2009 Epsilon Aurigae Eclipse
Campaign Newsletter #12
Spring/Summer 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,

The 2008/2009 observing season of epsilon Aurigae is over except for the few lucky observers far enough North to be able to make continued observations. For most of the rest of us epsilon Aurigae is lost in the evening twilight and get obstructed as it nears the Northwestern horizon after sunset. The observations over the next couple of months will be very valuable as for most of us the next observations may be after first contact.

The AAVSO has set up a BLOG site for epsilon Aurigae in conjunction with the IYA2009 project.
See: www.aavso.org/aavso/iya.shtml#blog

Bob Stencel and I are giving papers at the Society for Astronomical Sciences (SAS) meeting in Big Bear Lake, California 19 - 22 May. This year SAS is combining its meeting with the AAVSO meeting.

One paper is titled:
Epsilon Aurigae Hydrogen Alpha Emission Line Variation The Horn Dance

The other paper is titled:
Epsilon Aurigae, 2009: The eclipse begins - observing campaign status

For more information on the Society for Astronomical Sciences (SAS)
see: **www.socastrosci.org**

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 added those stars to the UBV data observations to see how stable they are. They were observed throughout the eclipse of zeta Aurigae in March 2009. The following is a summary of eta Aurigae and list of the zeta Aurigae data to-date:

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

Zeta Aurigae

UT Date	JD	V Mag	SD	B Mag	SD	U Mag	SD
13 Apr 09	4,934	3.7939	0.0042	4.9379	0.0069	5.4366	0.0290
07 Apr 09	4,928	3.9068	0.0040	5.4040	0.0009	6.9788	0.0480
31 Mar 09	4,921	3.9164	0.0026	5.4182	0.0083	7.0058	0.0420
27 Mar 09	4,918	3.9213	0.0037	5.4149	0.0024	7.0367	0.0300
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

For 22 out-of-eclipse nights, 15 November 2008 to 18 January 2009, the average V magnitude was 3.74 with a SD of 0.02.

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

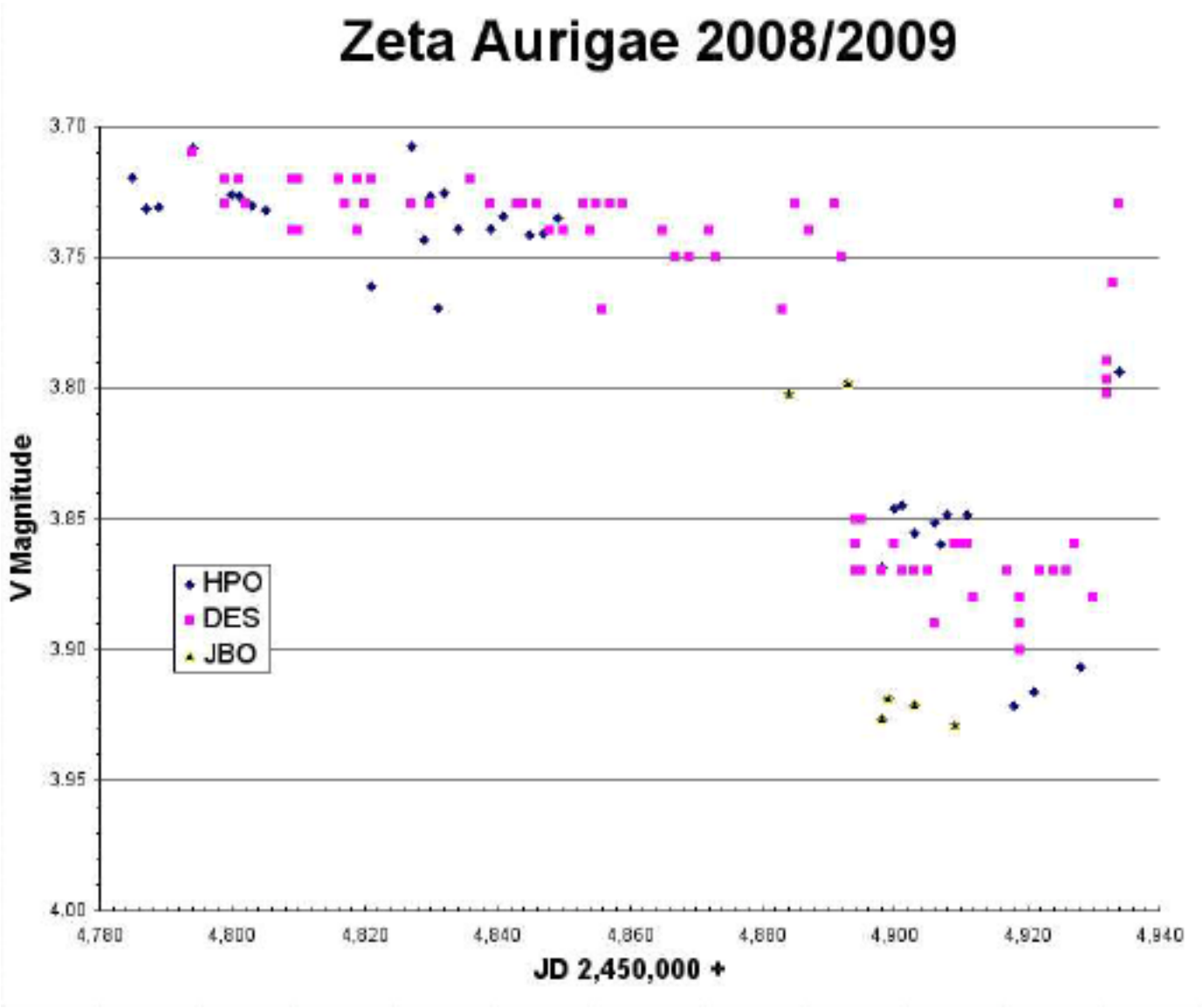
Differential Photometry λ Aurigae as Comparison star V= 4.71; B= 5.34; U= 5.46

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

Next eclipse is July 2011.

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.



Key:
HPO - Hopkins Phoenix Observatory
DES - Des Loughney (Scotland)
JBO - Jim Beckmann Observatory

2008/2009 Season Photometry Data Summary

David 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
21 July 2008	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

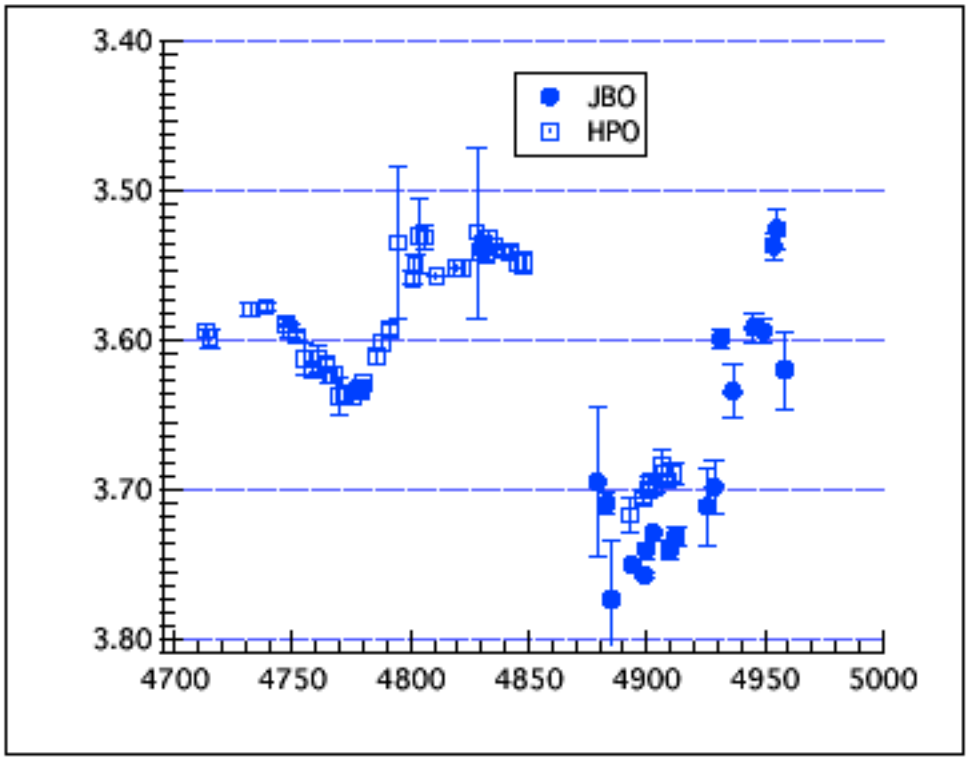
Comments: Mean, standard deviation of 4 determinations bracketed either side in time by Lambda Aurigae.

Assumes V=4.71, Ic=3.99 for Lambda Aurigae

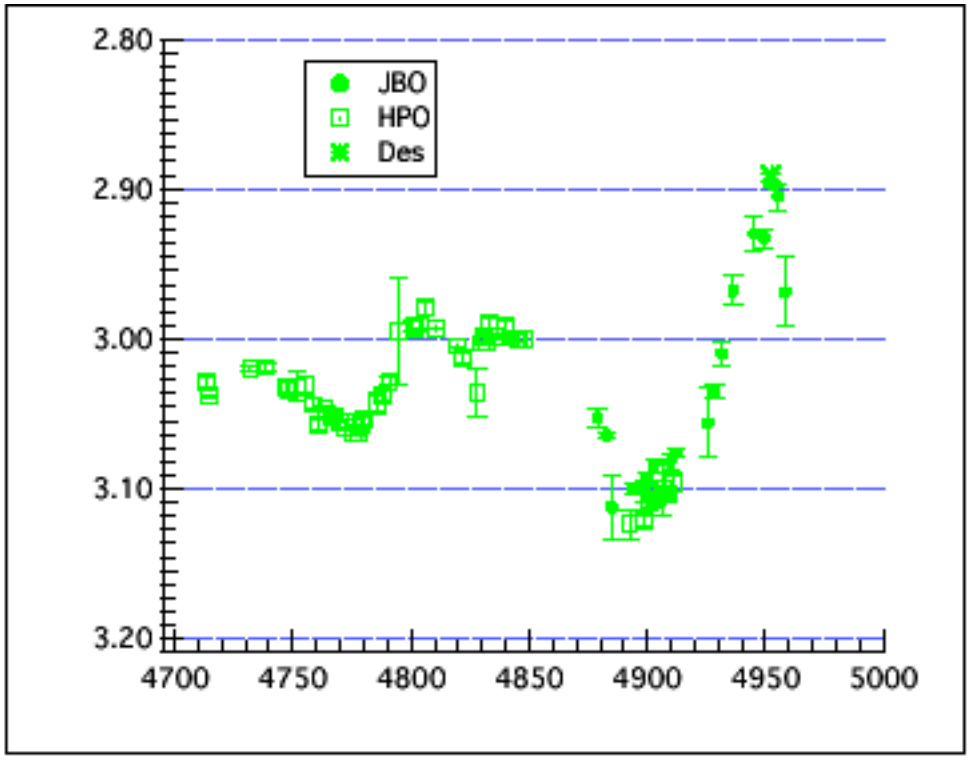
Each determination was an average of 50 frames.

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

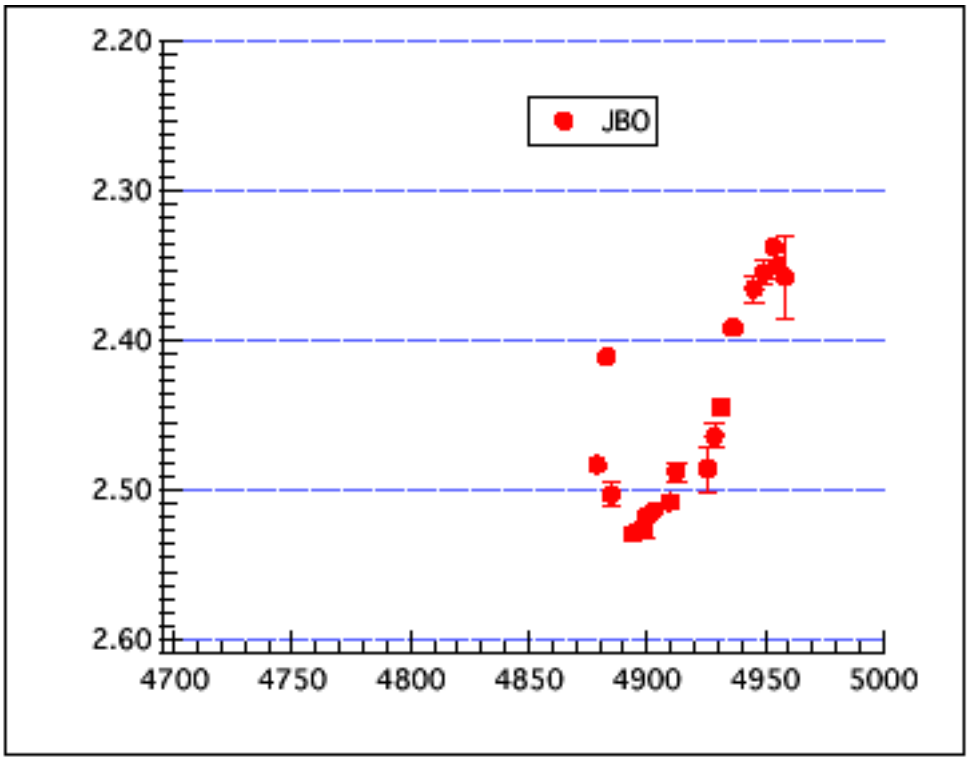
Paul J. Beckmann: Jim Beckmann Observatory (JBO)
Mendota Heights, MN USA
Latitude/Longitude/Altitude (ASL):
44°53'17.46" N 93°06'53.45" W 953 feet ASL
Time Zone: GMT -6 hours Telescope: 8" f/10 Meade 2080 optics
Optec SSP-3a Filter Set: Optec Johnson BVRI



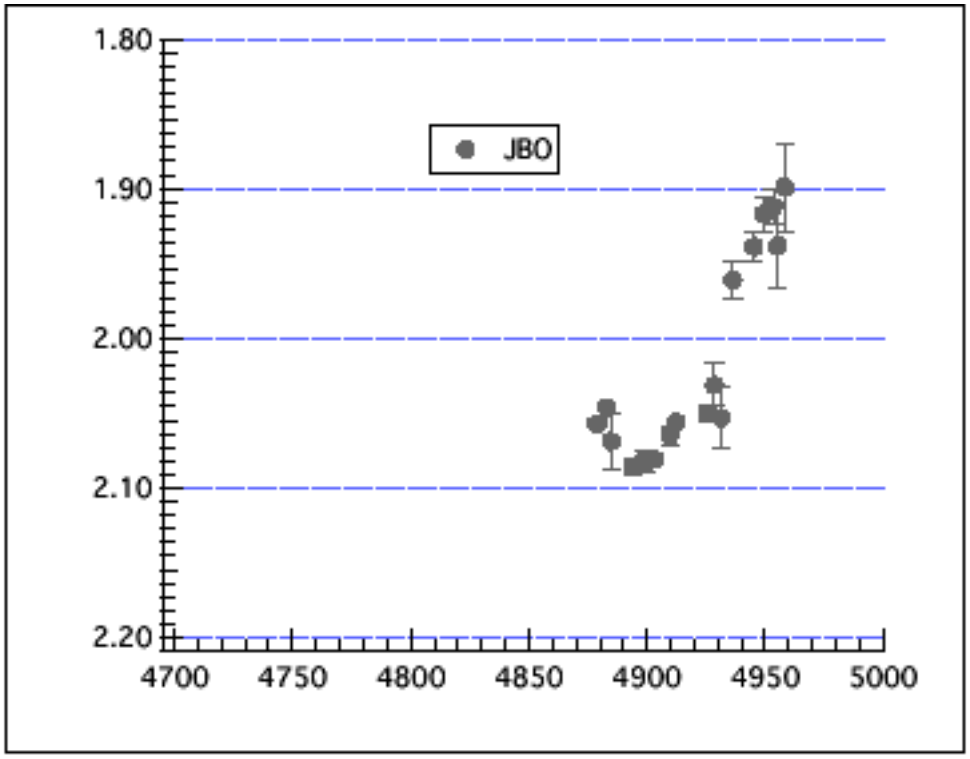
JBO and HPO 2008/2009 Blue Band Data



JBO and HPO 2008/2009 V Band Data



JBO 2008/2009 R and Data



JBO I Band Data

Note: JD is X-axis + 2.450,000

JBO 2008/2009 Data

Epsilon Aurigae

UT Date	HJD	B	SD	V	SD	R	SD	I	SD
07/29/2008	4677	3.3049	.0776	3.0172	.0029	2.4731	.0115	2.3034	.1881
07/29/2008	4677	3.4503	.0332	3.0225	.0132	2.4650	.0265	2.2417	.0394
08/18/2008	4697	3.4840	.0095	3.0047	.0326	2.4453	.0236	2.1687	.0365
08/18/2008	4697	3.5795	.0246	3.0916	.0057	2.4531	.0065	2.2076	.0278
02/21/2009	4884	3.7728	.0392	3.1122	.0224	2.5033	.0081	2.0688	.0179
02/19/2009	4882	3.7094	.0074	3.0644	.0023	2.4106	.0008	2.0457	.0017
03/02/2009	4893	3.7496	.0012	3.0997	.0040	2.5293	.0039	2.0865	.0052
02/15/2009	4878	3.6954	.0100	3.0525	.0061	2.4833	.0014	2.0572	.0033
08/25/2008	4704	3.5040	.0299	2.9997	.0087	2.4380	.0084	2.1445	.0101
03/07/2009	4898	3.7571	.0017	3.1022	.0068	2.5256	.0052	2.0811	.0073
03/08/2009	4899	3.7400	.0052	3.0922	.0026	2.5181	.0028	2.0832	.0057
03/12/2009	4903	3.7286	.0007	3.0843	.0045	2.5142	.0014	2.0807	.0037
03/18/2009	4909	3.7396	.0069	3.0818	.0047	2.5079	.0041	2.0648	.0064
03/21/2009	4912	3.7312	.0067	3.0761	.0021	2.4875	.0064	2.0560	.0033
04/03/2009	4925	3.7110	.0256	3.0564	.0232	2.4859	.0150	2.0497	.0047
04/06/2009	4928	3.6976	.0177	3.0355	.0053	2.4640	.0079	2.0308	.0141
04/09/2009	4931	3.5989	.0071	3.0097	.0078	2.4452	.0050	2.0528	.0203
04/14/2009	4936	3.634	.018	3.010	.008	2.968	.002	2.0538	.013
04/27/2009	4949	3.594	.008	2.933	.006	2.355	.008	1.917	.012
05/01/2009	4953	3.537	.009	2.898	.001	2.338	.000	1.912	.012
05/03/2009	4955	3.526	.013	2.905	.009	2.351	.009	1.938	.029
05/06/2009	4958	3.620	.026	2.969	.023	2.258	.028	1.899	.029

Zeta Aurigae

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

Who says photometry must be difficult and expensive?

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

Des uses a remote switch to activate the Canon 200 Digital Single Lens Reflex (DSLR) camera with 85 mm lens. He takes between 10 and 20 exposures stacks and processes them with AIP4WIN.

Des Loughney 2008/2009 Data

JD 2,450,000 +	UT Date	UT	Epsilon Aurigae V Mag	Zeta Aurigae V Mag
4,957	05 May 2009	21.65	2.92	3.74
4,955	03 May 2009	21.05	2.75 (poor night)	3.77
4,953	01 May 2009	22.10	2.895	3.74
4,952	30 April 2009	22.00	2.89	3.73
4,947	25 April 2009	20.85	2.87	3.73
4,941	19 April 2009	20.70	2.95	3.73
4,940	18 April 2009	20.75	2.95	3.74
4,934	12 April 2009	23.80	2.96	3.73
4,933	11 April 2009	22.80	3.00	3.76
4,932	10 April 2009	21.75	3.015	3.790
4,932	10 April 2009	21.20	2.99	3.797
4,932	10 April 2009	20.65	3.02	3.802
4,930	08 April 2009	21.75	3.03	3.88
4,927	05 April 2009	20.75	3.04	3.86
4,926	04 April 2009	20.90	3.06	3.87
4,924	02 April 2009	20.30	3.05	3.87
4,922	31 March 2009	21.00	3.08	3.87
4,919	28 March 2009	22.50	3.097	3.89
4,919	28 March 2009	22.05	3.081	3.88
4,919	28 March 2009	21.55	3.106	3.90
4,919	28 March 2009	21.15	3.097	3.90
4,919	28 March 2009	20.60	3.095	3.88
4,917	26 March 2009	23.35	3.105	3.87
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

Des Loughney 2008/2009 Data (continued)

JD 2,450,000+	UT Date	UT	Epsilon Aurigae V Mag	Zeta Aurigae V Mag
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
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 USA
Telescope: CGE1400
Detector *(BVRI): SSP-3 Detector (JH): SSP-4 @ T= - 40C
Comp = Lam Aur HD34411 ***** **Note:** JD = 2,450,000 +.
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
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				

Brian E. McCandless Data (continued)

JD	B	Error	V	Error	Rc	Error	Ic	Error
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

Jeff Hopkins
Hopkins Phoenix Observatory (HPO)
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						
April 2009	**V**	**SD**	**B**	**SD**	**U**	**SD**
2454934.6385	3.0249	.0109	3.5995	.0089	3.8022	.0610
2454928.6454	3.0663	.0040	3.6556	.0046	3.8188	.0262
March 2009						
2454921.6524	3.1142	.0048	3.7030	.0065	3.8676	.0328
2454918.6593	3.1076	.0044	3.7066	.0040	3.8792	.0015
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
December 2008	**V**	**SD**	**B**	**SD**	**U**	**SD**
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

HJD						
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

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
4927	05/06 Apr 09	02:10	3.065	3	0.02
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	

Snaevarr Gudmundsson (Iceland)
CID#040
Lindarberg Observatory
Location (WGS 84)
Latitude:+64d 03.740
Longitude:21d 55.297
Optec SSP-3 on 12" Meade LX 200

Double Date	HJD	B	#	V	#	X
25/26 March 2009	2454917.49	3.72	4	3.14	4	1.51
10/11 April 2009	2454927.46	3.55	4	2.95	4	1.61

Hans-Goran Lindberg
Skultuna, Sweden

Observation using:
(50 mm fl camera lens, HX-516 B/W Camera, y2-filter
Exp 30*3sec, .fits images stacked
TeleAuto software, with Superstar)
Compstar lambda Aurigae at V= 4.71

Date	CV	CV
03 April 2009	3.10	3.91
02 April 2009	2.08	2.89
01 April 2009	3.02	3.87
26 March 2009	3.018	3.78
25 March 2009	3.023	3.79
21 March 2009	3.113	3.84
20 March 2009	3.125	3.83
19 March 2009	3.078	3.85
18 March 2009	3.127	3.87
17 March 2009		3.85
15 March 2009	3.102	3.85
15 March 2009		3.91
01 March 2009		3.85
28 February 2009		3.83
27 February 2009		3.75
23 March 2008	3.045	
22 March 2008	3.041	
21 March 2008	3.054	
28 March 2008		3.72
13 March 2008		3.70
04 March 2008	3.042	
28 February 2008	2.971	
28 February 2008	2.997	
28 February 2008	3.041	
27 February 2008	3.036	
13 February 2008	3.057	
11 February 2008	3.037	
11 February 2008	3.054	

Dr. Mukund Kurtadikar
Postgraduate Department of Physics
Jalna Education Society's
R.G.B.Arts , S.B.Lakhotia Commerce & R.Bezonji Science College
Jalna 431 203
Maharashtra
India
13 April 2009

Date	JD	V	B-V	B
11/19/2008	2454789.414	3.00	0.58	3.58
11/23/2008	2454793.379	2.87	0.54	3.41
11/25/2008	2454795.385	2.91	0.58	3.49
11/26/2008	2454796.380	2.86	0.63	3.49
12/17/2008	2454817.389	2.91	0.57	3.48
12/24/2008	2454824.393	2.94	0.55	3.49
12/25/2008	2454825.363	2.93	0.56	3.49
12/26/2008	2454826.364	2.94	0.54	3.48
12/28/2008	2454828.379	2.93	0.56	3.49
12/29/2008	2454829.374	2.94	0.49	3.43
12/30/2008	2454830.372	2.93	0.54	3.47
01/13/2009	2454844.392	2.94	0.52	3.46
01/21/2009	2454852.399	2.95	0.58	3.53
01/22/2009	2454853.384	2.90	0.54	3.44
01/26/2009	2454857.378	2.91	0.56	3.47

Spectroscopy Report

Hans-Goran Lindberg
Skultuna, Sweden

01 April 2009

For the first time I try to take a spectra of epsilon, using an old web cam on my Meade 10" Schmidt-Newton.

It was taken as a 30 sec avi file, 1 frame per sec. and a 300 line/mm grating.

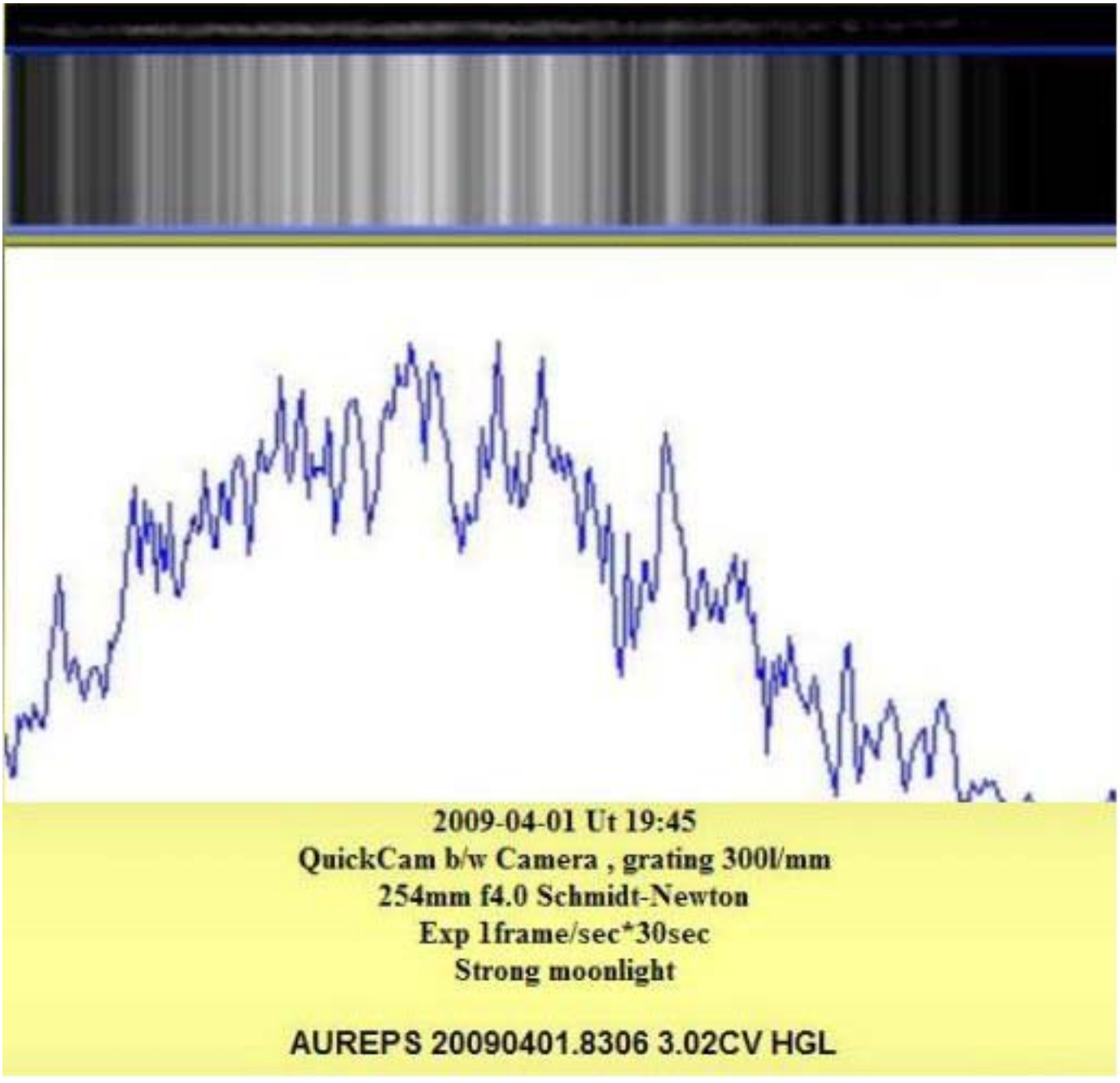
the camera is a very old (1996)320*240 QuickCam b/w.

Guess the spectra must be better with my HX-516 camera. I plan on using it next time.

Now I have to learn me the V-spec software.

Regards

h-g

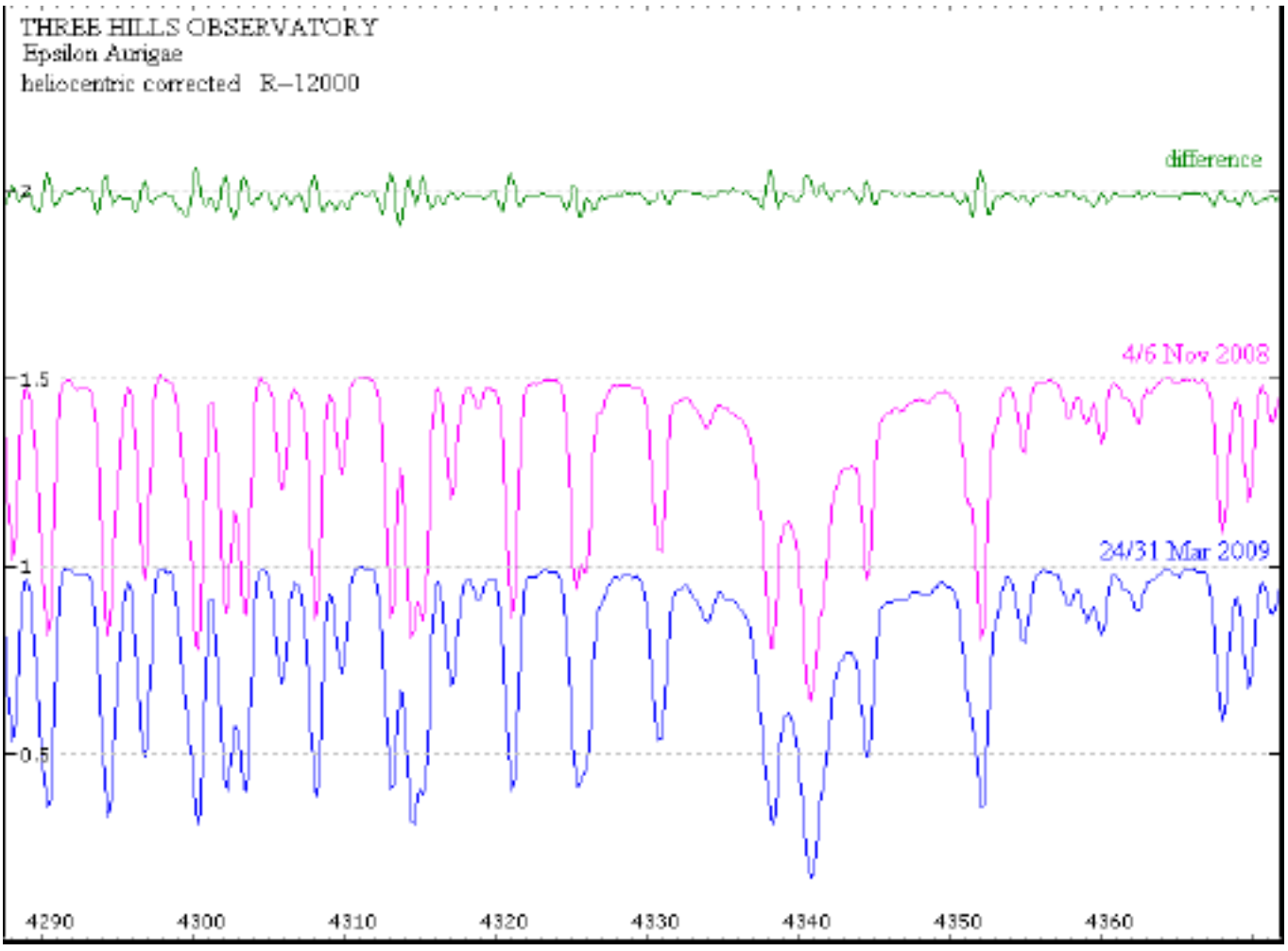


Robin Leadbeater (UK)
Three Hills Observatory
13 April 2009

Well the WR140 campaign is over (in the optical spectra at least) so I have returned to Eps Aur as promised. I was interested to read in news letter 11 of recent changes detected in the blue, possibly early signs of the eclipsing object. I have comparisons between Nov 2008 and Mar 2009 around H gamma at R~12000 (attached)

There are some small differences but the March 09 results are at slightly lower resolution as the spectrograph slit was slightly wider compared with November 08 spectra and this may be producing the differences seen (Do you know of any technique to correct for this resolution effect, which should be quantifiable using the calibration lamp spectra?)

Measurements of the 7699 KI line in March/April are giving consistent results, with a line profile currently very similar to that seen pre eclipse by Lambert and Sawyer.



From Dr. Bob

On June 7th, 2009, the Sun matches the Right Ascension of epsilon Aurigae, with only a 21 degree separation. Thereafter, the two separate and observations of epsilon Aurigae become easier as we move toward expected eclipse first contact in August. To state the goal again, we are seeking evidence for CHANGES in the system since the previously well covered eclipse in 1982-1984. Changes can help explore the nature and evolution of the dark companion presumed present in this mysterious star system. Photometric monitoring will be key to providing context. Spectroscopic monitoring of lines from Potasium I 7,699Å and oxygen I 7,774Å on the red end, hydrogen alpha, sodiumj D lines, plus the blue region (Balmer lines) and down to calcium K 3,933Å all show changes during eclipse.

There are reasons to expect flare-like activity during ingress: In a 1930 paper, Struve and Elvey reported hydrogen beta line core emission during ingress, autumn 1928; in a 1983 IBVS report, Nha reported an 0.4 magnitude B band flare event; in a 1985 report, Tom Ake reported flares in the ultraviolet during both ingress and egress, and recently (18 April 2009), Bruce McCandless reported the appearance of helium line emission (6,678Å, a recombination singlet transition). This helium emission and its relatives suggest a hot source (UV, 50,000K type) present in the system, which could be associated with magnetic activity, mass transfer, accretion and/or tidally induced distortion of the F star longitudes facing the dark disk. With sufficient photometric and spectroscopic coverage, we may be able to localize the source of flaring in the system.

Now that epsilon Aurigae is too low for conventional, larger telescope mounts, I've been using a simple digital camera (Olympus, 3.2 Megapixel) zoomed to a 20 degree field of view around Capella, several 16 second exposures, to obtain color jpeg frames. These are then measured with source extractor software in CCDSoft, to help estimate visual magnitudes to better than 0.1 mag. Here are recent results, using lambda Aurigae as the comparison star. The point is that relatively simple equipment can produce a proxy indicator for light variations. Location: University of Denver,'s historic Chamberlin Observatory [obscode 708, http://www.du.edu/~rstencel/Chamberlin]:

Date	MtnTime	GMT	RJD	V Mag	stdev
06 May 2009	2110	310	54958.63	2.98	0.05
05 May 2009	2109	309	54957.63	3.00	0.08
29 Apr 2009	2100	300	54951.63	3.08	0.06
21 Apr 2009	2045	245	54943.61	3.01	0.03
20 Apr 2009	2131	321	54942.64	2.90	0.09
15 Apr 2009	2112	312	54937.63	2.97	0.13
11 Apr 2009	2145	345	54933.66	3.03	0.11
05 Apr 2009	2156	356	54927.66	3.05	0.03

As Jeff mentioned at the top of this Newsletter, he and I are presenting papers at the SAS/AAVSO joint meeting this month. Copies of these reports should be available online in the near future as well.

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

The Very Long Mystery of Epsilon Aurigae
Sky & Telescope, May 2009, page 58, ,
by Robert E. Stencel.
Very nice five page article on epsilon Aurigae.

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
Regular Price: $29.95 +S&H
Eclipse Special $24.95 + S&H
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Anyone wishing to contribute to the Newsletter, is most welcome. Please send contributions to me at phxjeff@hposoft.com.

Anyone desiring not to receive the Newsletter announcements, please e-mail me and I will remove your name from the mailing list.

Clear Skies!
Jeff
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(Counting Photons)
7812 West Clayton Drive
Phoenix, Arizona 85033 USA
phxjeff@hposoft.com