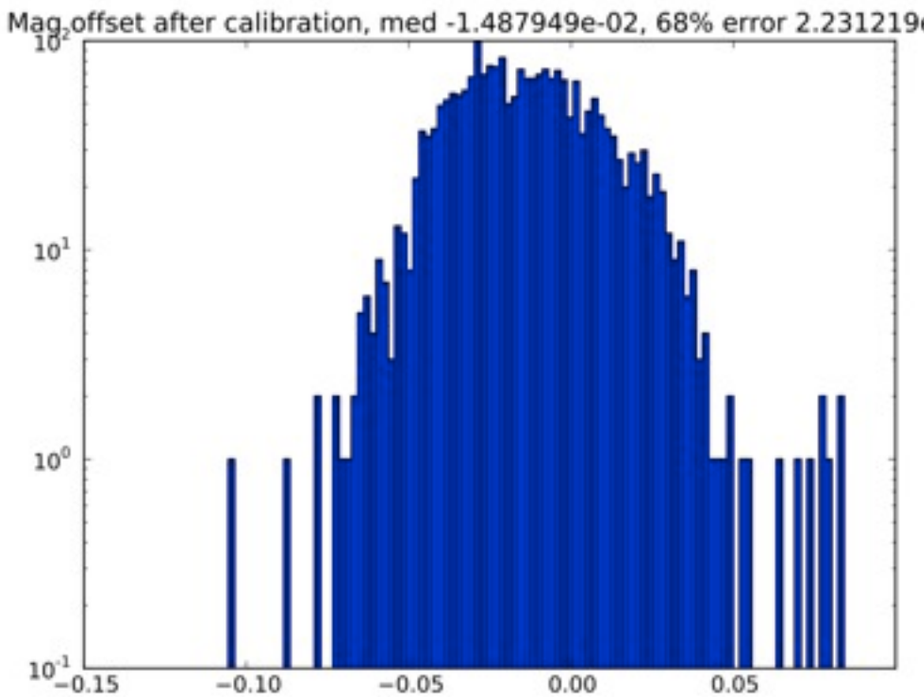

Mag diff from mean after cal (std de 1.567267e-02)
0.020
0.015
0.010
0.005
0.000
15
16
17
18
19
20
21
Magnitudes (g band)

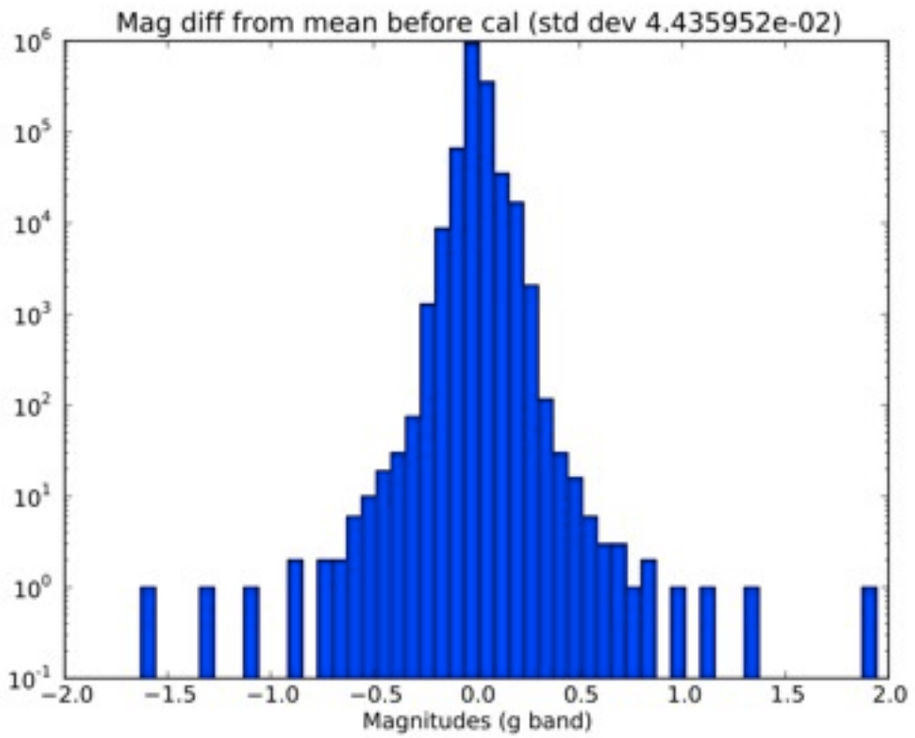

Diff of objects' mags from mean, before cal
−40
−45
−50
−55
−60
−60
−50
−40
−30
−20
−10
0.100
0.075
0.050
0.025
0.000
−0.025
−0.050
−0.075
−0.100
Diff of objects' mags from mean, after cal
−40
−45
−50
−55
−60
−60
−50
−40
−30
−20
−10
0.0100
0.0075
0.0050
0.0025
0.0000
−0.0025
−0.0050
−0.0075
−0.0100

SPT-W g band by image

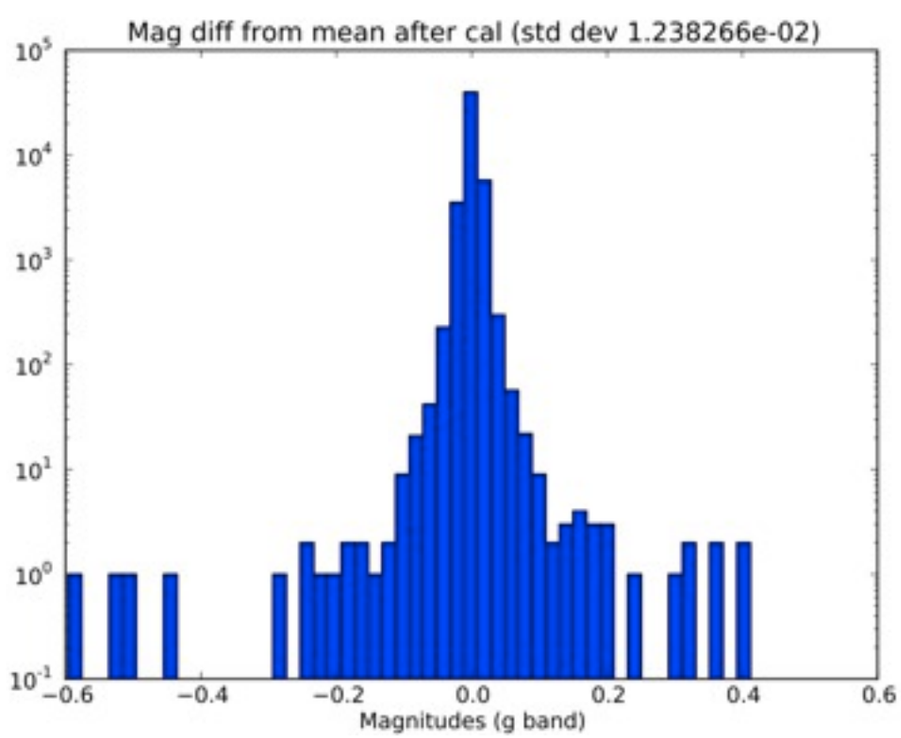


external

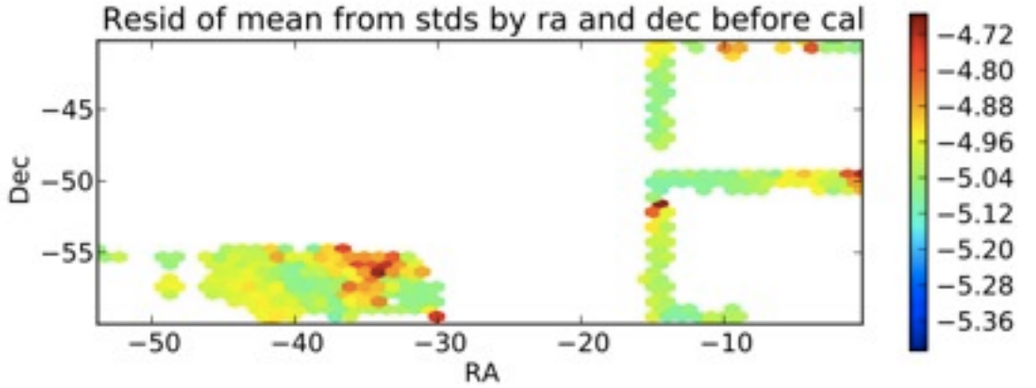


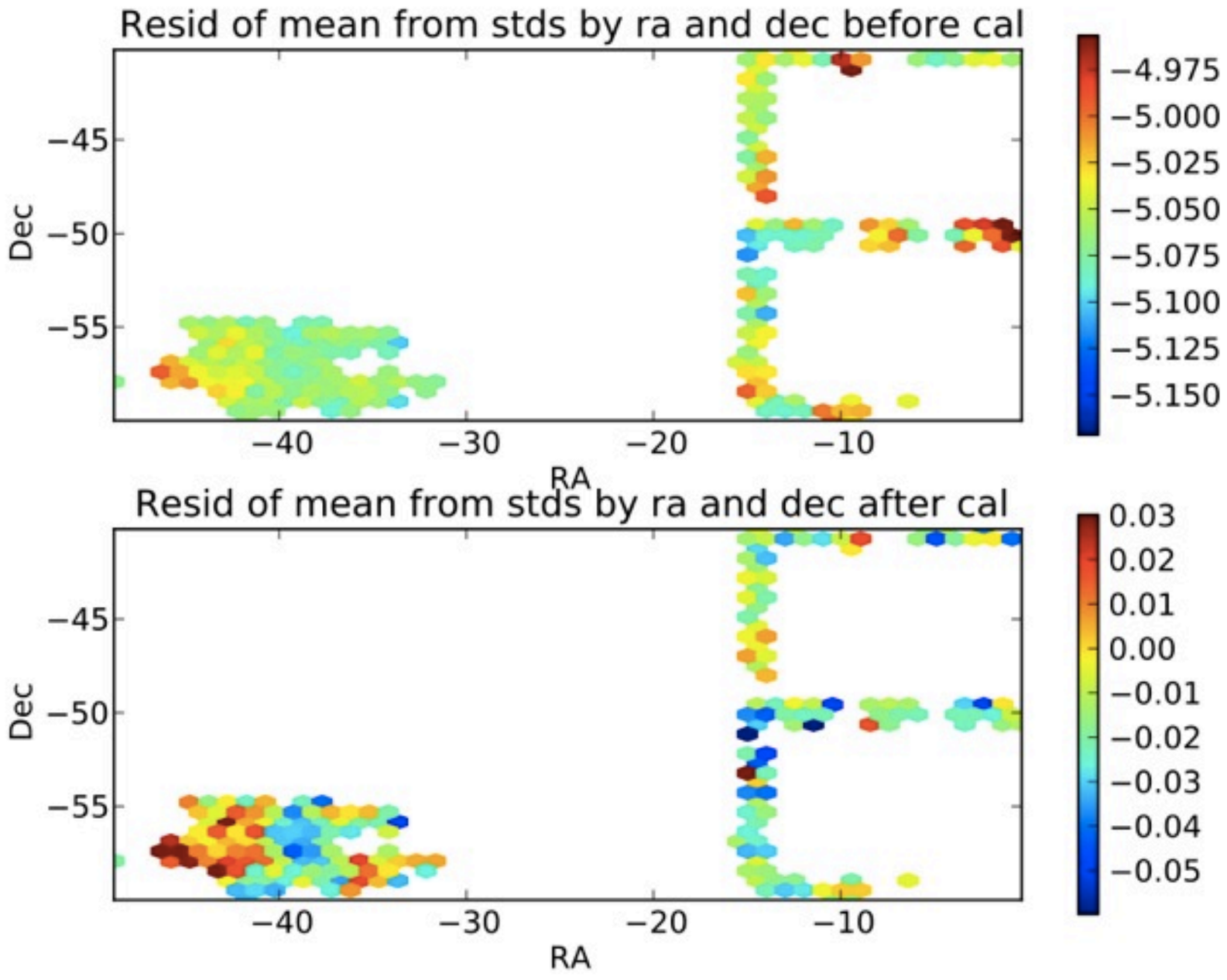


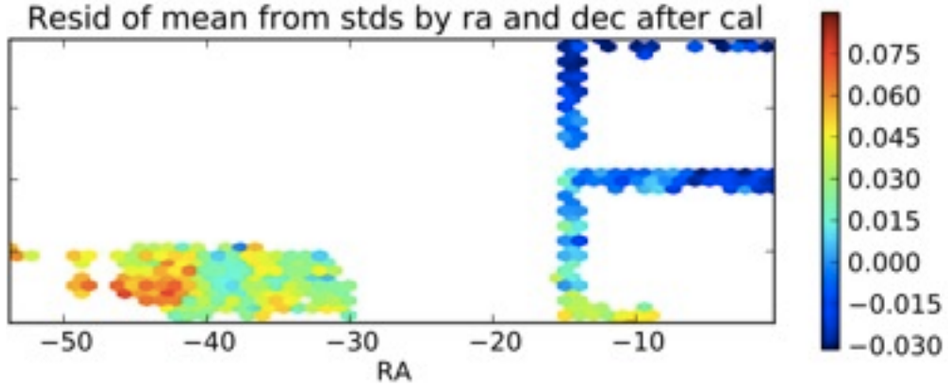
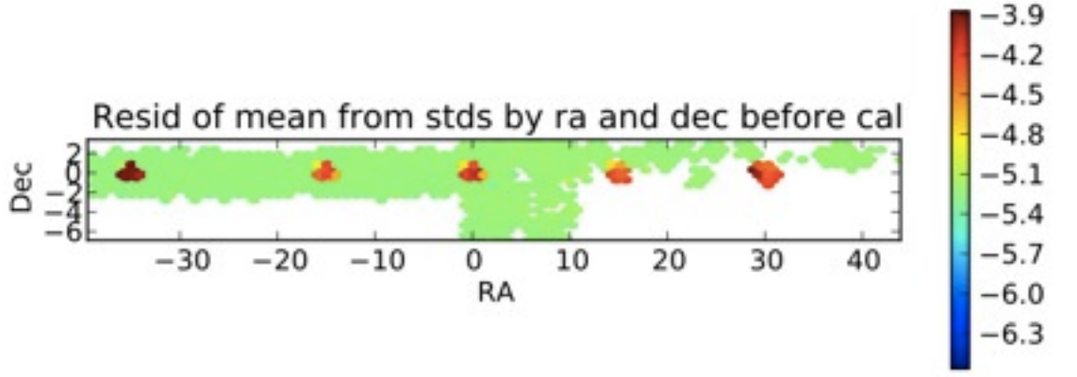
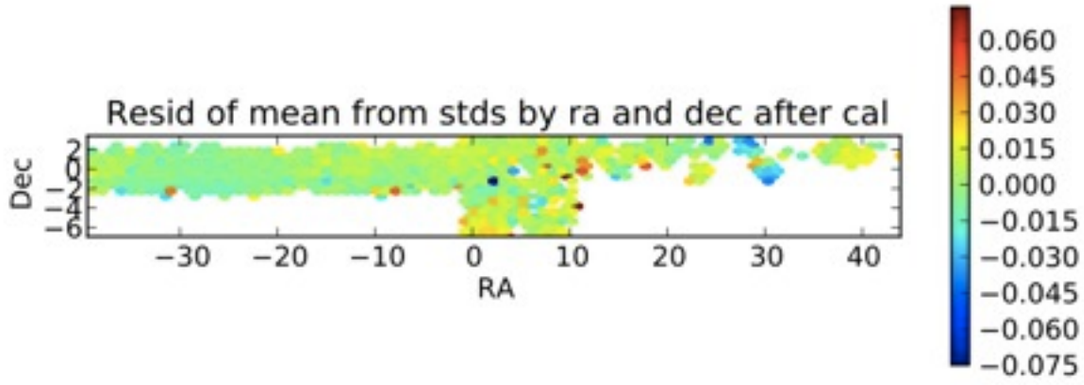
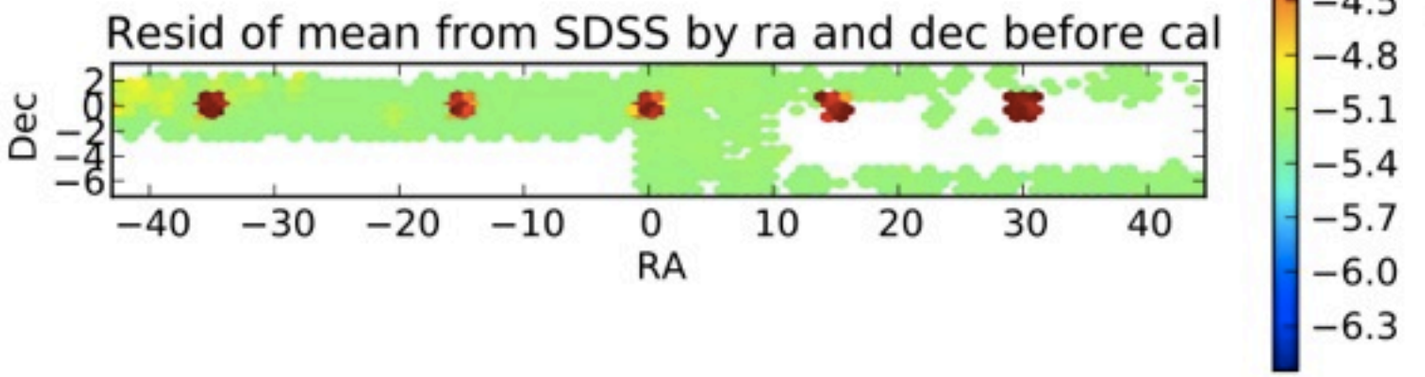
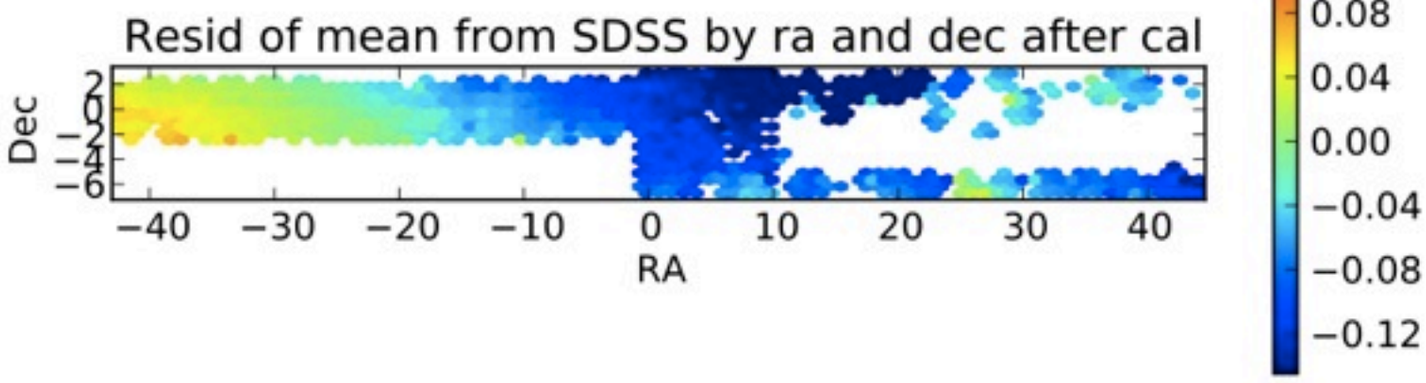
internal



SPT-W g band by image_id







Stripe 82 i band by image_id