



The Bear Truth about CLASSIC and CLIMB



Theo ten Brummelaar



Observatoire de la COTE d'AZUR

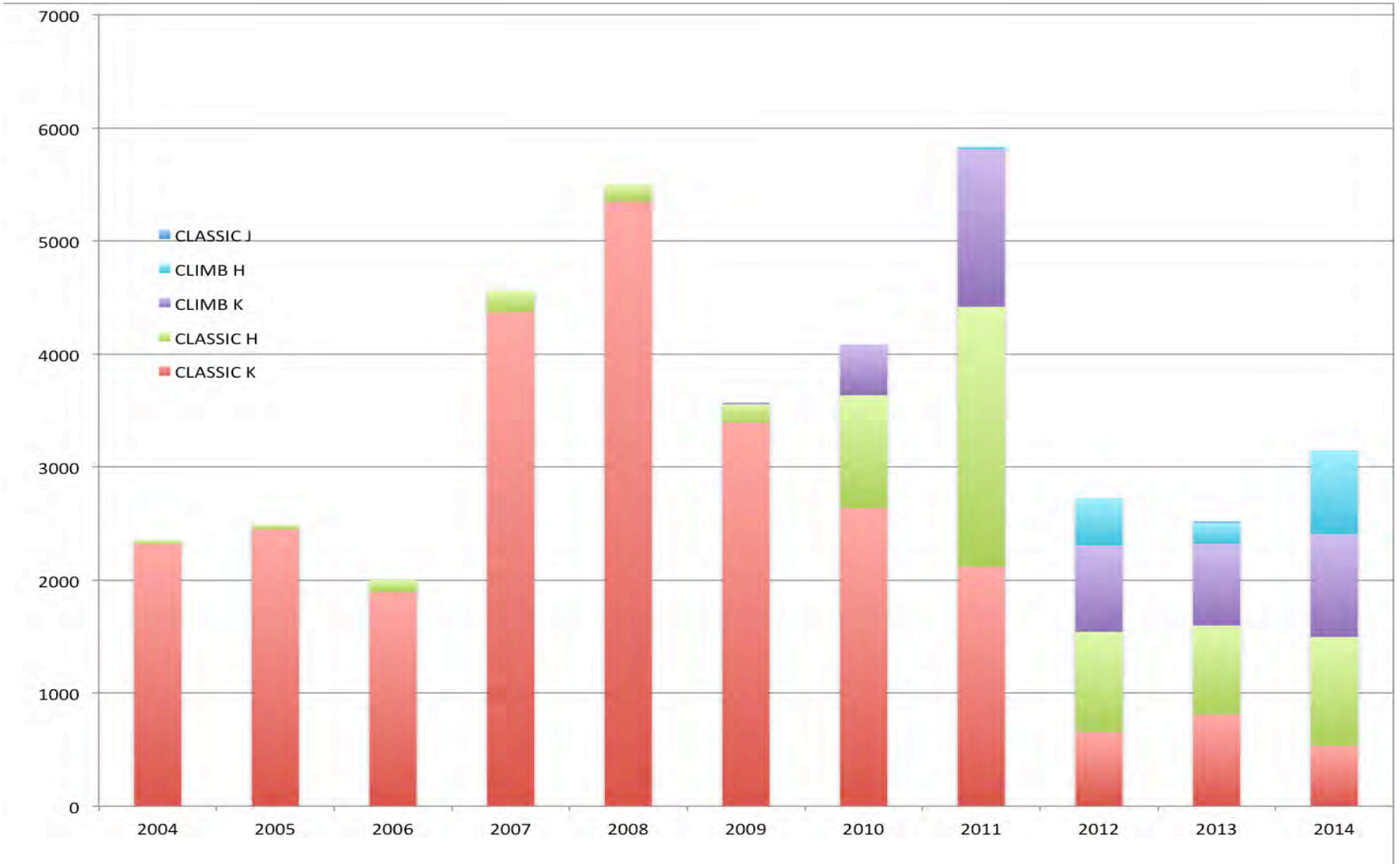


Automated Data Reduction

- Automated editing – Fringe > 1.1 Noise Power
- Took approximately 200 minutes to crunch.
- $V < 0$ and $V > 1$ thrown away.
- K, H, J and V magnitudes extracted from 2MASS.
- Stars without 2MASS data are thrown away.
- Includes both calibrators and science targets.
- Used as Level 0 data for JMMC Archive.

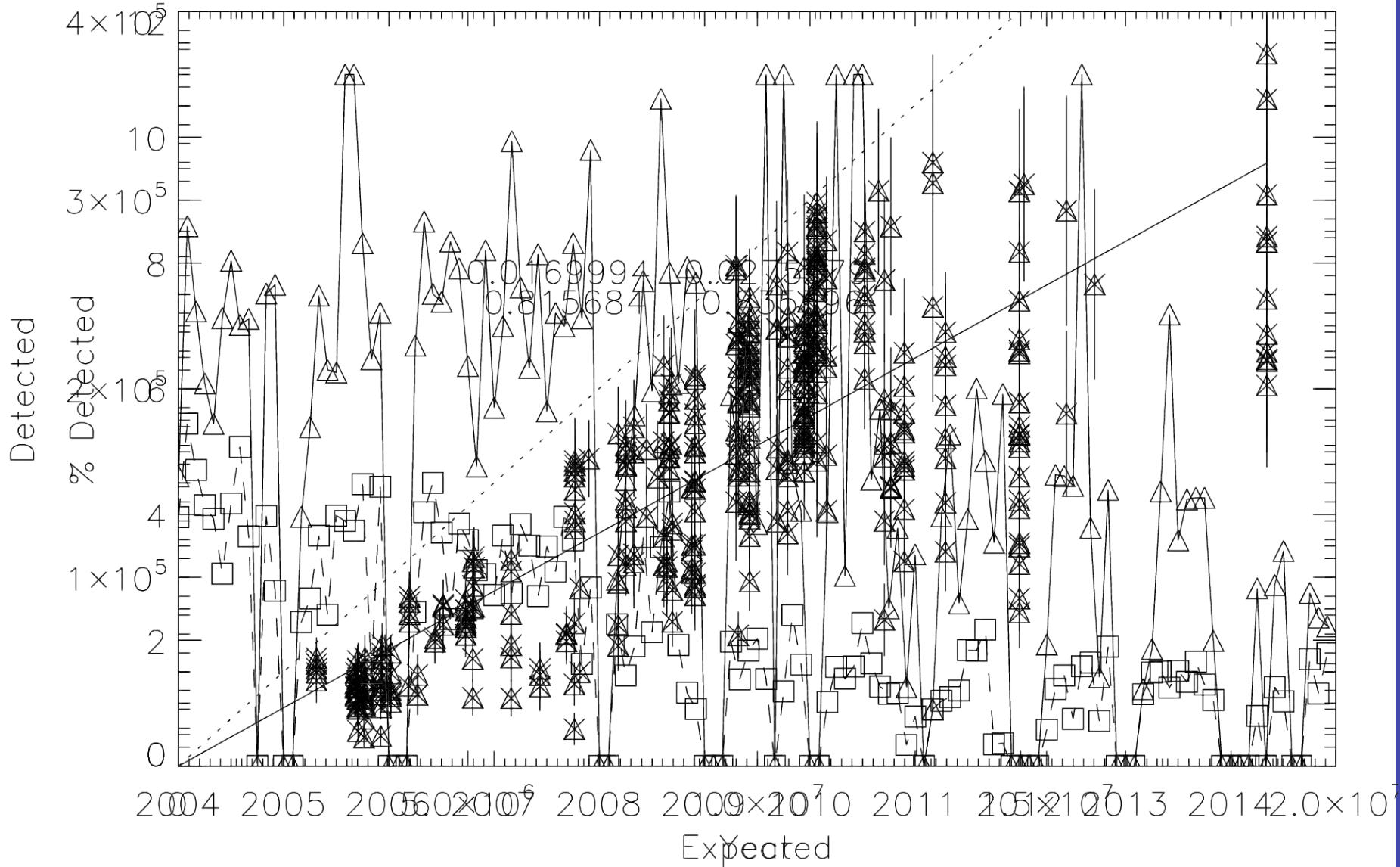


Amount of Data





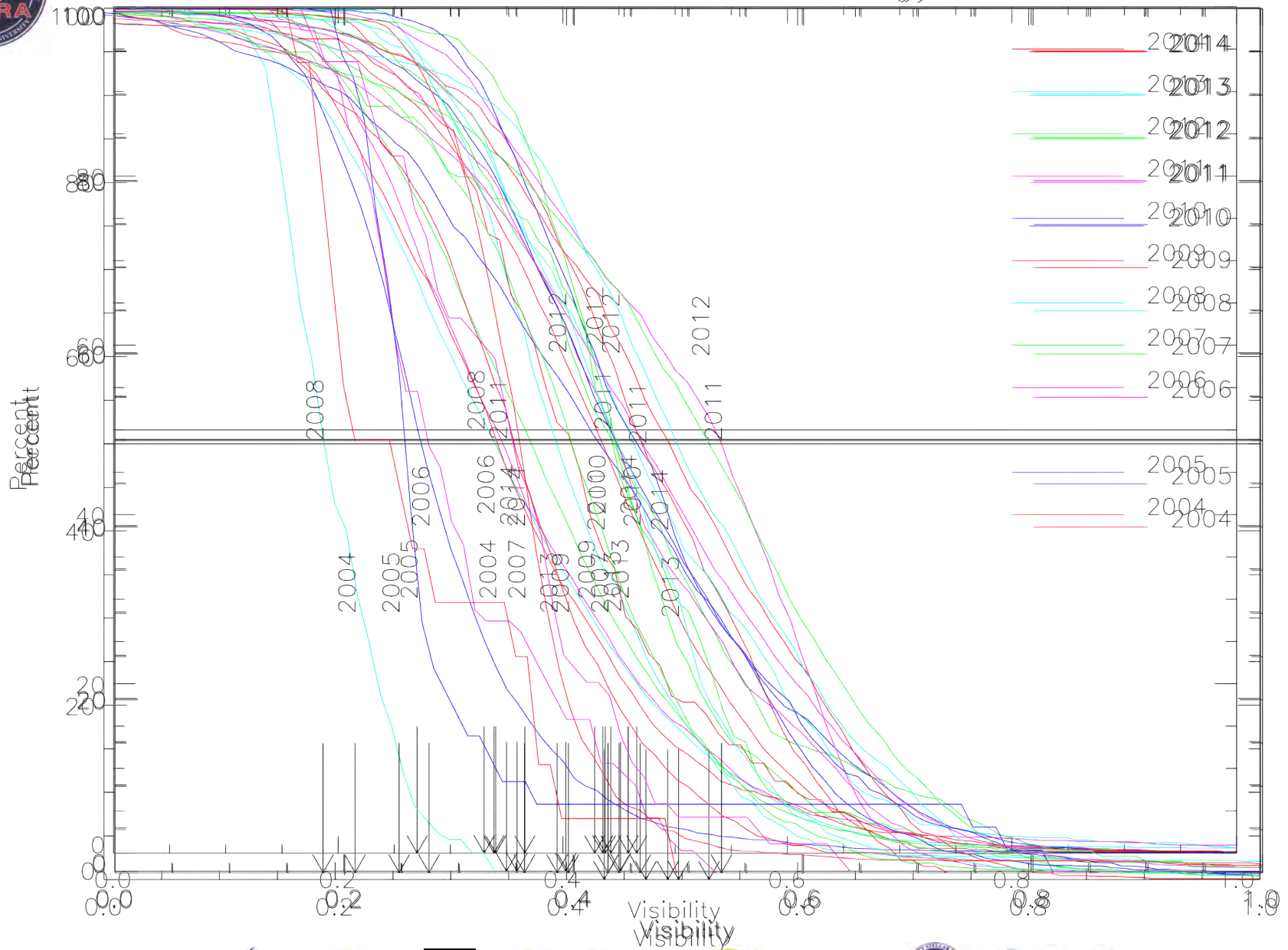
classic Na261c4K0ctober





CHARA 2015 Towards Adaptive Optics at CHARA

classic K-Cumulative Probability



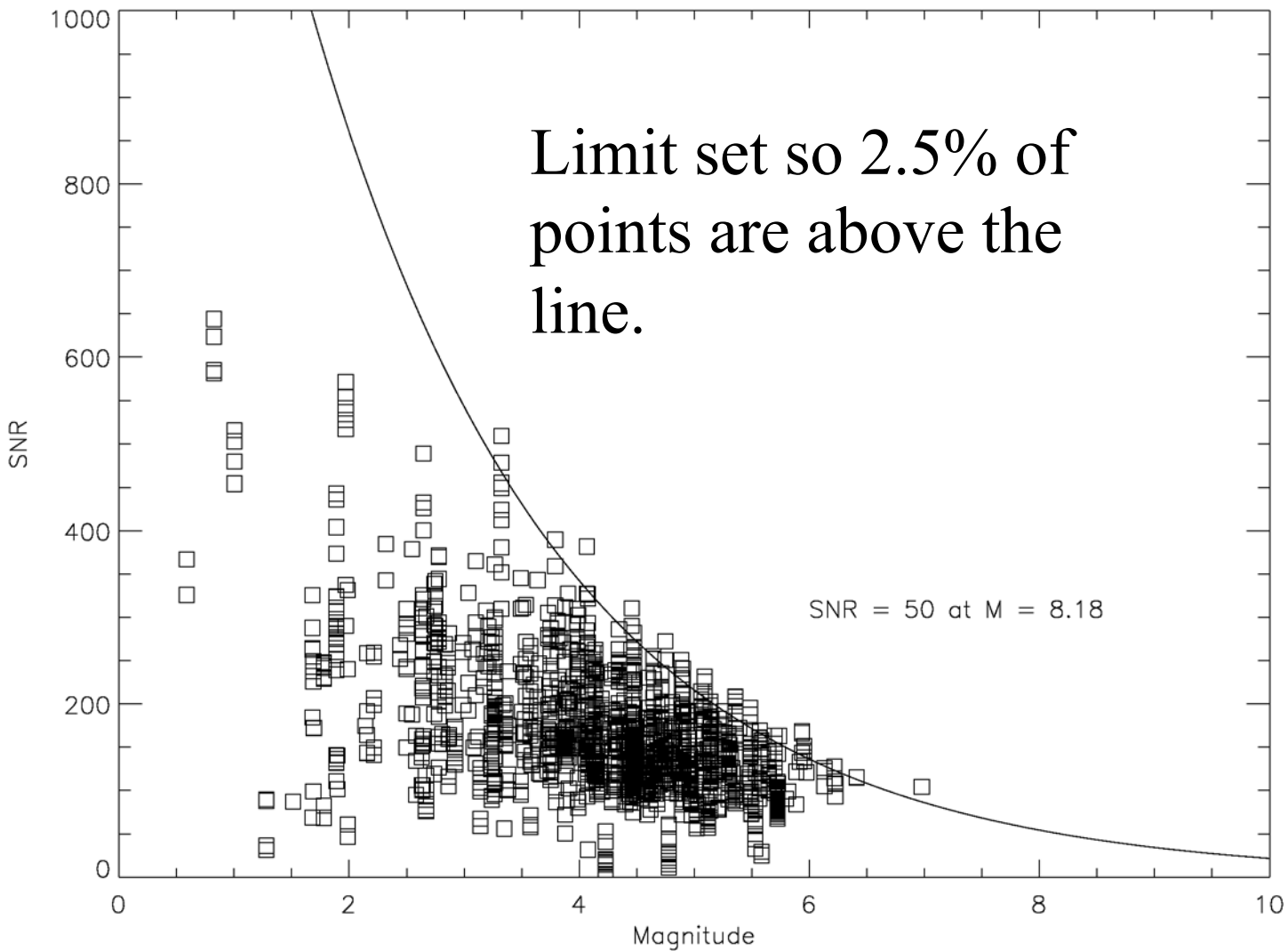
LESIA



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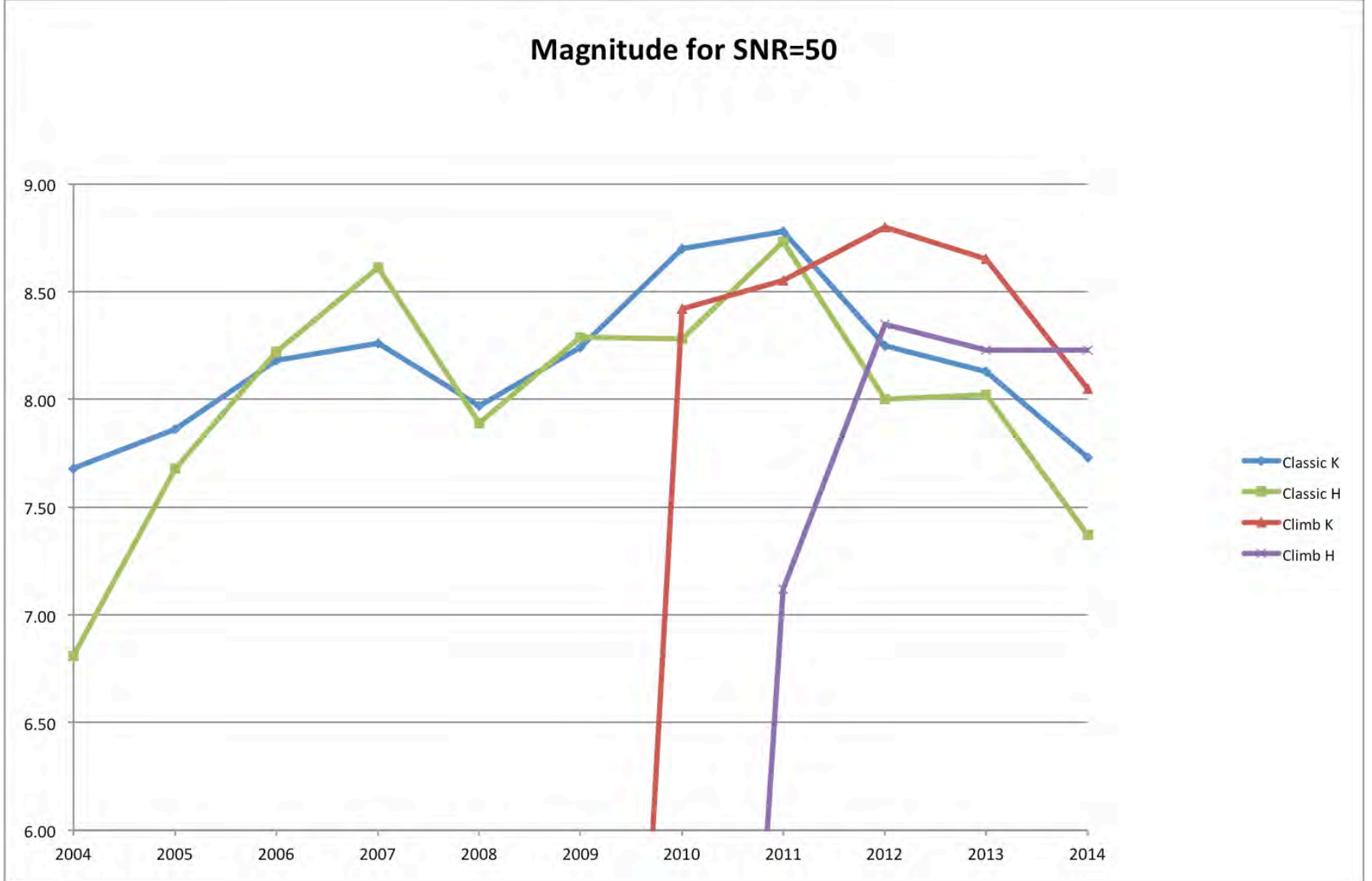
$$\text{SNR} \sim V_{\text{raw}} * \text{sqrt}(N)$$

classic K 2006



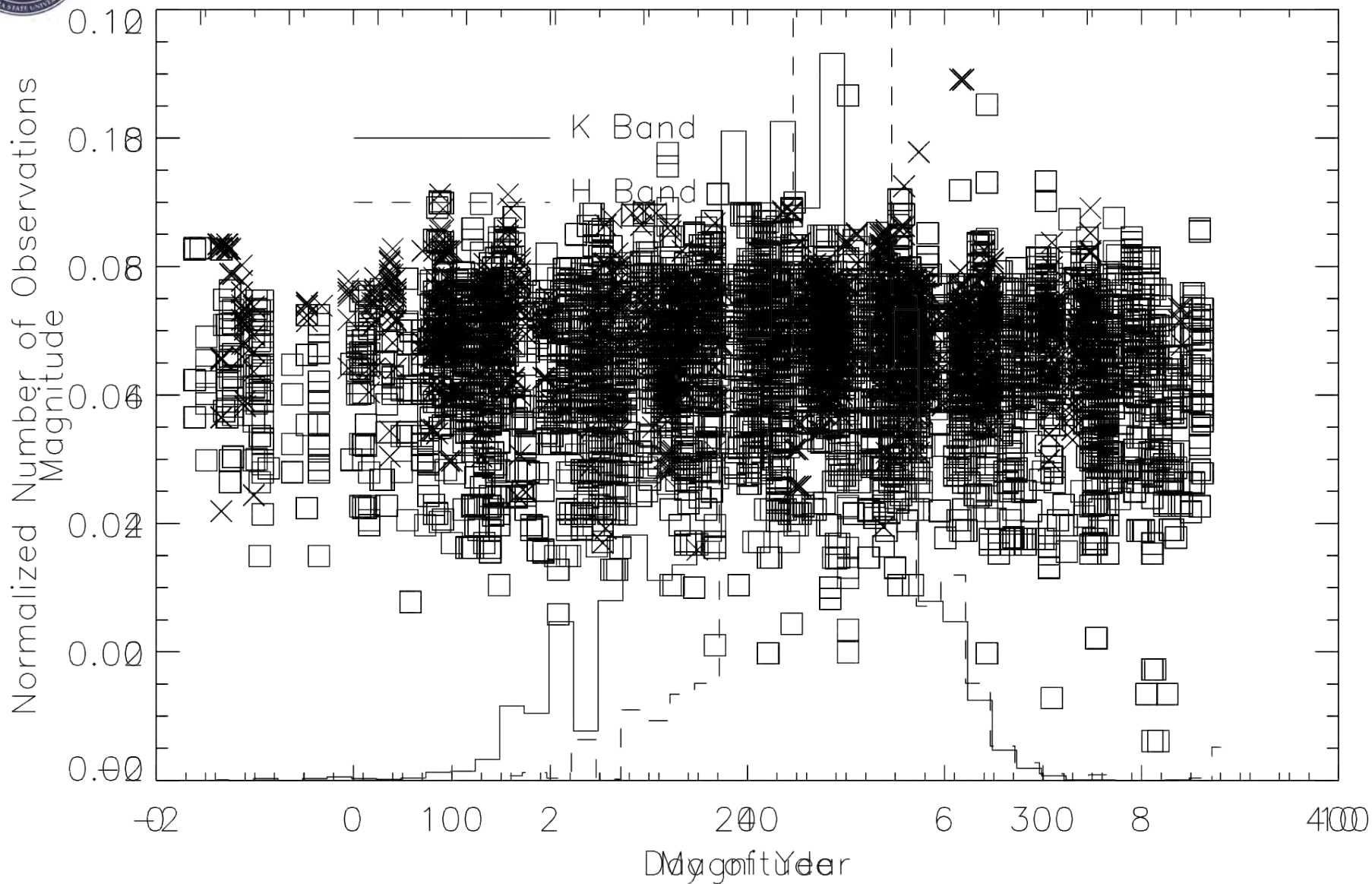


Magnitude for SNR=50



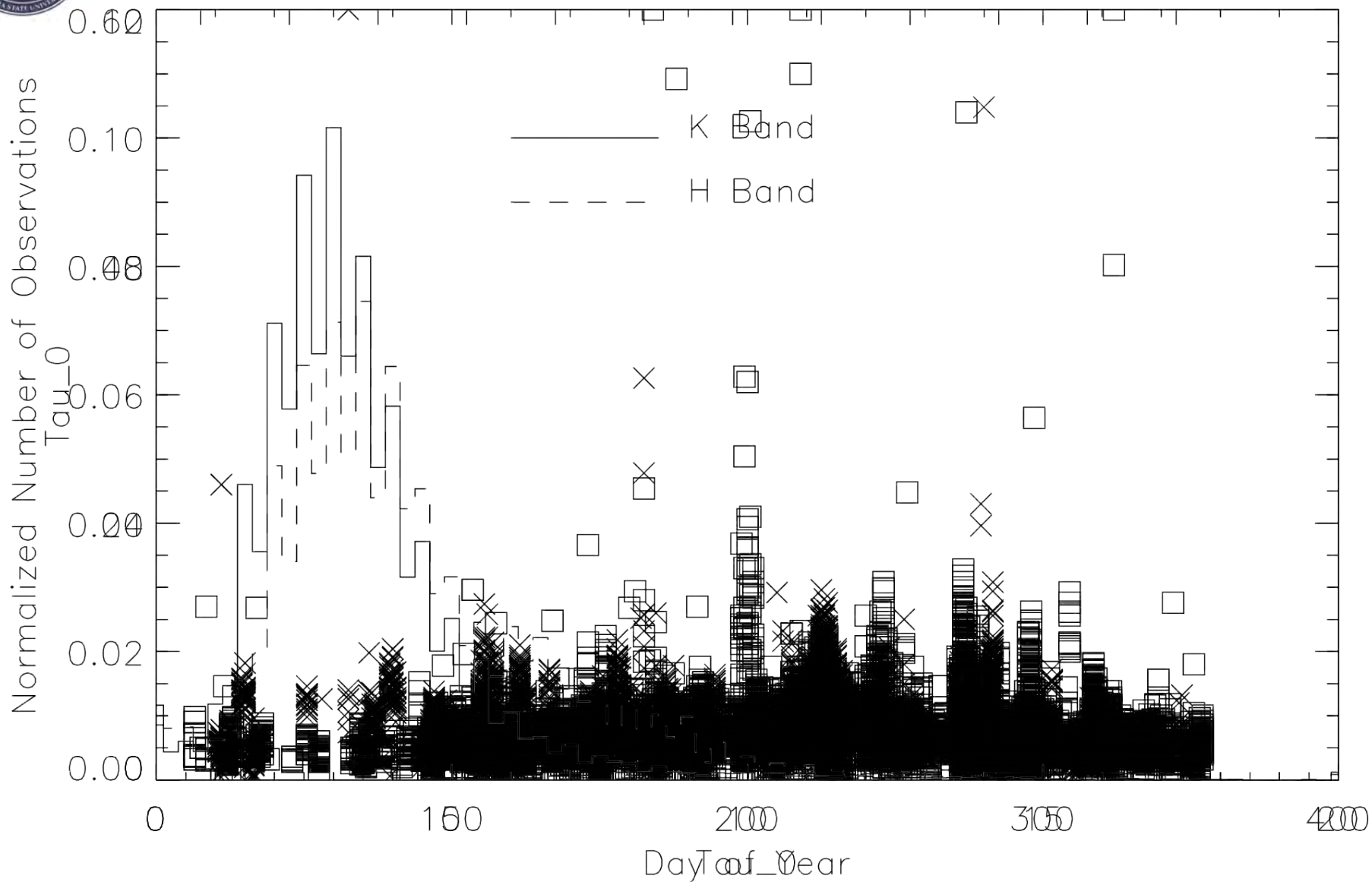


Ja Fe Ma Ap Ma Ju Ju Au Se Oc No De



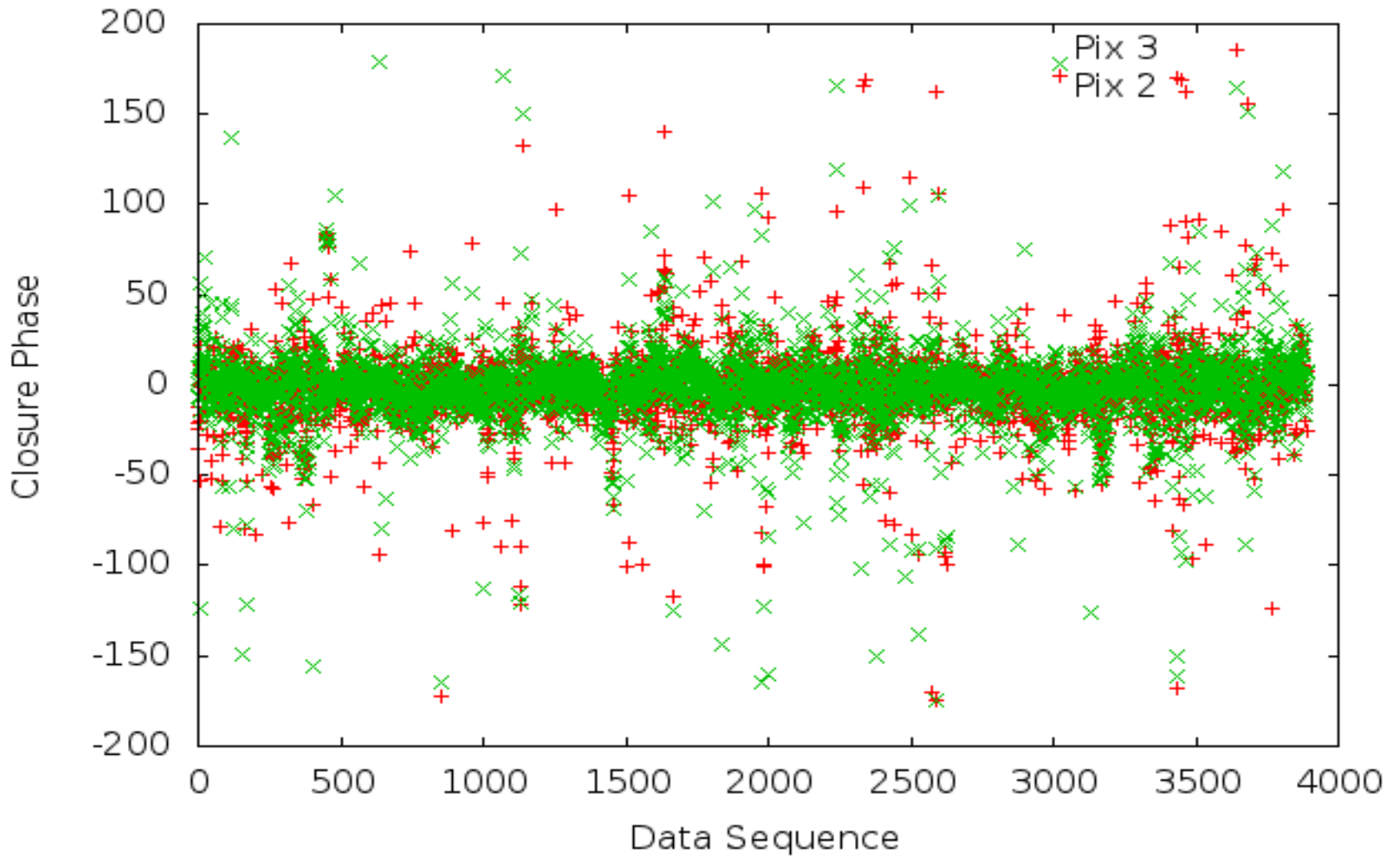


Ja Fe Ma Ap Ma Ju Ju Au Se Oc No De



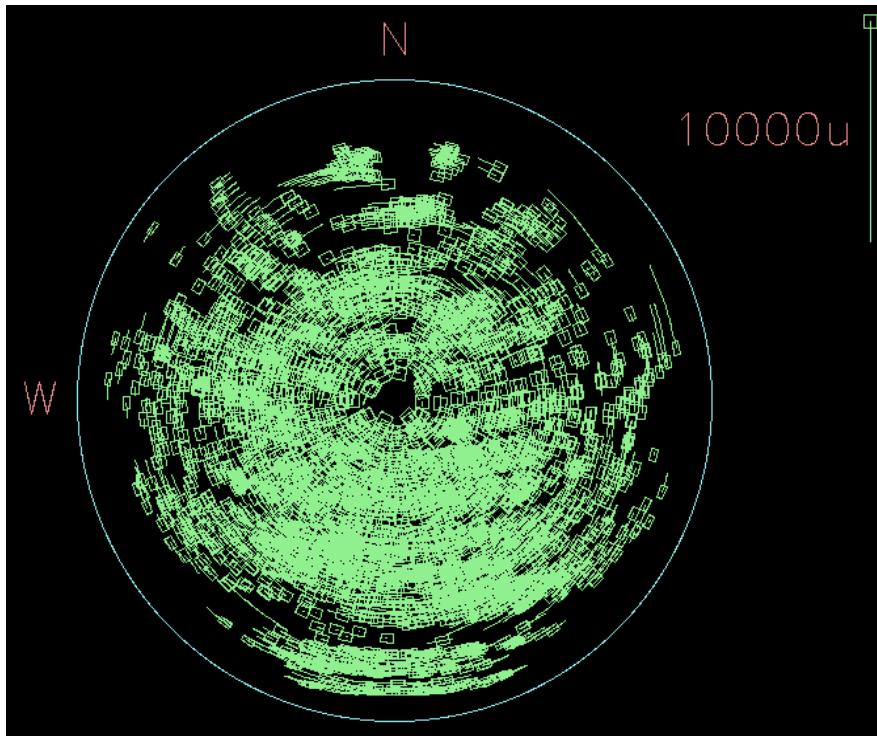


Unedited Closure Phase Signals

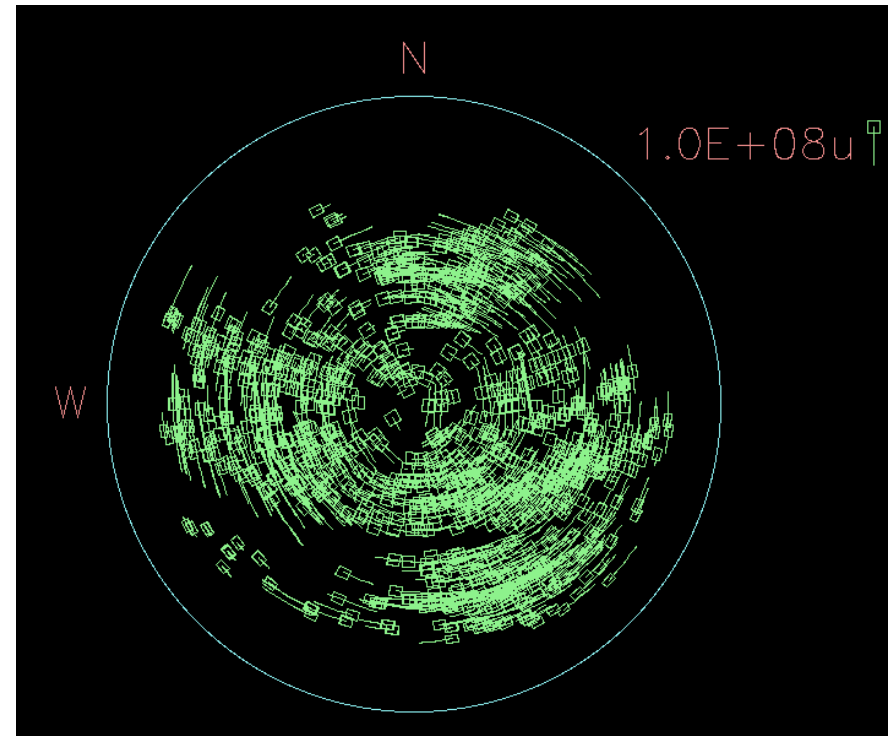


Baseline Solution – Sky Coverage

2013



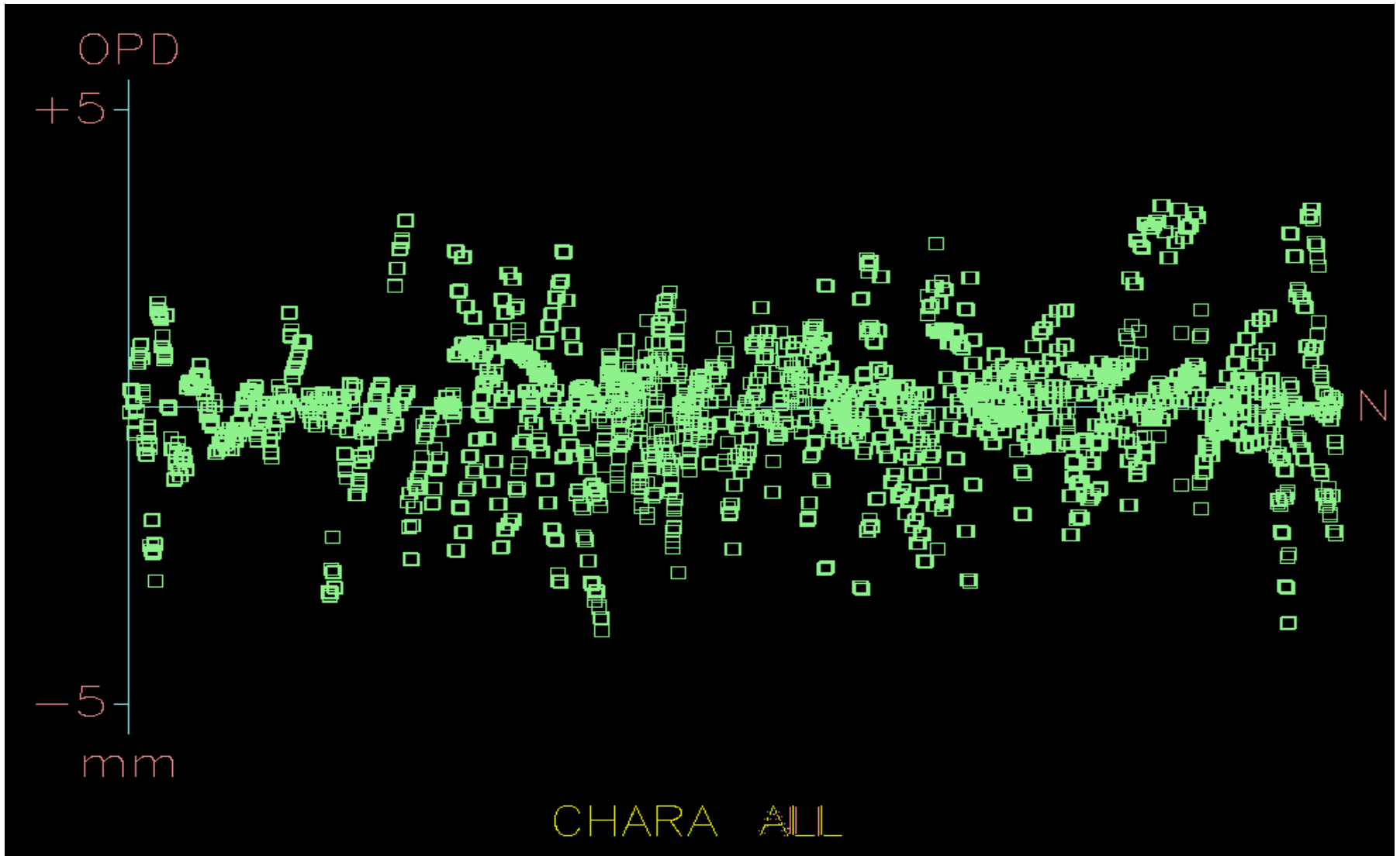
2014



2014 Data only includes last few months
and the telescope positions where fixed.

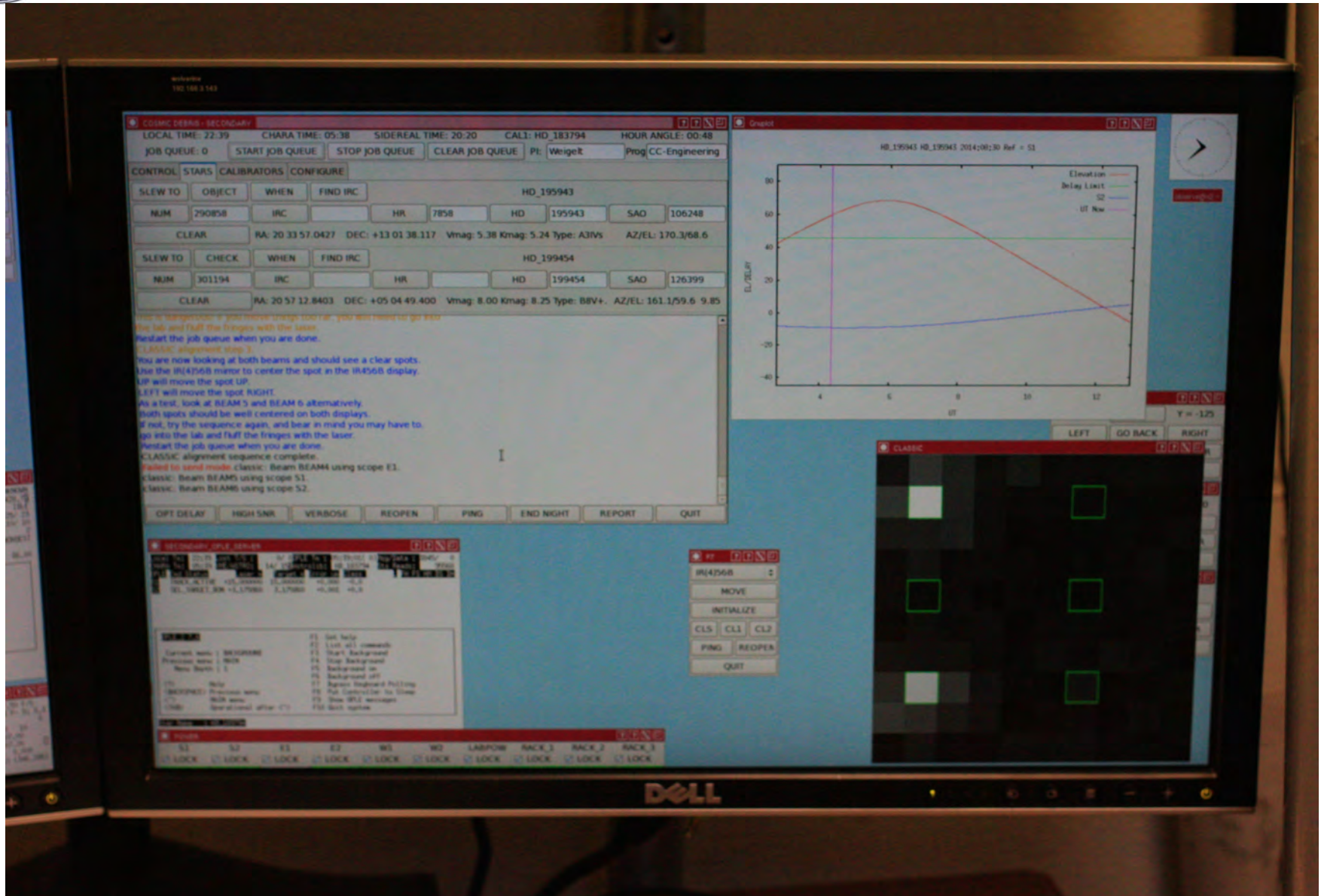


Baseline Solution - Errors



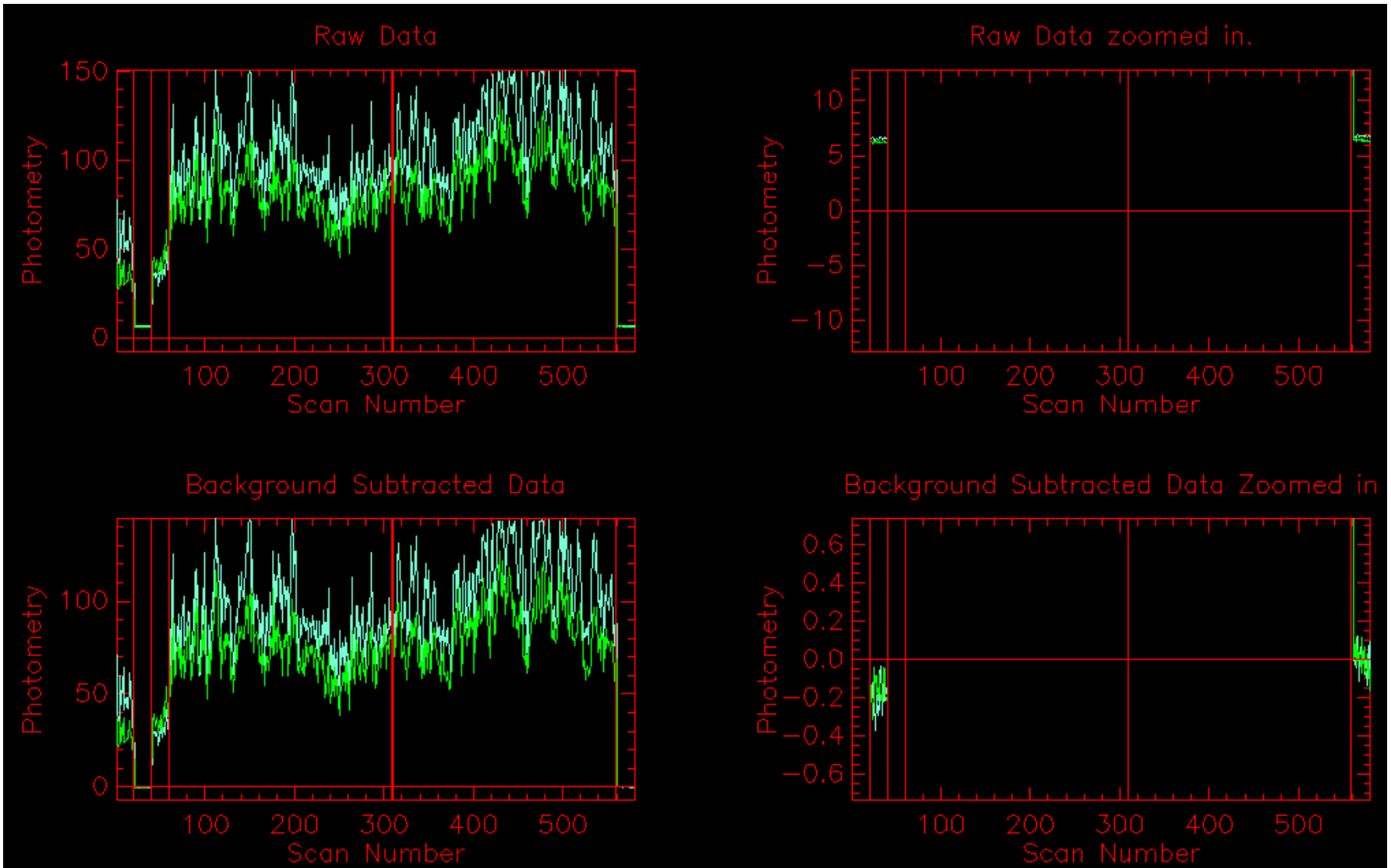


What happened to the MPIfRA Camera?



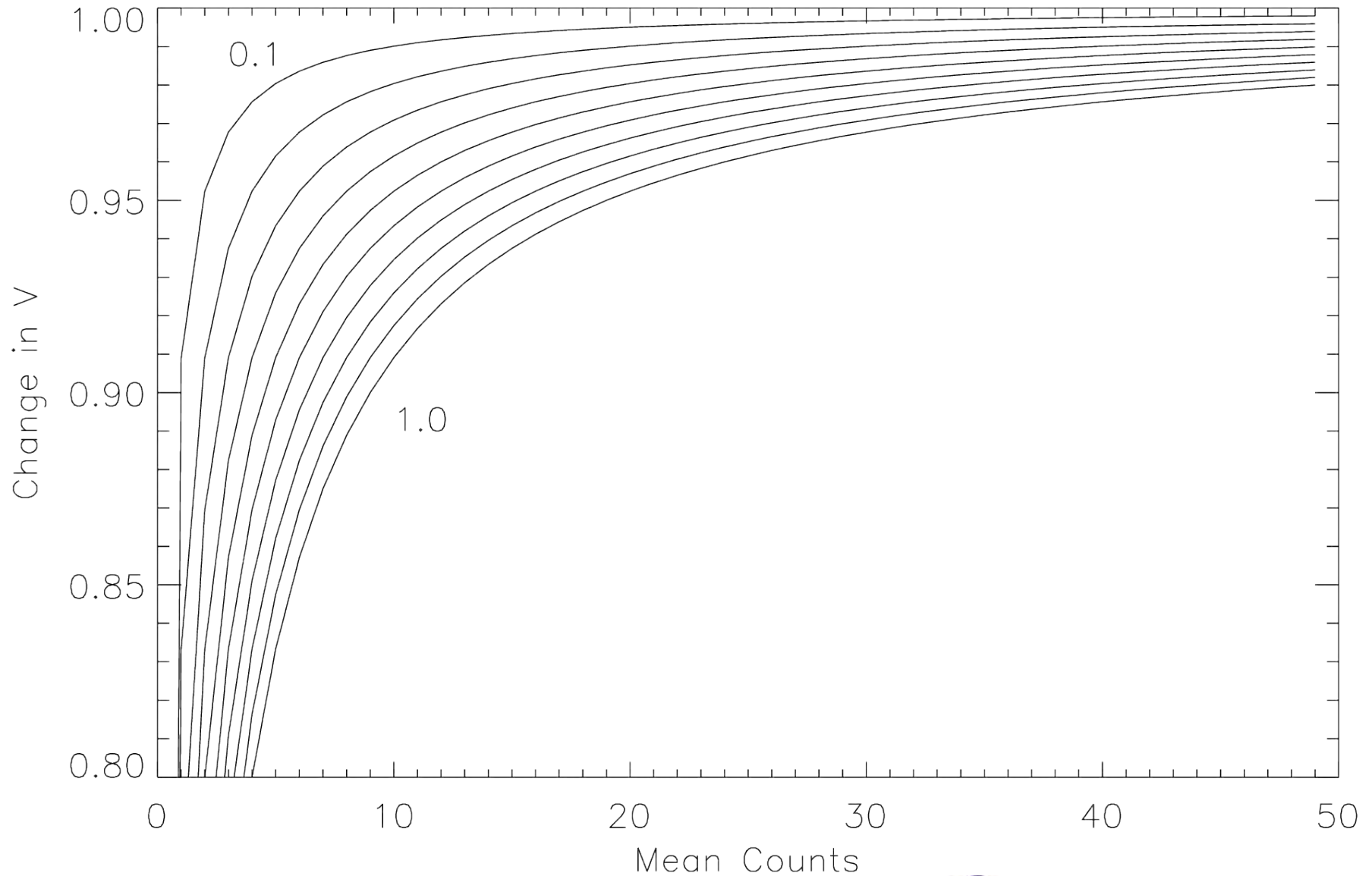


New Data Sequence – Sky Backgrounds



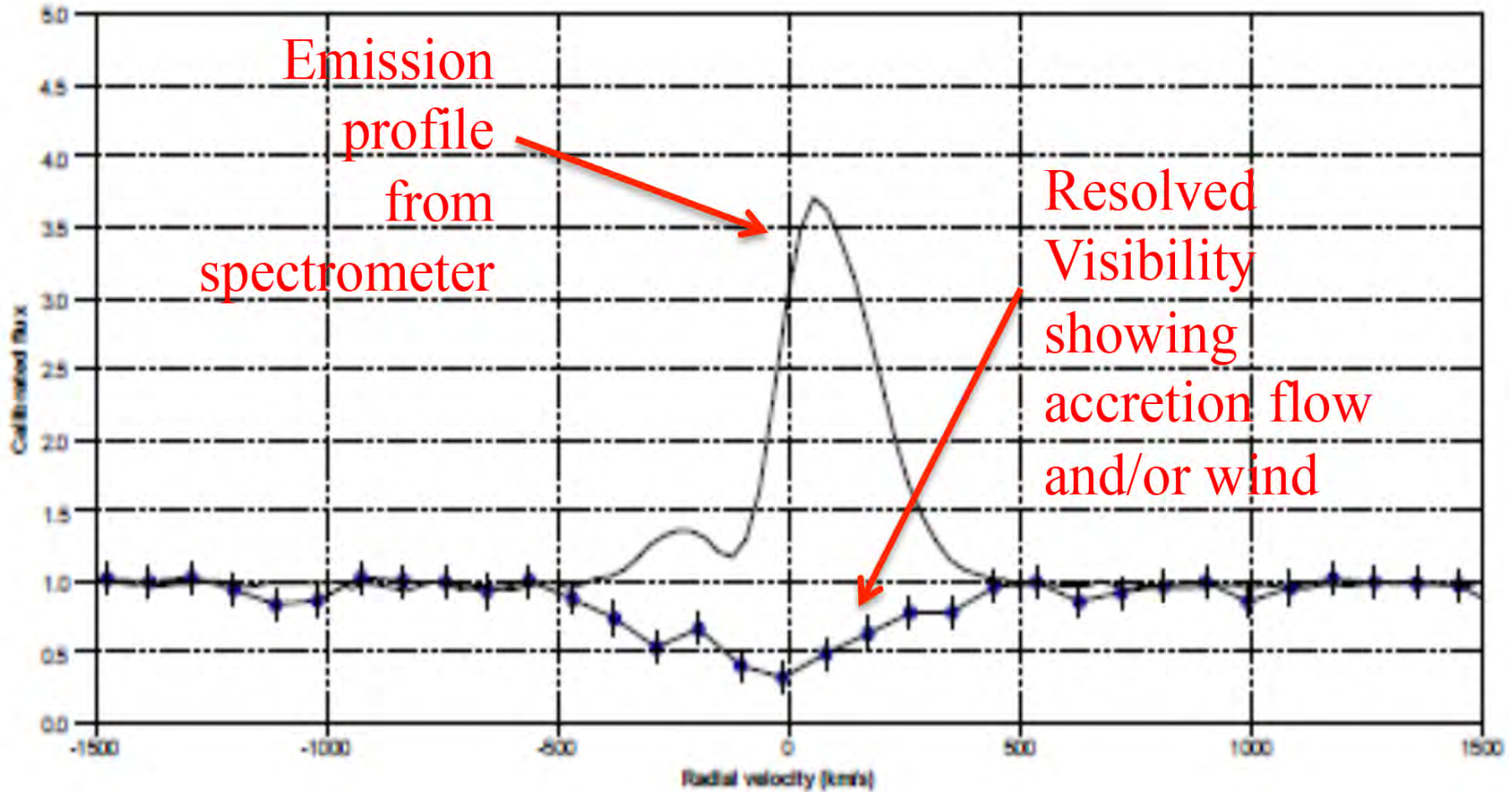


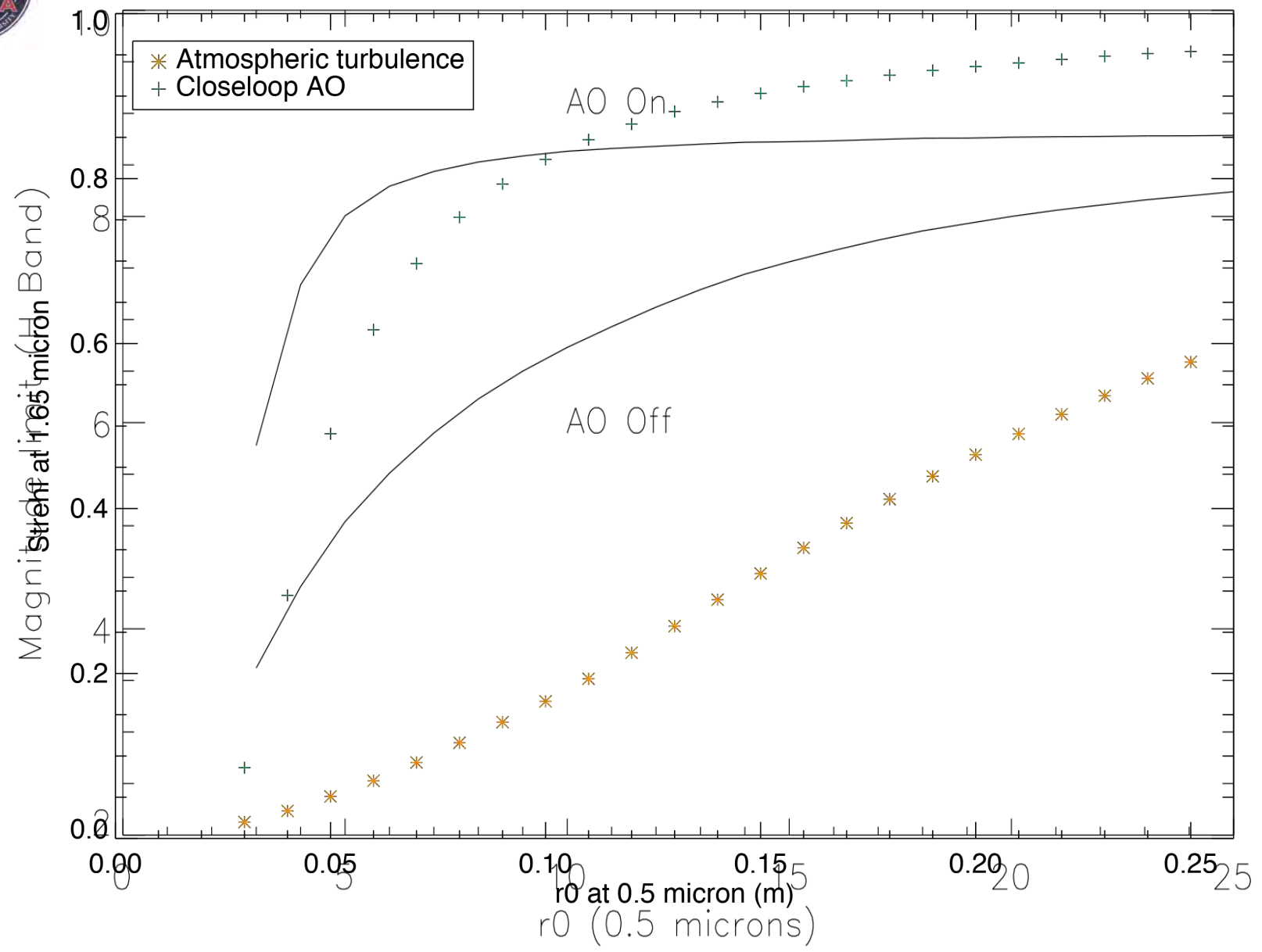
What difference does it make?



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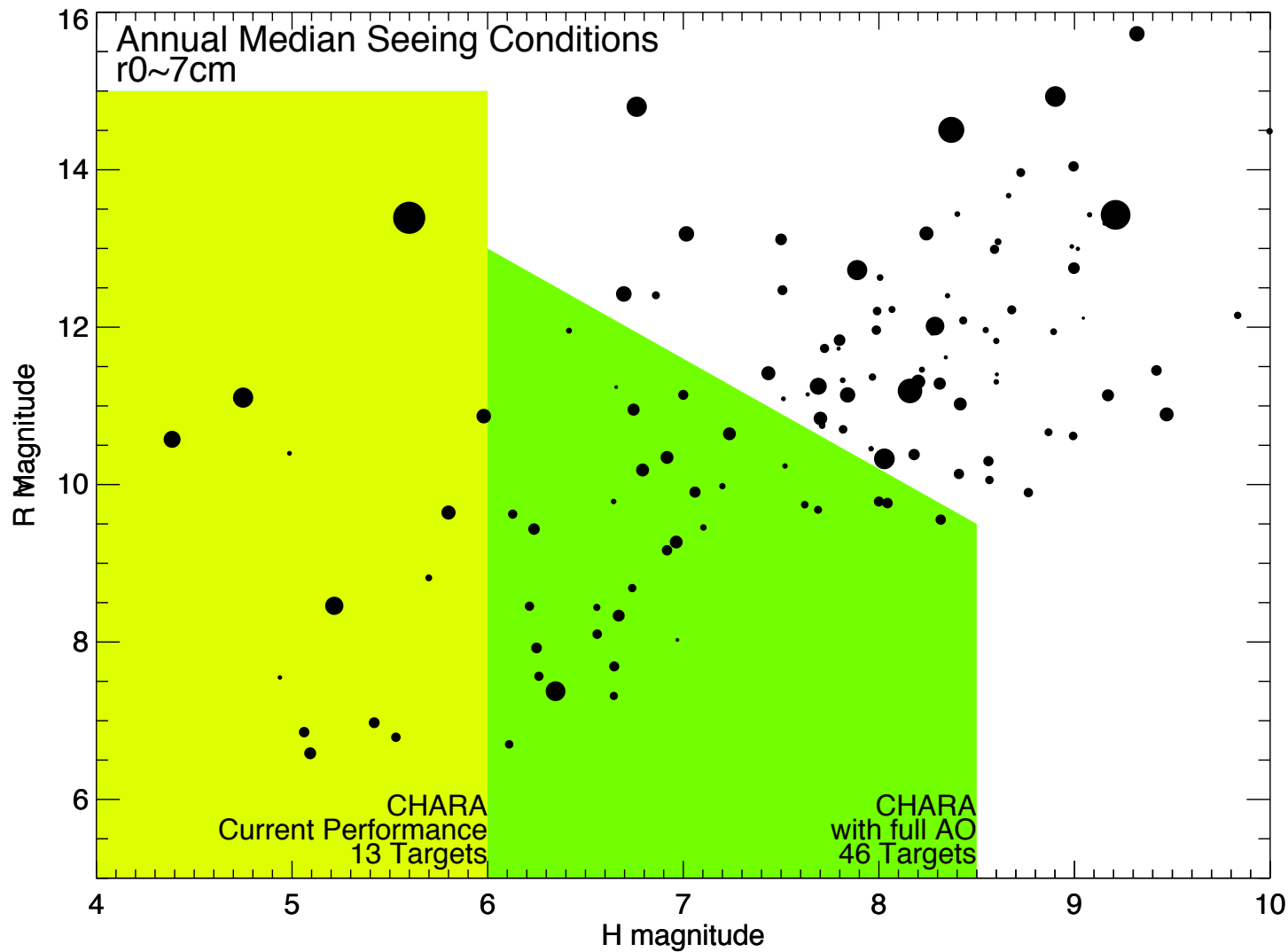
CHARA-AO : Science Rational





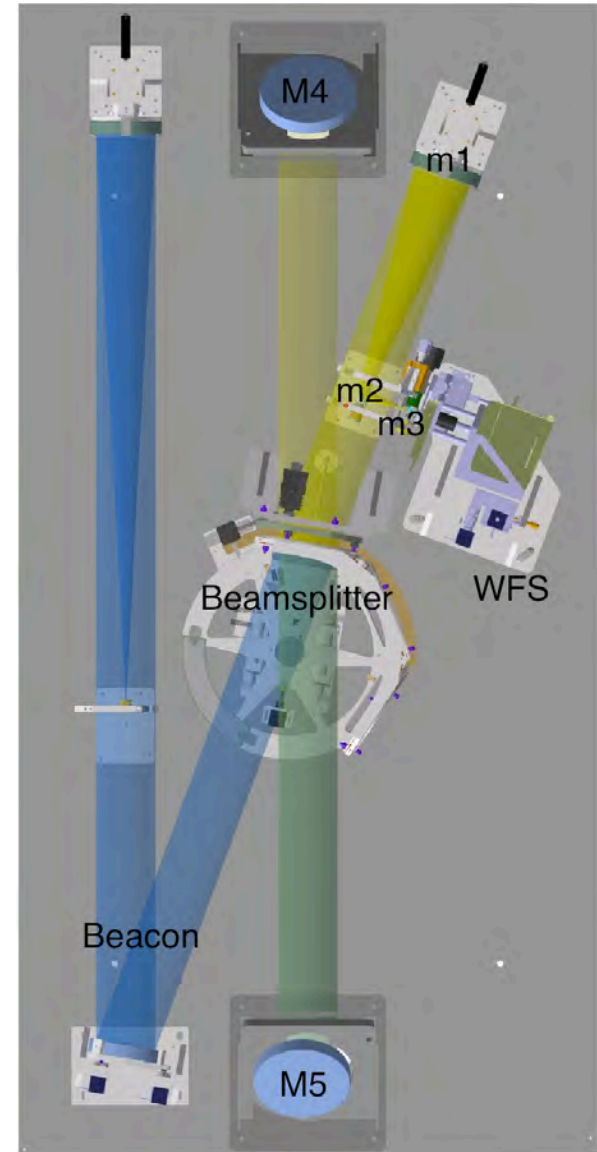
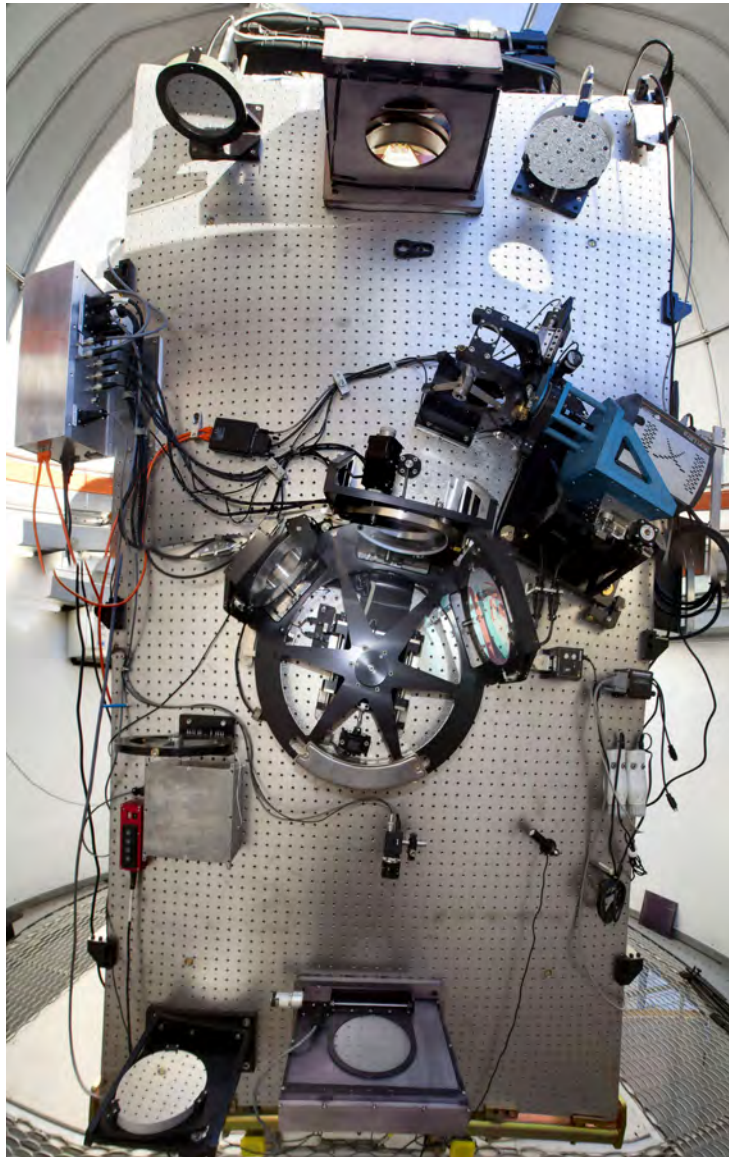


Young Stellar Objects with Disks
(Declination > -25 degs)



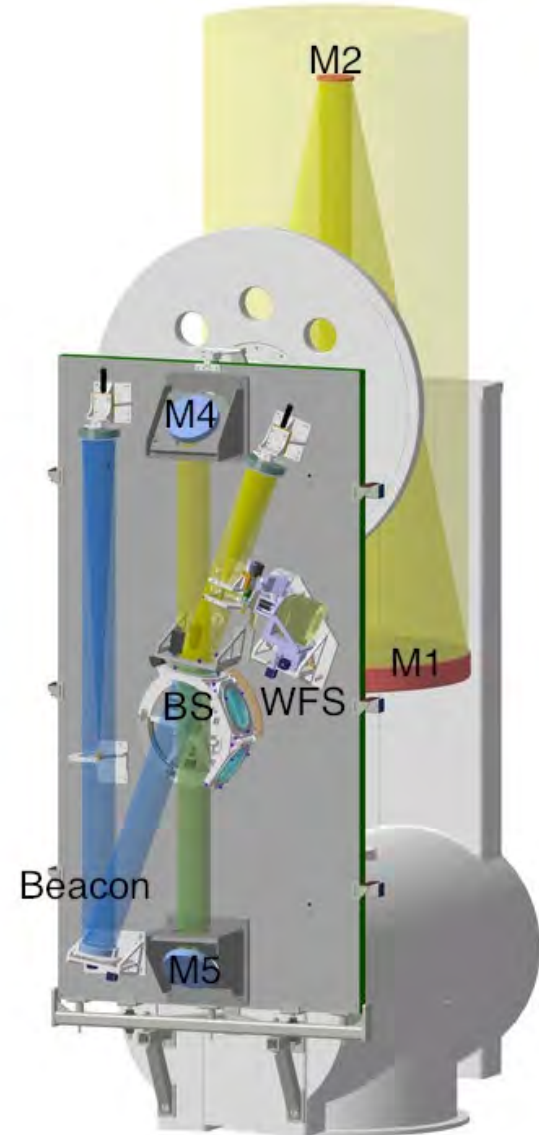
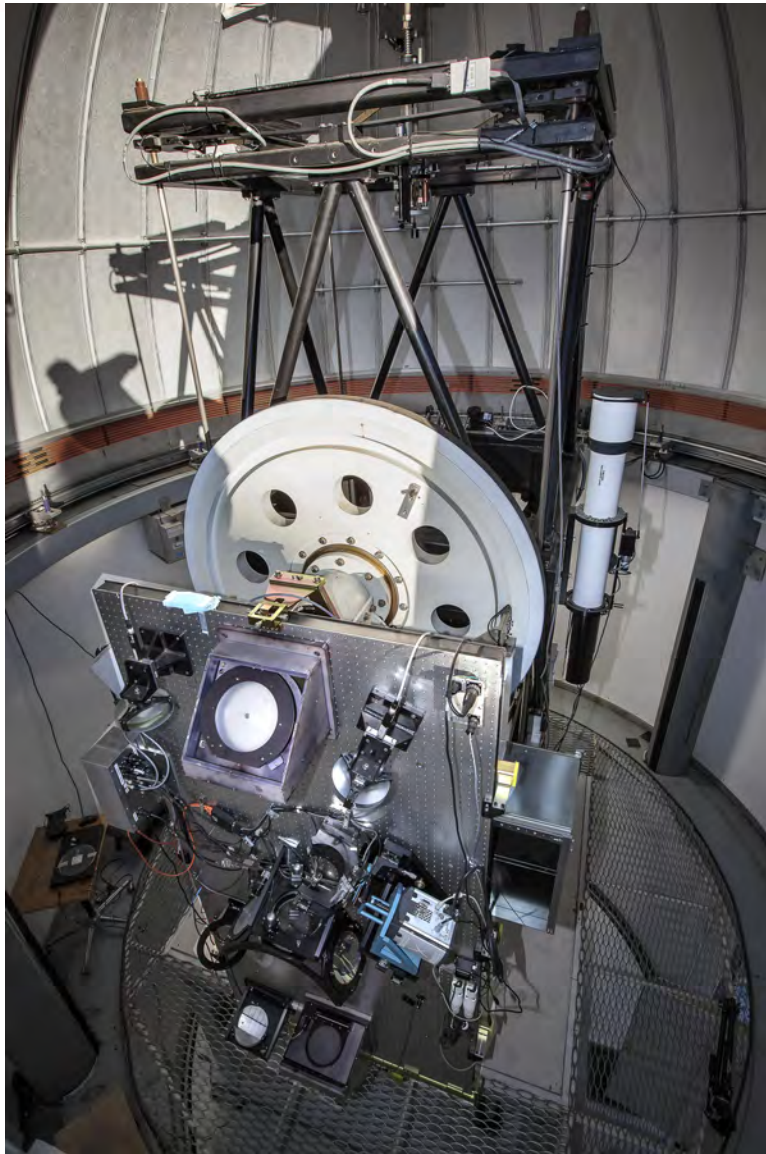


CHARA-AO : Telescope WFS



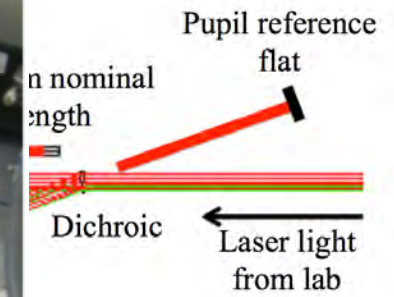
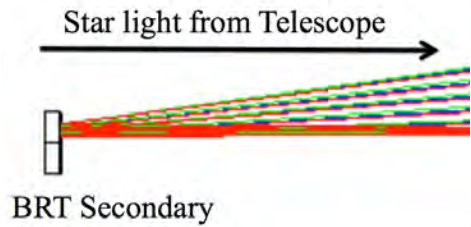
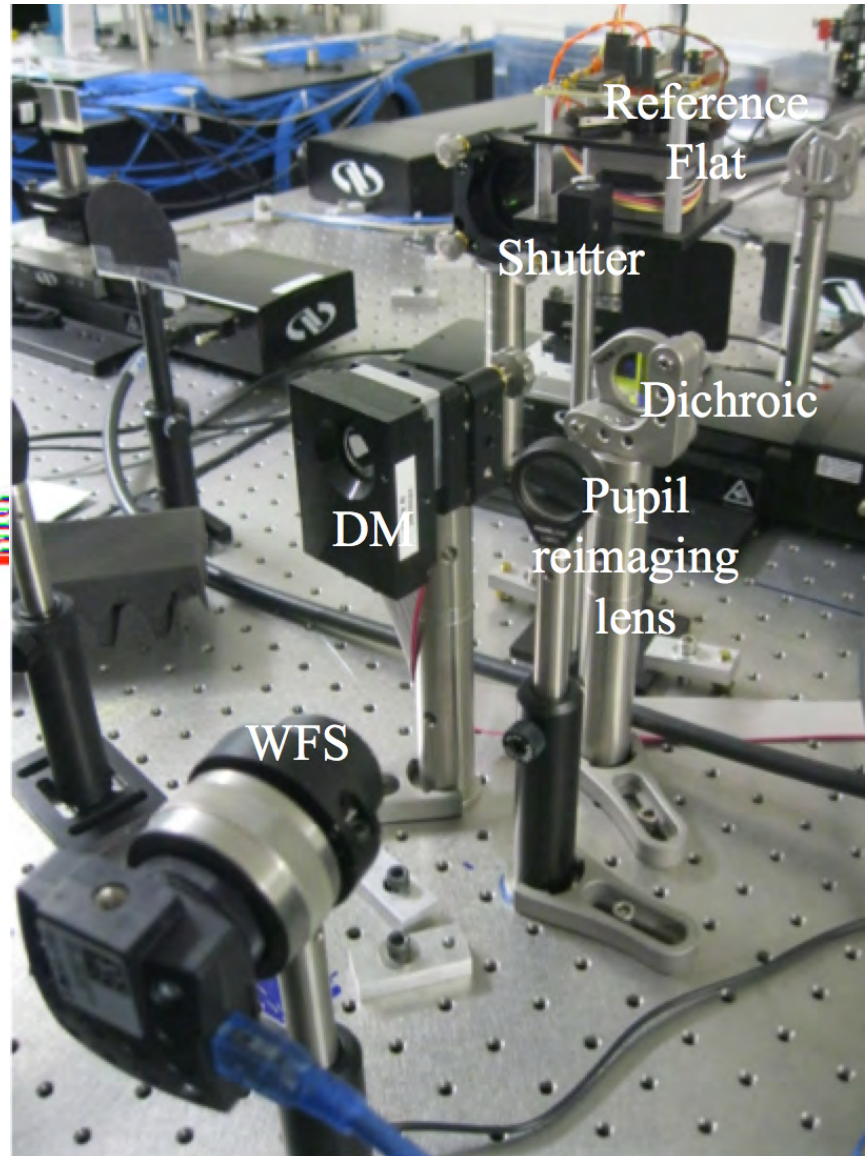


CHARA-AO : Telescope WFS





CHARA-AO : Telescope WFS





CHARA-AO : Software

The screenshot displays the CHARA-AO software interface. At the top, there are tabs for 'MAIN', 'ANDOR SETUP', and 'WFS'. The 'WFS' tab is active, showing a control panel with various parameters and buttons. The control panel includes:

- Running: YES, Shutter: OPEN, Cam 99 Usb 99 CL 0 Proc 99
- Read Mode: IMAGE, Temp Status: STABLE, Temperature: -50.00 C, Missed FPS: 0.00
- Full Frame: 512x512, Current Frame: 90x90, Num Pixels: 8100, Preamp Gain: 3.00
- Set Temp: -50, Exposure: 0.010, PreAmp Gain: 3
- Amplifier: EMCCD CCD, High Gain: OFF ON, EM Gain: 3
- VSpeed: 0.90 uS, EMCCD HS: 17.00 MHz, CCD HS: 3.00 MHz
- Hbin: 1, Vbin: 1, Hstart: 1, Hend: 90, Vstart: 1, Vend: 90
- Buttons: USB ON/OFF, CL ON/OFF, COOL ON/OFF, PING, MOVIE, SAVE, SAUTO, SOPEN, SCLOSE, REOPEN, PING, QUIT

Below the control panel is a terminal window showing a shell prompt 'theo@s2:~' and a list of running processes:

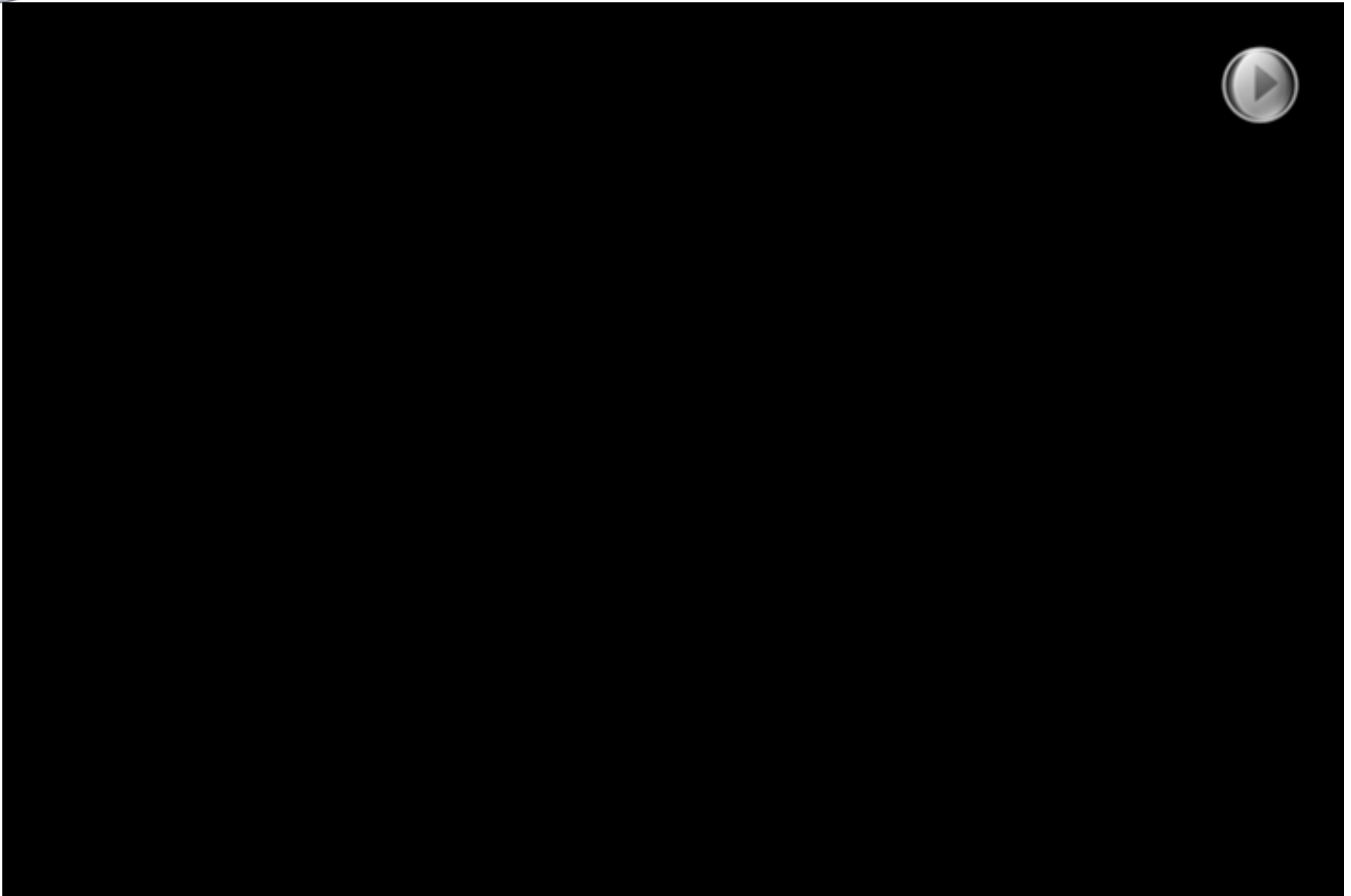
```
(dubois:186) ssh -Y s2
theo@s2's password:
Last login: Fri Dec 5 17:45:21 2014 from dhcpl.chara-array.org
(s2:1001) wfsgtk S2
^Z
[1]+  Stopped                  wfsgtk S2
(s2:1002) bg
[1]+  wfsgtk S2 &
(s2:1003) telescopegtk S2&
[2] 12160
(s2:1004) ++++++
```

On the right side of the interface, there are two astronomical data plots. The top plot shows a field of stars with a grid of points. The bottom plot shows a similar field with a grid of green boxes highlighting specific stars.



... and so what's next?

- The current funding runs out this June, but we expect to complete Phase-I this year.
- An MRI has been submitted (\$1.6M), which is successful, will kick in at about that time – or in the fall.
- This MRI proposal will fund large format DMs for installation in the M4 position for fast atmospheric correction.
- If not successful (... 1/15 chance?) we will try again next year.



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