2009 Epsilon Aurigae Eclipse
Campaign Newsletter #11
Spring 2009

Jeff Hopkins, Editor
Hopkins Phoenix Observatory

Campaign Web Site
http://www.hposoft.com/Campaign09.html
https://twitter.com/epsilon_Aurigae

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In This Newsletter

Editor's Remarks

Dear Colleagues,

We are entering end-of-season for observing epsilon Aurigae. Currently epsilon Aurigae is recovering from a dimming to nearly 3.13 (V). Only a month or so observing remains, depending on the observer's latitude and obstructions, where we can study out-of-eclipse data. There is a chance to catch some pre-eclipse phenomena due to the secondary. During the 1982 - 1984 eclipse there were some interesting pre-ingress variations.

A few people around the world have started their own Epsilon Aurigae Campaign web sites.

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The BAA VSS have launched their own Epsilon Aurigae Campaign web page.
See: http://www.britastro.org/vss/epsaur_camp.html

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On 19 March 2009 Hubert Hautecler" wrote:
Our Eps Aur campaign is on-line on the English part of our web site:
http://www.vvs.be/wg/wvs/index_en.php

Clear skies, Hubert
http://www.vvs.be/wg/wvs/
hubert.hautecler@telenet.be

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We have a report on the recent EE Cephei eclipse and ongoing information on the zeta Aurigae eclipse which is just past mid-point.

For those doing CCD photometry, now is an excellent time to calibrate your system using M67. It is near the meridian in the early evening. For more information check:

ftp://ftp.nofs.navy.mil/pub/outgoing/aah/m67/m67paper.txt
http://binaries.boulder.swri.edu/binaries/fields/m67ids.txt
ftp://ftp.aavso.org/public/calib/m67.dat

Last change to get the book ***Epsilon Aurigae A Mysterious Star System*** for a reduced price. Good until 15 April 2009. See the last page of this Newsletter.

Jeff Hopkins
Campaign Newsletter Editor

Eta and Zeta Aurigae Photometry

As noted in a previous Newsletter, some CCD and visual observers are using eta and zeta Aurigae as comparison stars, HPO has added those stars to the UBV data observations to see how stable they are. They will be observed throughout the eclipse of zeta Aurigae in March 2009. The following is a list of the HPO data to-date:

Eta Aurigae

UT Date	JD	V Mag	SD	B Mag	SD	U Mag	SD
21 Mar 09	4,911	3.2418	0.0060	3.2374	0.0028	2.7069	0.0060
18 Mar 09	4,908	3.2431	0.0021	3.2405	0.0053	2.7256	0.0240
17 Mar 09	4,907	3.2356	0.0045	3.2256	0.0066	2.6875	0.0170
16 Mar 09	4,906	3.2363	0.0193	3.2296	0.0118	2.6952	0.0120
13 Mar 09	4,903	3.2373	0.0041	3.2282	0.0060	2.6976	0.0060
11 Mar 09	4,901	3.2399	0.0035	3.2410	0.0073	2.7080	0.0020
10 Mar 09	4,900	3.2397	0.0023	3.2350	0.0049	2.7029	0.0030
08 Mar 09	4,898	3.2370	0.0029	3.2324	0.0024	2.6944	0.0050
18 Jan 09	4,849	3.2340	0.0024	3.2263	0.0053	2.6805	0.0200
16 Jan 09	4,847	3.2447	0.0066	3.2423	0.0024	2.7014	0.0110
14 Jan 09	4,845	3.2324	0.0049	3.2309	0.0008	2.7016	0.0100
10 Jan 09	4,841	3.2343	0.0017	3.2304	0.0081	2.6781	0.0100
08 Jan 09	4,839	3.2403	0.0152	3.2361	0.0093	2.6937	0.0120
03 Jan 09	4,834	3.2315	0.0024	3.2287	0.0045	2.6841	0.0210
01 Jan 09	4,832	3.2279	0.0084	3.2248	0.0052	2.6898	0.0070
31 Dec 08	4,831	3.2386	0.0030	3.2352	0.0062	2.6951	0.0050
30 Dec 08	4,830	3.2281	0.0054	3.2260	0.0013	2.6924	0.0019
29 Dec 08	4,829	3.2620	0.0285	3.2585	0.0178	2.7504	0.0450
21 Dec 08	4,821	3.2396	0.0042	3.2339	0.0012	2.6919	0.0100
05 Dec 08	4,805	3.2386	0.0087	3.2275	0.0094	2.6977	0.0230
03 Dec 08	4,803	3.2353	0.0032	3.2267	0.0170	2.6977	0.0090
01 Dec 08	4,801	3.2347	0.0049	3.2312	0.0022	2.6937	0.0210
30 Nov 08	4,800	3.2249	0.0047	3.2322	0.0014	2.6856	0.0140
24 Nov 08	4,794	3.2182	0.0087	3.1905	0.0372	2.6475	0.0569
19 Nov 08	4,789	3.2391	0.0023	3.2336	0.0037	2.6979	0.0150
17 Nov 08	4,787	3.2293	0.0058	3.2259	0.0018	2.6811	0.0043
15 Nov 08	4,785	3.2373	0.0010	3.2322	0.0018	2.6985	0.0110

To date eta Aurigae has averaged V = 3.231 with a data spread (SD) of 0.018 magnitudes

Note: No observations were made from mid-January 2009 to 8 March 2009 due to telescope equipment problems and weather.

Differential Photometry λ Aurigae as Comparison star V= 4.71; B= 5.34; U= 5.46

Note: JD is 2,450,000 +, magnitudes are average of 3 reduced magnitudes, extinction corrected with nightly extinction coefficients determined, color transformed.

Zeta Aurigae

UT Date	JD	V Mag	SD	B Mag	SD	U Mag	SD
21 Mar 09	4,911	3.8485	0.0076	5.3490	0.0012	6.9273	0.0130
18 Mar 09	4,908	3.8485	0.0025	5.3614	0.0026	6.9402	0.0080
17 Mar 09	4,907	3.8598	0.0036	5.3620	0.0072	6.9244	0.0160
16 Mar 09	4,906	3.8514	0.0092	5.3662	0.0093	6.9330	0.0230
13 Mar 09	4,903	3.8559	0.0047	5.3572	0.0036	6.9357	0.0030
11 Mar 09	4,901	3.8452	0.0022	5.3533	0.0007	6.9337	0.0080
10 Mar 09	4,900	3.8461	0.0024	5.3492	0.0055	6.9232	0.0080
08 Mar 09	4,898	3.8688	0.0125	5.3759	0.0138	6.9489	0.0040
18 Jan 09	4,849	3.7352	0.0038	4.8742	0.0096	5.2121	0.0040
16 Jan 09	4,847	3.7410	0.0025	4.8742	0.0046	5.2118	0.0120
14 Jan 09	4,845	3.7415	0.0015	4.8719	0.0080	5.2205	0.0060
10 Jan 09	4,841	3.7347	0.0008	4.8679	0.0010	5.2077	0.0260
08 Jan 09	4,839	3.7390	0.0069	4.8694	0.0067	5.2062	0.0060
03 Jan 09	4,834	3.7394	0.0046	4.8726	0.0053	5.2096	0.0020
01 Jan 09	4,832	3.7258	0.0095	4.8593	0.0040	5.2090	0.0090
31 Dec 08	4,831	3.7695	0.0016	4.9030	0.0010	5.2307	0.0010
30 Dec 08	4,830	3.7265	0.0028	4.8638	0.0080	5.2018	0.0079
29 Dec 08	4,829	3.7435	0.0007	4.8698	0.0064	5.2066	0.0130
27 Dec 08	4,827	3.7075	0.0319	4.8460	0.0288	5.1692	0.0400
21 Dec 08	4,821	3.7613	0.0330	4.8876	0.0262	5.2511	0.0580
05 Dec 08	4,805	3.7322	0.0145	4.8610	0.0105	5.1930	0.0170
03 Dec 08	4,803	3.7301	0.0022	4.8482	0.0188	5.2070	0.0110
01 Dec 08	4,801	3.7269	0.0113	4.8627	0.0070	5.2093	0.0130
30 Nov 08	4,800	3.7260	0.0048	4.8607	0.0014	5.1923	0.0180
24 Nov 08	4,794	3.7082	0.0458	4.8215	0.0652	5.1451	0.0890
19 Nov 08	4,789	3.7309	0.0050	4.8626	0.0051	5.2064	0.0060
17 Nov 08	4,787	3.7313	0.0074	4.8609	0.0039	5.1896	0.0109
15 Nov 08	4,785	3.7194	0.0036	4.8598	0.0024	5.1792	0.0105

Note: No observations were made from mid-January 2009 to 8 March 2009 due to telescope equipment problems and weather.

Differential Photometry λ Aurigae as Comparison star V= 4.71; B= 5.34; U= 5.46

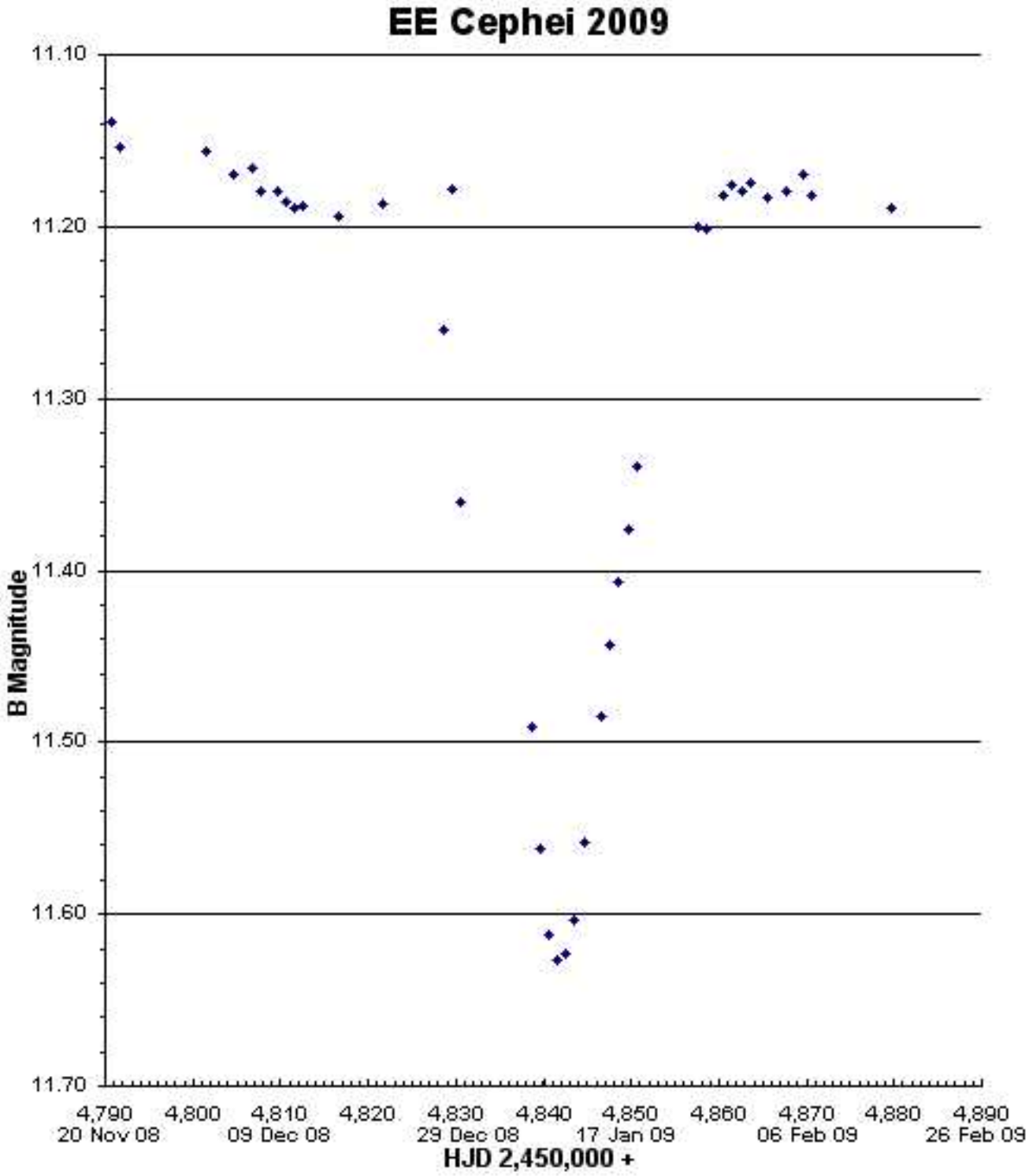
Note: JD is 2,450,000 +, magnitudes are average of 3 reduced magnitudes, extinction corrected with nightly extinction coefficients determined, color transformed.

Zeta Aurigae Eclipse

While little photometry data was taken during February and early March, it appears zeta started its eclipse on time. Zeta Aurigae was predicted to ingress its 972 day (2.66 years) eclipse for 40 days around 03 March 2009 and egressing around 11 April 2009. Using the original epoch the eclipse is due 22 March, but based on the 1985 eclipse the 03 March date seems more likely. The eclipse is around 2.0 magnitudes deep in the U band and around 0.1 magnitude in the V band. During the eclipse zeta Aurigae is noticeably dimmer when compared to eta and epsilon Aurigae. The next Newsletter will have more information on the zeta Aurigae eclipse.

EE Cephei Eclipse 2009

From November 2008 through February 2009 the AAVSO Sonoita Research Observatory (SRO) in southern Arizona imaged EE Cephei with BVRI filters. John Pye and Lauren Elder of the Maui Community College in Kahului, Hawaii extracted the flux data of EE Cephei and 3 comparison stars from each image. Jeff Hopkins of the Hopkins Phoenix Observatory in Phoenix, Arizona. then reduced the data including color transformation calibration. The below figure shows a plot of the B filter data.



Further analysis was done at the Hopkins Phoenix Observatory. A paper will be presented by John Pye at the May 2009 SAS meeting in Big Bear Lake, California describing the project in detail. The below table is a summary of the contact times and magnitude changes. Typical error was 0.01 magnitude or better.

	Contact Times						Avg	
Band	1st	2nd/Mid/3rd	4th	Duration	Max	Min	OOE	Mag Δ
B	4826.0	4842.1	4852.3	26.3 d	10.139	11.627	11.176	0.451
V	4825.1	4841.5	4855.6	30.0 d	10.786	11.214	10.802	0.412
R	4826.0	4841.7	4856.1	30.1 d	10.373	10.784	10.398	0.386
I	4825.6	4841.5	4855.7	30.1 d	10.004	10.377	10.023	0.354

Contact Times, Magnitudes (Times are JD + 2,450,000 +)

Note: OOE means Out of Eclipse.

Cezary Galan set up an EE Cephei Campaign 2008/2009 for the eclipse and many other observers submitted data to the campaign.

Information can be found at: http://www.astri.uni.torun.pl/~cgalan/EECep

2008/2009 Season Photometry Data Summary

David Daiku Trowbridge

Comp stars 1 Aur, 2 Aur and Omega in order to average results I had obtained using Eta and Zeta on July 21 (I have no images of Lambda yet).

B	SD	V	SD	R	SD	I	SD
3.319	0.12	3.134	0.042	2.374	0.139	2.062	0.195

Dr. Tiziano Colombo

JD 2,450,000 +	UT	# Obs	Epsilon Aurigae V Mag	Rho Aurigae V Mag
4698.60416	2:30	6	3.16	4.80
4705.58333	2:00	5	3.17	4.82
4712.56736	1:37	9	2.99	4.69
4713.63194	3:10	7	3.21	4.72
4719.60763	2:35	13	3.05	4.90
4720.63055	2:42	6	3.25	4.70

Richard Miles
Golden Hill Observatory

Location: Stourton Caundle, Dorset, England
Latitude/Longitude/Altitude (ASL): West 2.405 deg, North 50.931 deg
Time Zone: GMT = 0 hours
Telescope: 0.06-m Refractor (Takahashi FS60C)
Filter Set: Johnson V, Cousins Ic
Detector: CCD Camera (Type: Starlight Xpress SXV-H9)

Observation Date: 25/26 November 2008 22:58 UT
JD: 2,454,796.4573
Johnson V magnitude: 2.989 +/-0.005
Cousins Ic magnitude: 2.206 +/-0.012
V-Ic magnitude: 0.783 +/-0.015
Observation Date: 26/27 December 2008 19:48 UT
JD: 2,454,827.3253
Johnson V magnitude: 2.990 +/-0.004
Cousins Ic magnitude: 2.232 +/-0.010
V-Ic magnitude: 0.759 +/-0.011

Comments: Mean, standard deviation of 4 determinations bracketed either side in time by Lambda Aurigae.

Assumes V=4.71, Ic=3.99 for Lambda Aurigae

Each determination was an average of 50 frames.

Telescope was moved so that same area of CCD used to image both the variable and comparison star.

Jim Beckmann Observatory (JBO)
March 2009 Report
Mendota Heights, MN USA
Observer: Paul J. Beckmann
Latitude/Longitude/Altitude (ASL):
44°53'17.46" N
93°06'53.45" W
953 feet ASL
Time Zone: GMT -6 hours (-5 hours CDST)
Telescope: 8" f/10 Meade 2080 optics
Mount:
Meade LX3 clock drive fork mount
(standing in for: Hypertuned Meade LXD55 GEM w/belt drive conversion)
Photometer: Optec SSP-3a
Filter Set: Optec Johnson BVRI
Reduction: Hopkins FileMaker Pro System
2009 Observations to date (Lambda Aurigae as Comparison Star)

Observatory notes:
BVRI observations at JBO commenced in 2009 after failure of the LXD55 drive system and remount of the 2080 optics onto the original LX3 fork mount. January proved to be too bitterly cold with wind chills approaching -40F at times. JBO is currently a "tripod on the driveway/grass" observatory with little shelter from the wind and, thus, no observing was done.

February was much more tolerable outdoors and photometry of epsilon Aurigae began. Polar alignment needed to be refined a bit to obtain the tracking required for 0.001m standard deviations desired. Doing this quickly and before 60-90 minutes of photometry has proven to be challenging. I will be constructing a movable pier this spring ala Harold Stelzer (IAPPP Communications #14) to help. A location to the west of our home provides accessibility to the western horizon but is blocked to the east. A location behind the house provides access within 10-15° of the horizon at 45° declination but is blocked by the house to the west. Thus, JBO is best as a "two position" observatory.

As Gerald Persha of Optec and Jeff Hopkins have pointed out, precise centering in the SSP-3 reticle and accurate tracking are essential for high-quality photometry with instruments of this type. While it may be tempting to think that keeping the star "within the reticle" over the integration period(s) is good enough, it isn't. The photometrically-measurable disk of light from a star, even on a transparent night, extends a considerable distance from the visible seeing disk of the star. This has certainly been verified "in the field" here at JBO.

Zeta Aurigae was added in March in an attempt to "catch" the eclipse predicted to soon begin. The sequence lambda – epsilon – zeta – lambda – was used, repeated for 3 program star reading sets in a complete evening. Within a set, 3 integrations of 10 seconds each were measured in B V R I with centering being checked after each 30 seconds of integration time/band. The reticle was moved off at least 4-5 reticle

diameters to a consistent location (maps to follow) devoid of any stars visible from my suburban location. One 10 second integration in each of the 4 bands was performed for sky readings. When operating smoothly, first-to-last observation elapsed time is 60 minutes. Time to setup and teardown is additional.

JBO

JBO's original SSP-3, with two 2-position filter sliders, was converted last year to an SSP-3a with a computer-controlled 6-position filter slider. The filter slider contained the original BVRI filters from the SSP-3, a new "Clear" filter, and a plug, or "Dark" position. This has helped greatly since swapping the filter sliders with the SSP-3 was tricky at best with gloves on (necessary through most of the observing season here)

and slowed up the sequence considerably. JBO is currently using an Optec-supplied rudimentary program for filter/gain/integration time control of and data collection from the SSP-3a. This has the additional benefit of eliminating the clumsy data recording with gloves and a cold pen. An old Thinkpad computer performs the task of photometer control and data collection. Software development is proceeding to make the control of the computer more “mitten friendly” and should be complete before August, 2009. Data are examined for quality and completeness before the observatory is “shut down”. (This has saved a data set more than once!)

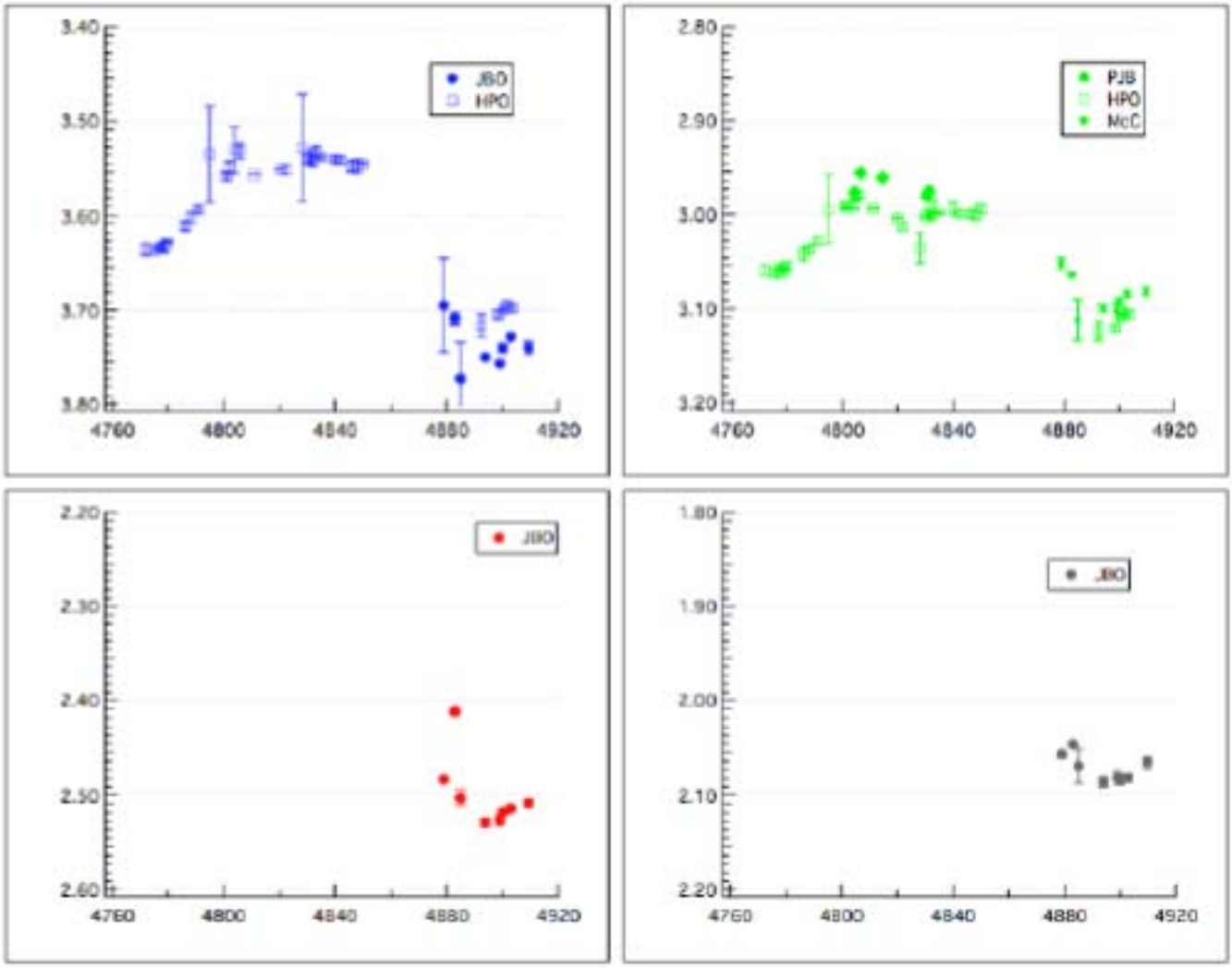
I wanted to get some idea of how my data were lining up with those from HPO and other observatories. Using IgorPro, my graphing package of choice for years, I plotted epsilon BVRI data from JBO, BV data from HPO and V-band data from Bruce McCandless. These plots are shown elsewhere in this report.

It is important for JBO to resolve any discrepancies between it’s reduced data and those of other observatories now, before the season ends. If it is not possible, JBO will continue to work on this problem throughout the summer 2009, gathering data on other standard stars as a basis. In addition, JBO will practice on high airmass (low altitude) standard stars during this inter-season break to refine its observation techniques and sequences. (With first contact of epsilon Aurigae predicted just as the star comes out of twilight, it is very likely that these important observations will be done close to the horizon here at JBO.) Use of the LXD55 GOTO mount’s computer controlled positioning capabilities as well as the SSP-3a’s computer interface may provide a means for custom software to rapidly move between star and sky readings for each band, allowing high-quality photometry during the morning twilight hours when the sky intensity is changing quickly. This and JBO’s relatively high latitude may allow observations in July, earlier than typically possible.

Looking West

Epsilon Aurigae
(JBO Data)

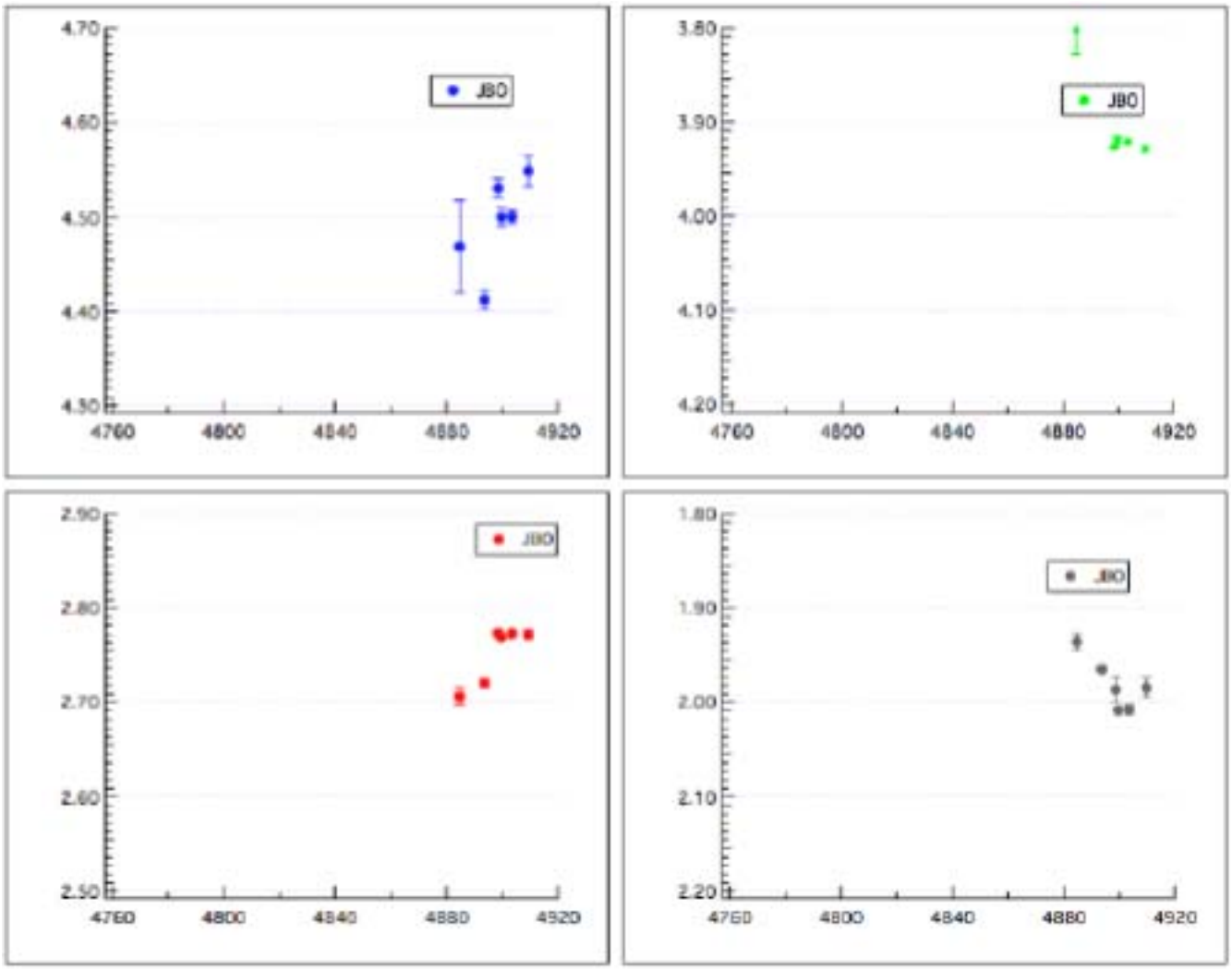
Date	HJD	B	SDb	V	SDv	R	SDr	I	SDi
2/15/2009	2454878.61	3.6954	.0100	3.0525	.0061	2.4833	.0014	2.0572	.0033
2/19/2009	2454882.61	3.7094	.0074	3.0644	.0023	2.4106	.0008	2.0457	.0017
2/21/2009	2454884.69	3.7728	.0392	3.1122	.0224	2.5033	.0081	2.0688	.0179
3/02/2009	2454893.61	3.7496	.0012	3.0997	.0040	2.5293	.0039	2.0865	.0052
3/07/2009	2454898.63	3.7571	.0017	3.1022	.0068	2.5256	.0052	2.0811	.0073
3/08/2009	2454899.58	3.7400	.0052	3.0922	.0026	2.5181	.0028	2.0832	.0057
3/12/2009	2454903.57	3.7286	.0007	3.0843	.0045	2.5142	.0014	2.0807	.0037
3/18/2009	2454909.61	3.7396	.0069	3.0818	.0047	2.5079	.0041	2.0648	.0064



Epsilon Aurigae BVRI Data Plots

Zeta Aurigae
(JBO Data)

Date	HJD	B	SDb	V	SDv	R	SDr	I	SDi
2/21/2009	2454884.70	4.4685	.0492	3.8022	.0255	2.7062	.0088	1.9353	.0086
3/02/2009	2454893.62	4.4121	.0097	3.7982	.0002	2.7205	.0047	1.9649	.0022
3/07/2009	2454898.63	4.5302	.0099	3.9263	.0014	2.7730	.0024	1.9863	.0140
3/08/2009	2454899.58	4.4997	.0092	3.9189	.0030	2.7694	.0020	2.0087	.0013
3/12/2009	2454903.58	4.5000	.0065	3.9207	.0026	2.7730	.0009	2.0079	.0049
3/18/2009	2454909.61	4.5483	.0158	3.9287	.0029	2.7719	.0039	1.9842	.0106



Zeta Aurigae BVRI Data Plots

Respectfully submitted,

Paul Beckmann, Campaign '09 observer #02
Jim Beckmann Observatory
Mendota Heights, MN
wa0rse@gmail.com
cell: 612-414-0302

Des Loughney
Canon DSLR, 200 ISO, f4, 85 mm lens, Exposure 5 seconds
Eta Aurigae used as the comparison star at V = 3.18

JD 2,450,000 +	UT Date	UT	Epsilon Aurigae V Mag	Zeta Aurigae V Mag
4,912	21 March 2009	19.70	3.10	3.88
4,911	20 March 2009	20.35	3.07	3.86
4,910	19 March 2009	20.25	3.08	3.86
4,909	18 March 2009	20.95	3.07	3.86
4,906	15 March 2009	19.35	3.08	3.89
4,905	14 March 2009	20.50	3.10	3.87
4,903	12 March 2009	19.25	3.09	3.87
4,901	10 March 2009	19.10	3.11	3.87
4,900	09 March 2009	19.30	3.10	3.86
4,898	08 March 2009	00.55	3.11	3.87
4,895	05 March 2009	23.05	3.14	3.87
4,895	05 March 2009	21.00	3.11	3.85
4,895	05 March 2009	19.10	3.14	3.87
4,894	04 March 2009	23.70	3.13	3.87
4,894	04 March 2009	21.20	3.10	3.85
4,894	04 March 2009	19.05	3.13	3.86
4,892	02 March 2009	20.35	3.12	3.75
4,891	01 March 2009	18.90	3.13	3.73
4,887	25 February 2009	19.50	3.12	3.74
4,885	23 February 2009	22.55	3.08	3.73
4,883	21 February 2009	23.80	3.09	3.77
4,873	11 February 2009	18.45	3.06	3.75
4,872	10 February 2009	22.35	3.03	3.74
4,869	07 February 2009	18.55	3.04	3.75
4,867	05 February 2009	23.75	3.02	3.75
4,865	03 February 2009	18.40	3.05	3.74
4,859	28 January 2009	20.00	2.96	3.73
4,857	26 January 2009	18.95	2.98	3.73
4,856	25 January 2009	20.95	2.96	3.77
4,855	24 January 2009	20.65	2.95	3.73
4,854	23 January 2009	23.30	2.98	3.74
4,853	22 January 2009	18.85	2.98	3.73
4,850	19 January 2009	22.45	2.97	3.74
4,848	17 January 2009	21.05	2.99	3.74
4,846	15 January 2009	21.15	2.97	3.73
4,844	13 January 2009	20.95	2.98	3.73
4,843	12 January 2009	21.05	2.98	3.73
4,839	08 January 2009	21.75	2.98	3.73
4,836	05 January 2009	20.95	2.97	3.72
4,836	05 January 2009	18.65	2.97	3.72
4,830	29 December 2008	20.95	3.01	3.73
4,827	26 December 2008	23.95	2.98	3.73
4,827	26 December 2008	21.00	3.00	3.73
4,827	26 December 2008	02.20	2.98	3.73
4,821	20 December 2008	00.00	2.98	3.72
4,820	19 December 2008	22.20	2.98	3.73
4,819	18 December 2008	21.85	2.96	3.72
4,819	18 December 2008	22.35	2.98	3.74
4,817	16 December 2008	22.35	2.99	3.73
4,817	16 December 2008	21.05	2.98	3.73
4,816	15 December 2008	00.57	2.97	3.72

JD 2,450,000 +	UT Date	UT	Epsilon Aurigae V Mag	Zeta Aurigae V Mag
4,810	09 December 2008	23.95	2.99	3.74
4,810	09 December 2008	23.20	2.98	3.72
4,809	08 December 2008	22.95	2.98	3.74
4,809	08 December 2008	22.45	2.97	3.72
4,802	01 December 2008	20.90	2.98	3.73
4,801	30 November 2008	21.80	2.97	3.72
4,801	30 November 2008	00.80	2.98	3.72
4,799	28 November 2008	08.80	2.97	
4,799	24 November 2008	21.30	3.01	3.72
4,799	24 November 2008	22.60	3.01	3.73
4,799	24 November 2008	23.45	3.02	3.73
4,794	23 November 2008	21.85	2.99	3.71
4,790	19 November 2008	21.90	3.00	
4,789	18 November 2008	22.55	3.06	
4,774	03 November 2008	00.20	3.06	
4,773	02 November 2008	21.80	3.03	

Brian E. McCandless Elkton, MD
Telescope: CGE1400
Detector *(BVRI): SSP-3 Detector (JH): SSP-4 @ T= - 40C
Comp = Lam Aur HD34411
B= 5.34 V= 4.71 R= 4.19 I= 3.88 J= 3.62 H= 3.33

JD	B	Error	V	Error	Rc	Error	Ic	Error
4887.61			3.088	0.001	2.546	0.003		
4879.58			3.060	0.004	2.535	0.002		
4871.60			3.040	0.005	2.509	0.007		
4854.66			2.954	0.006				
4854.64			2.968	0.005	2.453	0.004		
4848.61			2.979	0.002	2.453	0.002		
4835.64			2.982	0.002	2.464	0.006		
4831.48	3.509	0.004	2.975	0.006				
4830.53	3.551	0.015	2.980	0.003	2.483	0.004	2.115	0.009
4830.49			3.003	0.010				
4830.49			2.982	0.007	2.477	0.008		
4814.59			2.961	0.002	2.418	0.008		
4806.60			2.956	0.001	2.437	0.003		
4804.53			2.977	0.007	2.469	0.005		
4796.65			2.977	0.005	2.469	0.003		
4792.73			3.001	0.002	2.485	0.003		
4792.59			3.006	0.006				
4792.58			2.990	0.002				
4781.66			3.030	0.003				
4771.78			3.034	0.005				
4771.72			3.017	0.010	2.508	0.008	2.128	0.005
4770.00			3.018	0.008				
4770.00	3.609	0.015	3.029	0.008				
4766.71					2.491	0.005	2.12	0.007
4766.70	3.589	0.012	3.001	0.005				
4763.68			2.971	0.010				
4750.76	3.581	0.015	2.959	0.006				
4750.76	3.566	0.012	2.981	0.009	2.473	0.005	2.093	0.003
4742.76			2.984	0.006			1.960	0.08
4742.75							2.024	0.06

JD	B	Error	V	Error	Rc	Error	Ic	Error
4742.73			2.986	0.010				
4710.83	3.544	0.01	2.977	0.012	2.473	0.015	2.096	0.015
4710.82			2.962	0.012				
4572.62			3.064	0.008				
4572.57			3.067	0.009				
4559.56	3.668	0.004	3.033	0.005	2.518	0.004	2.106	0.003
4549.64	3.676	0.005	3.018	0.005	2.468	0.005	2.027	0.005
4549.59			3.017	0.006				
4547.55			3.009	0.004				
4547.54			3.018	0.004				
4538.55			2.978	0.005				
4538.55			2.979	0.004				
4531.51	3.591	0.015	2.980	0.008	2.475	0.008	2.107	0.008
4525.53			2.968	0.005				
4525.53			2.963	0.005				
4513.69	3.584	0.01	2.986	0.005				
4508.49			2.997	0.005				
4499.71	3.609		3.001	0.002				
4497.50			2.987	0.005				
4496.62	3.601		3.004	0.005				
4494.40	3.586		3.000	0.005				
4493.50	3.594	0.011	3.002	0.005	2.495	0.011	2.119	0.011
4491.51			3.002	0.002				
4491.51			3.001	0.002				
4489.50	3.600		3.007	0.002				
4489.49			3.005	0.002				
4489.49			3.007	0.002				
4487.53			3.020	0.005				
4487.53			3.014	0.005				
4486.50			3.023	0.005				
4486.50			3.027	0.005				
4486.49			3.019	0.005				
4481.51	3.781	0.009	3.006	0.005	2.496	0.008	2.112	0.008
4475.52			3.041	0.010				

JD	J	Error	H	Error
4887.53	1.857	0.003	1.619	0.003
4887.51	1.862	0.004	1.608	0.007
4879.60	1.843	0.004	1.621	0.003
4876.74	1.877	0.010	1.598	0.011
4876.73	1.912	0.010	1.601	0.014
4861.51	1.815	0.020	1.608	0.006
4854.50	1.806	0.006	1.574	0.005
4851.55	1.794	0.003	1.574	0.004
4835.55	1.814	0.009	1.605	0.004
4835.45	1.846	0.010	1.609	0.006
4806.59	1.794	0.007	1.564	0.005
4792.66	1.813	0.005	1.592	0.002
4781.66	1.836	0.005	1.604	0.008
4771.69	1.804	0.010	1.599	0.007
4760.69	1.833	0.004	1.582	0.010
4742.76			1.658	0.090
4742.75			1.639	0.080
4710.86	1.860	0.02	1.624	0.020
4572.56	1.825	0.015	1.632	0.012
4559.60	1.797	0.011	1.569	0.008
4549.56	1.789	0.011	1.551	0.005
4549.55	1.815	0.011	1.543	0.007
4538.56	1.761	0.007	1.556	0.004

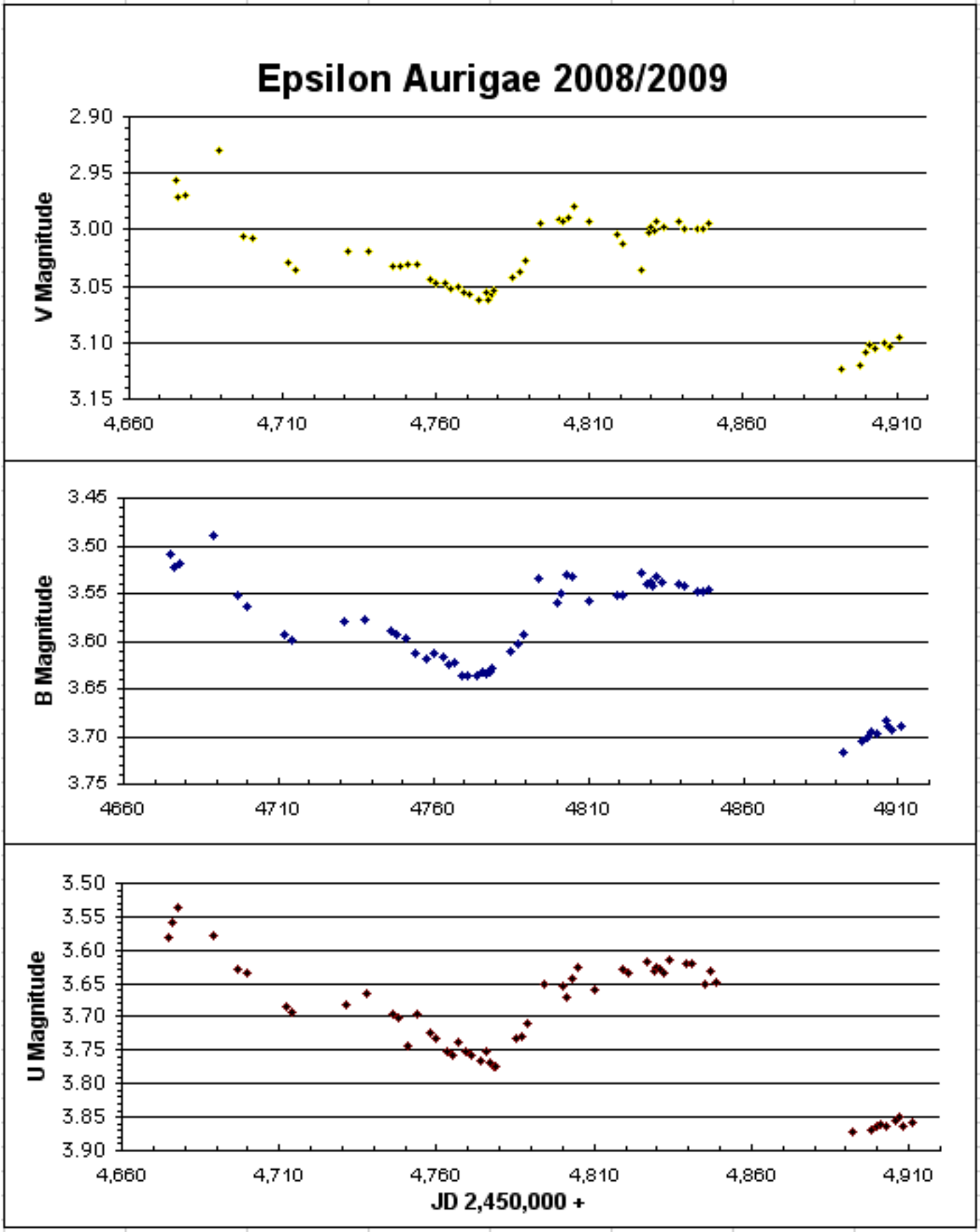
4531.56	1.762	0.009	1.532	0.001
4531.50	1.785	0.013	1.576	0.011
4525.56	1.761	0.003	1.528	0.006
4525.55	1.768	0.002	1.556	0.003
4513.70	1.784	0.002	1.552	0.003
4496.65	1.821	0.005	1.608	0.003
4494.40	1.875	0.04	1.607	0.08
4493.54	1.832	0.011	1.612	0.005
4493.53	1.854	0.009	1.628	0.004
4491.66	1.842	0.006	1.621	0.011
4491.63	1.834	0.032	1.633	0.022
4489.51	1.856	0.004	1.606	0.013
4487.62	1.855	0.006	1.633	0.008
4487.61	1.843	0.004	1.626	0.008
4481.61	1.840	0.039	1.617	0.012
4481.54	1.813	0.018	1.627	0.008
4481.53	1.848	0.011	1.622	0.015
4475.57	1.920	0.013	1.801	0.012
4475.50	1.974	0.009	1.644	0.019

*** Note:** JD = 2,450,000 +.

Jeff Hopkins
Hopkins Phoenix Observatory
Phoenix, Arizona USA
Latitude: 33.5017 North , Longitude: 112.2228 West
Altitude: 1097 feet ASL
Time Zone: MST (UT -7)
Telescope: C-8 8" SCT
Filter Set: UBV Standard
Detector: 1P21 PMT in Photon Counting Mode
Differential Photometry
lambda Aurigae as Comparison star
V= 4.71; B= 5.34; U= 5.46
Data transformed and corrected for nightly extinction.

HJD	V	SD	B	SD	U	SD
March 2009						
2454911.6357	3.0956	.0065	3.6894	.0062	3.8568	.0059
2454908.6371	3.1028	.0035	3.6935	.0035	3.8630	.0039
2454907.6301	3.1032	.0008	3.6897	.0013	3.8497	.0180
2454906.6308	3.0998	.0170	3.6840	.0115	3.8544	.0172
2454903.6510	3.1062	.0042	3.6983	.0028	3.8635	.0026
2454901.6294	3.1023	.0042	3.6946	.0025	3.8611	.0024
2454900.6204	3.1087	.0028	3.6997	.0030	3.8651	.0061
2454898.6232	3.1209	.0031	3.7053	.0044	3.8689	.0062
2454892.6225	3.1235	.0103	3.7168	.0119	3.8709	.0057
January 2009						
2454849.6649	2.9938	.0045	3.5455	.0010	3.6470	.0060
2454847.6885	2.9998	.0050	3.5479	.0071	3.6321	.0301
2454845.7163	2.9996	.0030	3.5481	.0059	3.6521	.0028
2454841.6635	2.9990	.0029	3.5418	.0035	3.6208	.0079
2454839.6683	2.9932	.0068	3.5405	.0034	3.6196	.0122
2454834.6801	2.9978	.0017	3.5385	.0016	3.6163	.0199
2454832.6892	2.9919	.0074	3.5328	.0066	3.6329	.0011

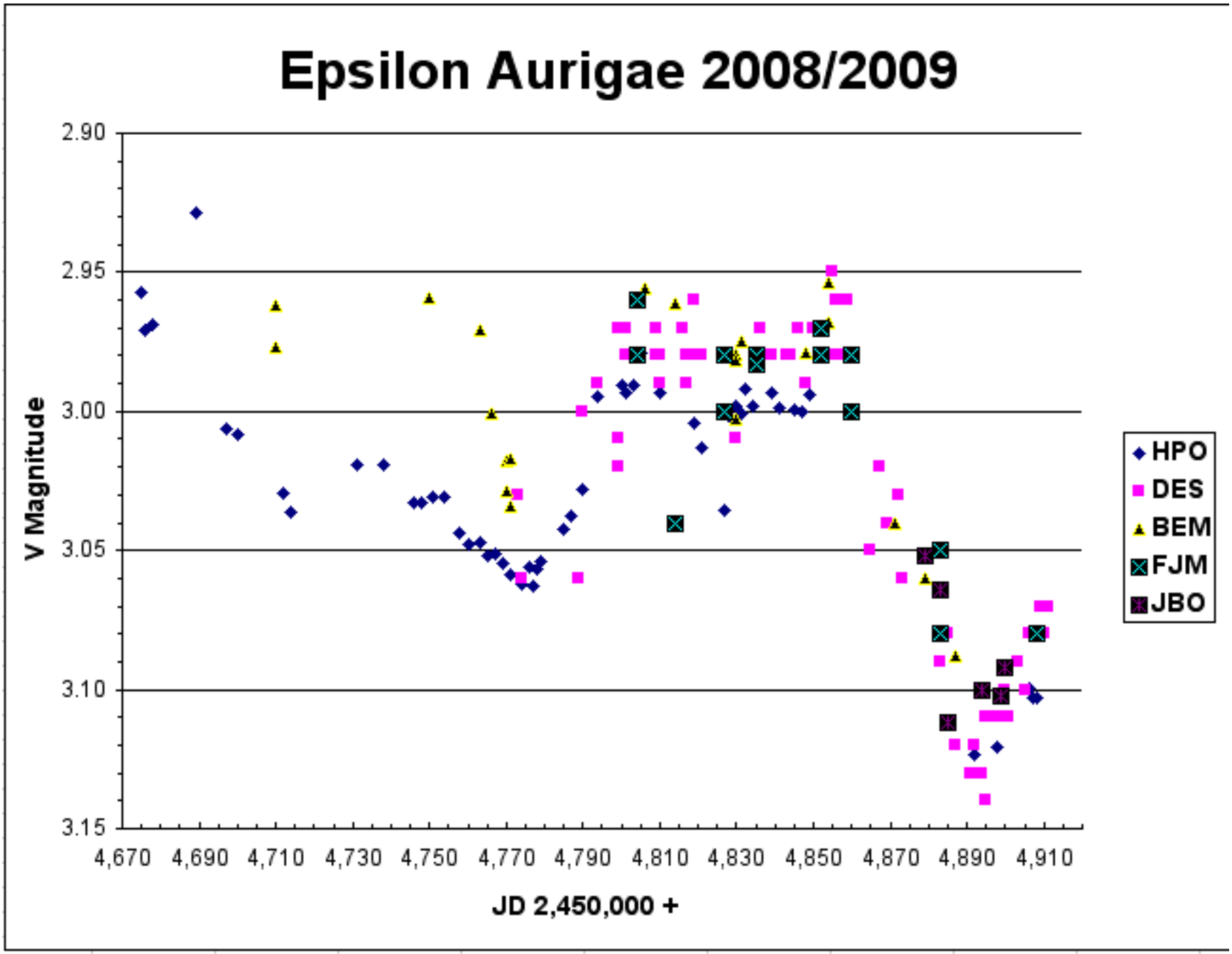
HJD	V	SD	B	SD	U	SD
December 2008						
2454831.6892	3.0011	.0028	3.5420	.0058	3.6278	.0044
2454830.7142	2.9984	.0030	3.5383	.0078	3.6260	.0141
2454829.7538	3.0030	.0009	3.5410	.0050	3.6312	.0089
2454827.7260	3.0353	.0162	3.5282	.0570	3.6165	.0477
2454821.7260	3.0128	.0028	3.5522	.0048	3.6335	.0235
2454819.7100	3.0045		3.5517		3.6303	
2454810.7524	2.9934		3.5572		3.6586	
2454805.6954	2.9789	.0044	3.5316	.0087	3.6265	.0082
2454803.6954	2.9903	.0036	3.5306	.0242	3.6424	.0212
2454801.7690	2.9930	.0007	3.5495	.0070	3.6719	.0117
November 2008						
2454800.7420	2.9909	.0029	3.5586	.0038	3.6544	.0211
2454794.7524	2.9949	.0365	3.5350	.0511	3.6520	.0539
2454790.7649	3.0282	.0031	3.5938	.0034	3.7104	.0082
2454787.7857	3.0378	.0039	3.6020	.0051	3.7292	.0216
2454785.7697	3.0421	.0068	3.6113	.0045	3.7328	.0166
2454779.7850	3.0540	.0039	3.6285	.0012	3.7731	.0047
2454778.7864	3.0568	.0004	3.6329	.0068	3.7750	.0090
2454777.8010	3.0625	.0023	3.6342	.0039	3.7680	.0114
2454776.7850	3.0559	.0021	3.6332	.0023	3.7513	.0120
2454774.7788	3.0619	.0031	3.6371	.0016	3.7667	.0051
2454771.7857	3.0584	.0054	3.6363	.0059	3.7555	.0128
October 2008						
2454769.7996	3.0548	.0046	3.6373	.0059	3.7523	.0129
2454767.7808	3.0510	.0022	3.6234	.0054	3.7389	.0058
2454765.8093	3.0519	.0006	3.6236	.0056	3.7580	.0130
2454763.8134	3.0472	.0019	3.6164	.0039	3.7533	.0166
2454760.8030	3.0479	.0039	3.6122	.0095	3.7309	.0207
2454758.8162	3.0437	.0034	3.6193	.0037	3.7237	.0135
2454754.8350	3.0309	.0063	3.6126	.0108	3.6967	.0034
2454751.8732	3.0311	.0098	3.5974	.0025	3.7416	.0159
2454748.8371	3.0329	.0054	3.5938	.0041	3.7023	.0074
2454746.8190	3.0326	.0036	3.5892	.0027	3.6971	.0155
September 2008						
2454738.8593	3.0189	.0031	3.5779	.0031	3.6640	.0068
2454731.9002	3.0192	.0021	3.5794	.0044	3.6806	.0114
2454714.9655	3.0362	.0012	3.5986	.0061	3.6935	.0248
2454712.9454	3.0292	.0048	3.5941	.0050	3.6863	.0125
August 2008						
2454700.9565	3.0080	.0009	3.5628	.0057	3.6348	.0134
2454697.9634	3.0064	.0068	3.5519	.0016	3.6281	.0129
2454689.9704	2.9289	.0219	3.4897	.0193	3.5766	.0375
July 2008						
2454678.9551	2.9691	.0393	3.5190	.0373	3.5369	.0698
2454676.9503	2.9709	.0128	3.5234	.0086	3.5577	.0203
2454675.9621	2.9570	.0106	3.5088	.0099	3.5815	.0103



Hopkins Phoenix Observatory UBV Data Plots July 2008 - March 2009

Frank J. Melillo
#:CID #030
Holtsville, NY USA
Lat:+ 40d 40' Long: 73 W Elevation: 100'
Instrument: Optec SSP-3
Telescope: C-8 8"
Gate Time: 10 Seconds

JD 2,450,000 +	Date	UT	V Mag	#	SD
4908	17/18 Mar 09	03:30	3.08	4	0.12
4908	17/18 Mar 09	03:20	3.07	4	0.01
4804	02/03 Dec 08	05:30	2.98	4	
4804	02/03 Dec 08	05:50	2.96	4	


Epsilon Aurigae 2008/2009
V Magnitude
2.90
2.95
3.00
3.05
3.10
3.15
4,670
4,690
4,710
4,730
4,750
4,770
4,790
4,810
4,830
4,850
4,870
4,890
4,910
JD 2,450,000 +
HPO
DES
BEM
FJM
JBO

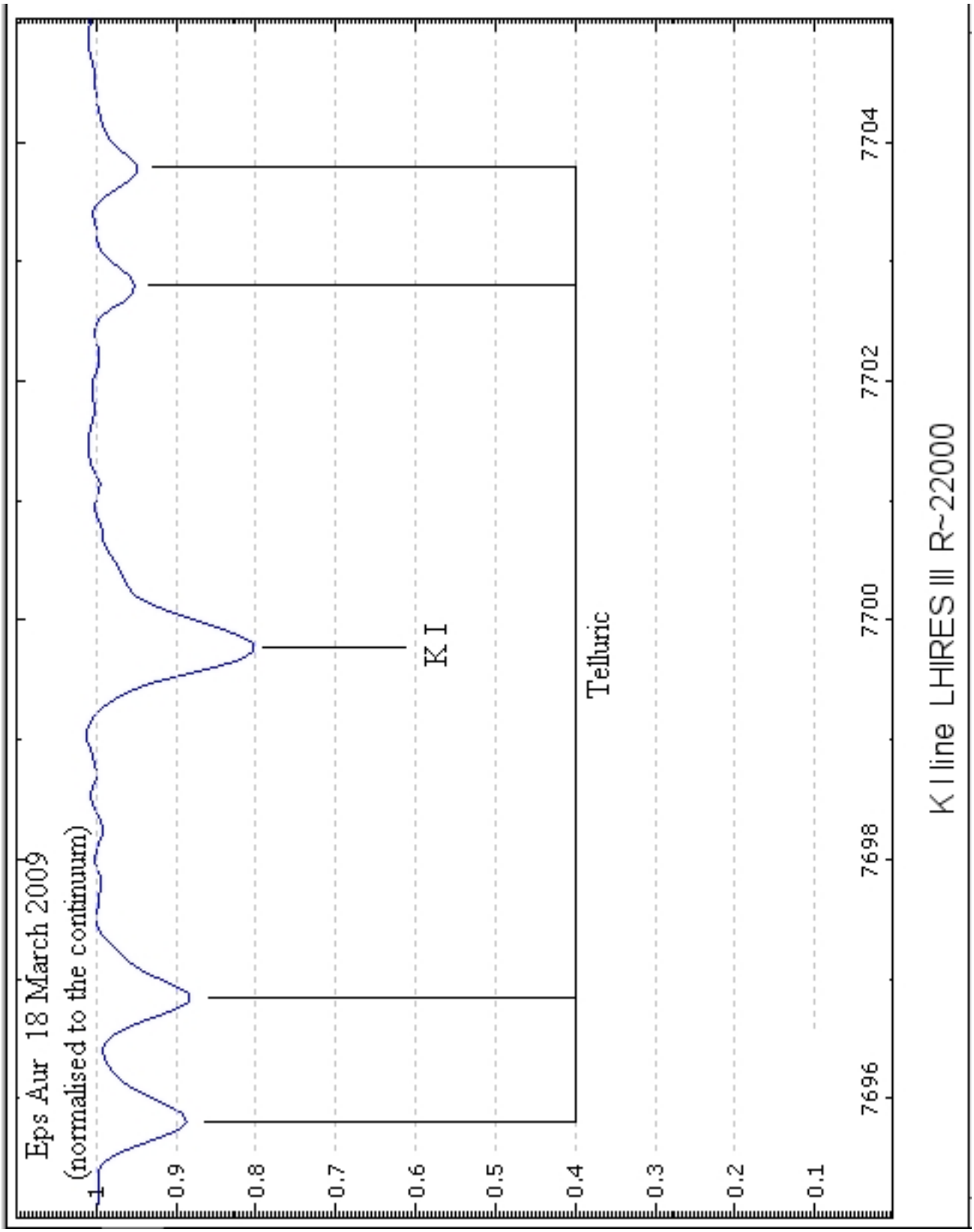
Spectroscopy Report

Robin Leadbeater
From the Spectro List:
Subject: [spectro-l] Eps Aur - Extending LHIRES 2400 l/mm range to K I 7699A
Date: Fri, 20 Mar 2009 05:31:22 -0700

Epsilon Aurigae is expected to show large changes in the 7699A K I line during eclipse but this is beyond the range of micrometer adjustment of the LHIRES when used with a 2400 l/mm grating. A quick calculation showed that an increased the grating angle to 68 deg (beyond the design 63 deg) would be needed. There would be slight vignetting using f9 and a 50x25mm grating. An order filter would be needed to stop interference from the overlapping second order.

The increased angle was achieved by adding a temporary adjustable stop to the grating holder. The micrometer and the standard fixed stop are fully unscrewed and the grating angle is adjusted using the adjustable stop instead.

Initial results look promising, though the sensitivity is low, probably due to the reduced efficiency of the grating and CCD at this wavelength.
http://www.threehillsobservatory.co.uk/astro/spectra_40.htm



Robin
http://www.threehillsobservatory.co.uk

Benji Mauclair
From: http://bmauclaire.free.fr/astronomie
To: phxjeff@hposoft.com
Subject: A contribution to Eps Aur campaign
Date: Mon, 16 Feb 2009 23:12:25 -0700

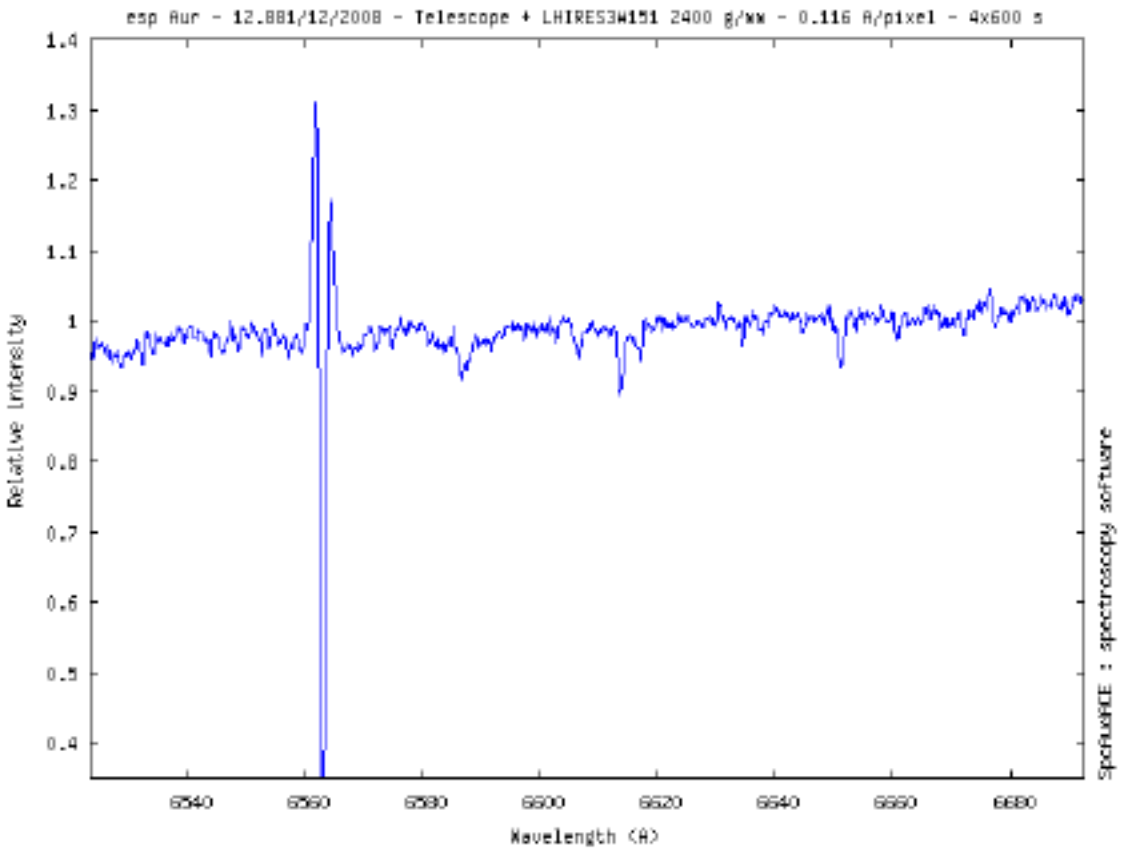
Hello,

I've done a spectrum of Esp Aur through all my other Be stars ;-)
You will find spectrum (FITS) and EW's measurement at:

http://bmauclaire.free.fr/astronomie/spectro/atlas/doubles/eps_aur/

Hope this help your project.

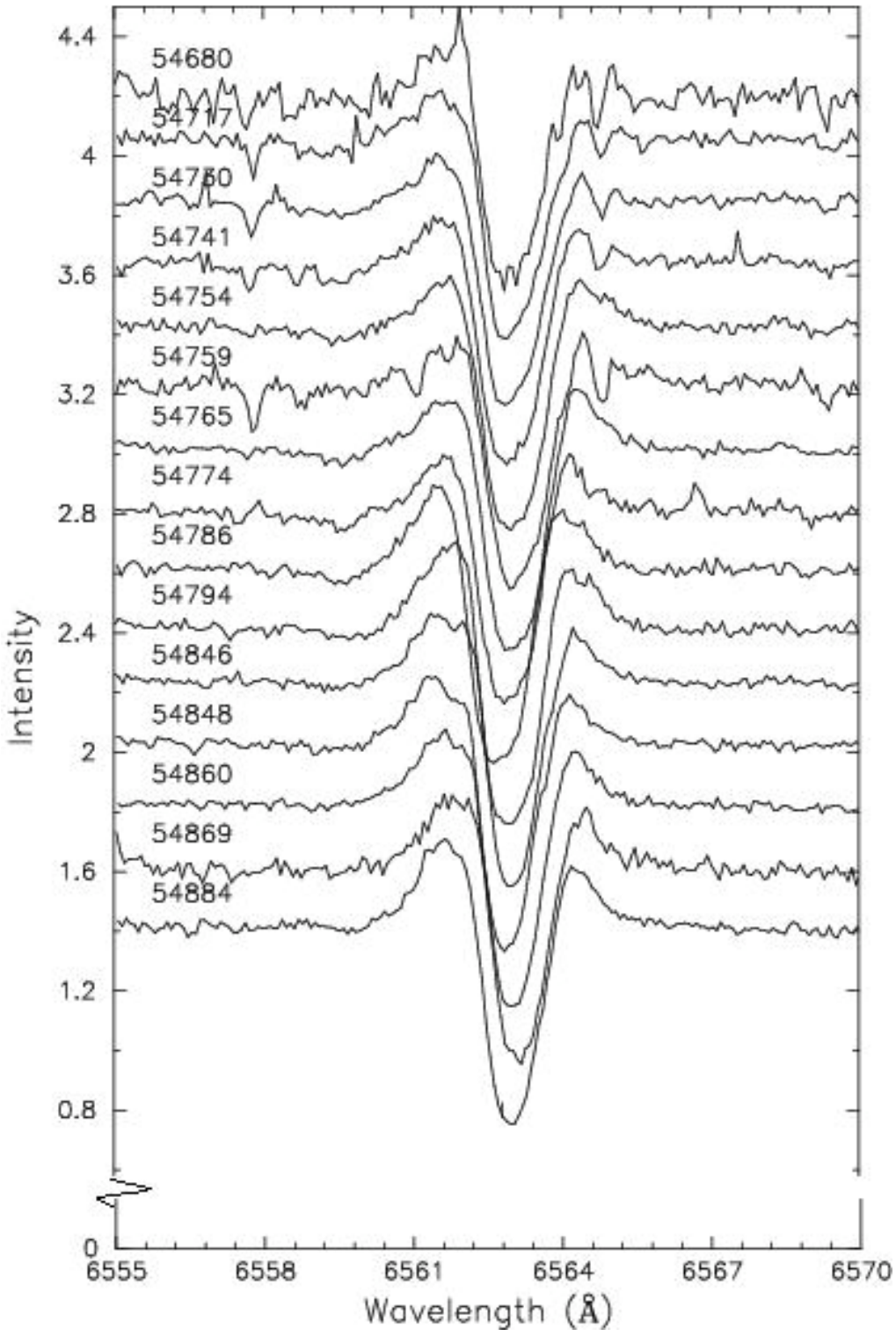
Benji



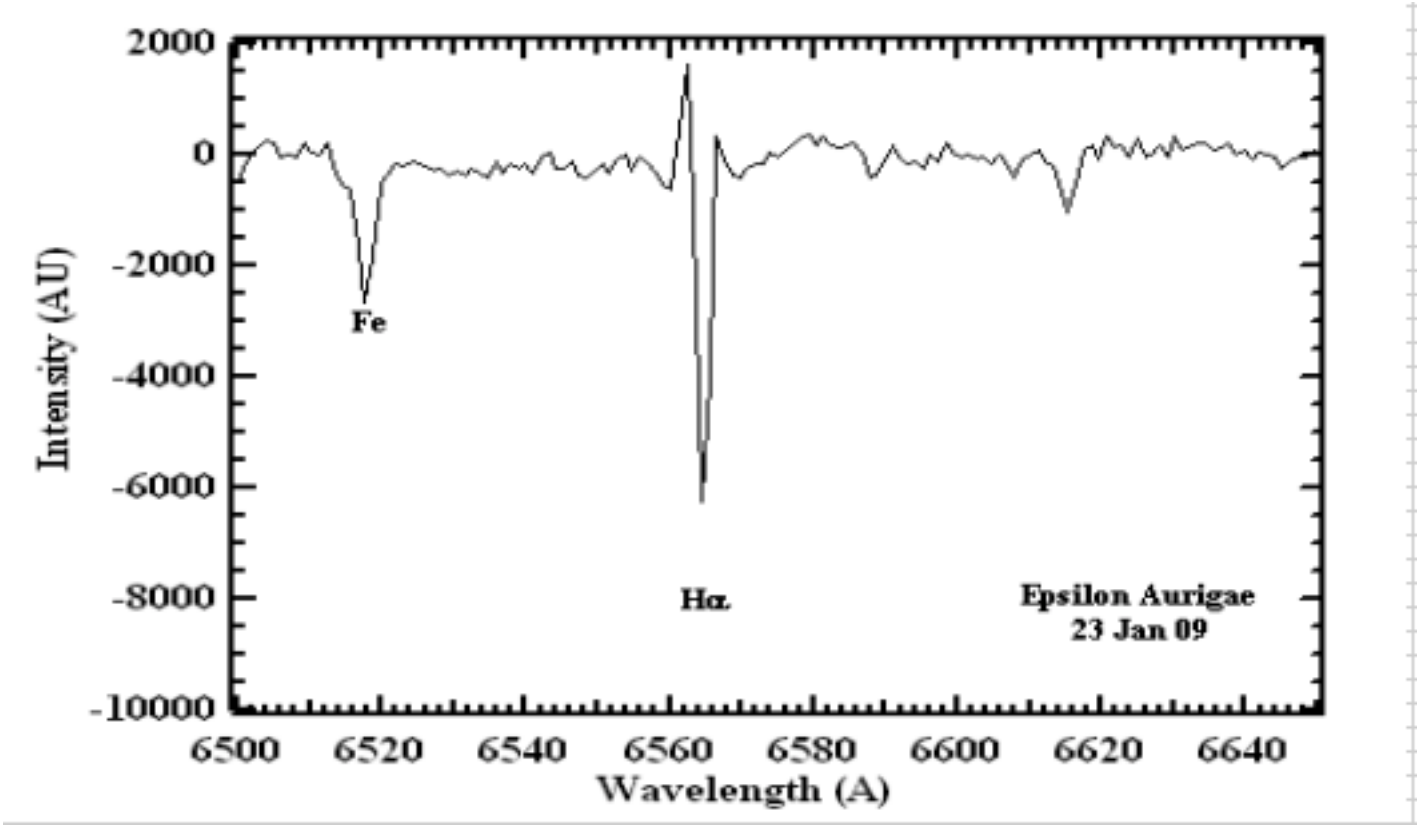
JD=2454813.3809.
EW(60.0=6535.0-6595.0)=0.43 A.
sigma(EW)=0.86 A.
SNR=98.

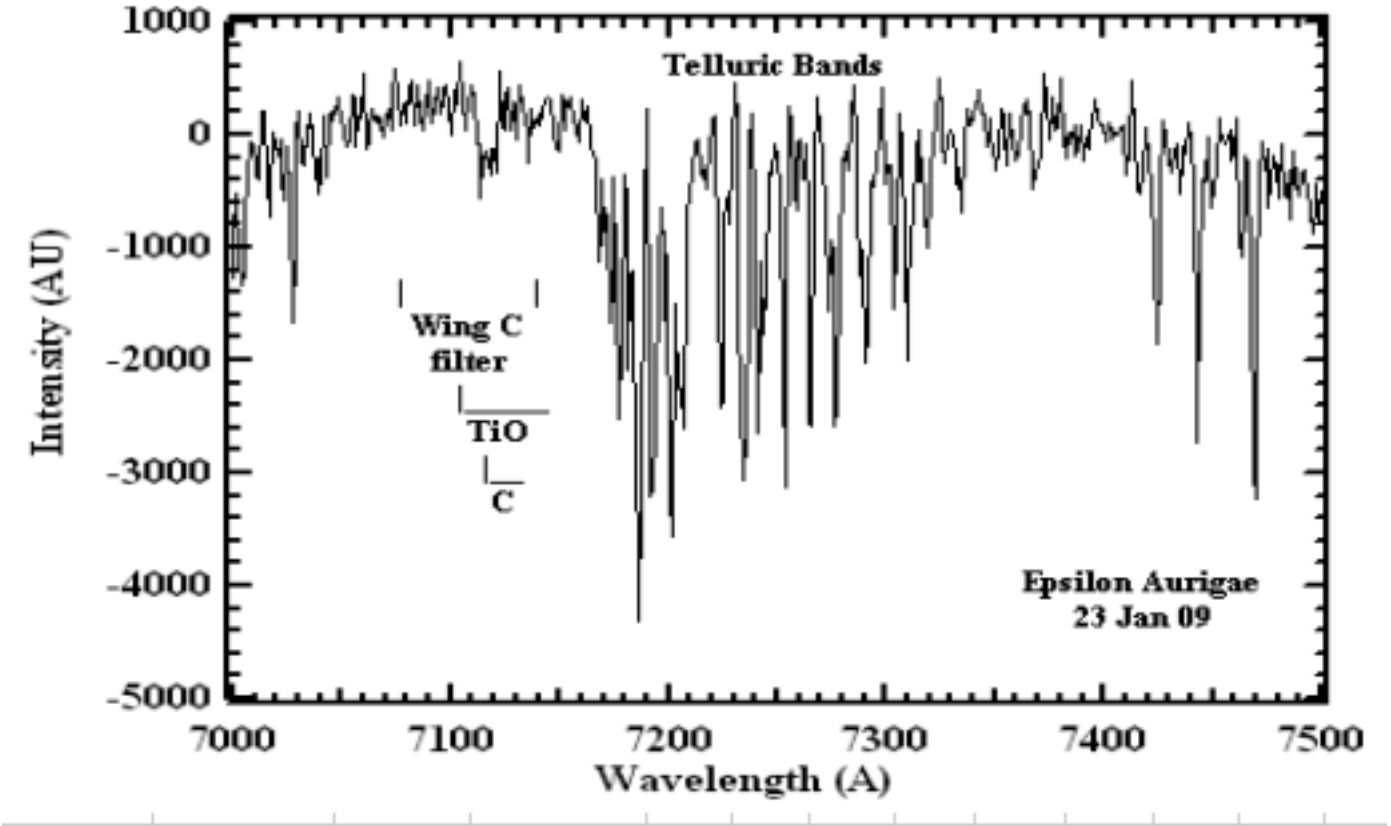
On 25 February 2009

Joel Eaton of Tennessee State University wrote: I've been observing eps Aur for your campaign and have about 95 spectra since the first of August. Unfortunately, we had a two-month gap when the telescope was broken; we got caught in a rain storm and lost one of the drive tractors. I did not see any obvious shell lines in the latest spectrum, and I haven't measured the redial velocities yet. However, the H-alpha line is a prominent emission feature (plot attached). You seem to have lots of H-alpha observations coming in, so you may be able to get something meaningful about its formation and variability.



23 January 2009
Brian E. McCandless





Hopkins Phoenix Observatory
2008/2009 Season Spectroscopy Summary
Epsilon Aurigae Hydrogen α

UT Date 2008	Emissive Blue Horn		Absorption		Emissive Red Horn	
	EW	Center λ Å	EW	Center λ Å	EW	Center λ Å
08/11	0.424	6,561.3978	-1.009	6,563.1077	0.001	6,564.7693
08/22	0.273	6,561.5203	-1.056	6,563.1004	0.000	N/A
09/03	0.292	6,561.3262	-0.904	6,563.1091	-0.023	6,564.7608
09/05	0.342	6,561.5125	-0.887	6,563.1476	-0.118	6,565.2872
09/22	0.265	6,561.1194	-0.993	6,562.8485	0.059	6,564.5903
09/29	0.163	6,560.7093	-1.327	6,565.5004	0.009	6,564.1222
10/12	0.225	6,560.5245	-1.003	6,562.1402	0.138	6,563.4827
10/14	0.378	6,560.6200	-1.127	6,561.9833	0.108	6,563.2498
10/15	0.343	6,561.2796	-1.002	6,562.9844	0.328	6,564.7789
10/19	0.256	6,561.6593	-1.088	6,563.4063	0.080	6,564.7593
10/19	0.268	6,561.3191	-1.070	6,562.9504	0.220	6,564.7161
10/21	0.342	6,561.3240	-1.011	6,563.0071	0.223	6,564.6527
1 0/21	0.262	6,561.5048	-1.015	6,563.1595	0.130	6,564.8250
10/24	0.396	6,560.1378	-0.881	6,561.6064	0.275	6,563.0207
10/26	0.341	6,561.4131	-1.051	6,563.0688	0.207	6,564.5645
10/28	0.359	6,561.2978	-1.025	6,562.9785	0.243	6,564.5925
10/30	0.305	6,561.3082	-0.992	6,563.0608	0.256	6,565.0644
11/01	0.136	6,561.5021	-1.046	6,562.9444	0.091	6,564.2025
11/04	0.203	6,561.5381	-1.027	6,563.1266	0.142	6,564.5385
11/06	0.317	6,561.5188	-1.007	6,563.0287	0.267	6,564.6141
11/07	0.451	6,561.3351	-0.966	6,562.9734	0.186	6,564.6481
11/09	0.309	6,561.1547	-0.882	6,562.7936	0.129	6,565.4320
11/15	0.432	6,561.4236	-0.911	6,562.8626	0.361	6,564.3547
11/17	0.545	6,561.5102	-0.944	6,563.0296	0.320	6,564.5967
11/19	0.578	6,561.6205	-0.892	6,563.0867	0.255	6,564.5330
11/24	0.477	6,561.4438	-0.924	6,562.9020	0.273	6,564.4018
11/30	0.479	6,561.6164	-0.926	6,563.0356	0.222	6,564.6310
12/01	0.547	6,561.5750	-0.949	6,563.0643	0.199	6,564.5535
12/03	0.423	6,561.6100	-0.949	6,563.0340	0.235	6,564.5394
12/04	0.659	6,561.7096	-0.828	6,563.1293	0.030	6,564.3809
12/05	0.376	6,561.5982	-0.907	6,563.0482	0.273	6,564.5582
12/10	0.603	6,561.7050	-0.807	6,563.1535	0.232	6,564.6842
12/19	0.644	6,561.7398	-0.754	6,563.1450	0.094	6,564.4872
12/21	0.652	6,561.5929	-0.665	6,562.9508	0.091	6,564.3220
12/27	0.545	6,561.1744	-0.826	6,563.4989	0.278	6,565.0852
12/31	0.619	6,561.3328	-0.813	6,562.8627	0.193	6,564.4703
2009						
01/03	0.615	6,560.8804	-0.749	6,562.4440	0.255	6,553.9945
01/10	0.542	6,561.5783	-0.833	6,563.1726	0.235	6,564.7521
01/14	0.328	6,561.5325	-0.879	6,563.1417	0.090	6,564.6826
01/16	0.588	6,561.5038	-0.782	6,563.0887	0.137	6,564.5501
02/18	0.366	6,561.7352	-0.925	6,563.3465	0.230	6,564.8885
02/20	0.465	6,561.9371	-0.865	6,563.4197	0.236	6,564.8543
03/21	0.513	6,561.6864	-1.103	6,563.2071	0.256	6,564.7358

Lhires III 2,400 l/mm, 12" LX200 GPS, DSI Pro II

From Dr. Bob

A key feature of the pre-eclipse light curves is the appearance of a quasi-periodic variation, currently with a 65 day period, deduced with Peranso software.

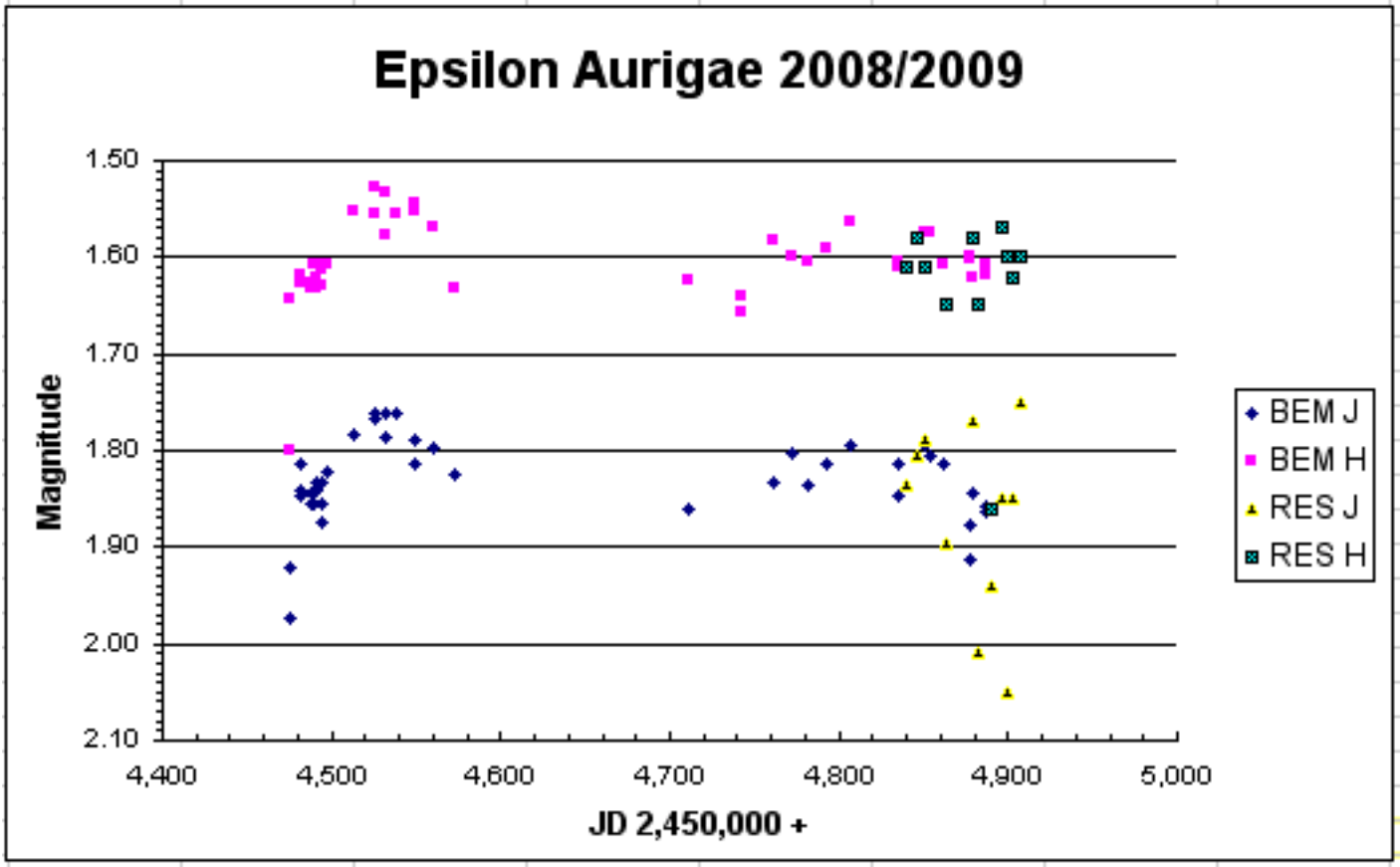
Interestingly, a long photometry record by Nha et al. (1993) showed similar variations but with a longer characteristic period, closer to 95 days. Monitoring this trend will help interpret the in-eclipse fluctuations soon. If the trend persists, there may be exciting times ahead for the system within a few decades – perhaps destruction of a Jupiter-sized object within the accretion disk's central regions.

PHOTOMETRY:
With the help of graduate student, Brian Kloppenborg, we've been pursuing J&H band photometry of epsilon Aurigae these past few months, with results presented in the Table below. Using an SSP4 photometer on a very unusual 16 inch kluge of a telescope, we have very preliminary evidence of declines in the J band during a time when the optical light was at a record minimum. Whereas we did double check that we measured full signal in J, by recentering the star in the aperture repeatedly, these data probably need closer examination to be verified. Brian McCandless in this NL reports some J band declines as well during this period, just when V was also steeply falling. Spectroscopically, the J band contains Paschen beta and gamma lines, along with the CN Red 0-0 band, but whether these are active in epsilon Aurigae and causing the J band "dropouts" needs confirmation, especially if encroaching disk flotsam is the cause.

Recent J&H photometry of epsilon Aurigae at University of Denver (campus telescope):

Epsilon Aurigae

	RJD	X	J	sigJ	H	sigH
RSBK	54839.74	1.02	1.835	0.050	1.61	0.04
RSBK	54845.71	1.04	1.805	0.015	1.58	0.06
RSBK	54850.73	1.04	1.790	--	1.61	--
RSBK	54862.72	1.06	1.895	0.025	1.65	0.02
RSBK	54878.65	1.17	1.770	--	1.58	--
RSBK	54882.71	1.07	2.010	--	1.65	--
RSBK	54889.70	1.19	1.940	0.050	1.86	0.06
RSBK	54895.68	1.30	1.850	--	1.57	--
RSBK	54899.71	1.29	2.050	--	1.60	--
RSBK	54902.68	1.29	1.850	0.050	1.62	0.06
RSBK	54907.69	1.38	1.750	0.060	1.60	0.02



BEM - Brian E. McCandless
RES - Robert E. Stencel/Brian Kloppenborg

SPECTRA:
Very interesting radial velocity changes have been reported with higher dispersion spectroscopy. Elizabeth Griffin (DAO) reported changes in the blue region between December 2008 and February 2009 that indicate "reverse P Cygni" profiles appeared in difference spectra. These could be consistent with encroachment of the fringes of the disk onto the F star body as eclipse nears. This work highlights the findings of the long term radial velocity curve, discussed by Lambert and Sawyer (1986) and in new work by Stafanik et al. (2009 AAS meeting poster). As previously mentioned, by monitoring the strength of H-alpha, sodium, potassium lines, and in the blue region, evidence of the disk and its changes may be within reach this cycle. I'm involved with obtaining a series of infrared spectra using the SpeX instrument at IRTF to repeat the classic experiment of the last eclipse where the strength of 2.3 micron CO bands greatly increased at mid eclipse and persisted past end of visual eclipse phases.

OTHER:
For completeness, we note that other infrared photometric measures have been obtained with IRTF at Mauna Kea (BASS and MIRSI) and the Spitzer Space Telescope (MIPS). A recent X-ray measurement made by the European XMM satellite has been made. Recent interferometry included CHARA (Nov, Dec 2008) and PTI (Oct 2008). Results of these observations will be reported elsewhere

Twitter:
Keeping up with the "kids" - I've launched a Twitter website -
https://twitter.com/epsilon_Aurigae
which allows oneliner updates to be broadcast.

Reminder:
Original paper copies of the 1985 epsilon Aurigae Workshop Proceedings are available on request, free, if interested parties will provide me with a snail mail address. A collector's item! Whiles supplies last.

Dr. Robert Stencel
University of Denver Astronomy Program
<rstencel@du.edu>
https://twitter.com/epsilon_Aurigae

Interesting Papers

Perhaps nothing new in this but might have some clever ideas for period finding tricks as applied to epsilon Aurigae.

Long-Period Variability in o Ceti
Matthew R. Templeton and Margarita Karovska
2009 ApJ 691 1470-1478

Abstract: http://www.iop.org/EJ/abstract/-alert=42478/0004-637X/691/2/1470
Full text PDF: http://www.iop.org/EJ/article/-alert=42478/0004-637X/691/2/1470/apj_691_2_1470.pdf
Full text HTML: http://www.iop.org/EJ/article/-alert=42478/0004-637X/691/2/1470/apj_691_2_1470.html

Abstract

We carried out a new and sensitive search for long-period variability in the prototype of the Mira class of long-period pulsating variables, o Ceti (Mira A), the closest and brightest Mira variable. We conducted this search using an unbroken light curve from 1902 to the present, assembled from the visual data archives of five major variable star observing organizations from around the world. We applied several time-series analysis techniques to search for two specific kinds of variability: long secondary periods (LSPs) longer than the dominant pulsation period of ~333 days, and long-term period variation in the dominant pulsation period itself. The data quality is sufficient to detect coherent periodic variations with photometric amplitudes of 0.05 mag or less. We do not find evidence for coherent LSPs in o Ceti to a limit of 0.1 mag, where the amplitude limit is set by intrinsic, stochastic, low-frequency variability of approximately 0.1 mag. We marginally detect a slight modulation of the pulsation period similar in timescale to that observed in the Miras with meandering periods, but with a much lower period amplitude of ±2 days. However, we do find clear evidence of a low-frequency power-law component in the Fourier spectrum of o Ceti's long-term light curve. The amplitude of this stochastic variability is approximately 0.1 mag at a period of 1000 days, and it exhibits a turnover for periods longer than this. This spectrum is similar to the red noise spectra observed in red supergiants.

Spectropolarimetric Observations of Herbig Ae/Be Stars. II. Comparison of Spectropolarimetric Surveys: HAeBe, Be and Other Emission-Line Stars

Harrington, D. & Kuhn, J. 2009 ApJS 180 138-181

http://adsabs.harvard.edu/abs/2009ApJS..180..138H

p. 174 “Epsilon Aurigae (HR1605, HD31964) is an Algol-type eclipsing binary of spectral type A8Iab (Simbad). The Ha line for this star has a complex shape with evidence for emission and overlying absorption. There is good quality archival ESPaDOnS data from 2006 February 7 and 8, also showing a strong and complex Ha signature. The polarization change is mostly symmetric about the line center and spans the entire width of the absorptive component of the line. The polarization has an amplitude of roughly 1% almost exactly at the line center.”

2009 AAS meeting abstract:

Epsilon Aurigae: An Improved Spectroscopic Orbital Solution

by Stefanik, Robert P.; Lovegrove, J.; Pera, V. E.; Latham, D. W.; Torres, G.; Zajac, J. M. http://adsabs.harvard.edu/abs/2009AAS...21341010S states “The middle of the next eclipse predicted by our orbital solution is JD2455124 ± 71 (19 October 2009)."

2008: ***Polarimetric measures of selected variable stars***

Elias, N. M., II; Koch, R. H.; Pfeiffer, R. J., “”

http://adsabs.harvard.edu/abs/2008A%26A...489..911E

Table 21 includes eps Aur

Name Filter q sq u su Nlin v sv Ncirc [in percent terms]

HD 31964 U +0.33 – –1.95 – 1 – – 0

B +0.79 0.07 –2.03 0.01 2 – – 0

V +0.81 – –1.98 – 1 – – 0

p.915: “3.6. eps Aur - The NLSP q parameter in the U bandpass differs significantly from the values in the other bandpasses. The difference may not be real because the instrumental correction in U is significantly different from the others. The evidence from the B, V and R historical measures (Gehrels & Sylvester 1965; Coyne & Gehrels 1966) and the two tabulated B values is that this atmospherically eclipsing binary is a polarization variable.”

See also ***O/IR Polarimetry for the 2010 Decade***

http://arxiv.org/ftp/arxiv/papers/0902/0902.4222.pdf

2008A&A...490L...7H

Astron. Astrophys., 490, L7-L10 (2008)

An occultation event in the nucleus of the planetary nebula M 2-29.

HAJDUK M., ZIJLSTRA A.A. and GESICKI K. – one line mention of eps Aur, p. L9: “Among objects with similar events, long-lasting minima are observed in wide binary systems, like symbiotic stars; they are ascribed to dusty clouds. In VHya such a minimum is observed repeatedly with over a 6000 day period (Knapp et al. 1999). NGC 2346 has shown two long-lasting eclipses by clouds (Kato et al. 2001). Either eps Aur or EECep are examples of eclipses by a disk placed nearly edge-on to the observer, around an unseen companion (Carroll et al. 1991; Mikoajewski & Graczyk 1999). Such eclipses appear to be flat and almost grey.

BOOK
(Now Available)

Epsilon Aurigae A Mysterious Star System

by

Hopkins and Stencel

This is a 287 page soft cover book covering the history of epsilon Aurigae and the observations both in and out-of-eclipse as well as the different techniques used.

For more information

http://www.hposoft.com/EAur09/Book.html

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Anyone wishing to contribute to the Newsletter, is most welcome. Please send contributions to me at phxjeff@hposoft.com.

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Clear Skies!
Jeff

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