

Rapid cadence monitoring of ϵ Aurigae

Gary Billings, Nov 2009





- ST-7E + V filter + Canon 50mm FD (new style)
- ST-7EI + B filter + Canon 50 mm FD (old style)
- LX-200 fork
- 200' of Belden 8138 (\$\$\$!)
- 1990ish Celeron laptop + CCDSOFT
- Pentium 100 with homebrew linux camera pgm

- Platescale is 36.1"/pixel, so defocusing is desirable
- 5 mm thick filter in the fast light cone between lens and CCD chip prevents sharp focus
- PSF somewhat flat-topped: ideal!
- Using 8 pxl diameter measurement aperture

GAIA::Skycat: epsAurV 100 df.fit (1) <2>

File View Graphics Go Image-Analysis Data-Servers Help

Object: epsAurV_100_df.fit

X: 218.2 Y: 245.2 Value: 8177.28

α : 5:01:57.9 δ : 43:49:19 Equinox: J2000

Min: 3,93832 Max: 10608,4 Auto Cut:

Low: 9,46997 High: 117,358 Color Map:

Scale: 3x Intensity Map:

Zoom

Pixel Values

X: 234.0 Y: 245.0 Value: 32.0913276

Print... Save as... Close

Pixel Table

	215.2	216.2	217.2	218.2	219.2	220.2	221.2
242.2	64,8122	135,634	256,194	323,726	206,666	108,36	59,3376
243.2	137,814	429,256	1550,61	2218,37	1205,94	387,887	132,312
244.2	318,185	1561,85	6382,86	10553,2	6771,56	2280,78	392,784
245.2	570,864	3762,89	10608,4	8177,28	9366,88	4729,75	673,133
246.2	471,541	2373,59	7587,64	8763,2	7927,47	4113,43	678,528
247.2	223,983	997,901	3703,15	5151,87	4144,97	1839,14	387,593
248.2	136,781	344,649	817,804	1034,27	862,689	477,521	129,069

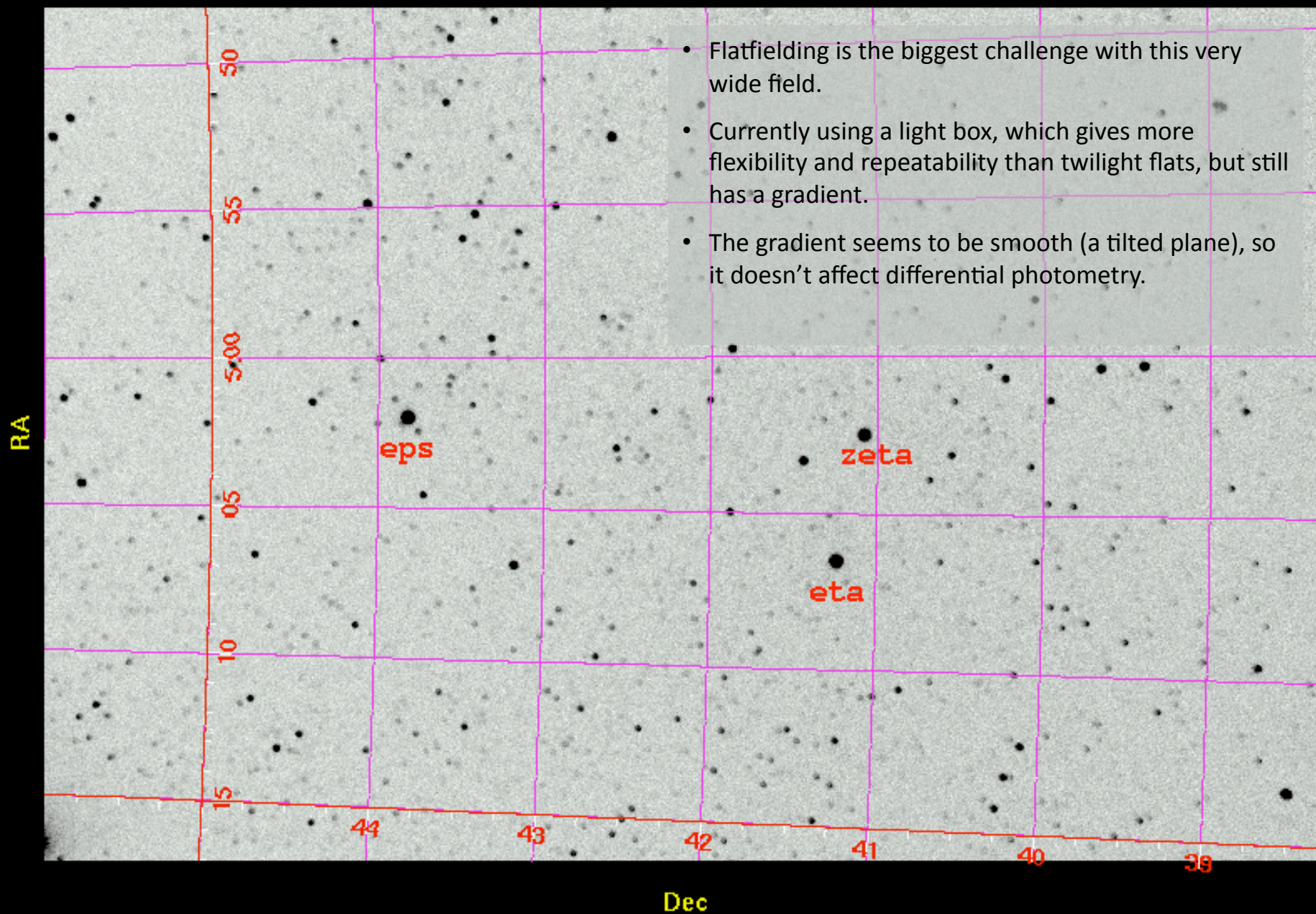
Statistics

Min: 59,3376 Max: 10608,4 Ave: 2561,92 RMS: 3173,57 N: 49

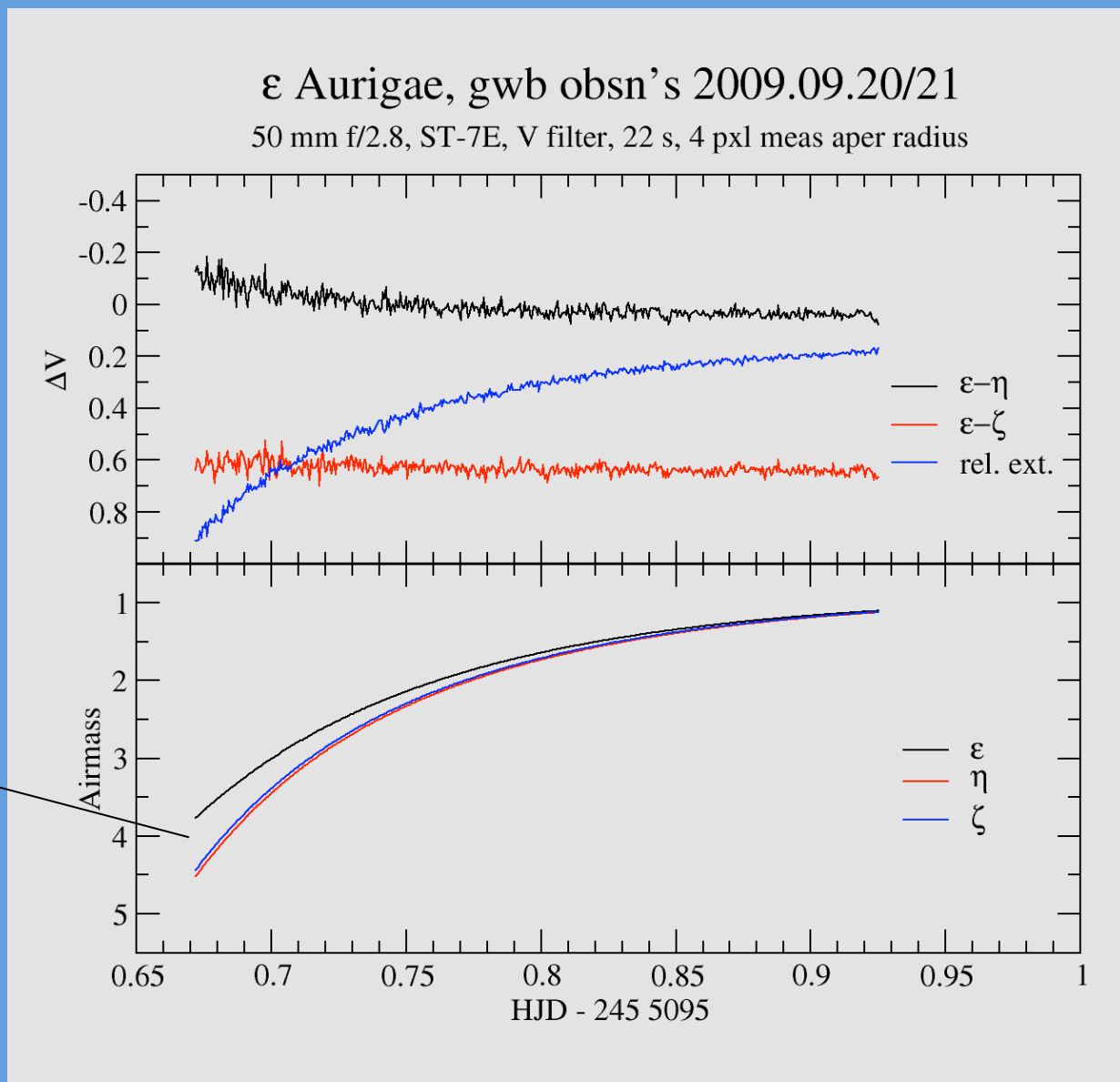
Statistics Close

i image: = select object, = scroll image,

eps Aur image 100 of 2009 Oct 20 21



- differential photometry of the instrumental magnitudes shows a large differential extinction effect through the night
- at the start of the run, the target and the comp see a difference of 0.7 airmasses



- airmass effect removed using extinction coeff and zeropoint derived from comp star
- variable (upper) and comp (lower) show similar light “curves”
- Conclusion: no “signal” other than the slow fade (so far!)

