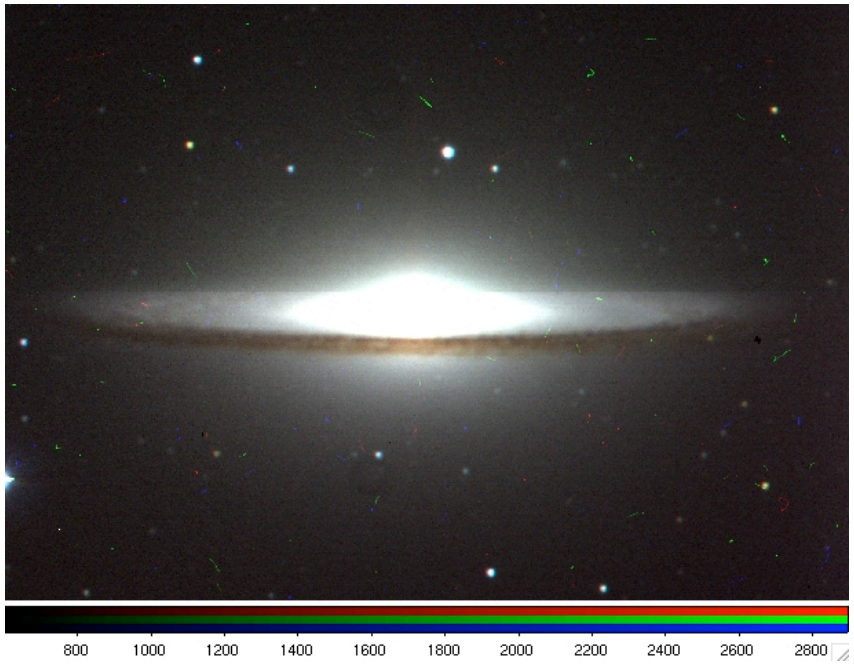
DARK ENERGY SURVEY

# Results from the April CTIO-1m DECam 2k x 2k Observing Run: A Review (i.e., nothing new)




Douglas Tucker
Darren DePoy
Brenna Flaugher
Sahar Allam
Huan Lin

# April Observing Run: Summary

| Night | Date (UT) | Directory† | CCD | Conditions |
|---|---|---|---|---|
| night 1 | 10 April 2008 | n1 | DECam 2kx2k | clear |
| night 2 | 11 April 2008 | ---- | DECam 2kx2k | no observations |
| night 3 | 12 April 2008 | ---- | DECam 2kx2k | no observations |
| night 4 | 13 April 2008 | *n3* | DECam 2kx2k | started with cirrus, then clear |
| night 5 | 14 April 2008 | *n4* | DECam 2kx2k | clear |
| night 6 | 15 April 2008 | *n5* | Y4KCam | clear |
| night 7 | 16 April 2008 | *n6* | Y4KCam | cirrussy until after midnight, then clear |

†Data are on des03.fnal.gov:/data/des03.a/data/dtucker/Data/DES/DECam2kx2k/

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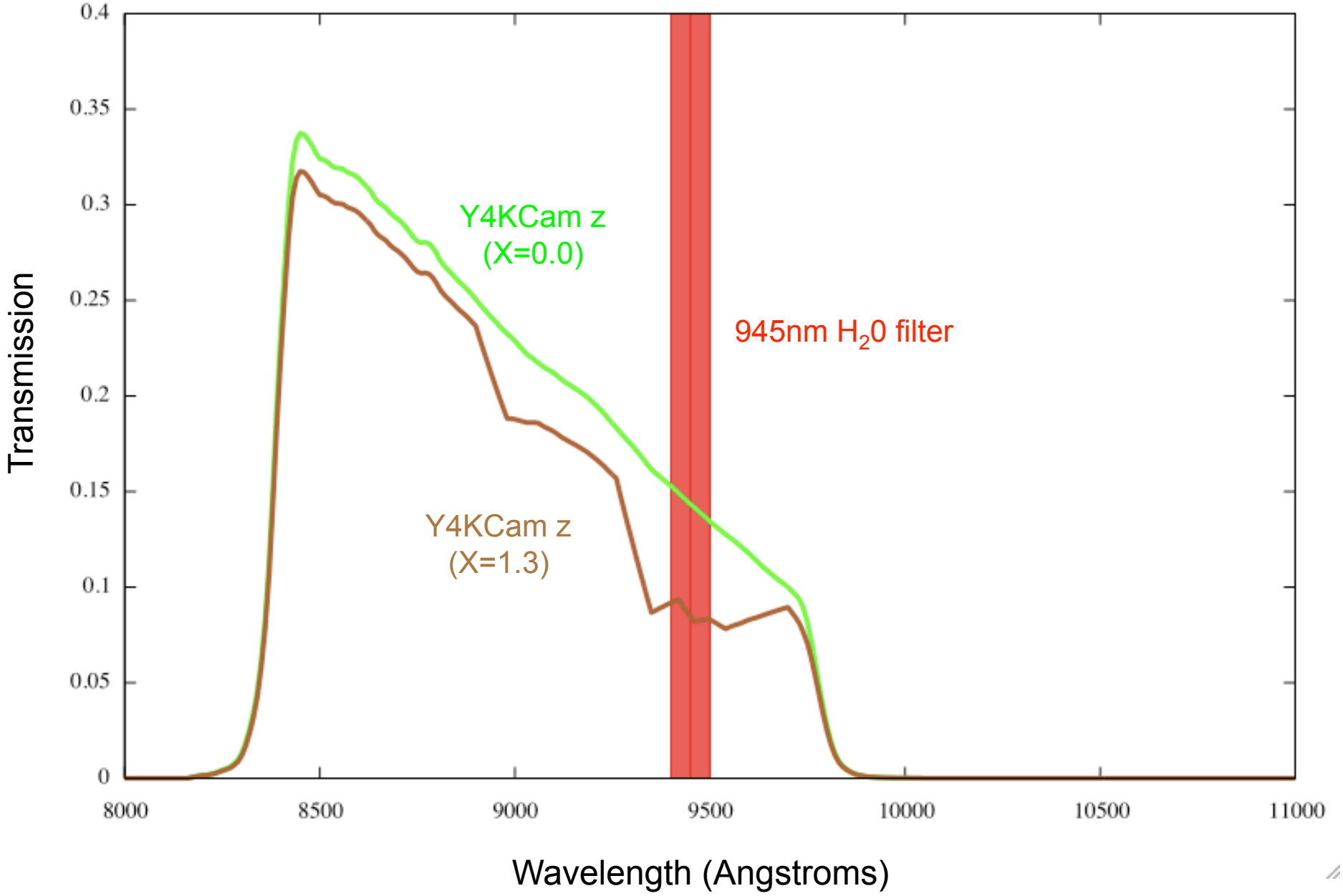
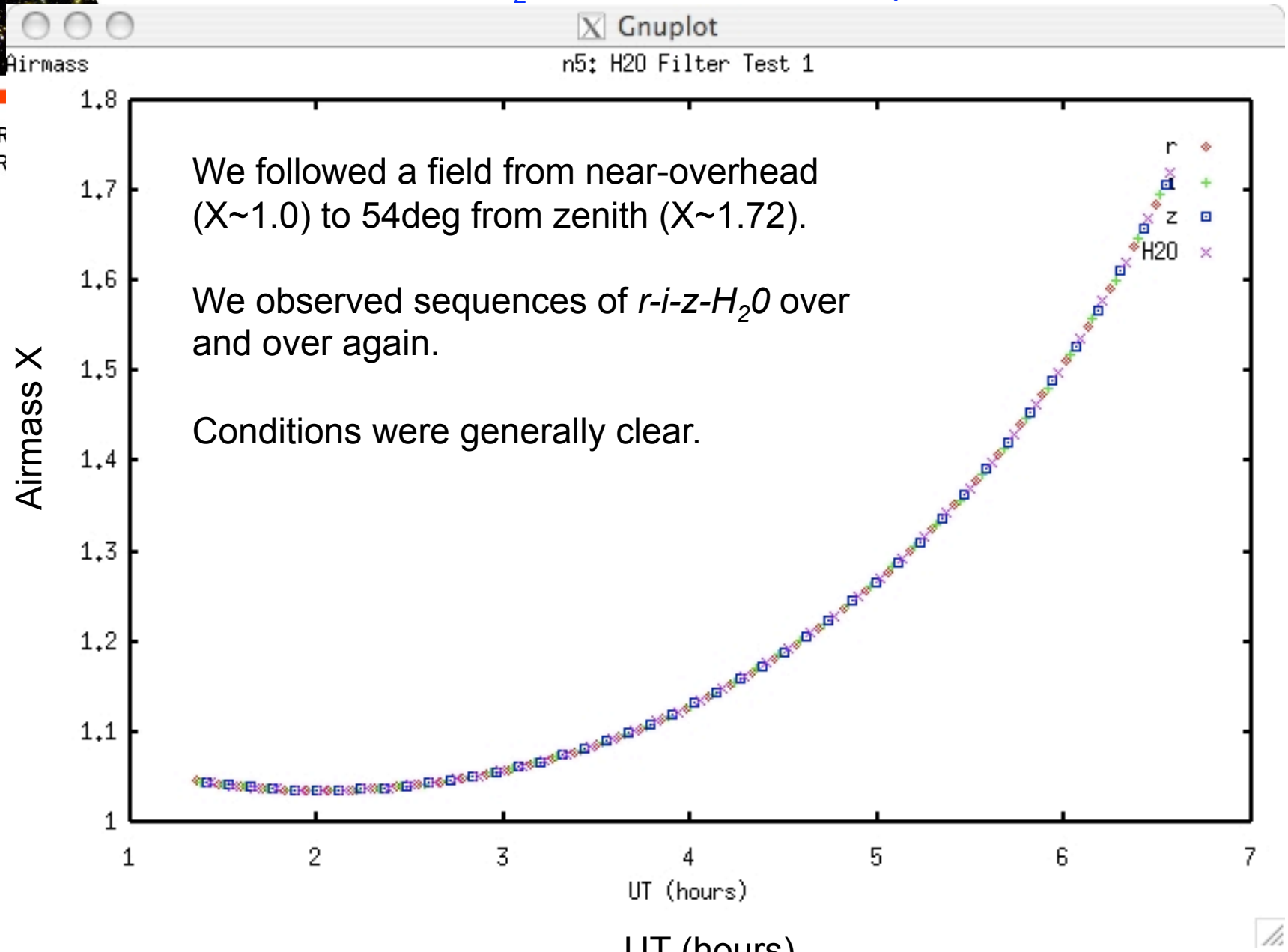
# $H_2O$ Filter Tests (Y4KCam)



# $H_2O$ Filter Test 1: 2008 April 15 UT




We followed a field from near-overhead (X~1.0) to 54deg from zenith (X~1.72).

We observed sequences of *r-i-z-$H_20$* over and over again.

Conditions were generally clear.

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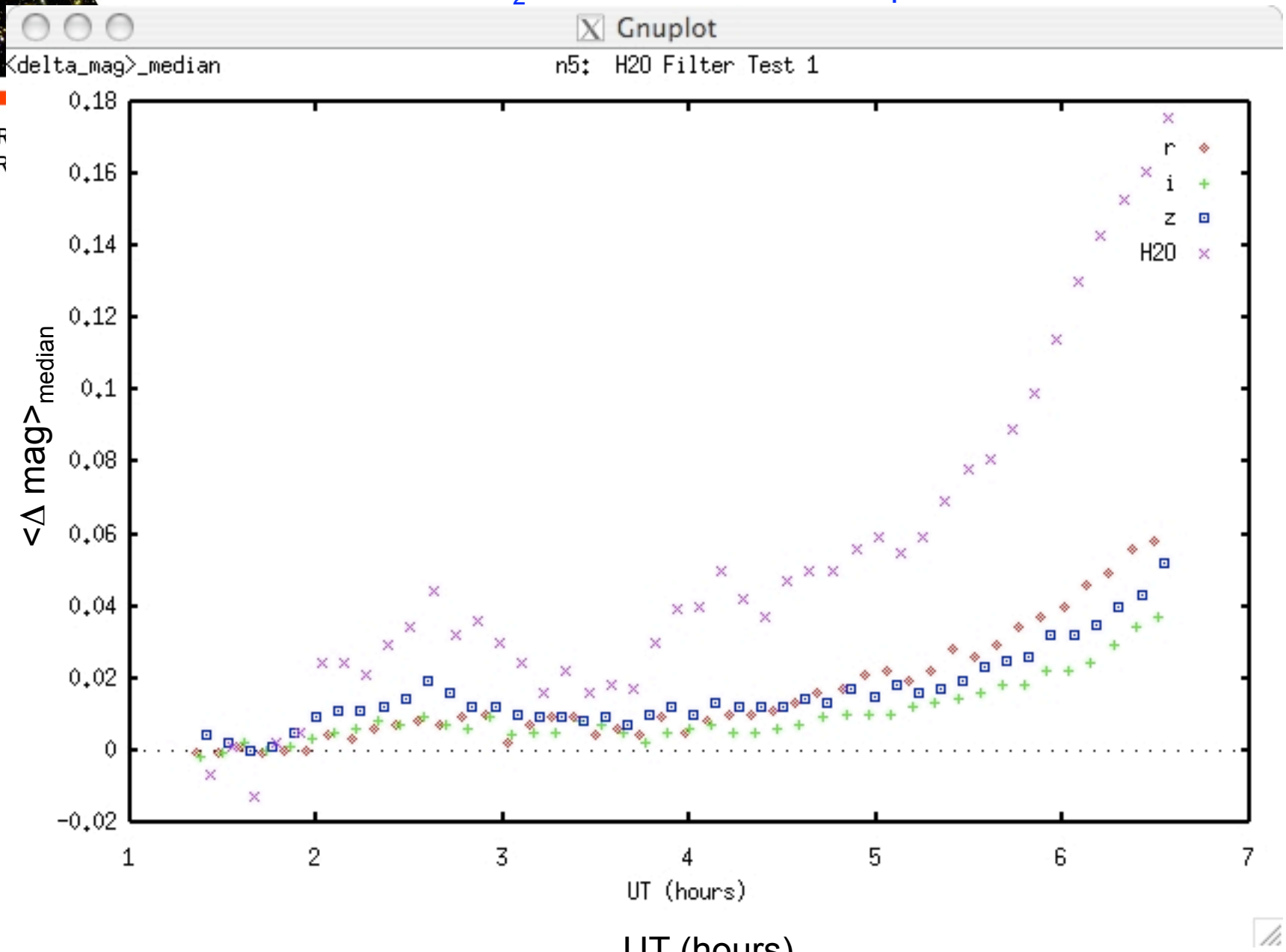


UT (hours)

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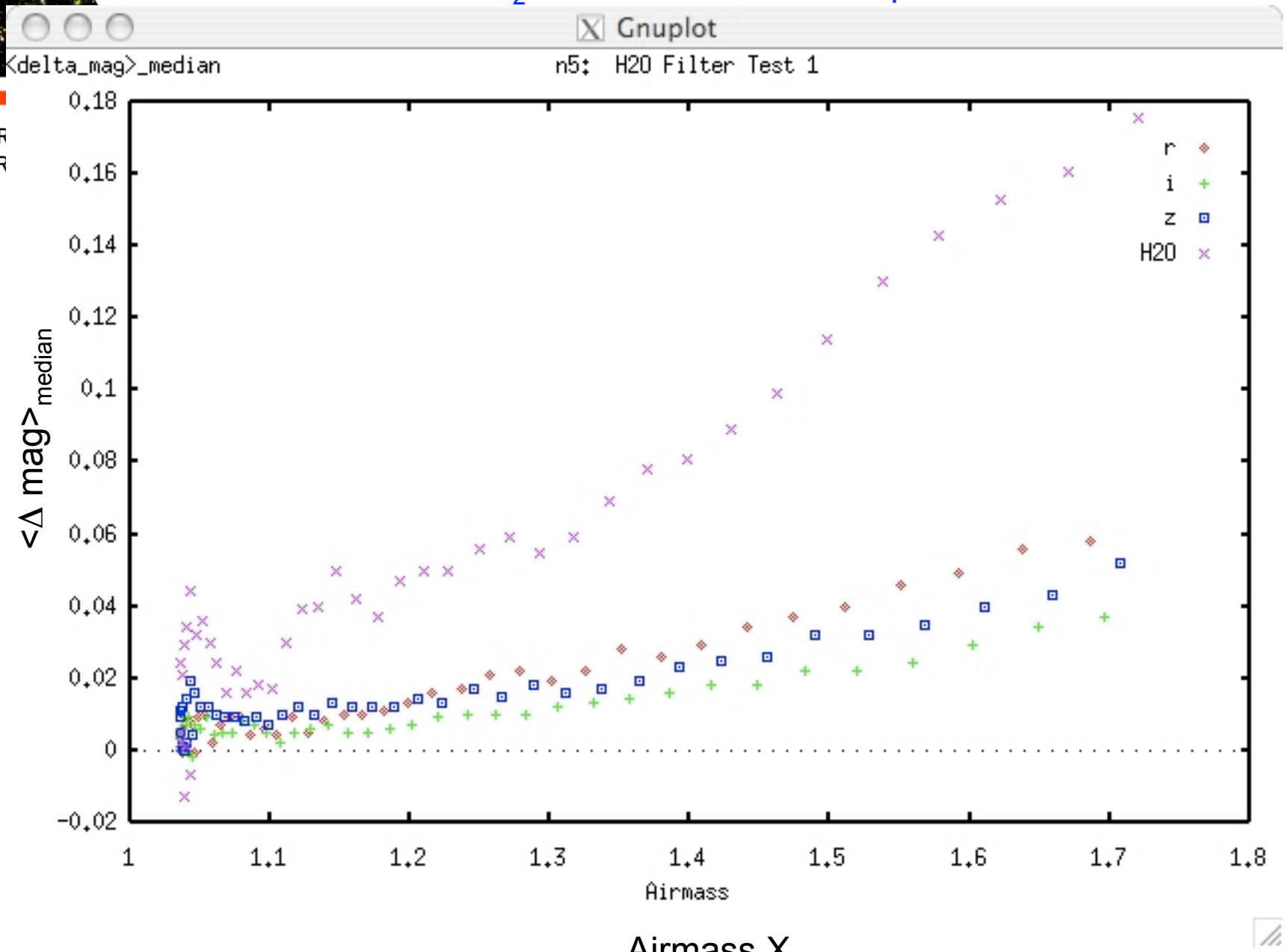


Airmass X

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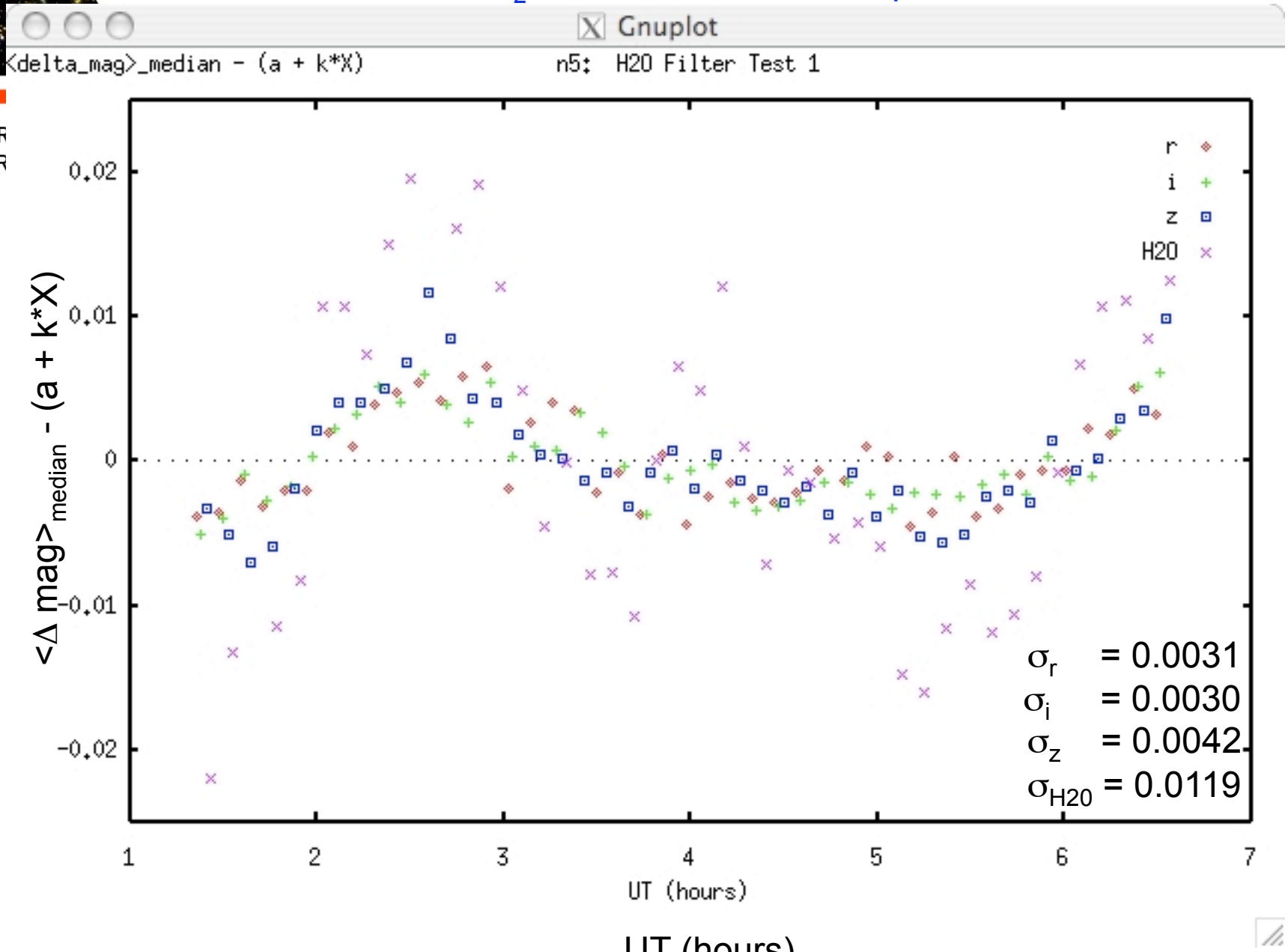


UT (hours)

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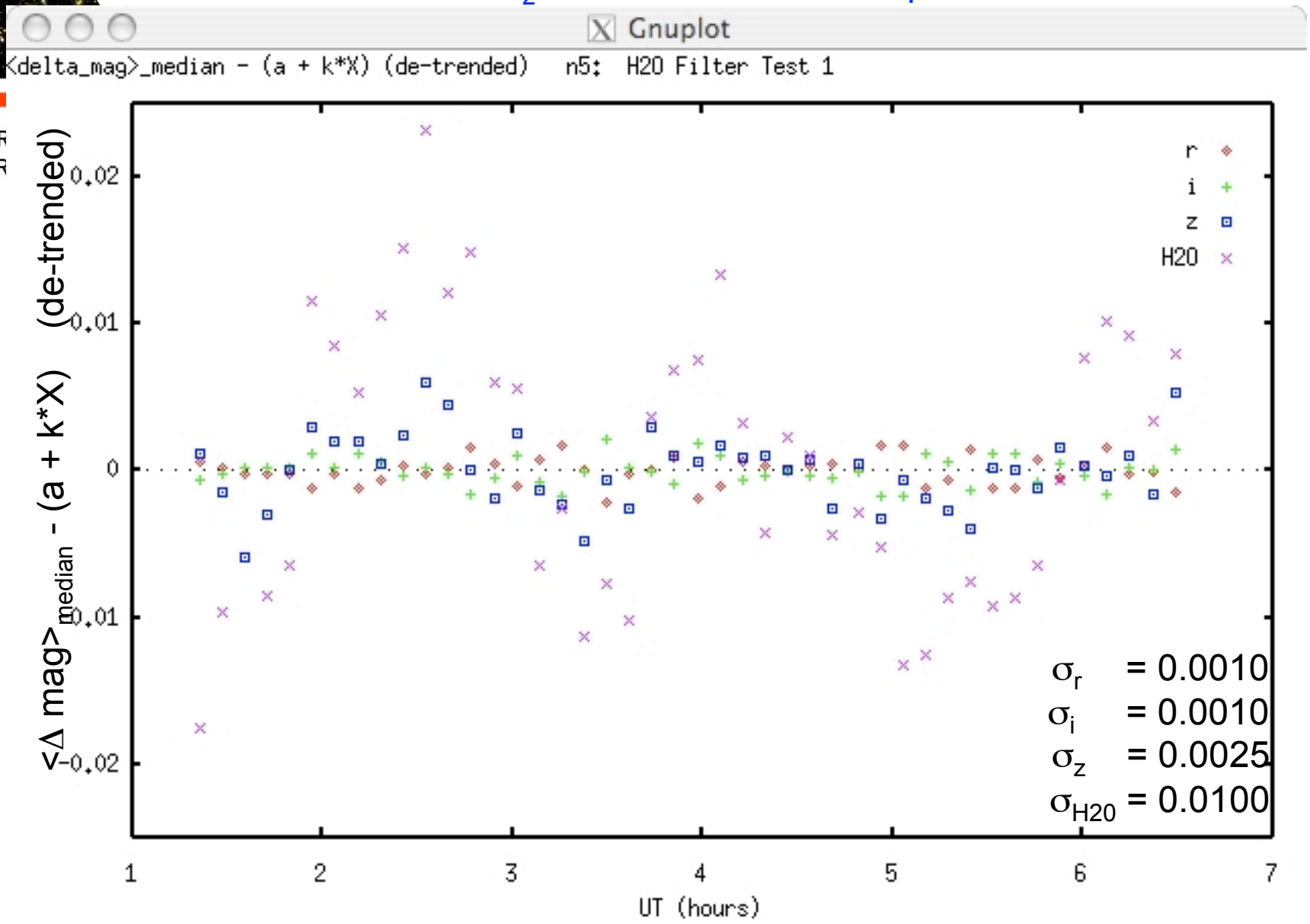
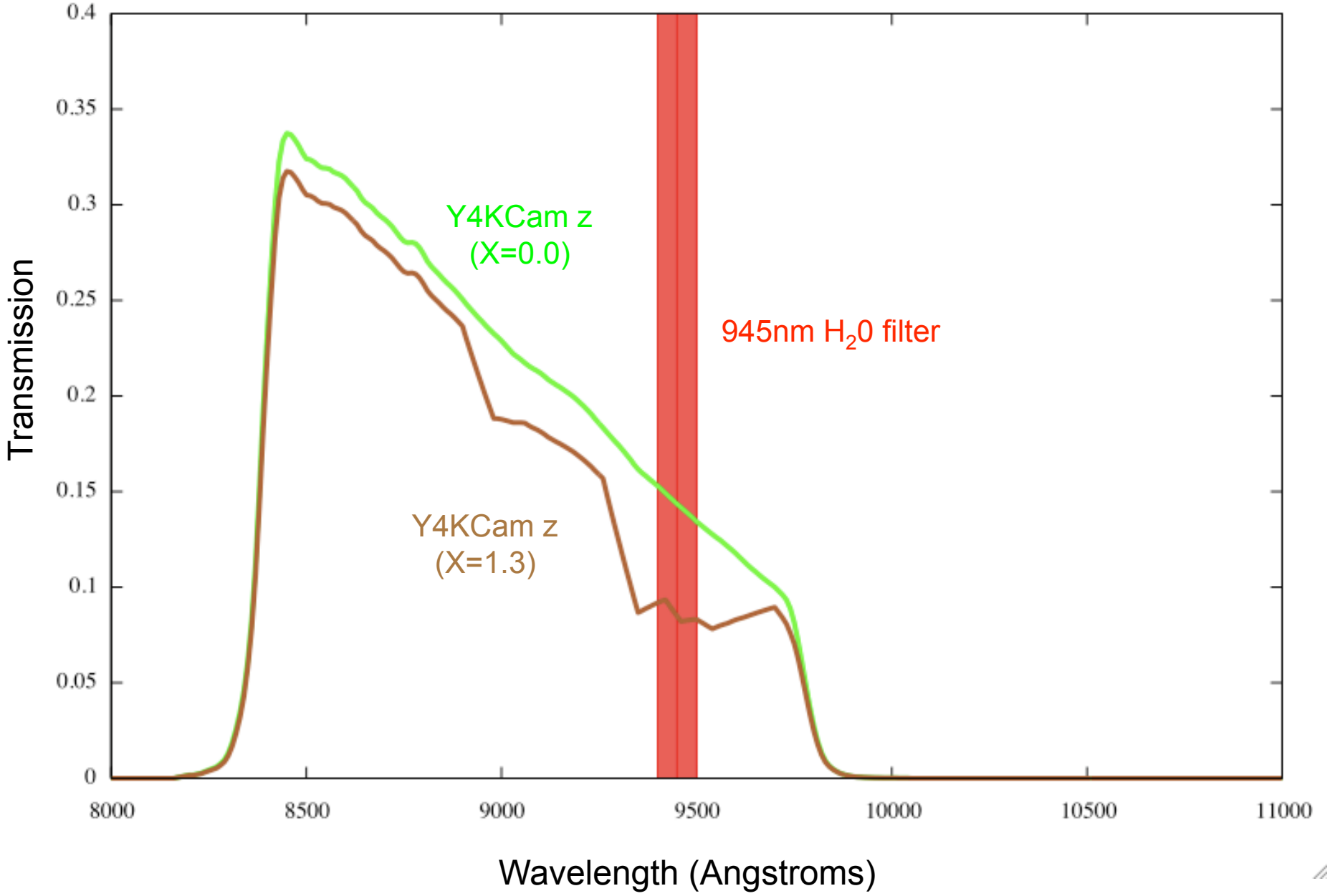
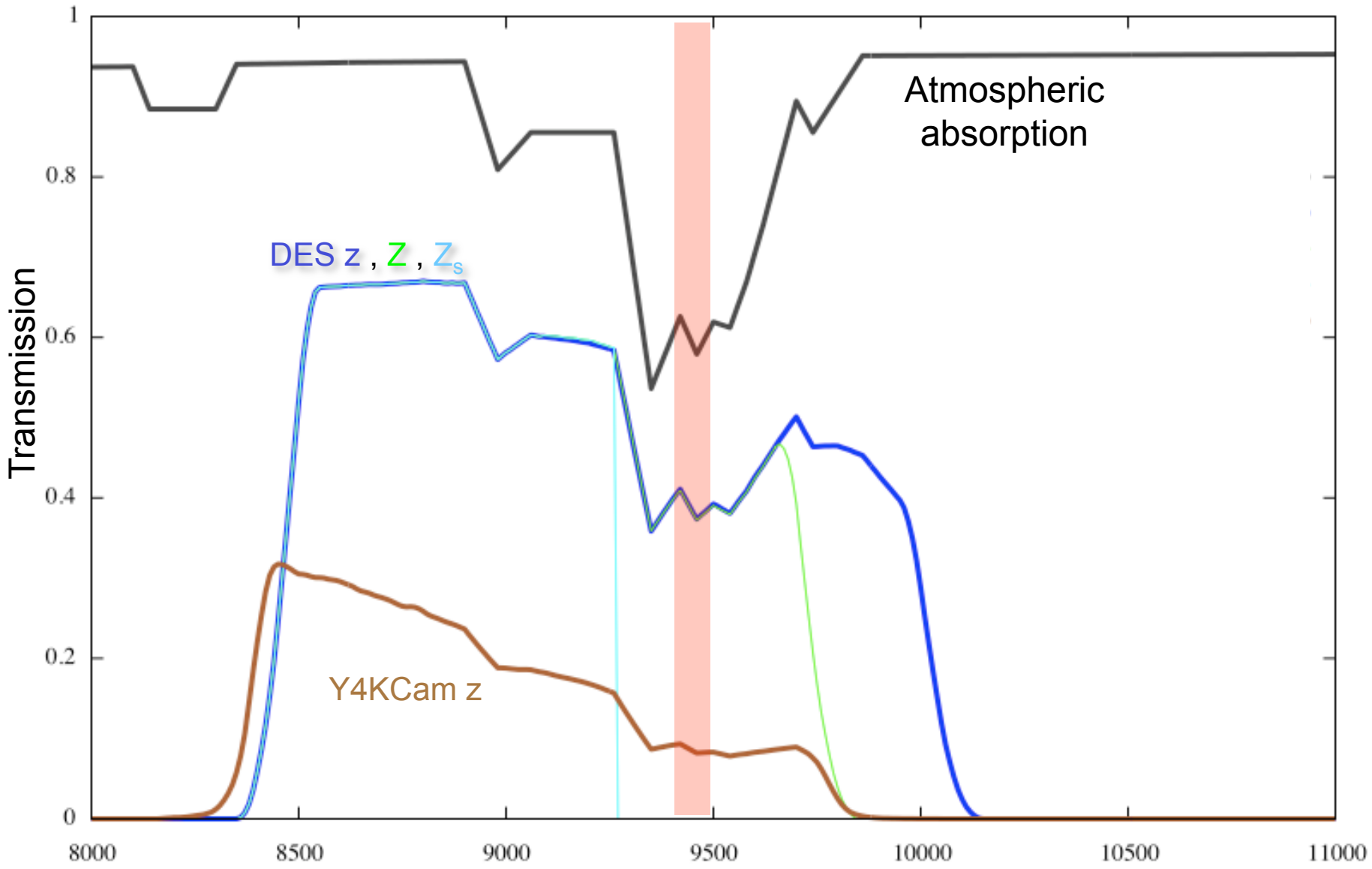



*Via suggestion from David Burke*

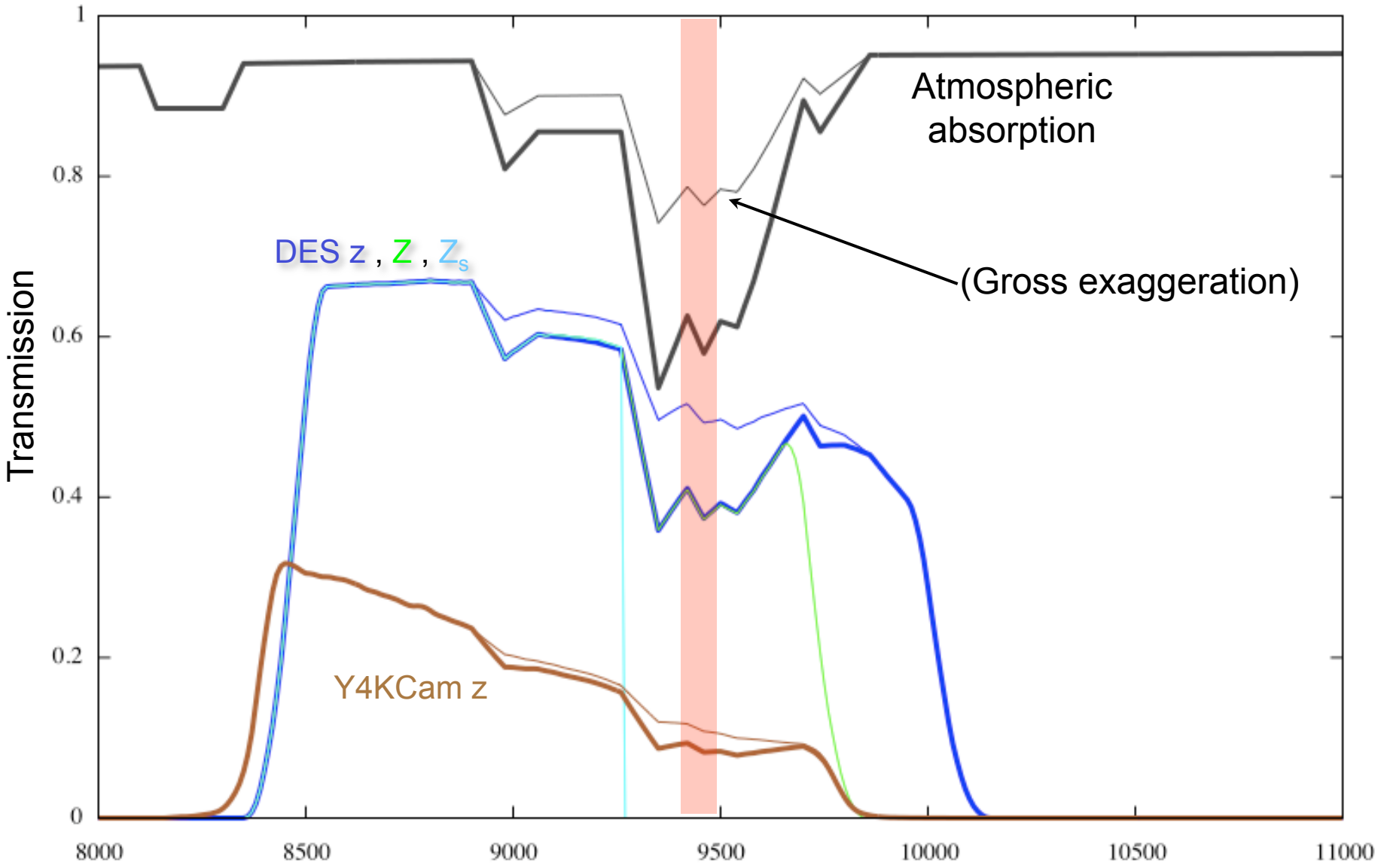
UT (hours)

# $H_2O$ Filter Tests (Y4KCam)






*Via suggestion from Huan Lin*

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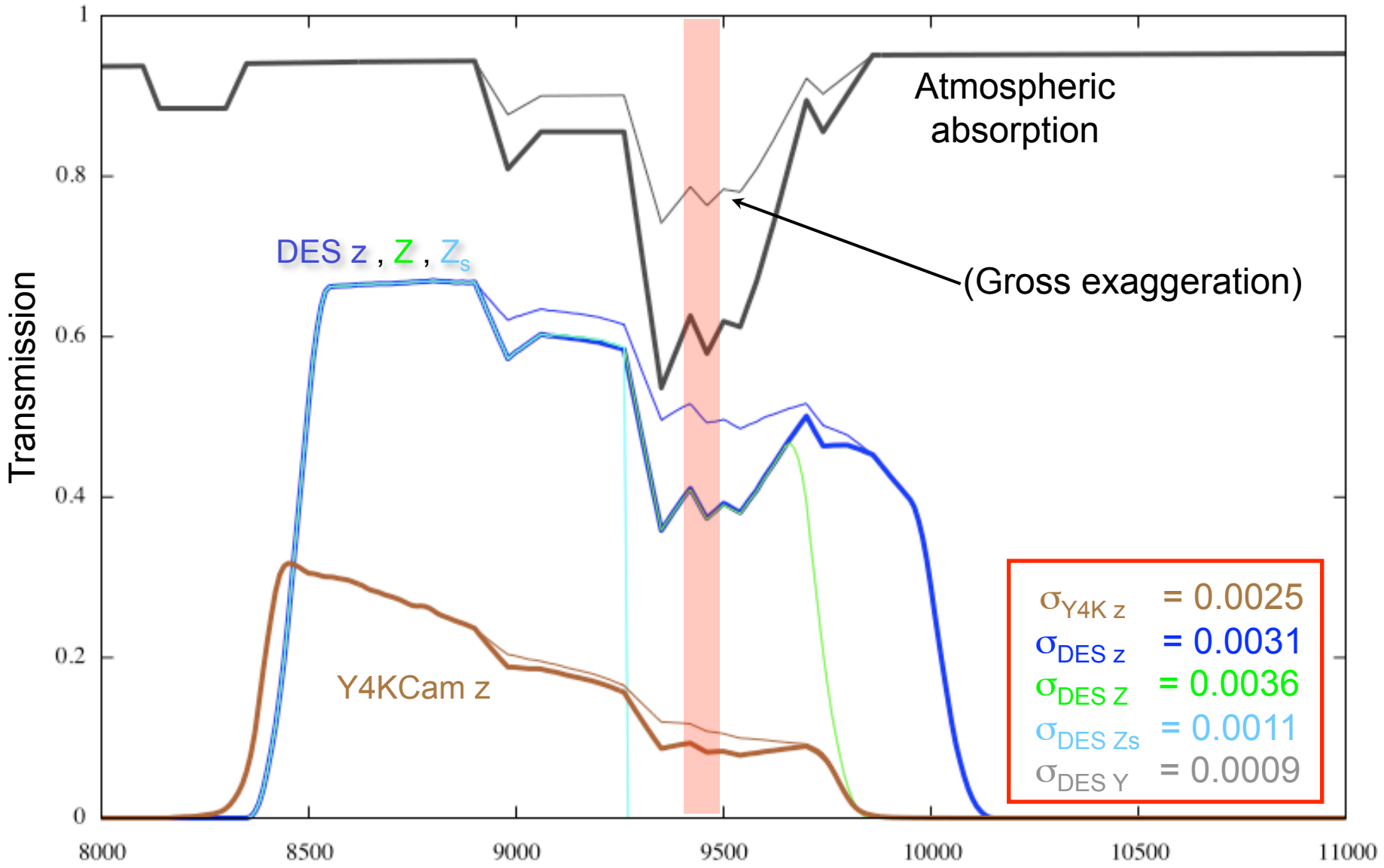


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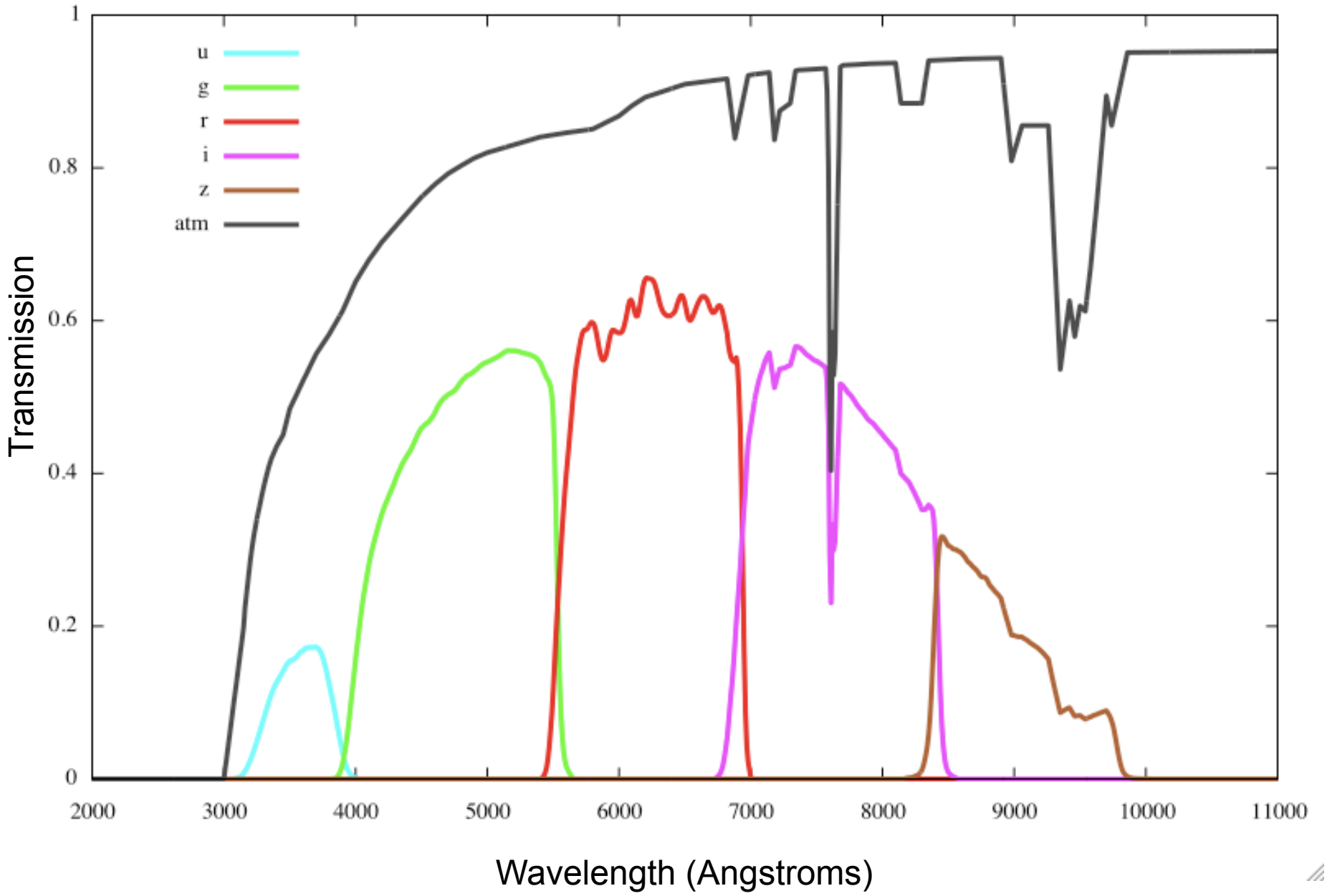
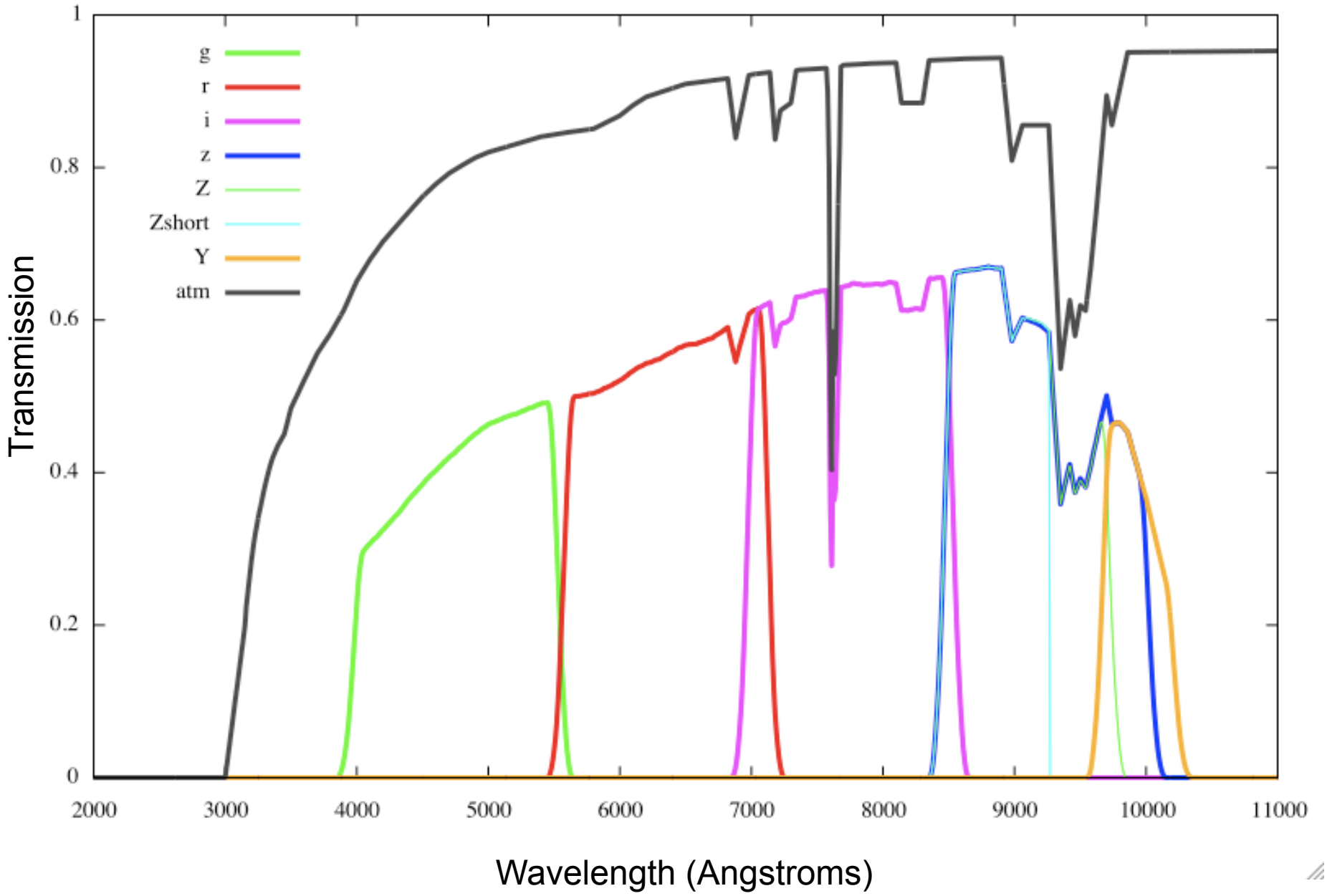
# Extra Slides

# Y4KCam ugriz Total Throughput



# DES gri(z,Z,$Z_s$)Y Total Throughput



DARK ENERGY SURVEY

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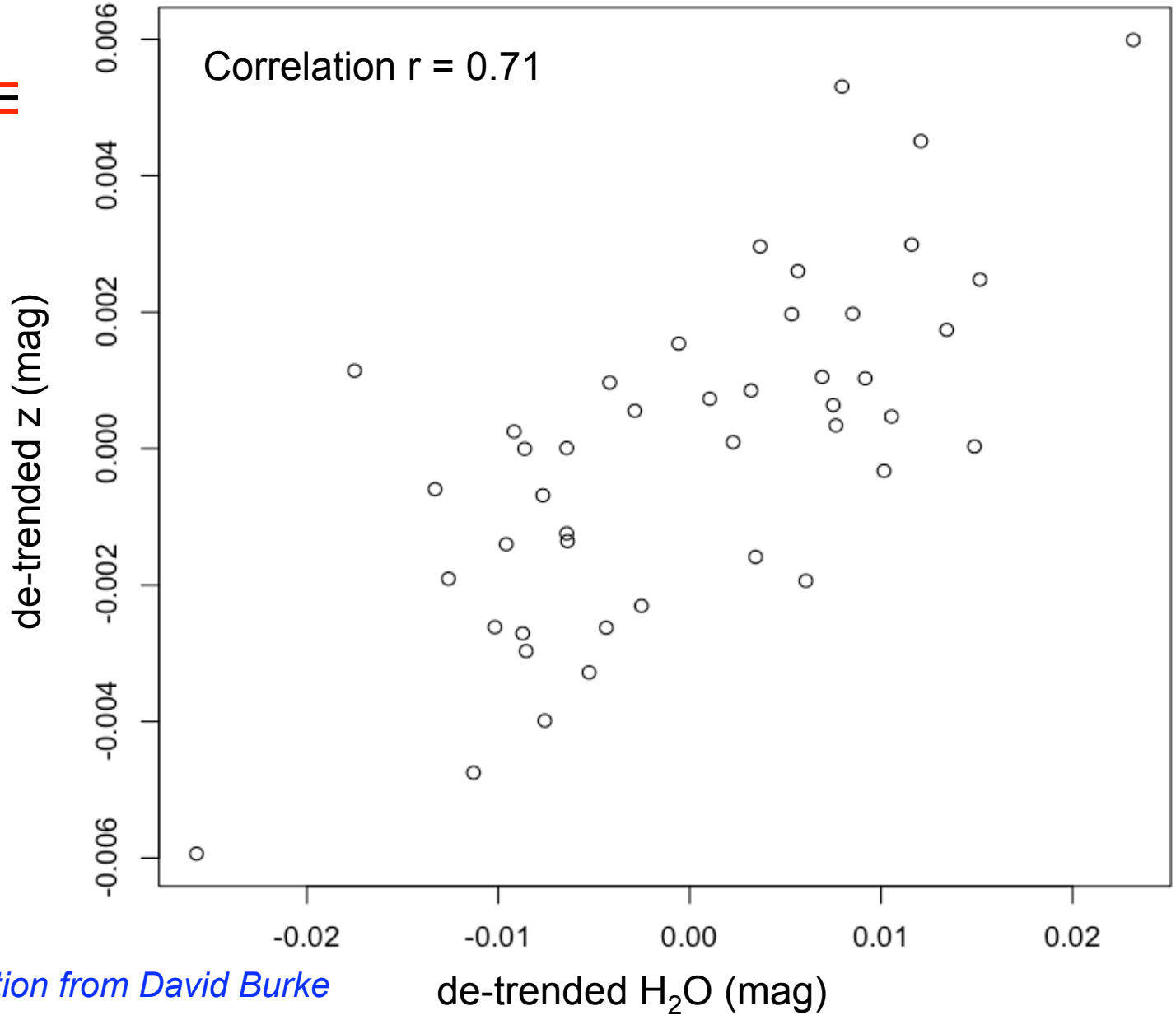
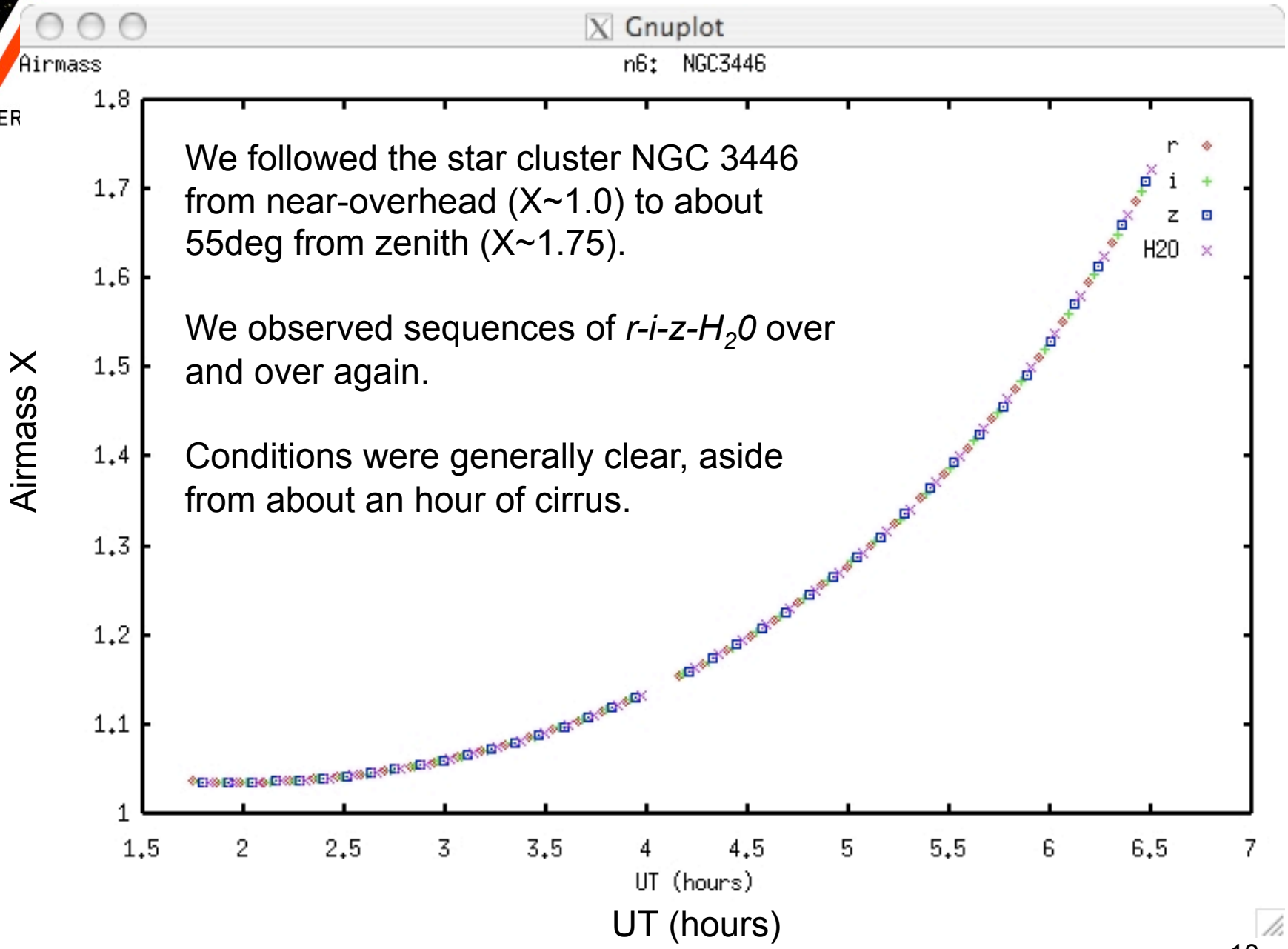



*Via suggestion from David Burke*

DARK ENER
SURVEY

# $H_2O$ Filter Test 3: 2008 April 16 UT



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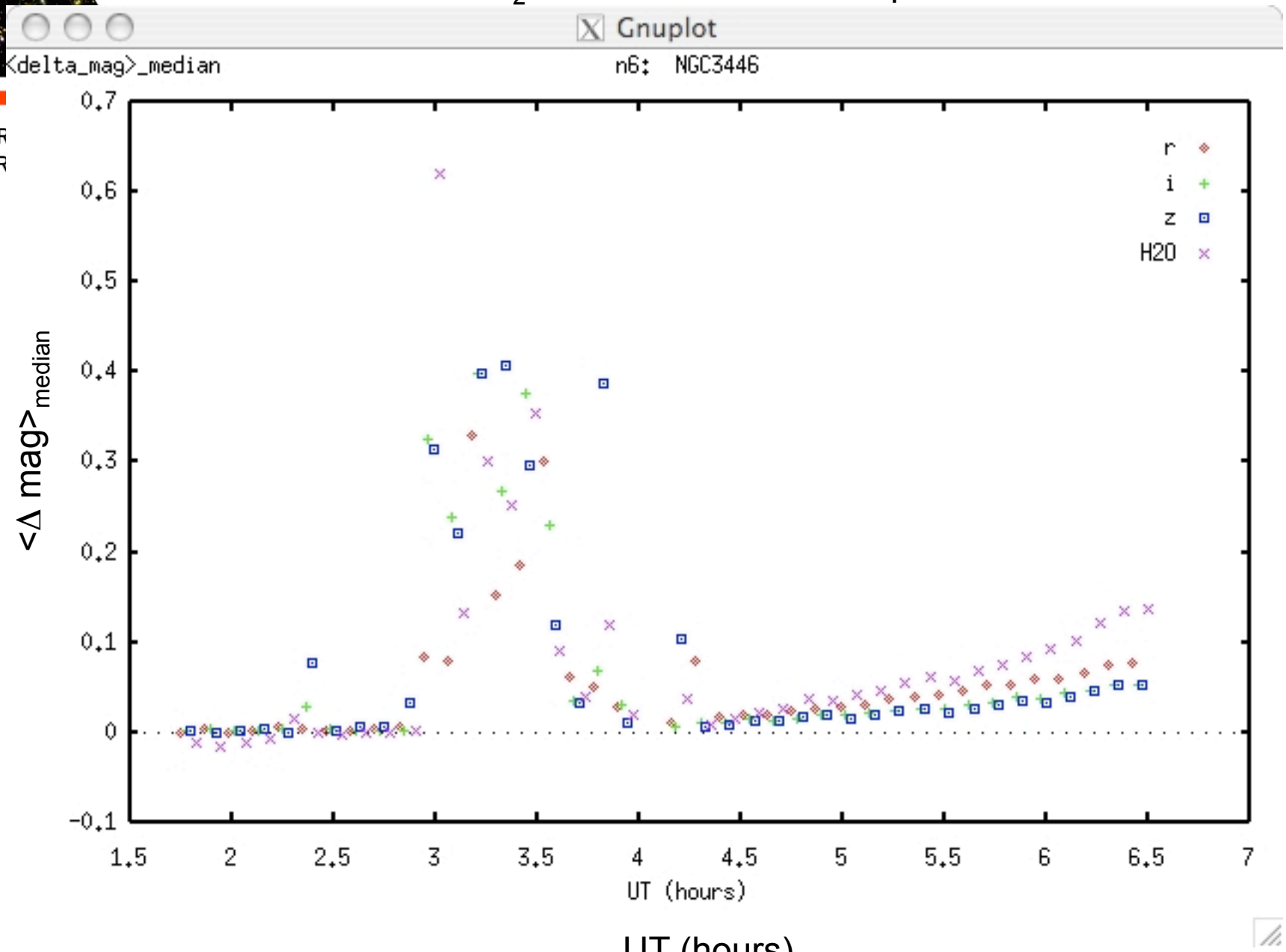




UT (hours)

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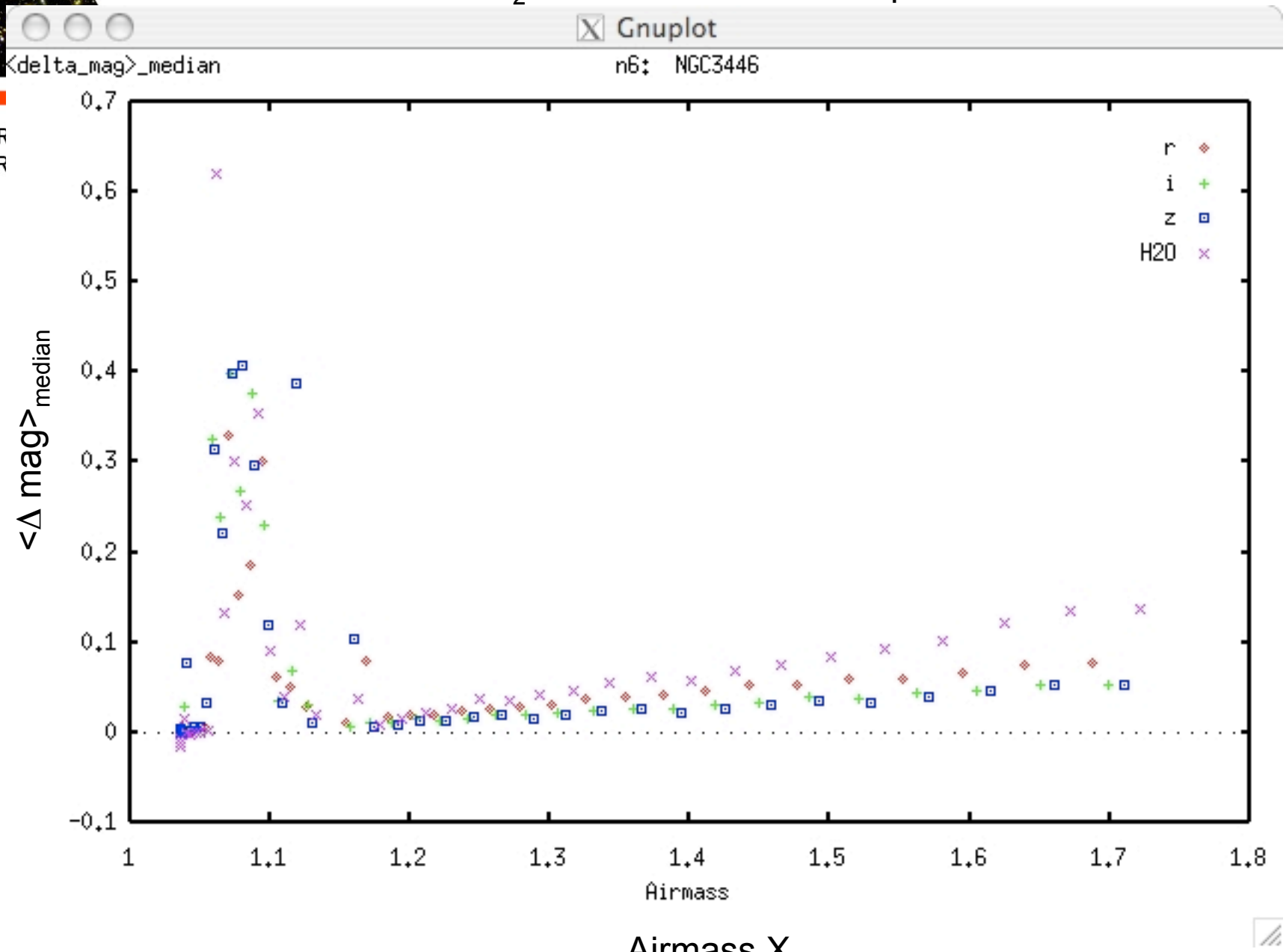


Airmass X

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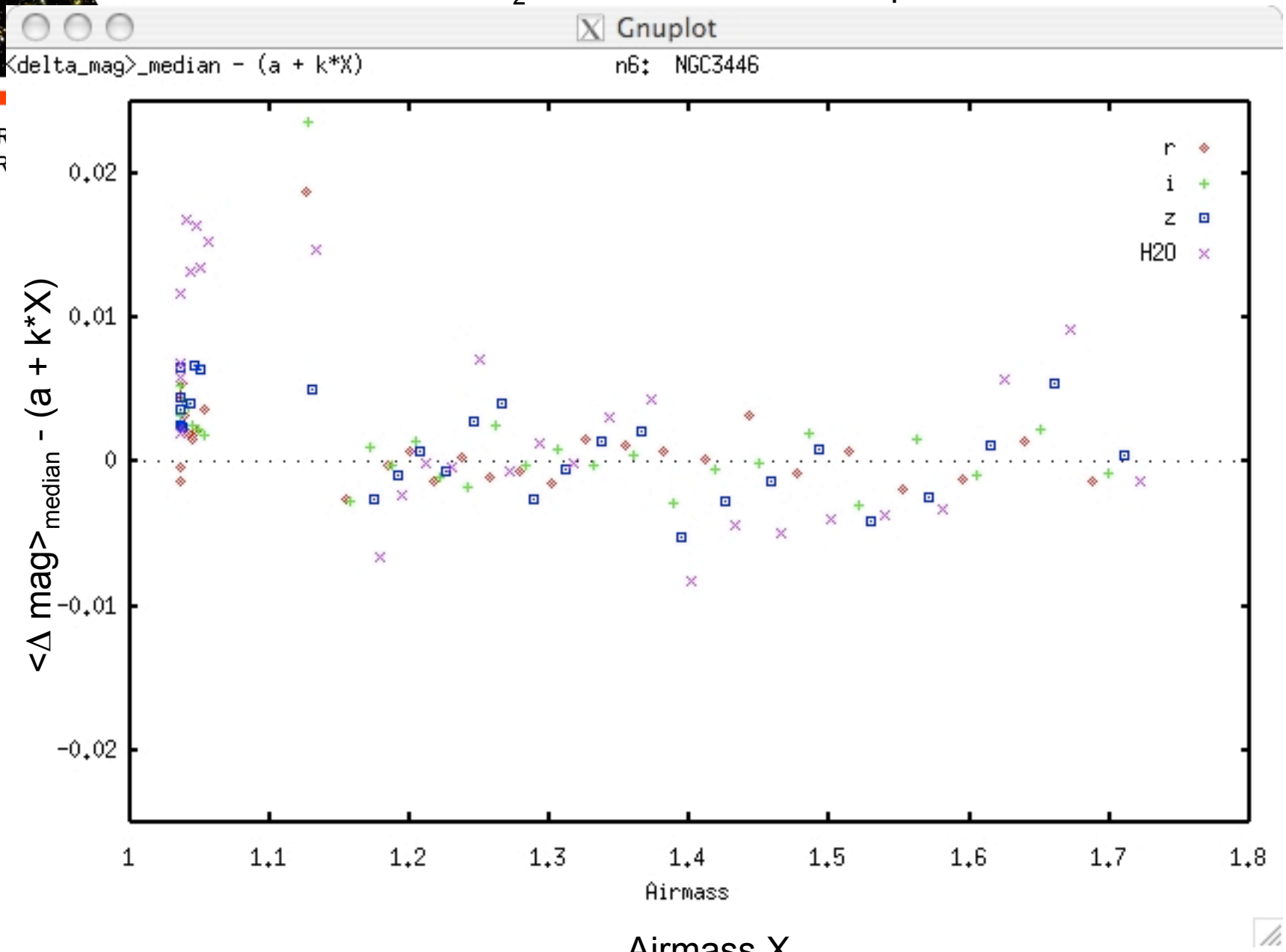


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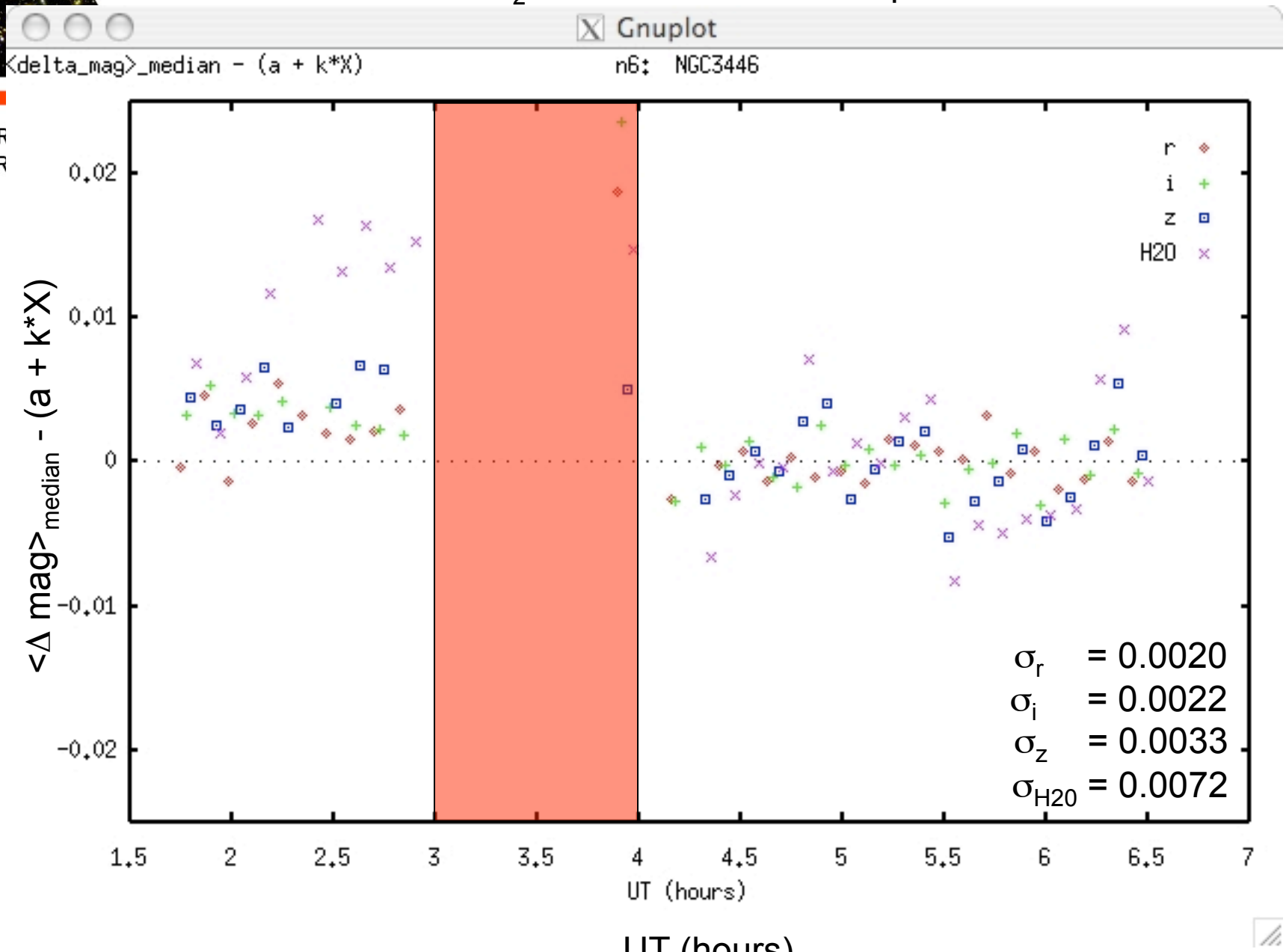


UT (hours)

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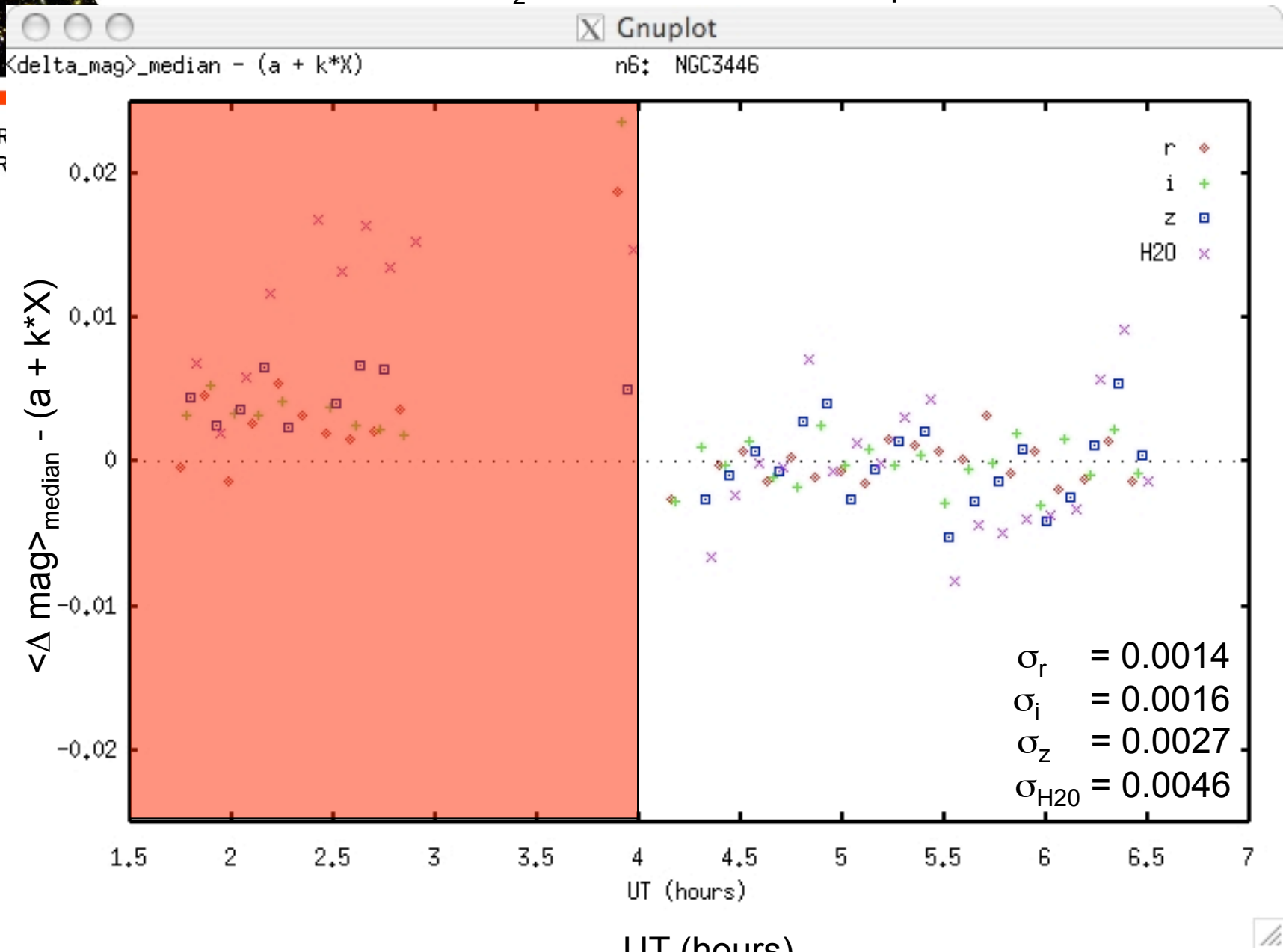


UT (hours)

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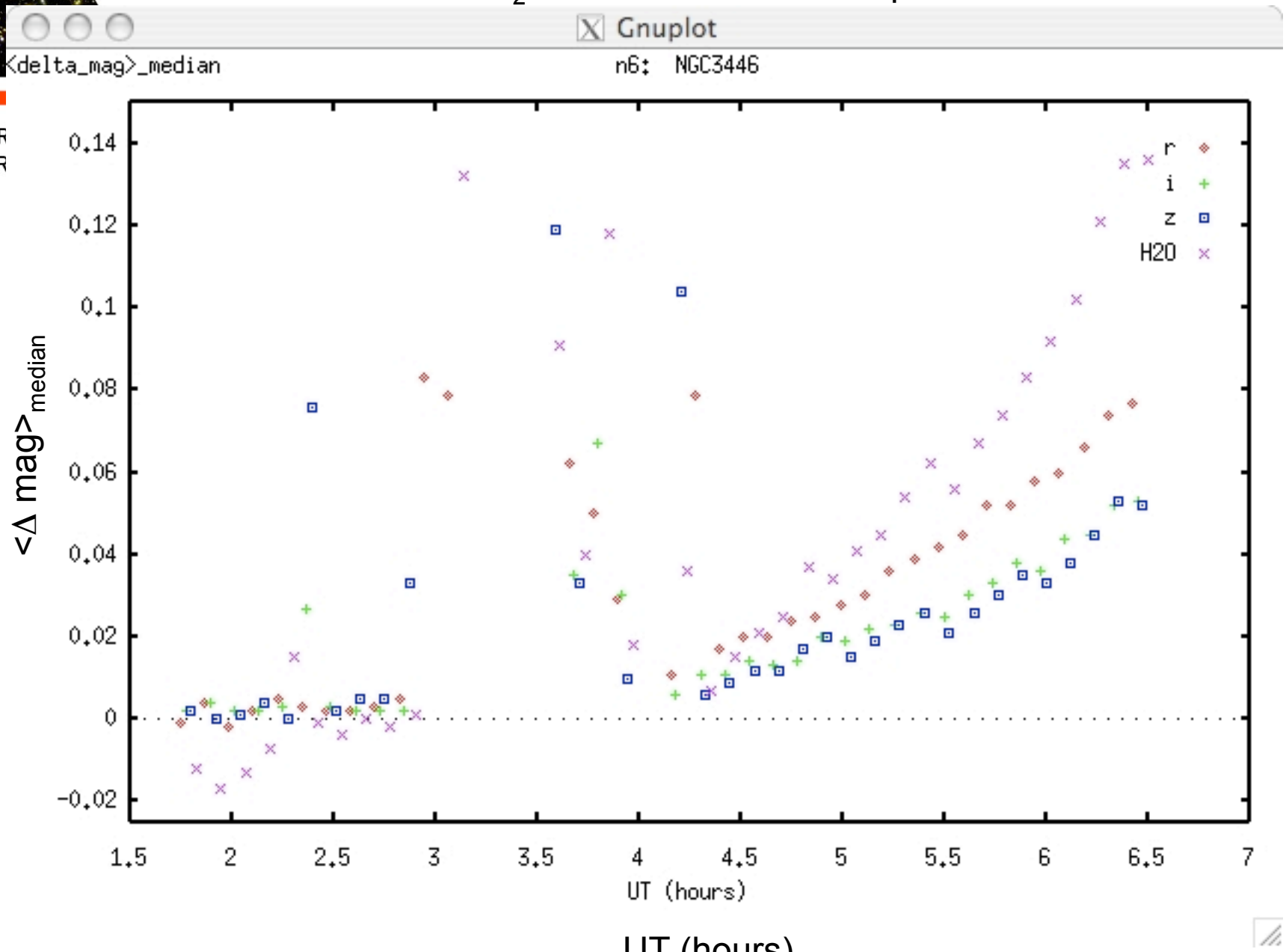


$<\Delta\ mag>_{median}$

UT (hours)

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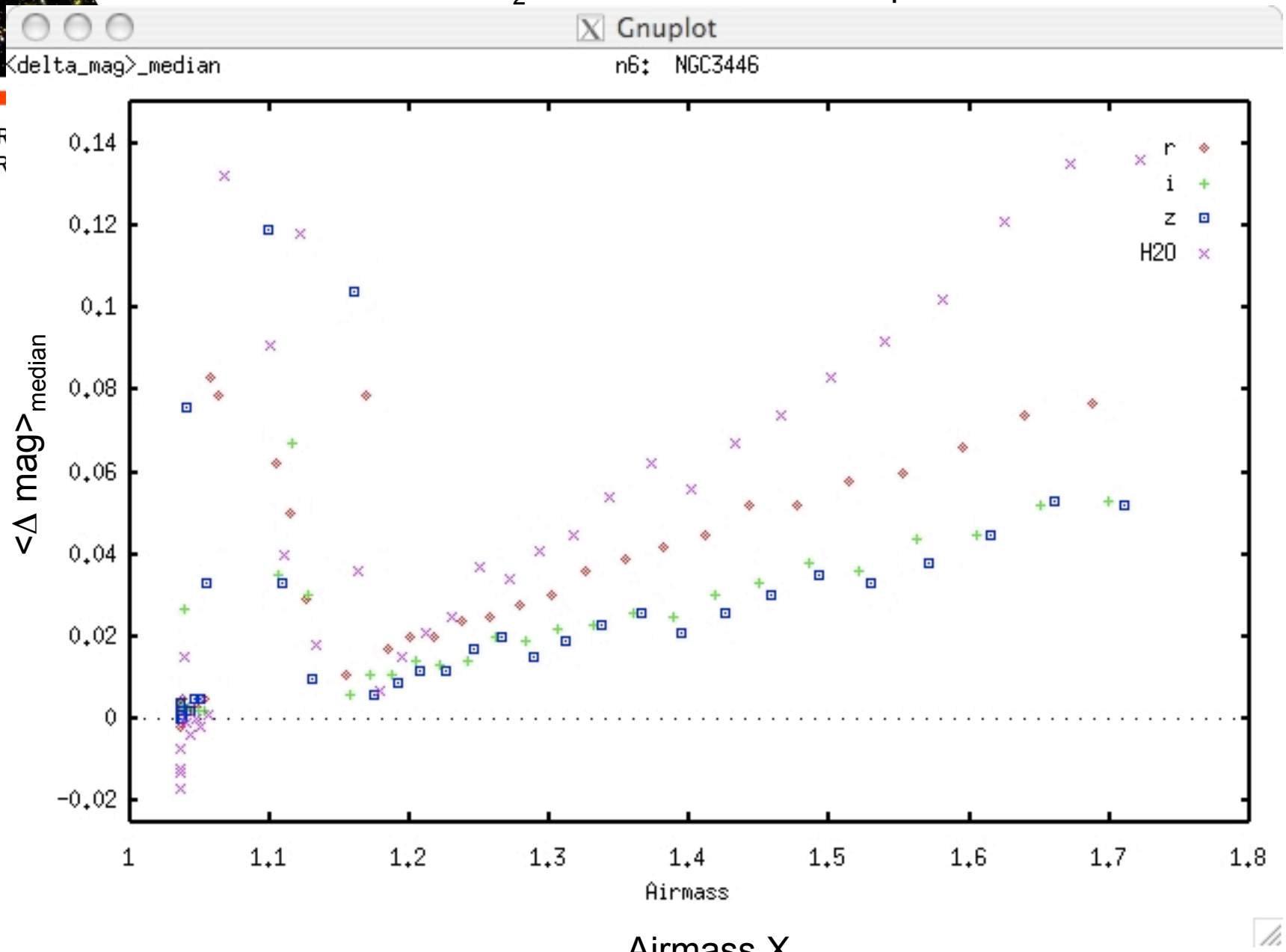


Airmass X

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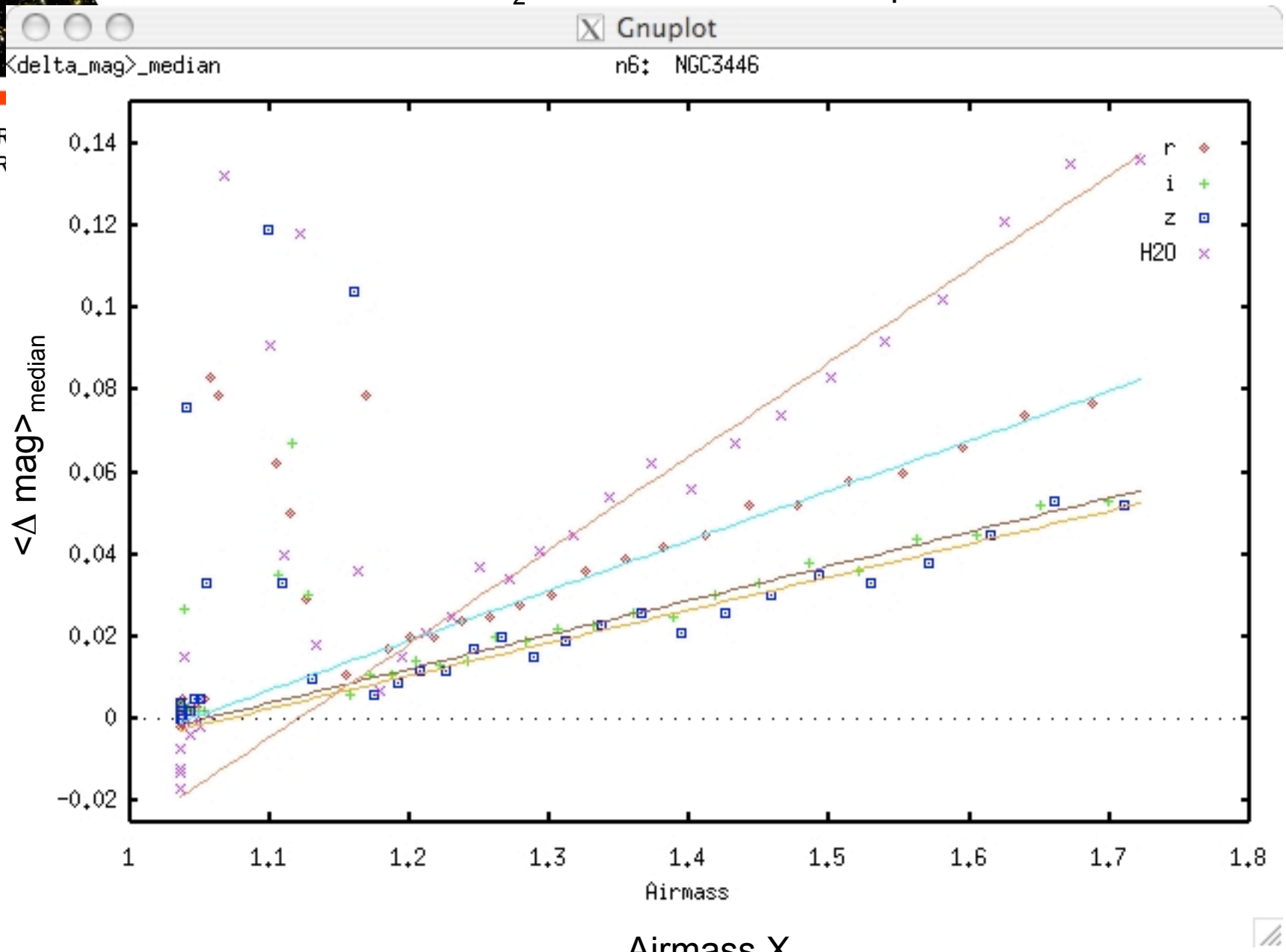


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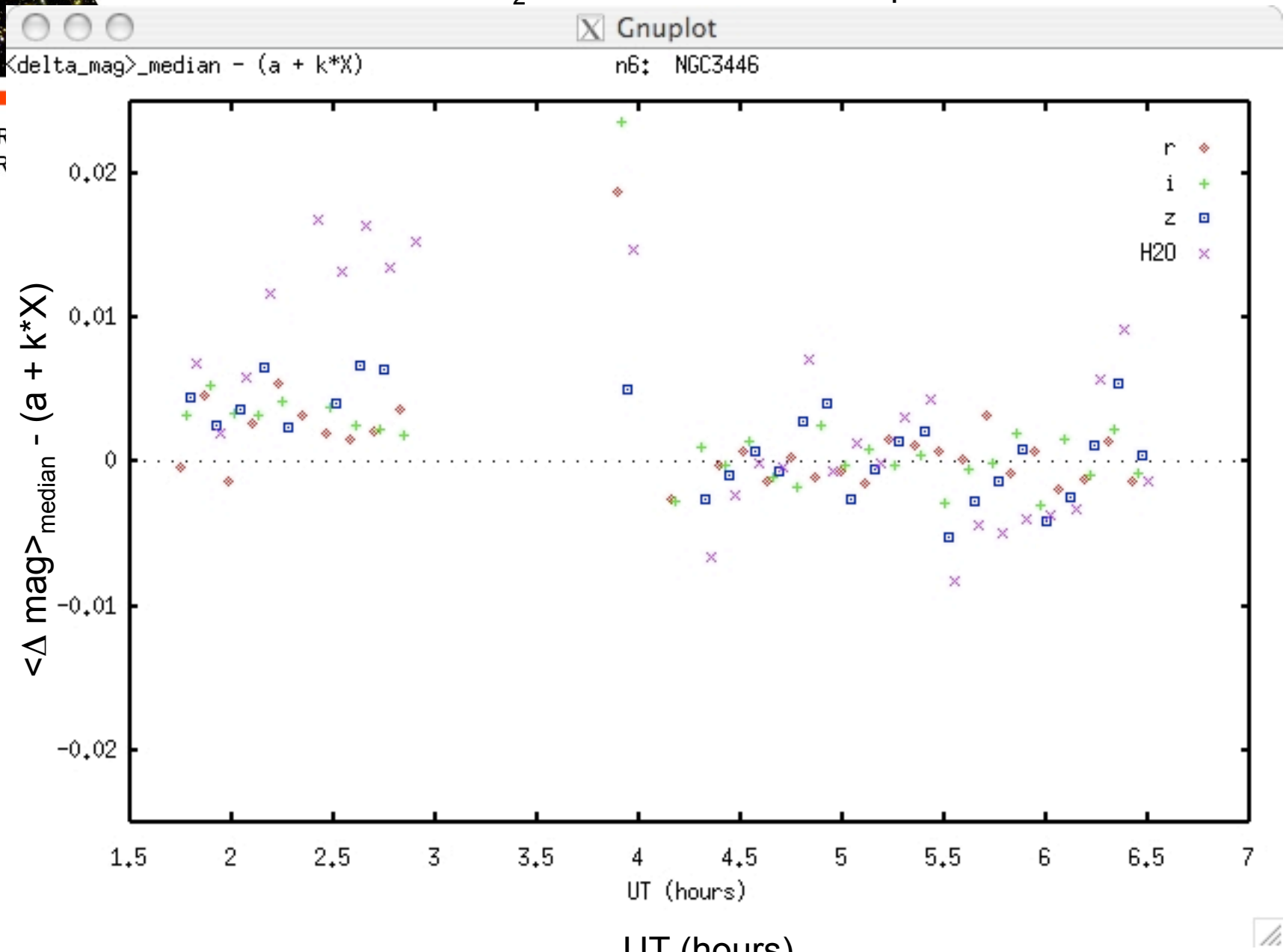
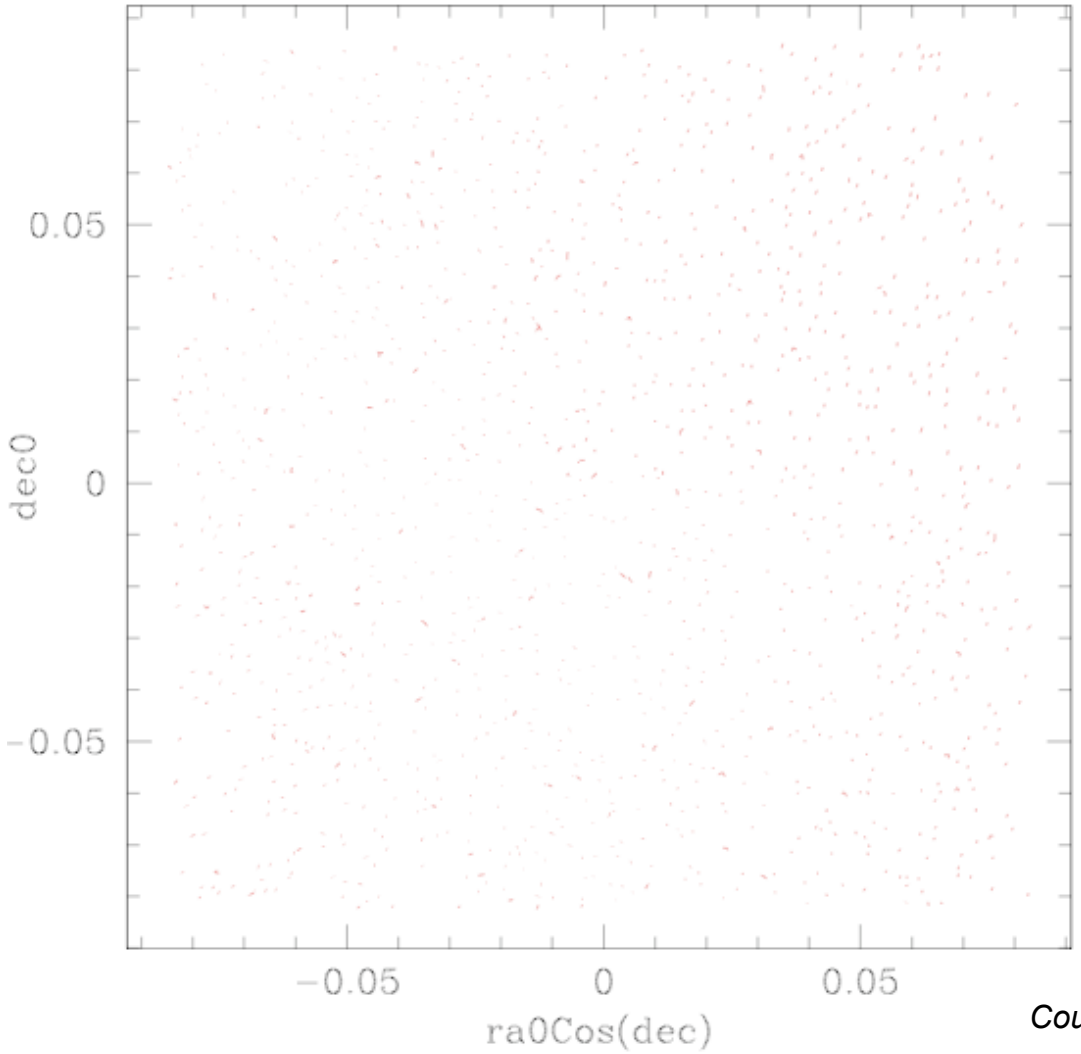



UT (hours)

DARK ENERGY
SURVEY

# Astrometry with DECam Chip
## (Night 4, NGC 5617)




*Courtesy: Sahar Allam*

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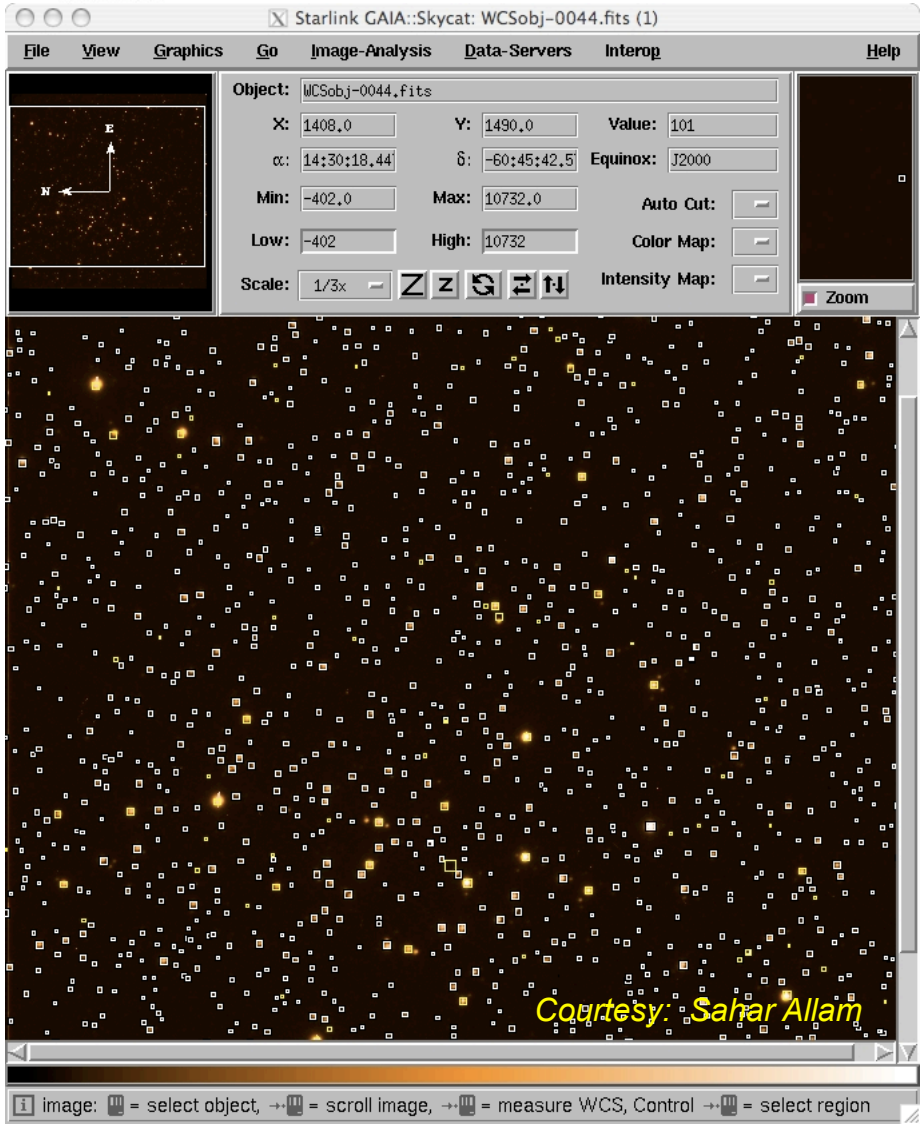
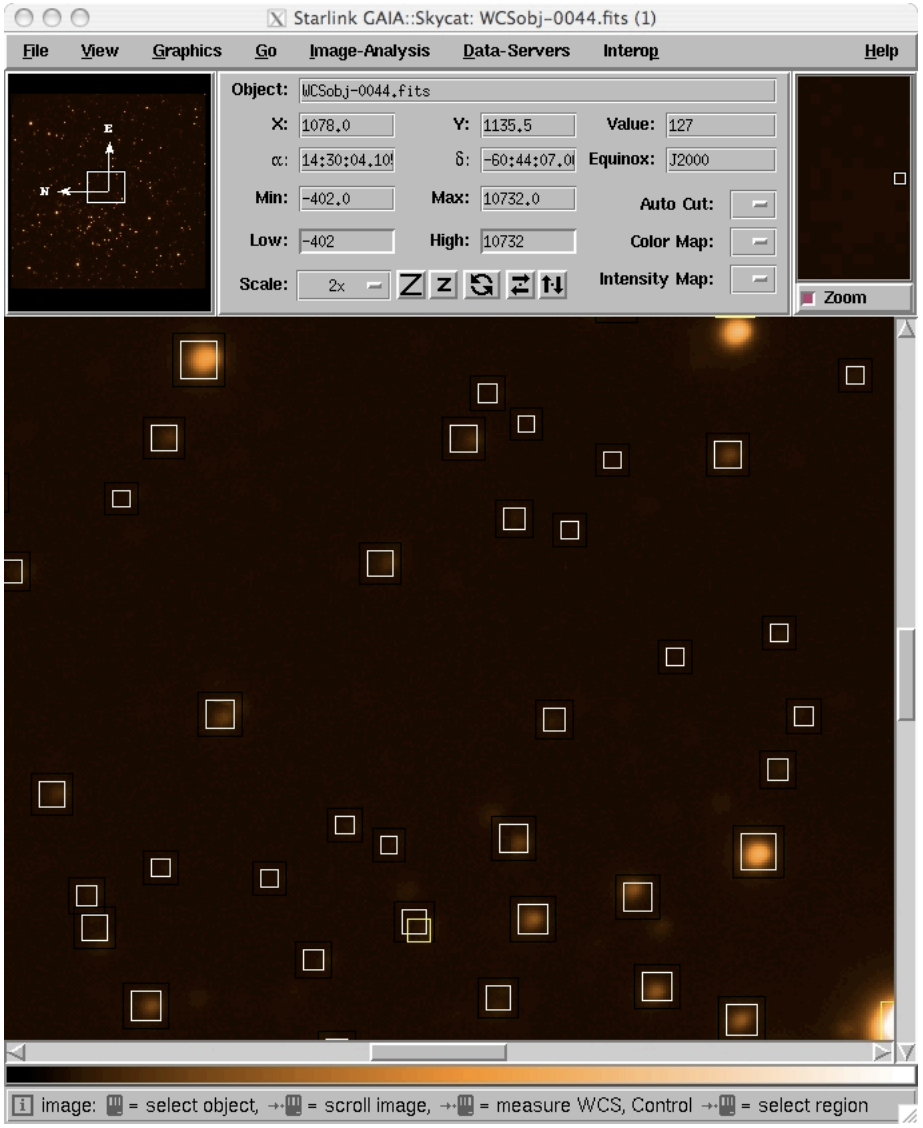
DARK ENERGY SURVEY



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SURVEY

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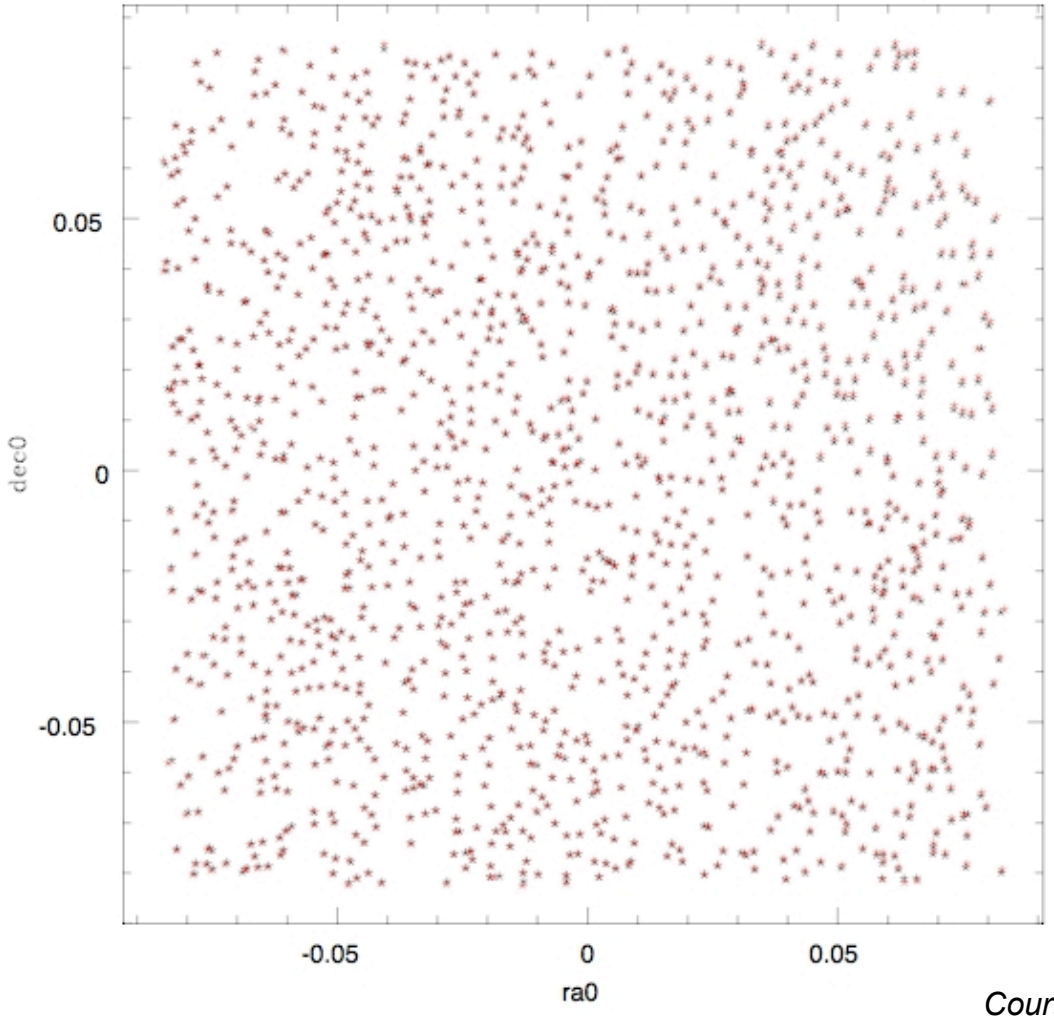
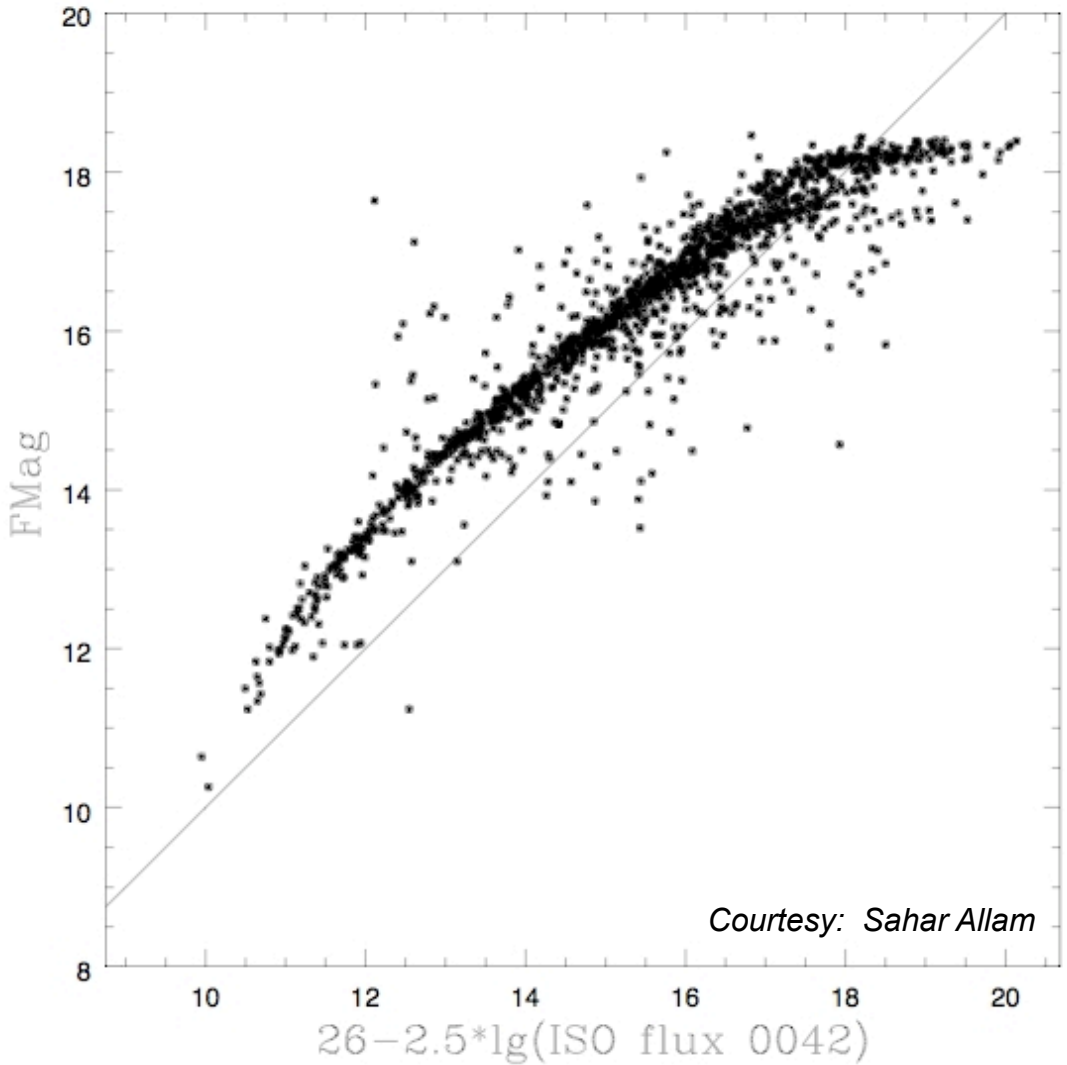



*Courtesy: Sahar Allam*

# Photometry with DECam Chip?
## (Night 4, NGC 5617)

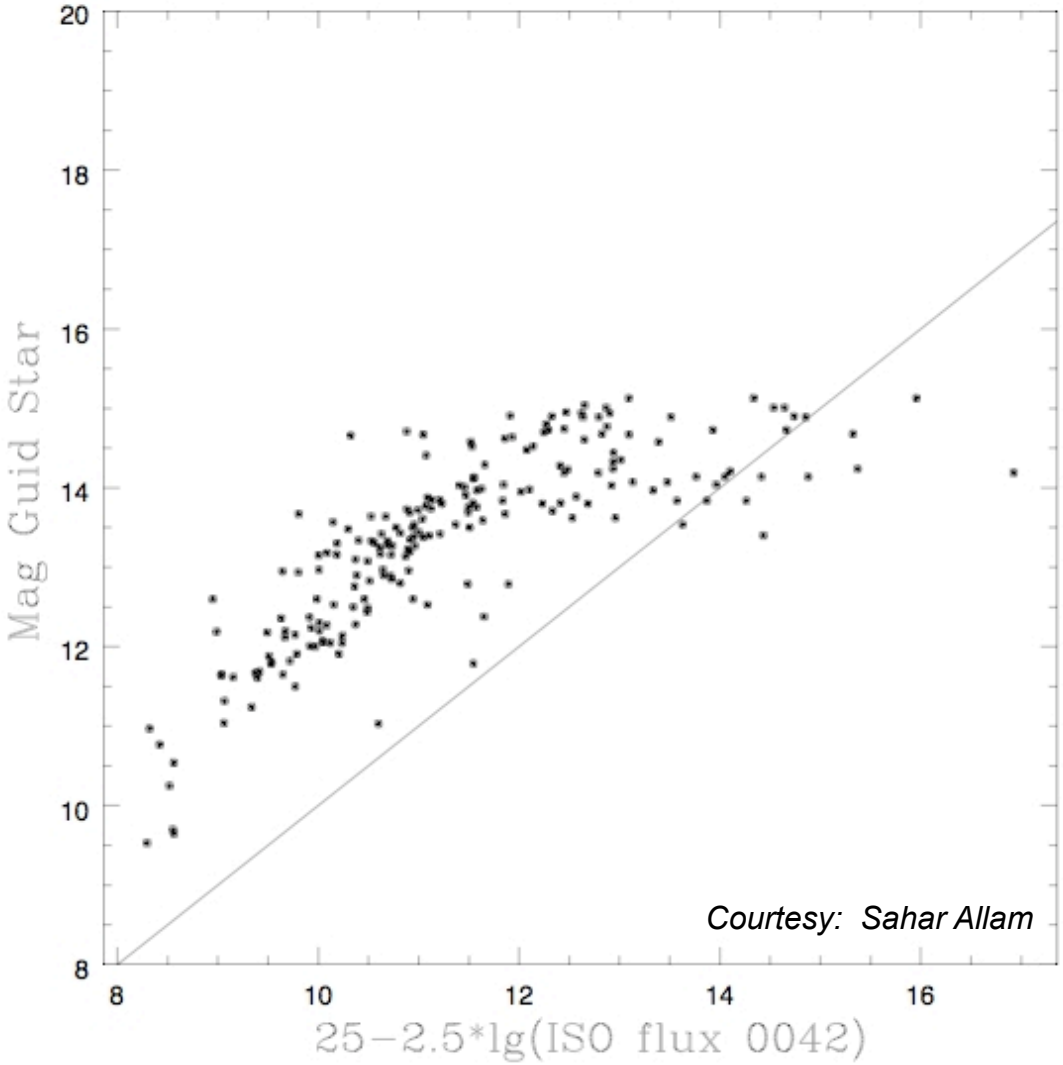
DARK ENERGY SURVEY




- Problems with the electronics
- E6 standard star field observed on same night yielded bizarre values for system throughput (2%-10%, depending on brightness of standard star)
- Here is a plot of photographic plate *F* magnitudes (red) against uncalibrated DECam chip *r* band magnitudes for GSC-2 stars within the NGC 5617 field
  - Broadly “OK” (bright stars are bright, faint stars are faint)
  - Slope < 1
  - Generally best not to do photometric calibration with GSC-2 stars, but definitely useful for getting a rough idea of what is going on

# Photometry with DECam Chip?
## (Night 4, NGC 5617)

DARK ENERGY SURVEY




- Here is a plot of photographic plate magnitudes against uncalibrated DECam chip *r* band magnitudes for GSC-1 stars within the NGC 5617 field
  - Broadly “OK” (bright stars are bright, faint stars are faint)