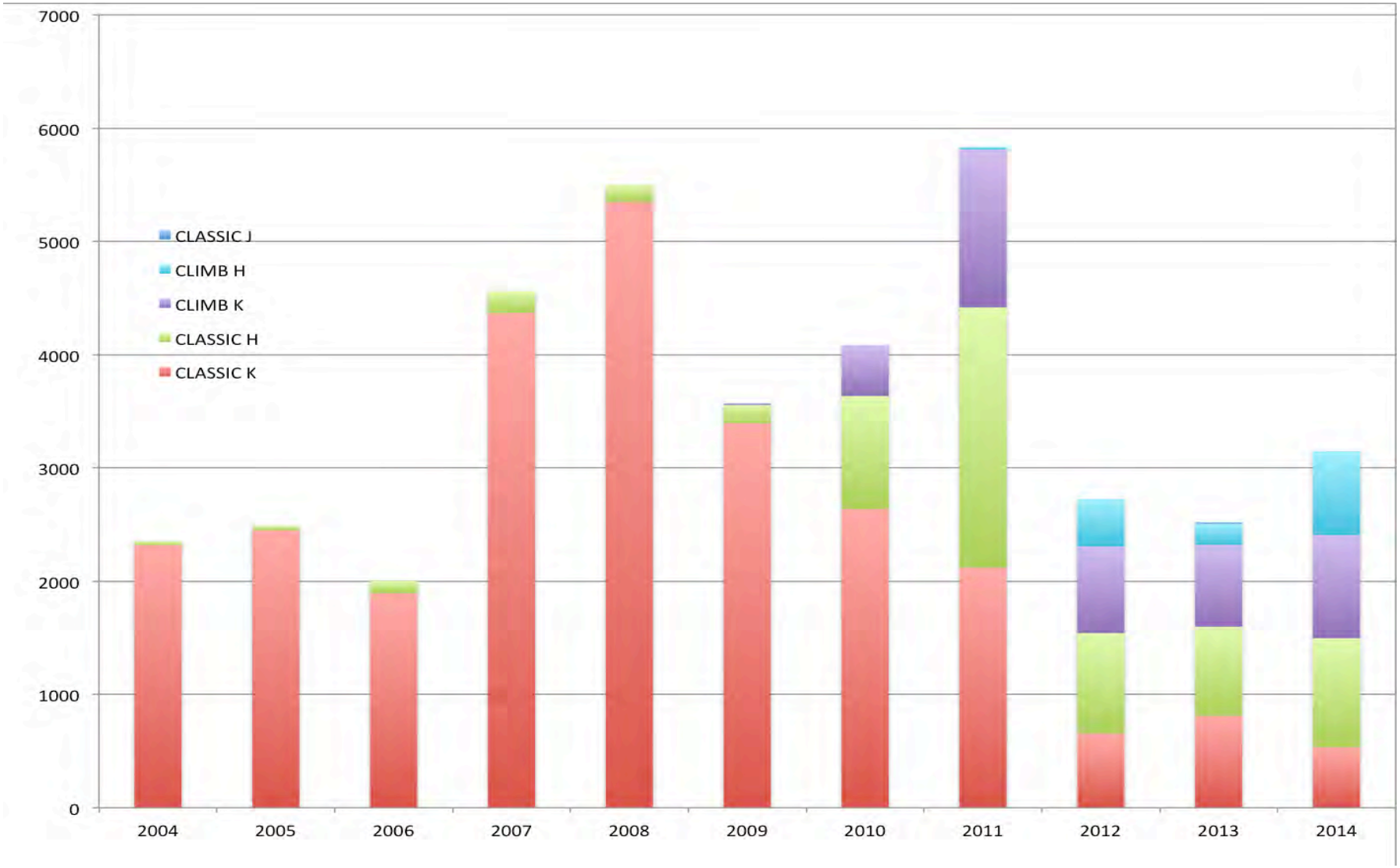
The Bear Truth about CLASSIC and CLIMB

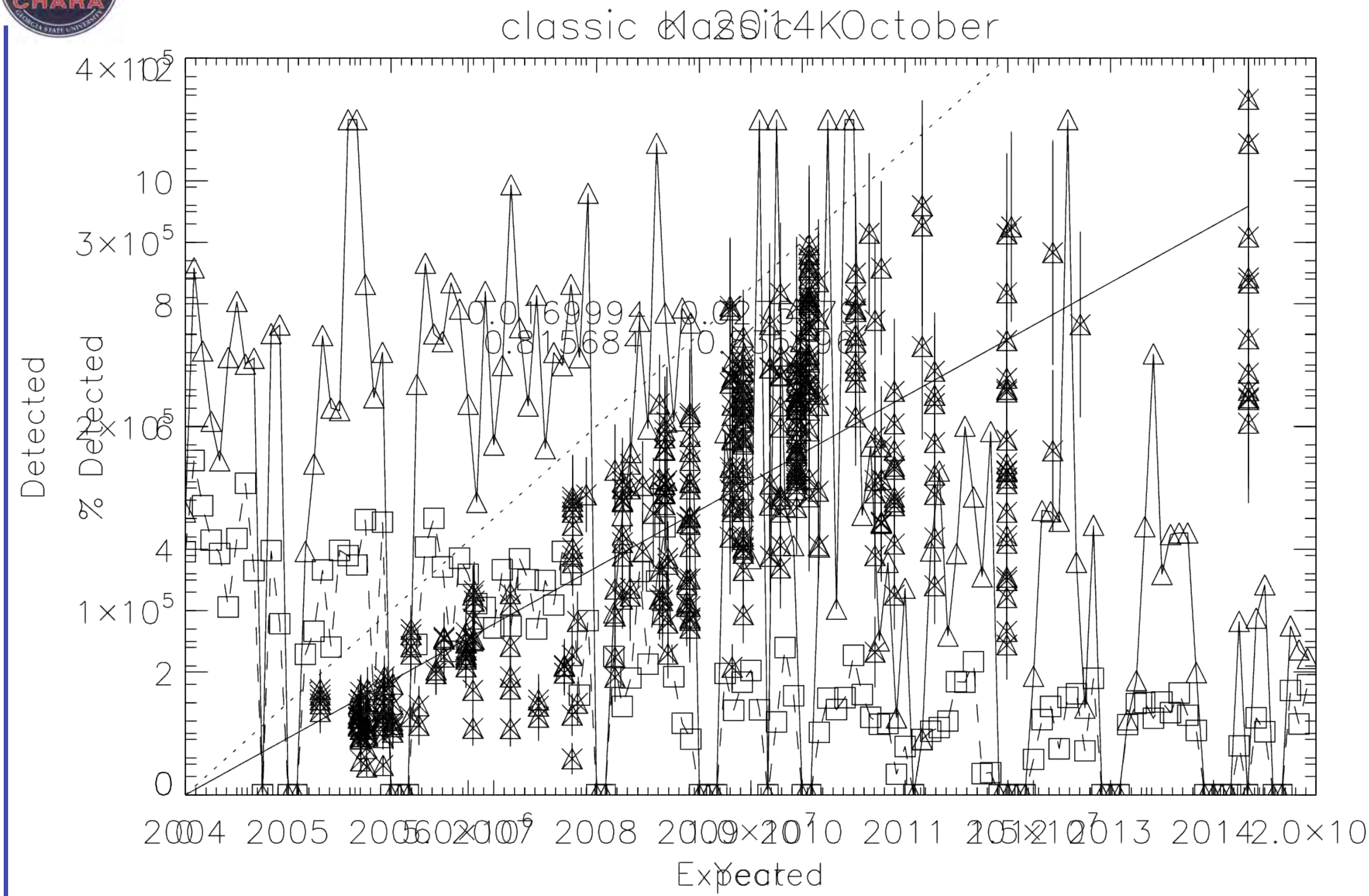
Theo ten Brummelaar

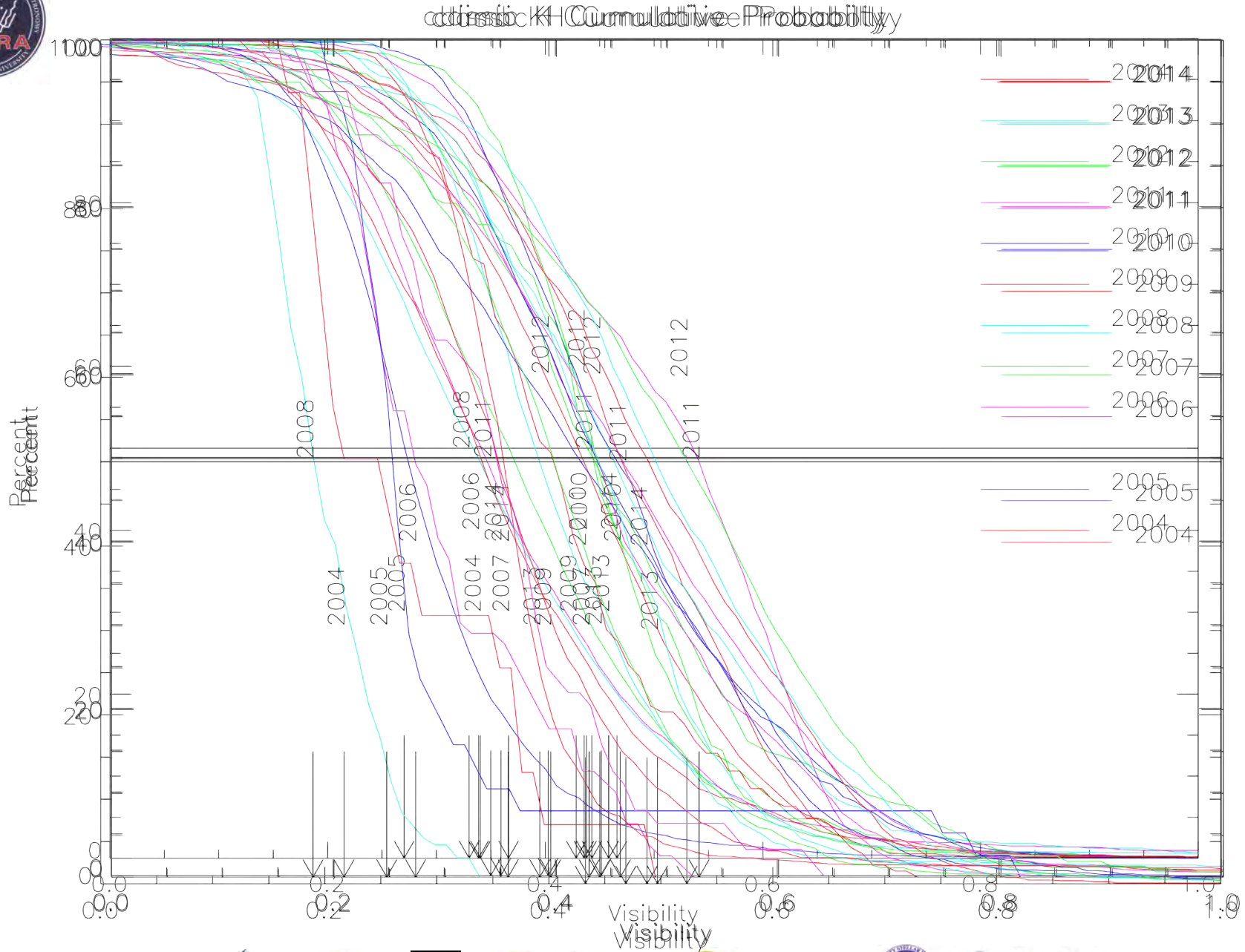
Automated Data Reduction

- 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.

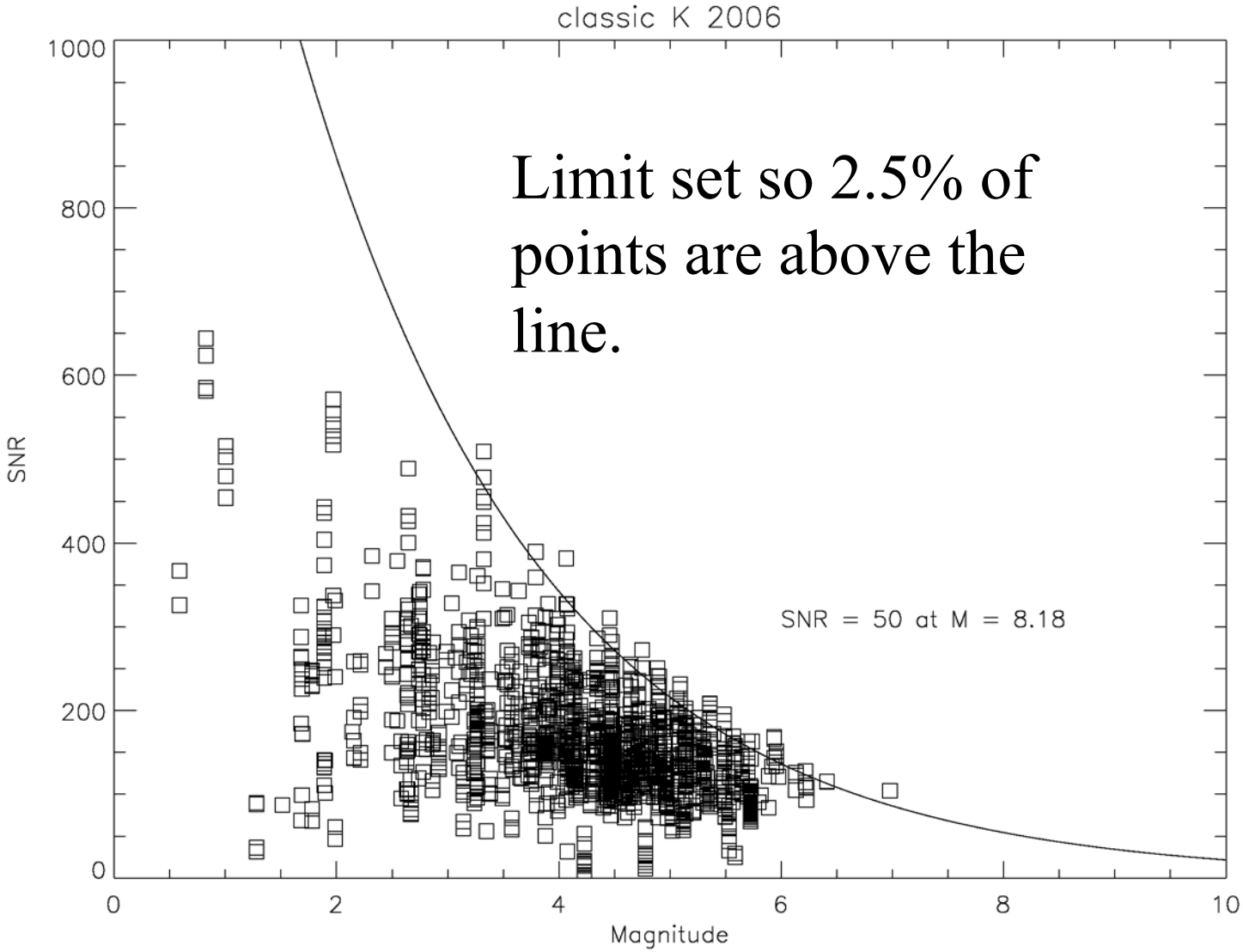
Amount of Data

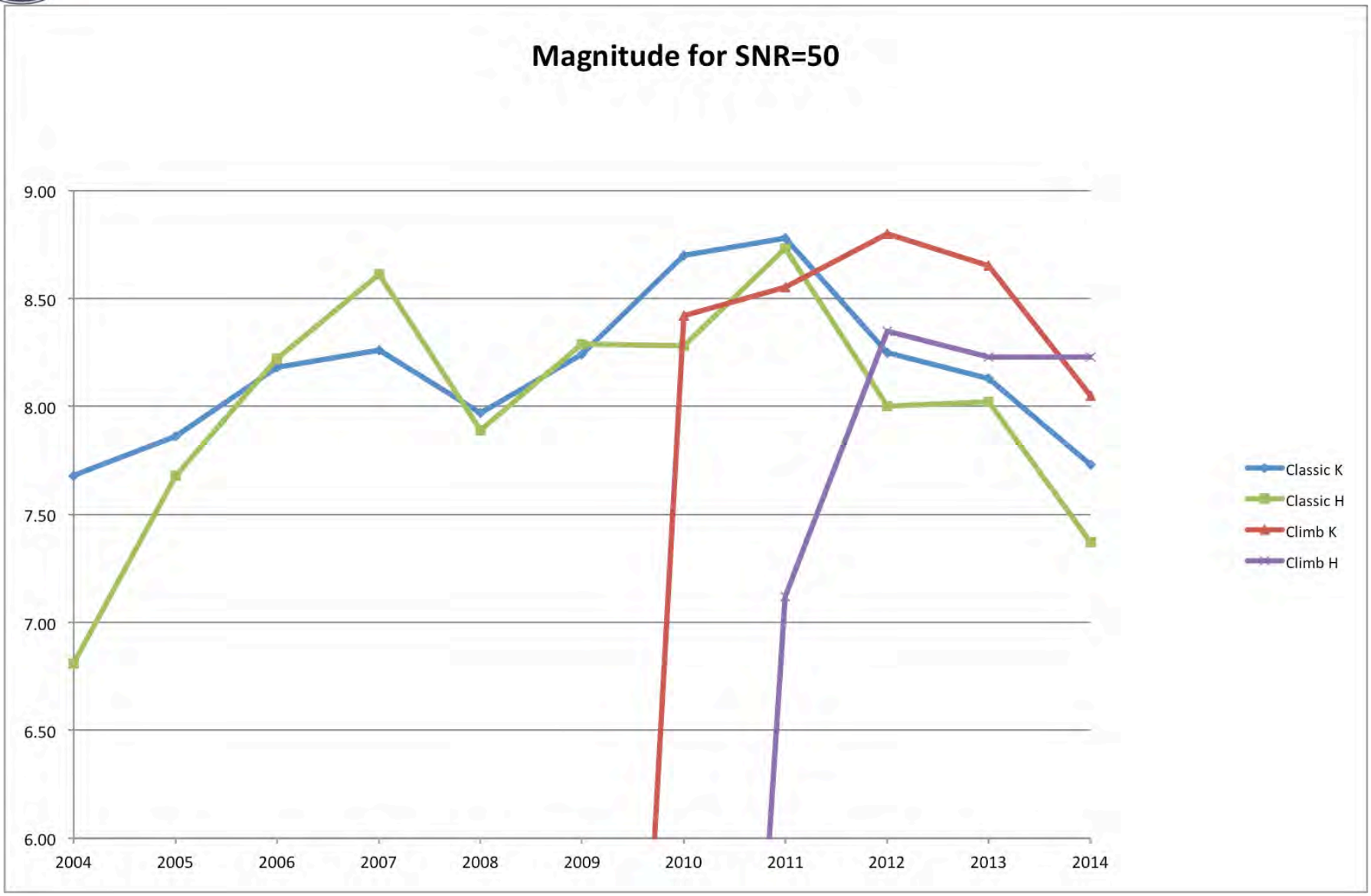


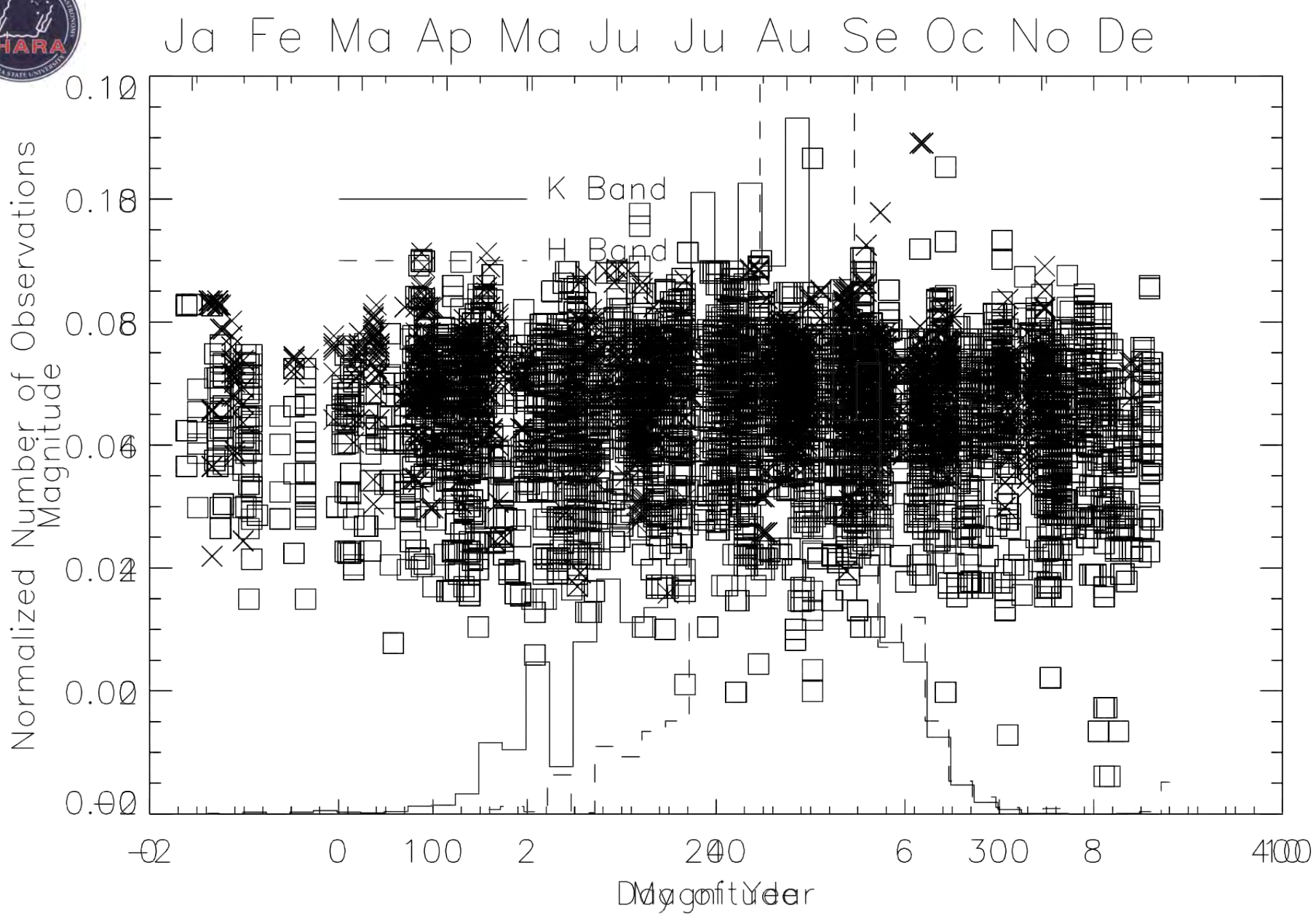


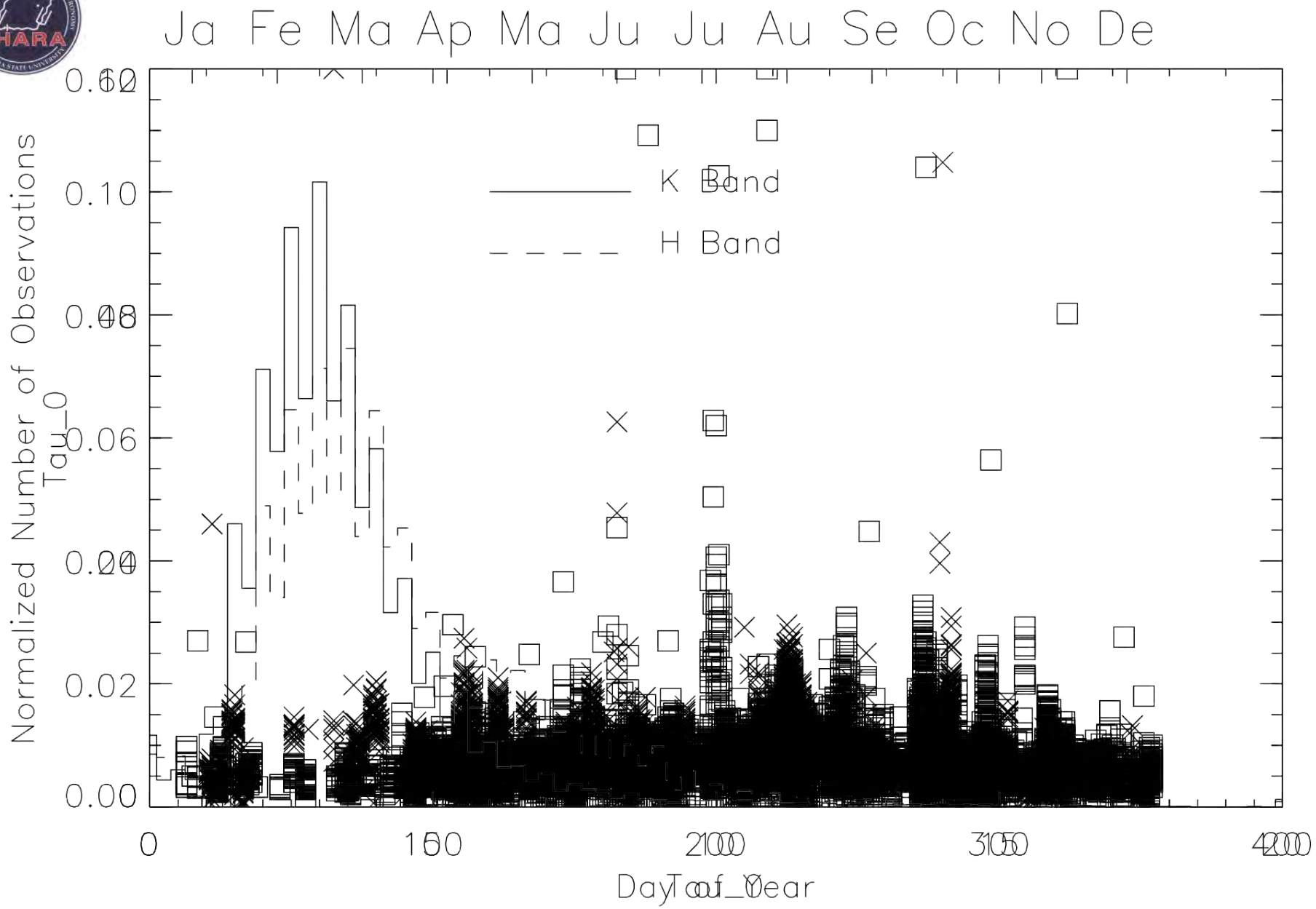

Cumulative Probability
Percent
Visibility
2014
2013
2012
2011
2010
2009
2008
2007
2006
2005
2004

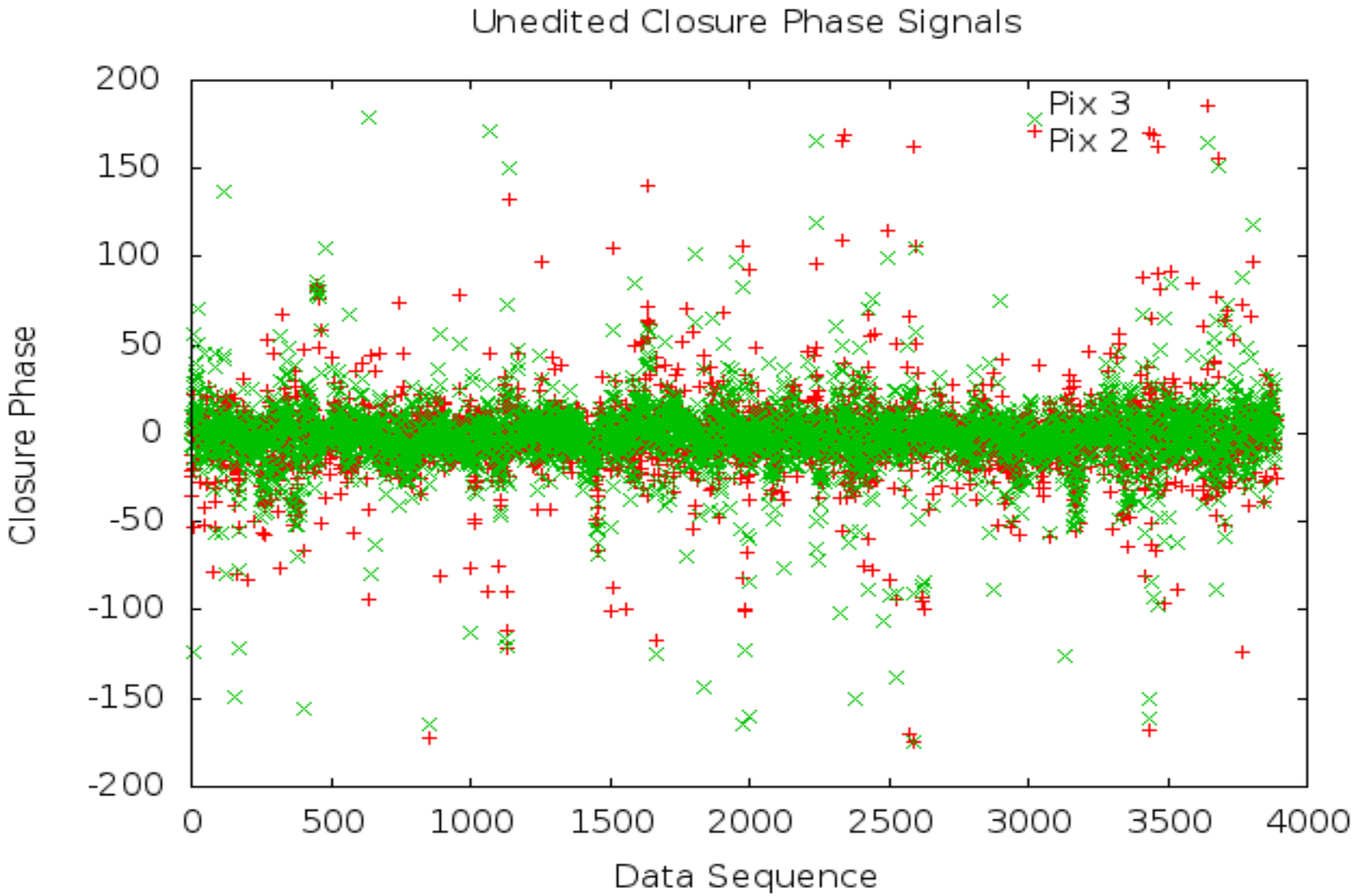
SNR ~ V_{raw} * sqrt(N)




Magnitude for SNR=50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Classic K
Classic H
Climb K
Climb H

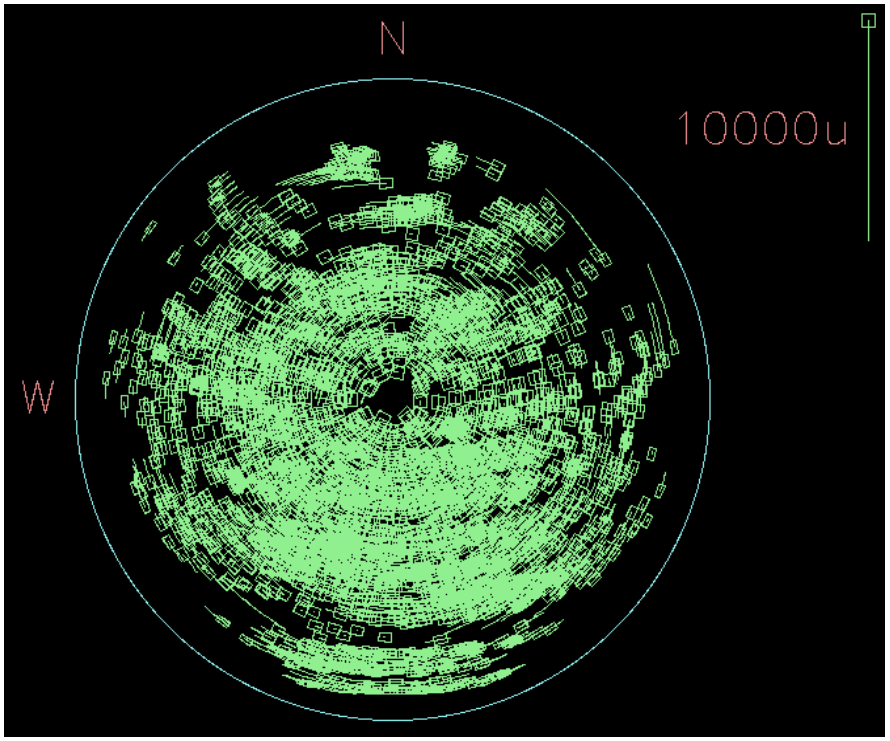

Ja Fe Ma Ap Ma Ju Ju Au Se Oc No De
K Band
H Band
Normalized Number of Observations
Magnitude
Day of Year


Ja Fe Ma Ap Ma Ju Ju Au Se Oc No De
K Band
H Band
Normalized Number of Observations
Tau_0
0.00
0.02
0.06
0.10
0
Day of Year

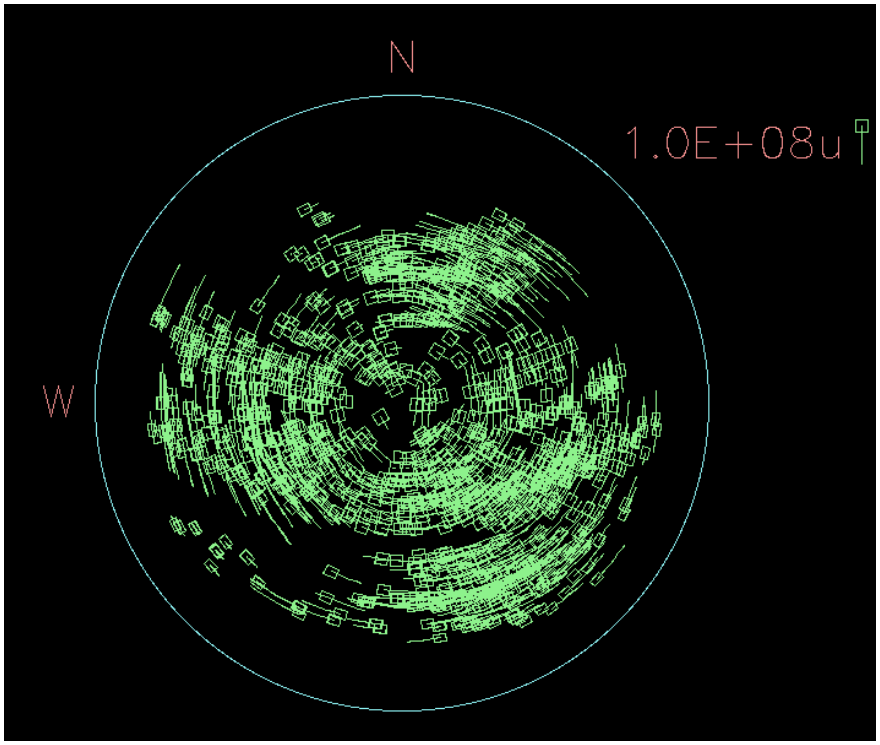

Unedited Closure Phase Signals
Pix 3
Pix 2
Closure Phase
200
150
100
50
0
-50
-100
-150
-200
0
500
1000
1500
2000
2500
3000
3500
4000
Data Sequence

Baseline Solution – Sky Coverage

2013



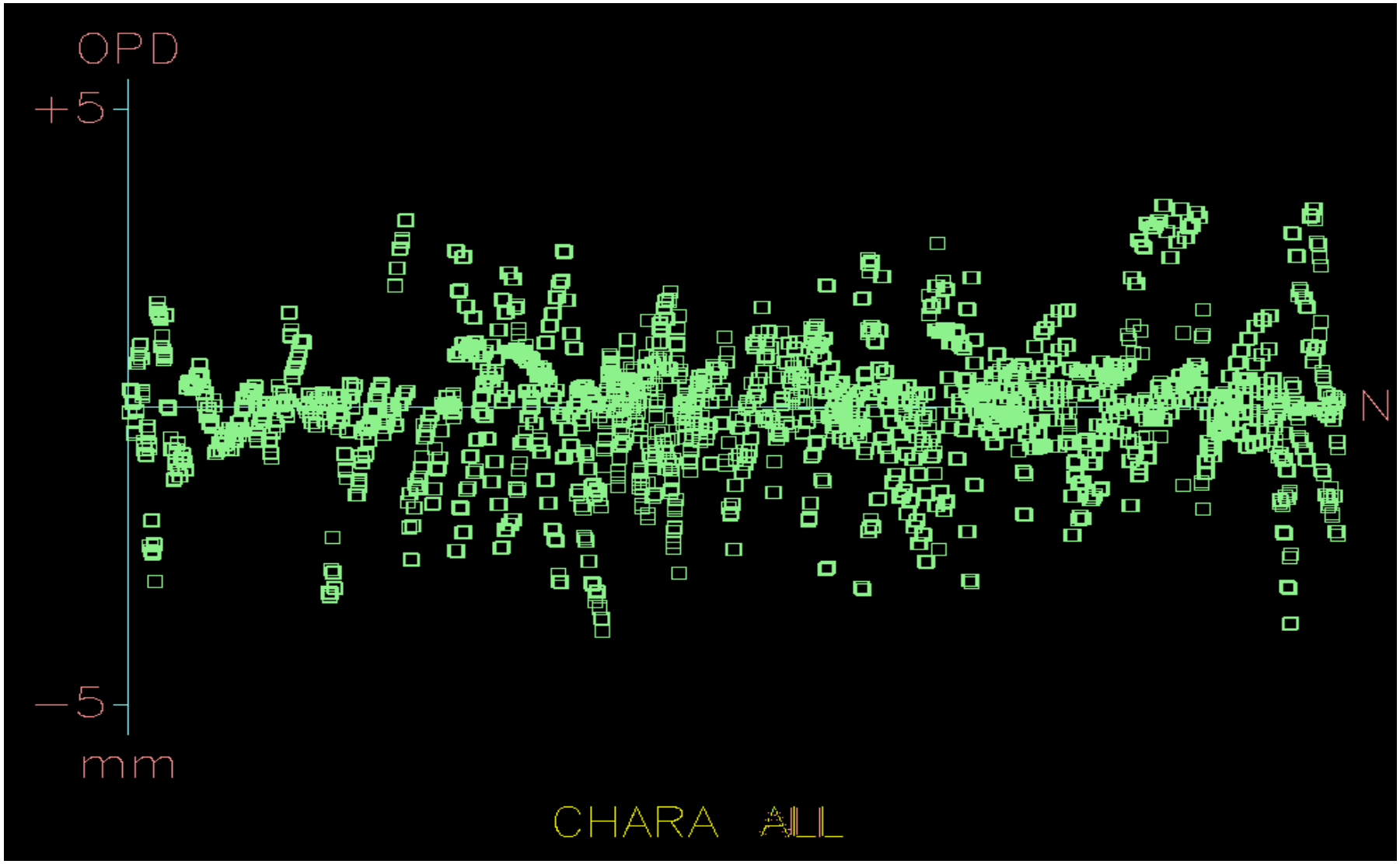
2014



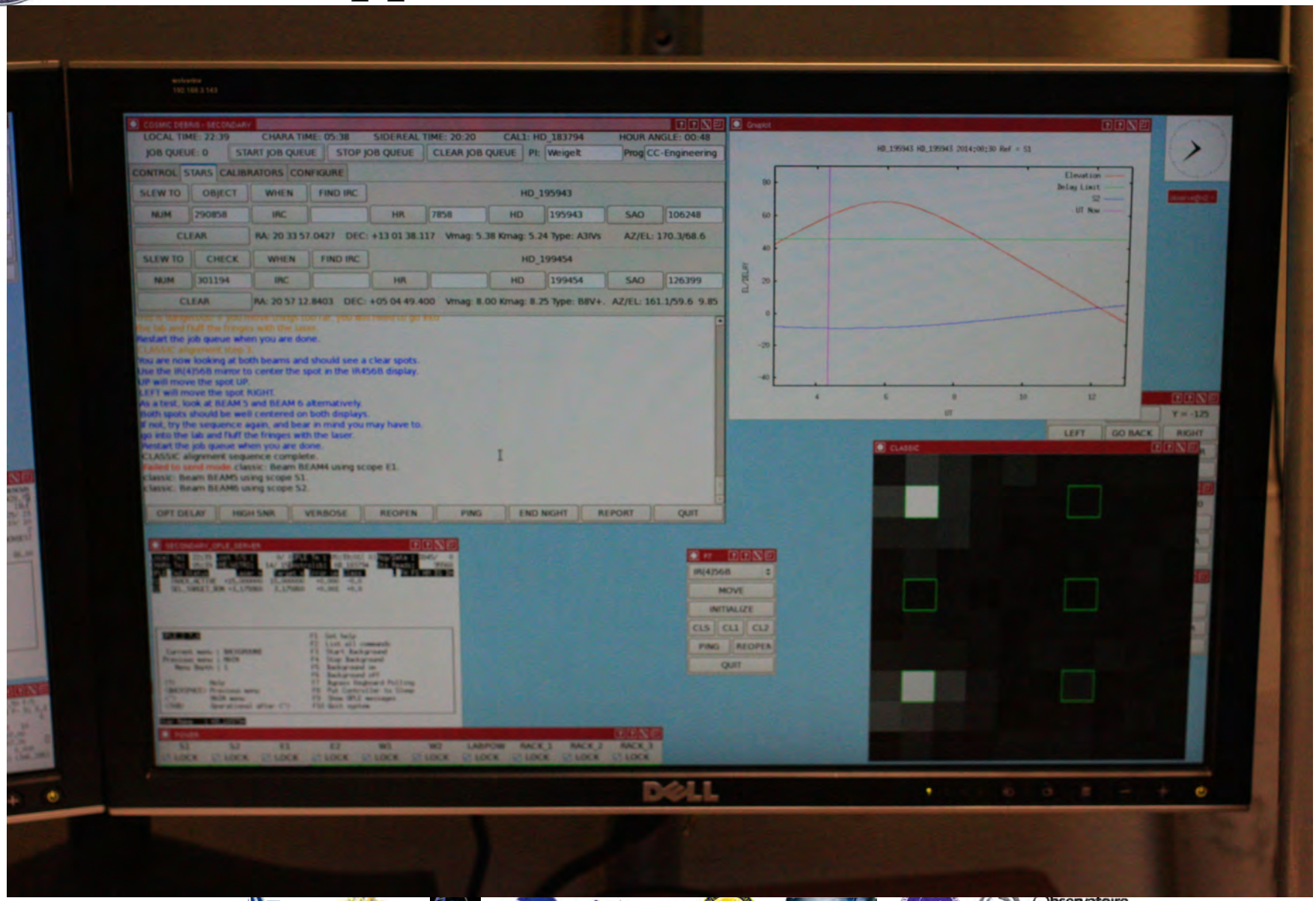
2014 Data only includes last few months

and the telescope positions where fixed.

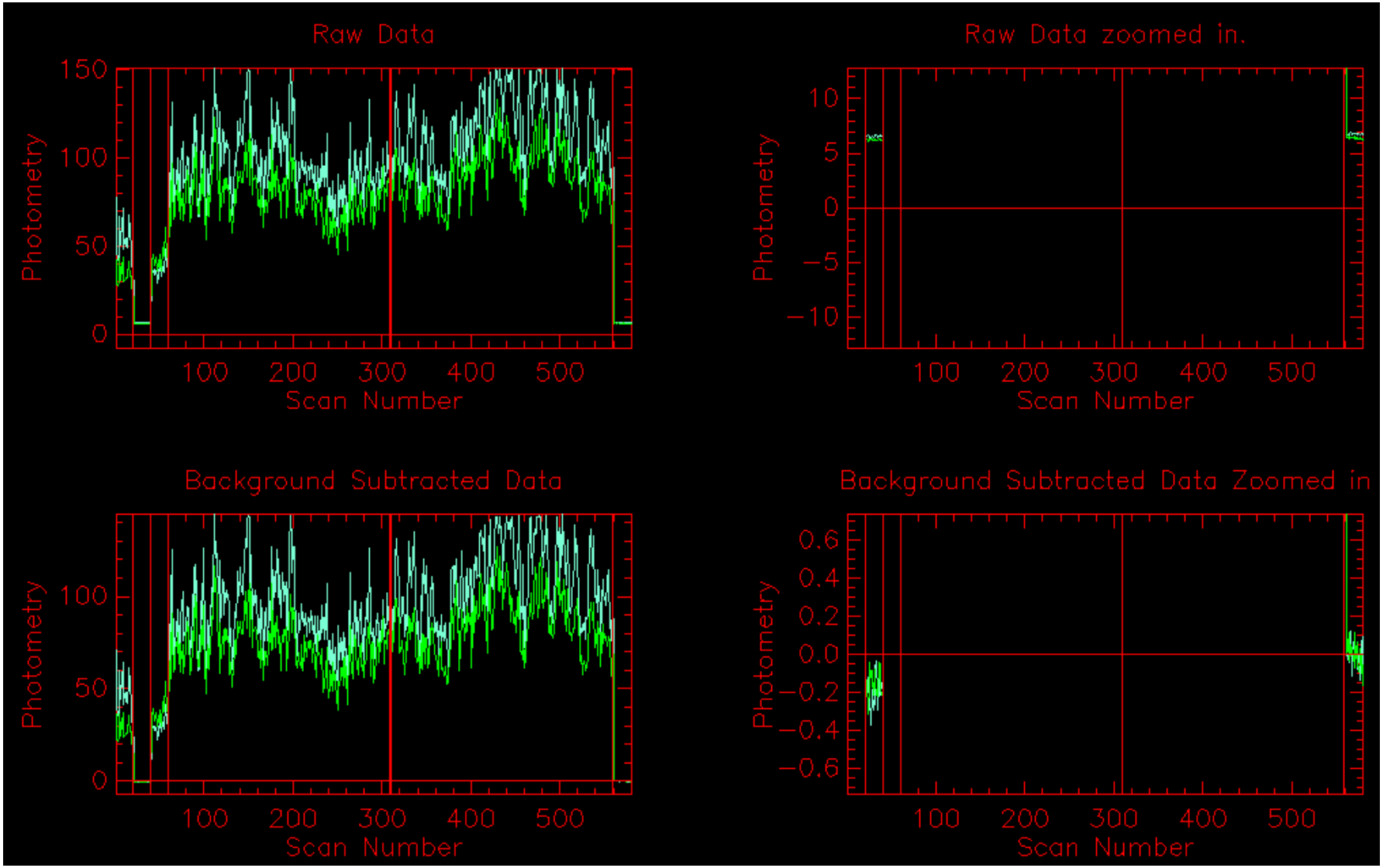
Baseline Solution - Errors



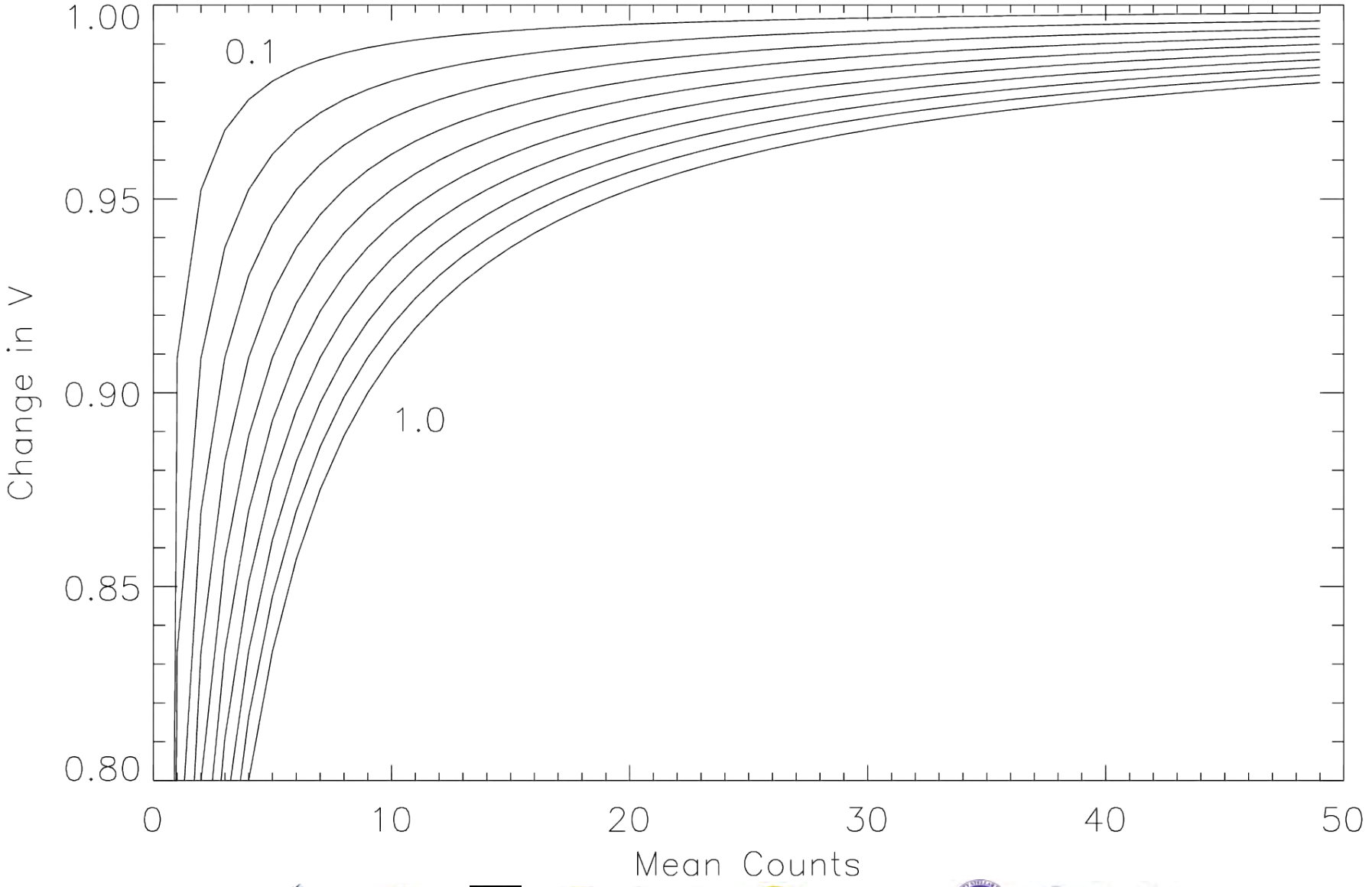
What happened to the MPIfRA Camera?



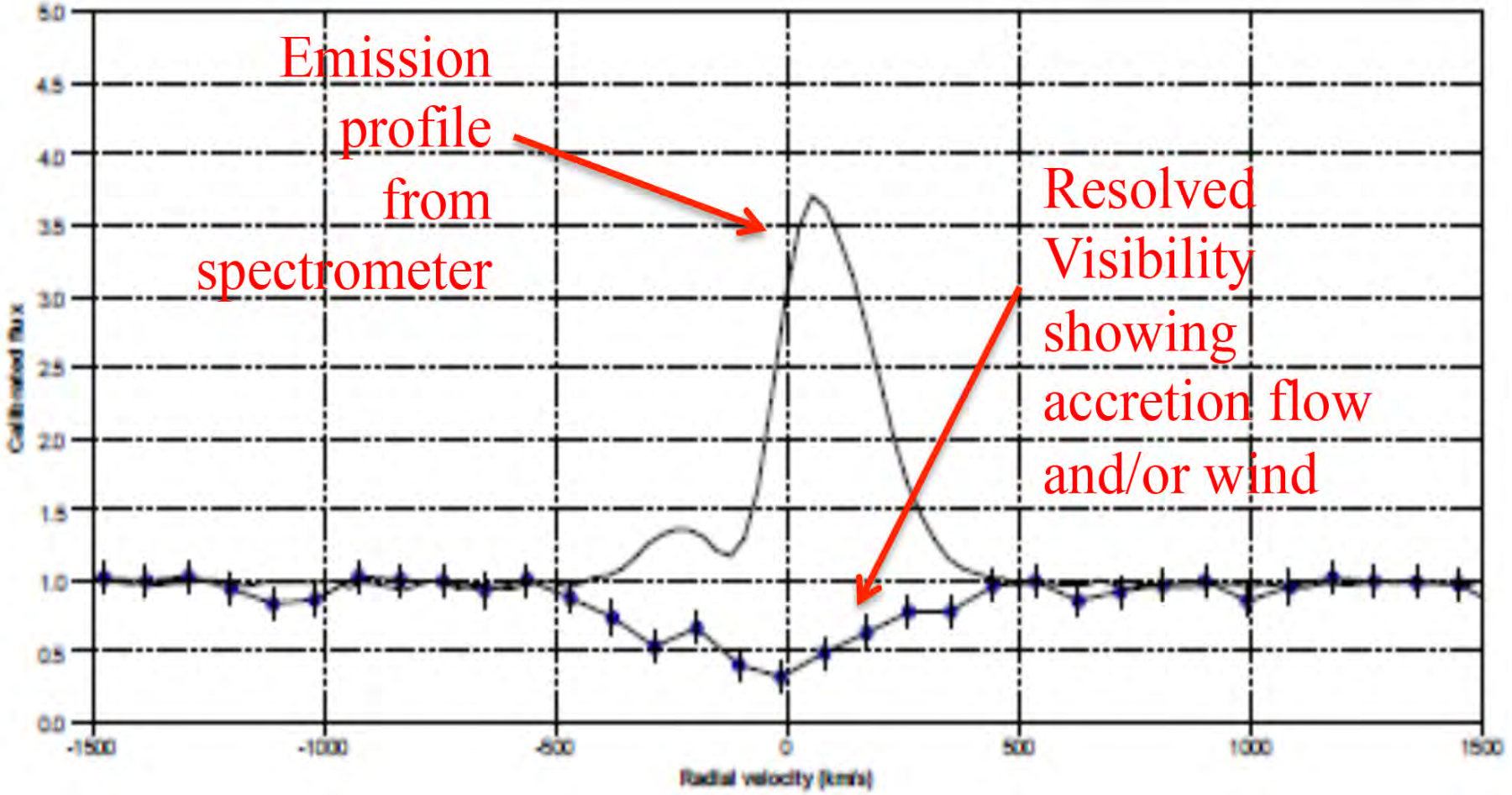
New Data Sequence – Sky Backgrounds

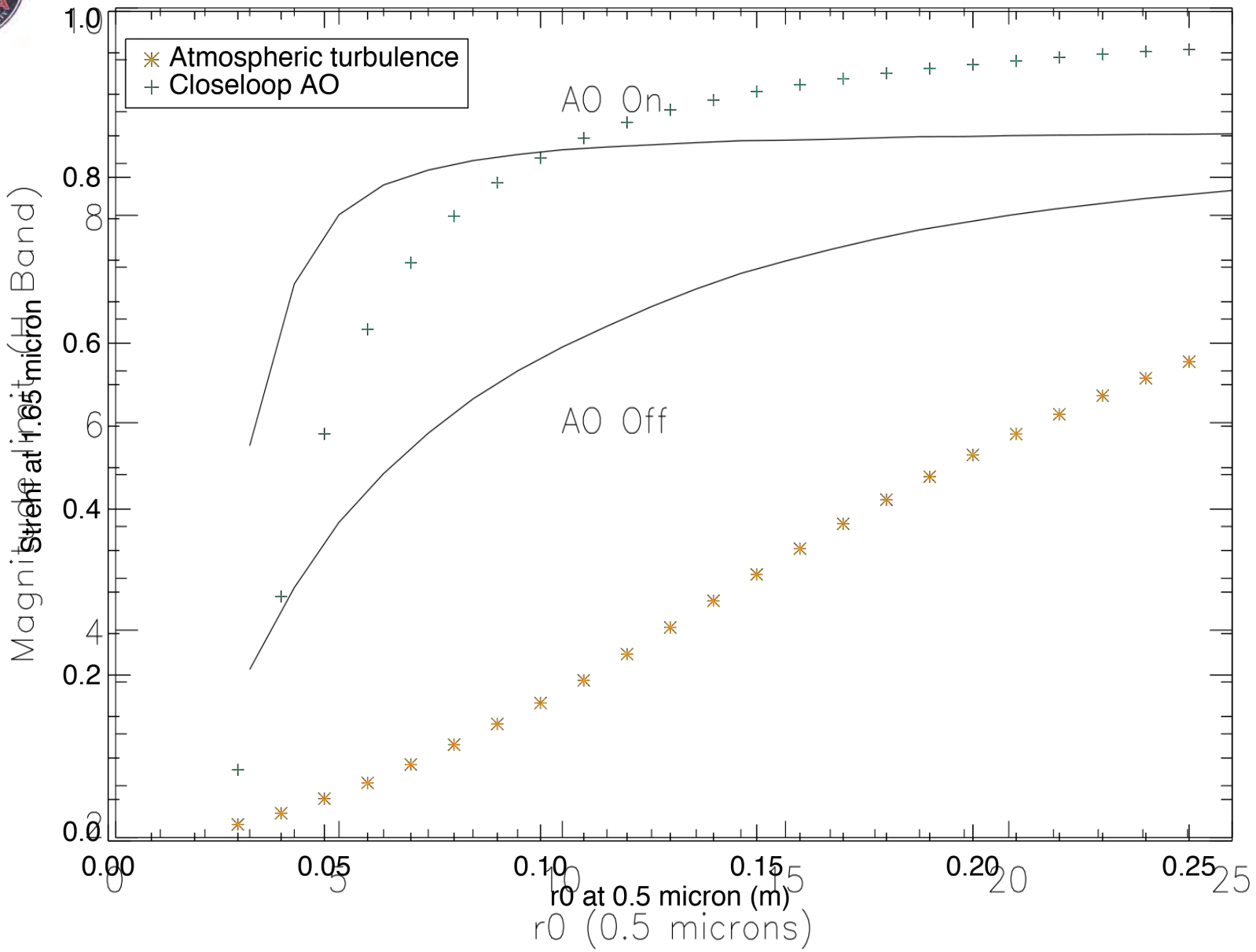


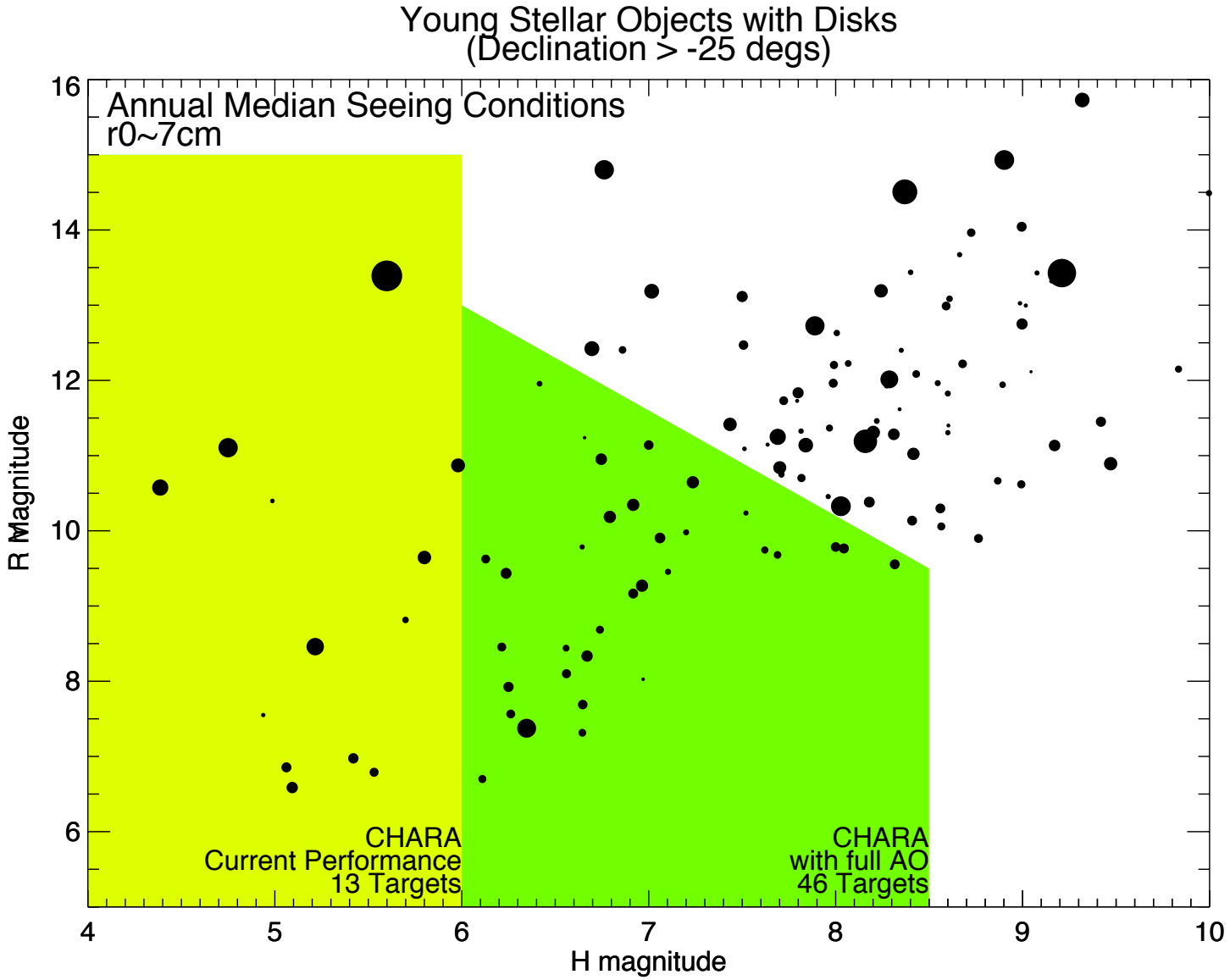
What difference does it make?



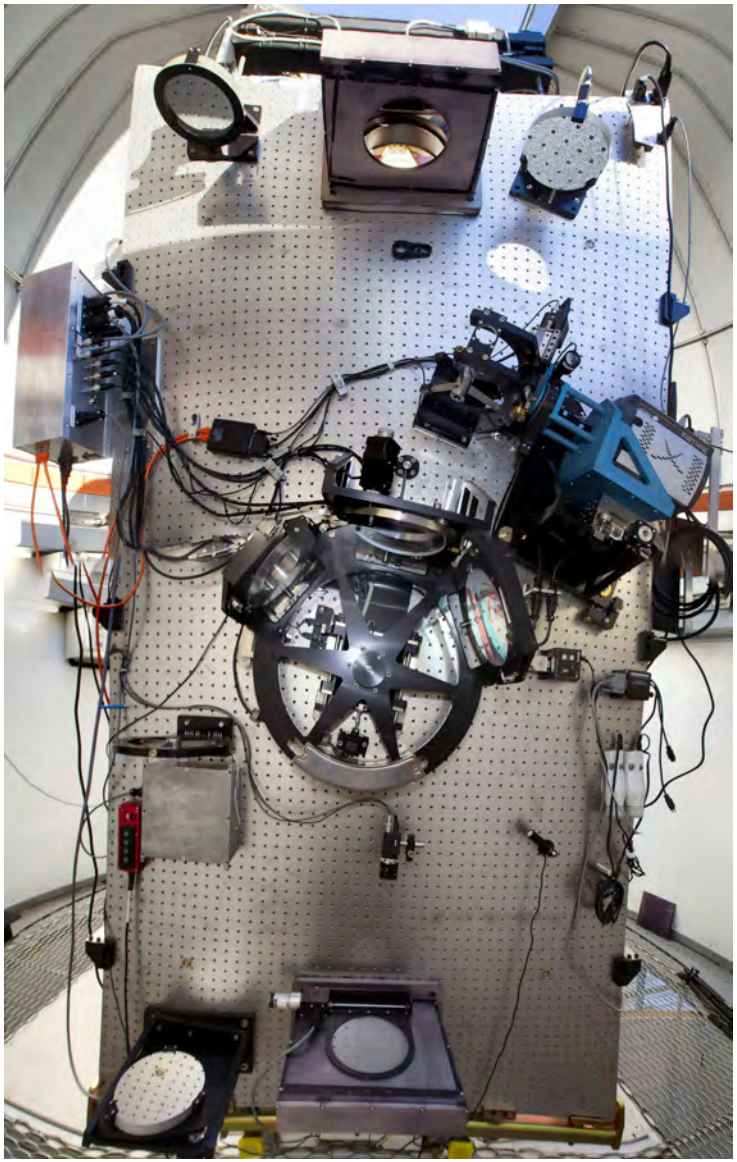
CHARA-AO : Science Rational

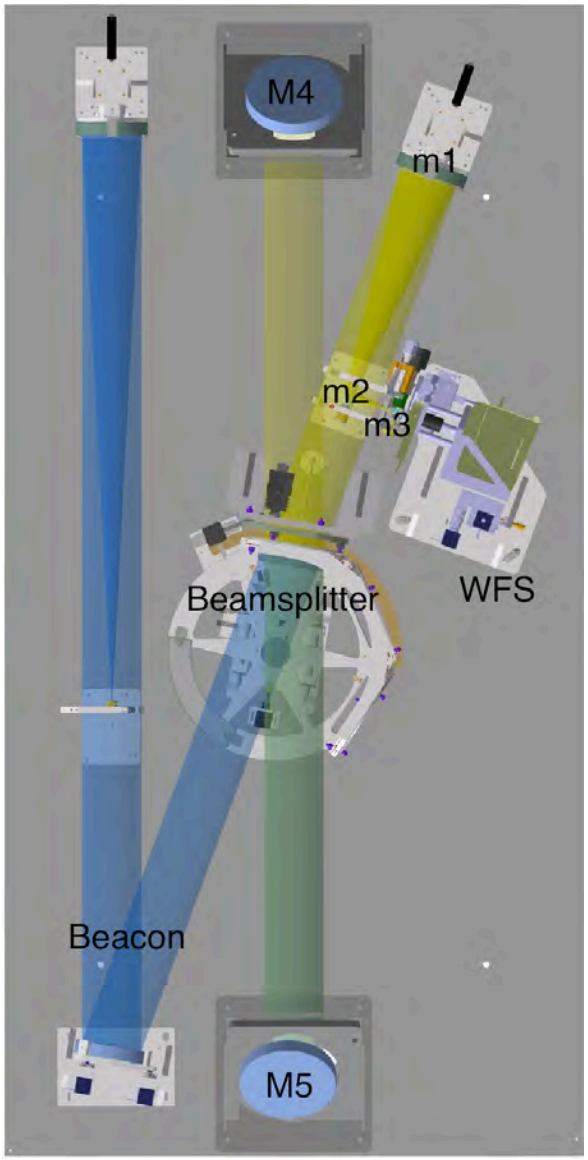



Atmospheric turbulence
Closeloop AO
AO On
AO Off
Strehl at 1.65 micron (H Band)
Magnitude gain
r0 at 0.5 micron (m)
r0 (0.5 microns)
1.0
0.8
0.6
0.4
0.2
0.0
0.00
0.05
0.10
0.15
0.20
0.25

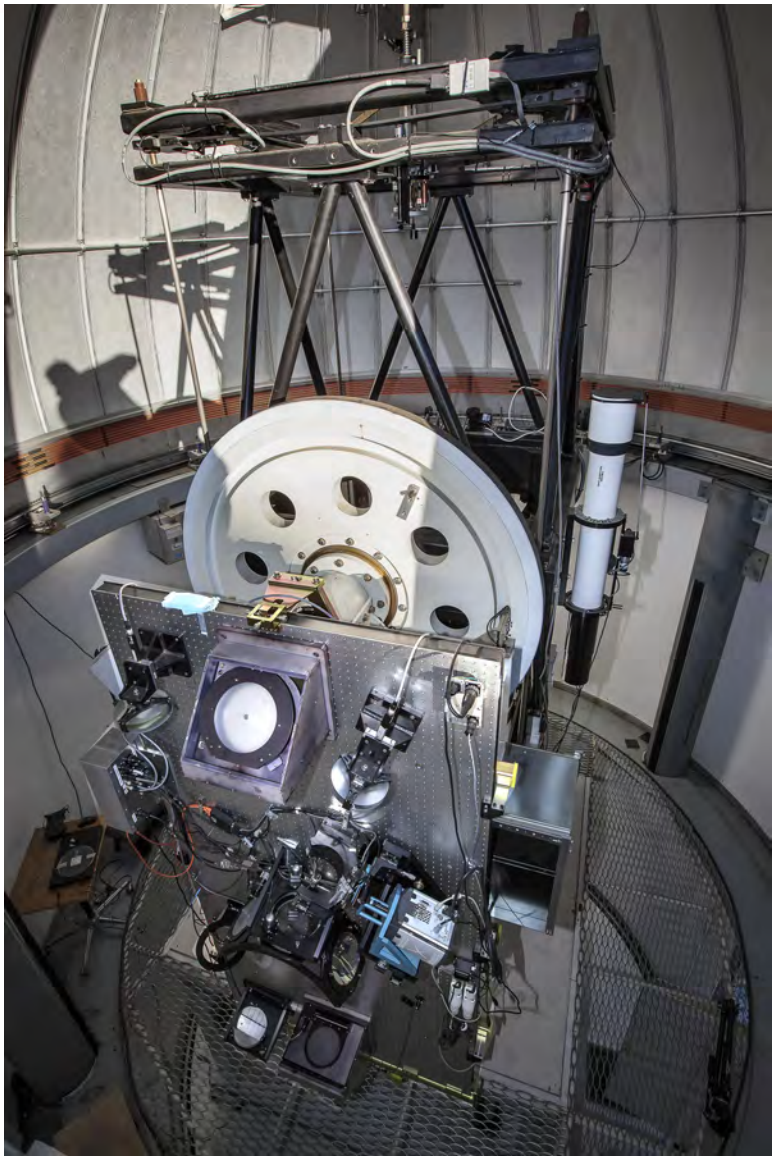

Young Stellar Objects with Disks
(Declination > -25 degs)
Annual Median Seeing Conditions
r0~7cm
CHARA
Current Performance
13 Targets
CHARA
with full AO
46 Targets
R Magnitude
H magnitude
16
14
12
10
8
6
4
5
6
7
8
9
10

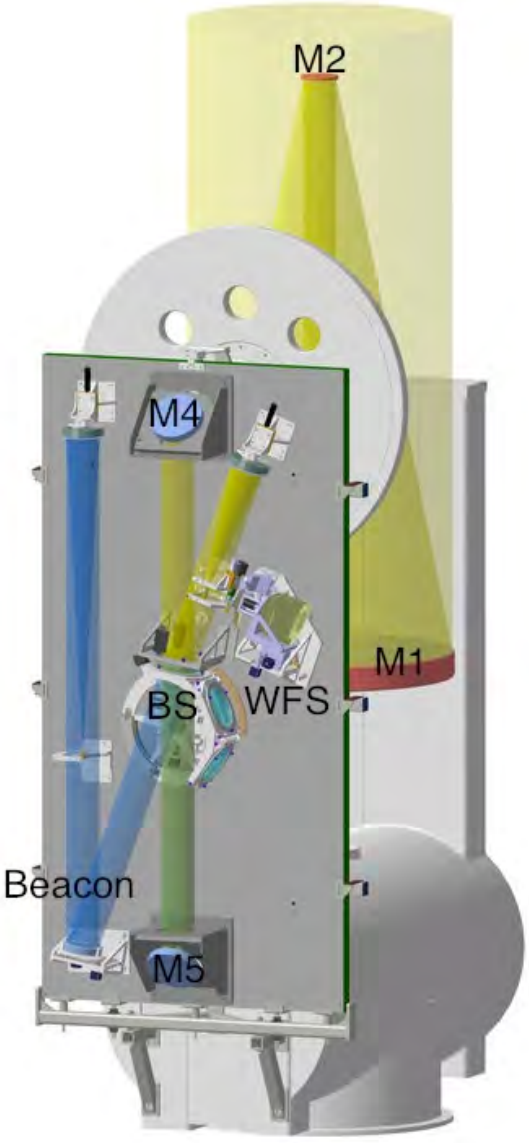
CHARA-AO : Telescope WFS



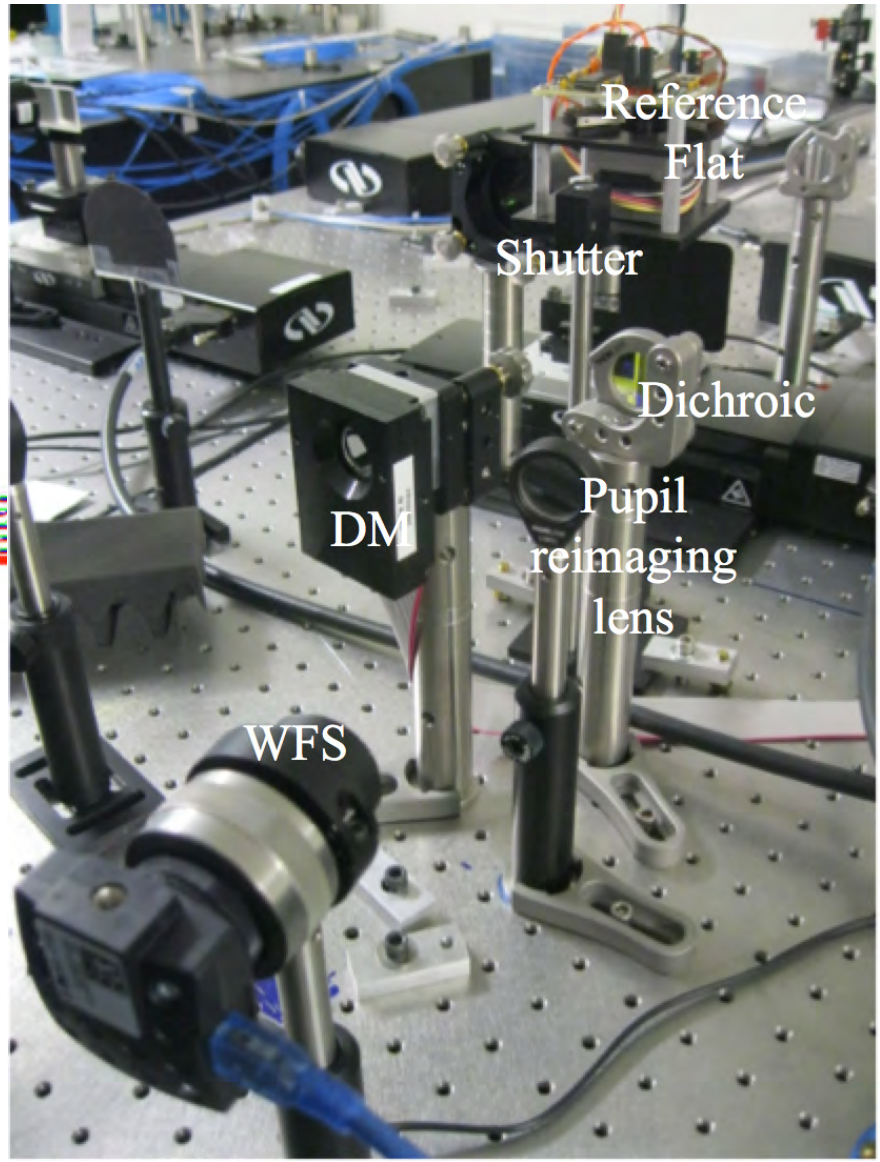


CHARA-AO : Telescope WFS





CHARA-AO : Telescope WFS



Star light from Telescope

BRT Secondary

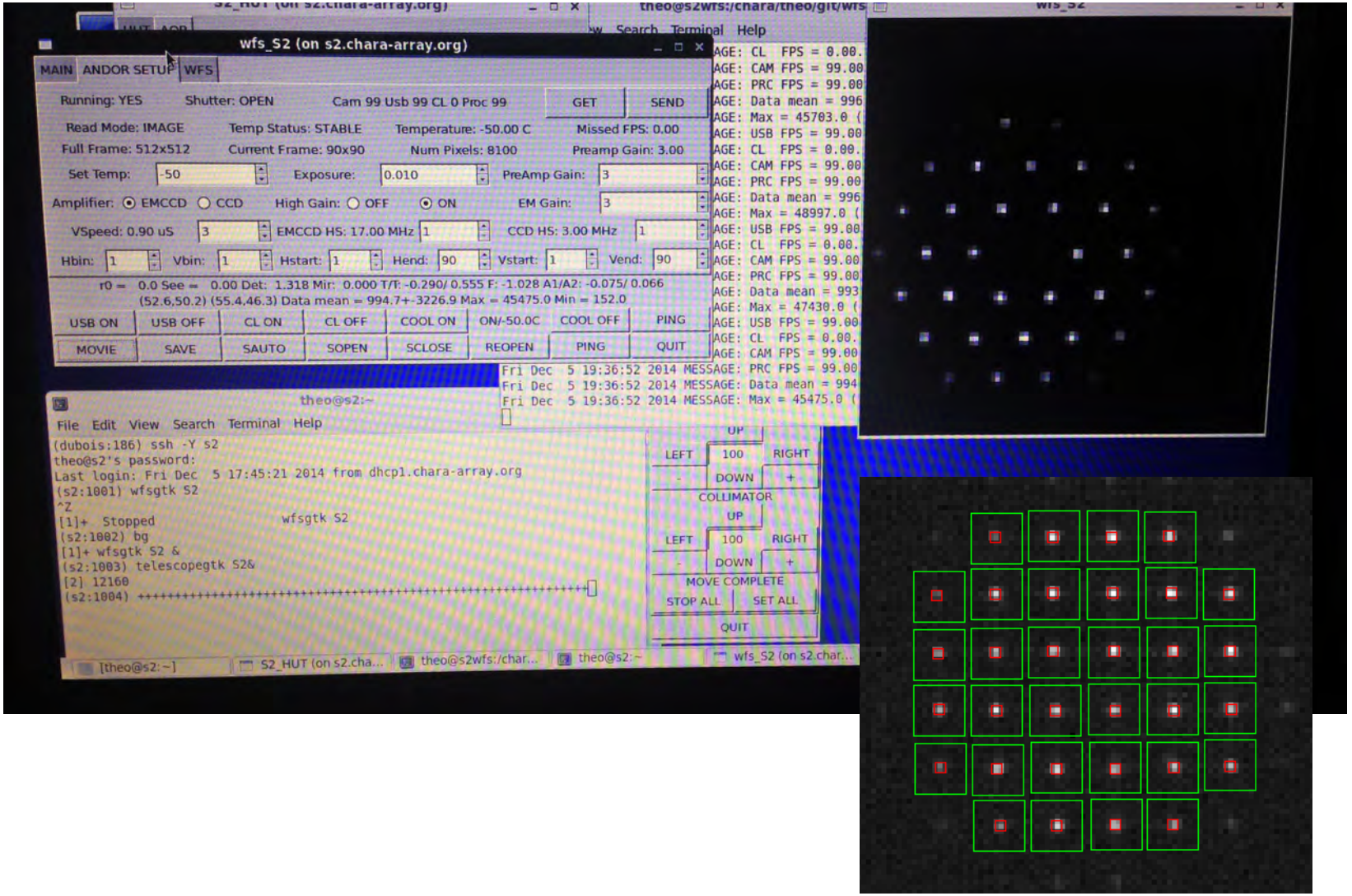
Pupil reference flat

n nominal
ength

Dichroic

Laser light from lab

CHARA-AO : Software



… 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.