

The 2008 AAVSO Eclipsing Binary Ephemeris

The AAVSO Eclipsing Binary Ephemeris provides the predicted time of mid-eclipse for eclipsing binaries in the AAVSO Eclipsing Binary observing program. These times appear in Universal Time in the body of the ephemeris table. The time is rounded to the nearest half hour, which provides sufficient accuracy to plan an observing session while, hopefully, leaving sufficient doubt about the exact time in order to eliminate anticipatory bias. The ephemeris is designed for use by observers at American longitudes.

The top rows of the ephemeris table list the name of the eclipsing binary. Directly below the star's name are its approximate maximum and minimum magnitudes. These magnitudes are taken from the 4th edition of the GCVS and may be visual, photographic, or V.

Below that, in the row labeled "DUR", the approximate number of hours required to obtain a time of minimum. This time is typically shorter than the duration of the eclipse listed in the GCVS. We need good coverage of the steep portion of the descending leg through the

corresponding portion of the ascending leg of the eclipse to measure the time of mid-eclipse accurately.

The next row, labeled "TOT" indicates the duration of the totality at minimum in hours.

The numbers in the left-most column are the "double date" - the evening and the following morning - for the event times listed in the corresponding row. For example, 5-6 corresponds to the evening of the 5th and the morning of the 6th of the month. January 0-1 is the evening of December 31 and the morning of January 1.

The 'S' in the table heading stands for secondary eclipse. All other predictions are for the primary eclipse. Sometimes a secondary eclipse column may appear where there is no primary eclipse column for a star; this occurs when none of the primary eclipses for that star during that month are observable.

Gerard Samolyk, AAVSO Eclipsing Binary Committee

REFERENCE

Kholopov, P. N., *et al.* 1985, *General Catalogue of Variable Stars*, Fourth Edition, Moscow.

	RT	TW	WZ	XZ	AB	AB	RY	CX	OO	OO	V342	V343	V346	WW	WW	Y	SV	AL	R	UU	RZ	TV	AB
	AND	AND	AND	AND	AND	AND	AQR	AQR	AQL	AQL	AQL	AQL	AQL	AUR	AUR	CAM	CAM	CAM	CMA	CMA	CAS	CAS	CAS
MAX	9.3	8.8	11.6	10.0	9.3	9.3	8.8	10.7	9.2	9.2	9.0	10.6	9.0	5.7	5.7	10.6	8.6	10.5	6.2	10.0	6.4	7.3	10.2
MIN	10.2	11.0	12.6	13.0	10.2	10.2	10.1	12.0	10.1	10.1	12.5	12.3	10.4	6.4	6.4	12.4	9.4	11.3	6.8	12.5	7.8	8.4	12.2
DUR	3	11	4	3	3	3	5	3	3	3	7	4	4	5	5	10	3	5	4	5	4	4	4
TOT											3												
						(S)			(S)						(S)								
0- 1					0.5	4.5						12.5					6.0			3.5	6.5	1.0	10.0
1- 2	3.5		1.5		0.5	4.5		0.0							1.0		10.0				11.0		
2- 3				2.5	0.5	4.5								7.5			0.5	1.5	3.0	7.5			
3- 4	1.0		3.5		0.0	4.0											5.0	9.0	6.5				3.5
4- 5					0.0	4.0	0.5										9.5		9.5				12.5
5- 6			6.0			4.0																	1.0
6- 7	4.5	1.0		4.5		4.0		0.5							2.0		4.0	1.0				6.0	
7- 8						3.5								8.5			8.5	9.0			10.5	7.0	6.0
8- 9	1.5		0.5			3.5																	
9-10						3.5																	2.5
10-11		4.0	2.5	6.0		3.5			0.0								6.0	3.5					
11-12	5.0					3.5		0.5							3.5		12.0	8.5	5.0		0.5		8.5
12-13			5.0			3.0					13.0			9.5			2.5		8.5		5.5		
13-14	2.5					3.0											7.0			3.5	10.0		
14-15			7.0	8.0		3.0											11.5	0.0					2.0
15-16						3.0											1.5	8.0		7.5			11.0
16-17	6.0					3.0		0.5							4.5		6.0					8.5	
17-18			1.5	1.0		2.5								11.0			10.5				0.0		
18-19	3.0					2.5											1.0				4.5	4.0	4.5
19-20			3.5			2.5										4.0	5.0	7.5	4.0		9.5		
20-21	0.5					2.5											9.5		7.5				
21-22	6.5		6.0	2.5		2.5		0.5							6.0								
22-23						2.0								12.0		11.0	4.5						7.0
23-24	4.0					2.0											9.0	7.5					
24-25			0.5			2.0															4.0		
25-26	1.0			4.5		2.0							0.5				3.5				9.0		0.5
26-27			2.5			2.0		0.5							7.0		8.0			3.5			9.5
27-28						1.5											12.5	7.0	3.0			5.5	
28-29	4.5		5.0			1.5											3.0		6.0	7.5			
29-30				6.0		1.5			0.0				0.0			2.0	7.0		9.5			1.0	3.0
30-31	2.0		7.0			1.5								2.0			11.5				3.5		12.0

	UZ	AI	YY	YY	RW	SZ	TU	CT	AV	SW	SW	VX	CM	SS	T	EW	FL	RU	RU	RW	BO	SX	EQ
	DRA	DRA	ERI	ERI	GEM	HER	HER	HER	HYA	LAC	LAC	LAC	LAC	LIB	LMI	LYR	LYR	MON	MON	MON	MON	OPH	ORI
MAX	9.9	7.2	8.4	8.4	9.6	10.2	10.6	9.9	10.2	9.2	9.2	10.9	8.5	10.4	10.2	11.2	8.7	10.6	10.6	9.1	10.8	10.5	10.3
MIN	10.7	8.2	9.1	9.1	11.6	12.0	13.4	11.2	10.6	10.0	10.0	12.3	9.5	11.3	12.6	13.6	9.5	11.3	11.3	11.9	12.1	11.2	13.3
DUR	5	4	3	3	5	4	5	4	4	3	3	4	4	6	6	5	4	5	5	5	5	5	4
TOT	(S)			(S)							(S)								(S)				
0- 1		12.0	6.5	2.5						2.5			1.0					6.5		6.0			
1- 2			5.5	1.5		10.0			7.5	2.0						12.0						11.0	
2- 3			4.5	1.0						1.0	5.0				12.0					11.0			
3- 4			4.0						8.5	0.0	4.0					11.0						12.5	
4- 5			3.0	7.0	11.0						3.0												
5- 6		7.0	2.0	6.0		12.0		12.0	10.0		2.0				12.5								
6- 7		12.0	1.0	5.0							1.0							1.5					5.0
7- 8	3.0		0.5	4.0	8.0				11.0	4.0	0.5												
8- 9			7.0	3.5					3.5	3.0			1.5			10.5							
9-10			6.5	2.5			9.5		12.5	2.5		1.0		10.5						9.0	3.5		
10-11	9.5		5.5	1.5	4.5	10.0			5.0	1.5		3.0											
11-12			4.5	1.0						0.5	4.5	4.5								6.5	9.0		
12-13		11.5	4.0						6.0		3.5												
13-14			3.0	7.0	1.5						2.5						5.5		4.5			4.5	
14-15			2.0	6.0		12.0		10.5	7.0		1.5												
15-16			1.5	5.0						4.5	0.5									2.0			
16-17			0.5	4.5					8.5	3.5			2.0										
17-18			7.5	3.5						2.5													
18-19		11.5	6.5	2.5			11.0		9.5	2.0										4.5			
19-20			5.5	1.5		10.0				1.0	4.5			12.5									
20-21	4.0		4.5	1.0					11.0		4.0							9.5			6.5		4.0
21-22			4.0	0.0					3.0		3.0					12.5							
22-23			3.0	7.0					12.0		2.0												
23-24	10.5		2.0	6.0		12.0			4.5	5.0	1.0	0.5											
24-25		11.5	1.5	5.0						4.0	0.0	2.0	2.5										
25-26			0.5	4.5					5.5	3.0		4.0								8.5			
26-27			7.5	3.5						2.0													
27-28			6.5	2.5	9.0		12.5		7.0	1.5													3.5
28-29			5.5	2.0		10.0				0.5	4.5					1.0				10.5			
29-30			5.0	1.0					8.0		3.5										4.0		
30-31		11.0	4.0	0.0	6.0			12.0			2.5									8.0			

	ER	ER	FL	U	U	TY	AQ	Z	RT	RV	ST	XZ	BETA	Y	U	RW	AC	AM	V	X	RV	W	W
	ORI	ORI	ORI	PEG	PEG	PEG	PEG	PER	PER	PER	PER	PER	PER	PSC	SGE	TAU	TAU	TAU	TRI	TRI	TRI	UMA	UMA
MAX	9.5	9.5	10.5	9.7	9.7	10.5	10.3	9.9	10.6	10.3	9.7	10.6	2.2	9.0	6.4	8.0	10.5	10.4	10.9	8.9	11.4	9.1	9.1
MIN	10.2	10.2	13.2	10.5	10.5	12.6	13.0	12.4	12.0	12.7	13.2	12.7	3.5	12.0	9.1	12.5	12.3	12.3	11.9	12.0	12.5	9.9	9.9
DUR	3	3	3	3	3	6	12	6	4	8	5	4	8	7	6	4	6	5	4	4	4	3	3
TOT							6	2			1				2	1							
			(S)		(S)																		(S)
0- 1	9.0	4.0		2.0					5.5						5.5			4.5		7.5	3.0	7.0	
1- 2	5.0	0.0			0.5				2.0			0.5								1.5	3.0	7.0	
2- 3	1.5	6.5	6.0		3.5	0.5						4.5										3.0	7.0
3- 4	8.0	3.0		2.0								8.0							2.5		8.0	3.0	7.0
4- 5	4.5	9.5			0.5						6.0								6.5		2.0	3.0	7.0
5- 6	0.5	6.0	8.5		3.5	2.5			8.0													3.0	7.0
6- 7	7.0	2.0		2.0					4.0				9.0						1.0		8.0	3.0	7.0
7- 8	3.5	8.5			0.5				0.5					0.0				0.0	5.0		2.0	3.0	7.0
8- 9		5.0			3.5																	3.0	7.0
9-10	6.5	1.0		2.0								2.0	6.0					1.0				3.0	7.0
10-11	2.5	7.5	0.5		0.5				10.0			6.0							3.0		2.5	3.0	7.0
11-12	9.0	4.0			3.5				6.5			9.5				7.0		2.5		7.0		3.0	7.0
12-13	5.5	0.5		2.0			1.5		3.0		4.5		3.0								6.0	3.0	7.0
13-14	2.0	7.0	2.5		0.5			0.5										3.5	1.5	5.5	3.0	3.0	7.0
14-15	8.5	3.0			3.5											1.5			5.5	5.0		3.0	7.0
15-16	4.5			1.5						9.5								4.5		4.0		3.0	7.0
16-17	1.0	6.0	5.0	4.5	0.0			2.0	9.0			0.0								3.5	3.5	3.0	7.0
17-18	7.5	2.5			3.0				5.0	8.5		3.5						5.5	3.5	2.5		3.0	7.0
18-19	3.5	9.0		1.5					1.5			7.5								2.0		3.0	7.0
19-20	0.0	5.0	7.5	4.5	0.0			3.0		8.0		11.0						6.5		1.5	3.5	3.0	7.0
20-21	6.5	1.5			3.0						3.5						0.5		2.0	0.5		3.0	7.0
21-22	3.0	8.0		1.5						7.5								7.5	6.0			3.0	7.0
22-23	9.5	4.0		4.5	0.0			4.5	7.5					1.5		9.0	1.5				4.0	3.5	7.5
23-24	5.5	0.5			3.0				4.0	7.0								8.5	0.0			3.5	7.5
24-25	2.0	7.0		1.5					0.5								2.5		4.0			3.5	7.5
25-26	8.5	3.5		4.5	0.0			6.0		6.0		5.0				3.5		9.5			4.5	3.5	7.5
26-27	5.0				3.0							9.0			12.0		3.5					3.5	7.5
27-28	1.0	6.0	1.5	1.5					10.0	5.5										2.5		3.5	7.5
28-29	7.5	2.5		4.5	0.0			7.0	6.0		2.0						4.5		6.5		4.5	3.5	7.5
29-30	4.0	9.0			3.0				2.5	5.0			7.5									3.5	7.5
30-31	0.0	5.5	4.0	1.5													5.5		0.5			3.5	7.5

	TX	VV	XZ	RU	AG	BU
	UMA	UMA	UMA	UMI	VIR	VUL
MAX	6.8	10.1	10.1	10.7	8.8	10.6
MIN	8.9	11.0	11.7	11.4	9.4	11.4
DUR	6	3	3	4	4	3
TOT						
0- 1	7.0	3.5	4.0	12.0	7.0	
1- 2		12.5	9.5	0.5		0.5
2- 3		5.0		1.5	5.5	
3- 4	8.5			2.5	12.5	
4- 5		6.5		4.0		
5- 6			1.5	5.0	10.5	0.0
6- 7	10.0	8.0	6.5	6.5		
7- 8		0.5	12.0	7.5	9.0	
8- 9		9.5		8.5		
9-10	12.0	2.0		10.0	7.0	
10-11		11.0		11.0		
11-12		3.5	4.0	12.5	5.5	
12-13		12.5	9.5	1.0	12.0	
13-14		5.0		2.0		
14-15				3.5	10.5	
15-16		6.5		4.5		
16-17			1.5	5.5	9.0	
17-18		8.0	6.5	7.0		
18-19		0.5	12.0	8.0	7.0	2.0
19-20		9.5		9.5		
20-21		2.0		10.5	5.5	
21-22		11.0		11.5	12.0	
22-23		3.5	4.0	0.5		1.5
23-24		12.5	9.5	1.5	10.5	
24-25		5.0		2.5		
25-26				4.0	8.5	
26-27		6.5		5.0		1.5
27-28			1.5	6.5	7.0	
28-29		8.0	6.5	7.5		
29-30		0.5	12.0	8.5	5.0	
30-31		9.5		10.0	12.0	1.0

AAVSO Eclipsing Binary Ephemeris for February 2008

all times in U.T.

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	RT	TW	WZ	XZ	AB	AB	OO	V342	V343	V346	WW	WW	Y	SV	AL	R	UU	RW	RZ	TV	AB	U	XX
	AND	AND	AND	AND	AND	AND	AQL	AQL	AQL	AQL	AUR	AUR	CAM	CAM	CAM	CMA	CMA	CAP	CAS	CAS	CAS	CEP	CEP
MAX	9.3	8.8	11.6	10.0	9.3	9.3	9.2	9.0	10.6	9.0	5.7	5.7	10.6	8.6	10.5	6.2	10.0	9.8	6.4	7.3	10.2	6.7	8.5
MIN	10.2	11.0	12.6	13.0	10.2	10.2	10.1	12.5	12.3	10.4	6.4	6.4	12.4	9.4	11.3	6.8	12.5	10.8	7.8	8.4	12.2	9.8	9.6
DUR	3	11	4	3	3	3	3	7	4	4	5	5	10	3	5	4	5	6	4	4	4	4	4
TOT								3															2
						(S)	(S)					(S)											
0- 1						1.0					8.0		2.0	6.5					8.5				2.5
1- 2						1.0						9.0	6.5						13.0			12.0	
2- 3			1.5			1.0							11.0								5.5		10.5
3- 4	11.5					1.0			13.0				1.0							11.5			
4- 5	2.5		3.5			1.0					3.0		5.5	6.5	1.5								
5- 6				1.0		0.5					9.5		10.0			5.0			3.0	7.0			
6- 7						0.5							0.5						7.5		8.0	11.5	
7- 8						0.5							4.5						12.5	2.5			3.0
8- 9	12.5	0.5				0.5							9.0	6.0		3.5							
9-10	3.5		0.5	2.5		0.5					4.5										1.5		11.0
10-11						0.0							4.0				7.5				10.0		
11-12	0.5		2.5			0.0							7.0	8.5					2.5			11.0	
12-13		3.5				0.0							13.0	5.5	0.5				7.0				
13-14			5.0	4.5			11.0		12.0				3.0		4.0				12.0		4.0		
14-15	4.0						11.5				5.5		7.5		7.0						12.5		3.0
15-16							12.0	10.5					12.0										
16-17	1.5						12.0						2.0	5.0						4.0		11.0	11.5
17-18				6.0					11.5				6.5							2.0		6.5	
18-19			1.5									0.5	11.0							6.5			
19-20											6.5		1.5							11.0			
20-21			4.0		3.0								6.0	5.0									
21-22	2.0				3.0								5.5	10.5	12.5	2.5	3.0				8.5	10.5	3.5
22-23					3.0								0.5			6.0							
23-24					3.0							1.5	5.0				7.0						11.5
24-25				1.0	2.5						8.0		12.5	9.5	4.5					6.0		2.5	
25-26	12.0		0.5		2.5									12.5					10.5	5.5	11.0		
26-27	3.0				2.5								4.0					13.0				10.0	
27-28			2.5		2.5								8.5							1.0			
28-29	0.0			2.5	2.5						3.0			4.0							4.5		4.0

	YY	YY	RW	SZ	TU	CT	AV	SW	SW	VX	SS	DELT	EW	FL	RU	RU	RW	BO	U	SX	EQ	ER	ER		
	ERI	ERI	GEM	HER	HER	HER	HYA	LAC	LAC	LAC	LIB	LIB	LYR	LYR	MON	MON	MON	MON	OPH	OPH	ORI	ORI	ORI		
MAX	8.4	8.4	9.6	10.2	10.6	9.9	10.2	9.2	9.2	10.9	10.4	4.8	11.2	8.7	10.6	10.6	9.1	10.8	5.8	10.5	10.3	9.5	9.5		
MIN	9.1	9.1	11.6	12.0	13.4	11.2	10.6	10.0	10.0	12.3	11.3	5.9	13.6	9.5	11.3	11.3	11.9	12.1	6.5	11.2	13.3	10.2	10.2		
DUR	3	3	5	4	5	4	4	3	3	4	6	7	5	4	5	5	5	5	5	5	4	3	3		
TOT		(S)							(S)							(S)							(S)		
0- 1	3.0						9.0		1.5						3.5		9.5					6.5	1.5		
1- 2	2.0			12.0		7.0	1.5		0.5	11.0				9.5			6.0	10.0	9.5			3.0			
2- 3	1.5	5.0	2.5	7.5			10.5																4.5		
3- 4	0.5	4.5			8.0		3.0	2.5									3.5			11.0	3.5	6.0	1.0		
4- 5		3.5					11.5	1.5														2.0	7.5		
5- 6		2.5					4.0	1.0								2.5	1.5				12.5		3.5		
6- 7		2.0		9.5																10.5			5.0		
7- 8	5.0	1.0					5.0		3.0	1.5			12.5		7.5			1.5				1.5	6.5		
8- 9	4.0	0.0				10.5			2.0														2.5		
9-10	3.0						6.5		1.0				11.5					7.0					4.0		
10-11	2.5			12.0					0.0												3.0	0.5	5.5		
11-12	1.5	5.5		7.5			7.5				12.5		10.5						11.5				7.0	2.0	
12-13	0.5	4.5			9.5			2.0									7.0						3.0		
13-14		3.5					9.0	1.5		12.0			9.0											4.5	
14-15		2.5					1.0	0.5			9.5			11.5									6.0	1.0	
15-16		2.0		9.5			10.0																2.5	7.5	
16-17	5.0	1.0					2.5		2.5										12.0					4.0	
17-18	4.0	0.0				9.0	11.0		1.5												2.5	5.0	0.0		
18-19	3.0						3.5		0.5			12.5			2.0			4.5					1.5	6.5	
19-20	2.5		7.5	12.0																				3.0	
20-21	1.5	5.5		7.5			5.0	2.5										7.5						4.5	
21-22	0.5	4.5			11.0			1.5		0.5														0.5	5.5
22-23		3.5	4.0				6.0	1.0		2.5								5.0						7.0	2.0
23-24		3.0															1.0								3.5
24-25		2.0		9.5		12.5	7.5		3.0		11.0							3.0			2.0				5.0
25-26	5.0	1.0	1.0						2.0			12.5		8.5	6.0									6.5	1.0
26-27	4.0	0.0				7.5	8.5		1.0									0.5						2.5	
27-28	3.0								0.0					13.0				2.5							4.0
28-29	2.5			12.0			9.5																	5.5	0.5

	FL	U	U	TY	RT	RV	ST	XZ	BETA	RW	AM	V	X	RV	W	W	TX	VV	XZ	RU	AG	BU
	ORI	PEG	PEG	PEG	PER	PER	PER	PER	PER	TAU	TAU	TRI	TRI	TRI	UMA	UMA	UMA	UMA	UMA	UMI	VIR	VUL
MAX	10.5	9.7	9.7	10.5	10.6	10.3	9.7	10.6	2.2	8.0	10.4	10.9	8.9	11.4	9.1	9.1	6.8	10.1	10.1	10.7	8.8	10.6
MIN	13.2	10.5	10.5	12.6	12.0	12.7	13.2	12.7	3.5	12.5	12.3	11.9	12.0	12.5	9.9	9.9	8.9	11.0	11.7	11.4	9.4	11.4
DUR	3	3	3	6	4	8	5	4	8	4	5	4	4	4	3	3	6	3	3	4	4	3
TOT							1			1												
			(S)													(S)						
0- 1			0.0			4.5						5.0		5.0	3.5	7.5		2.0		11.0	3.5	
1- 2								3.0	4.5						3.5	7.5		11.0		12.0	10.5	
2- 3	6.5	1.5				3.5		6.5							3.5	7.5		3.5	4.0	1.0		
3- 4					5.0							3.0		5.5	3.5	7.5		12.5	9.5	2.0	8.5	
4- 5					1.5	3.0			1.5						3.5	7.5		5.0		3.0		
5- 6		1.5		0.5			0.5			5.5					3.5	7.5				4.5	7.0	
6- 7						2.5						1.0		6.0	3.5	7.5	1.5	6.5		5.5		
7- 8															3.5	7.5			1.5	7.0	5.0	0.0
8- 9		1.5			7.0	1.5		1.0							3.5	7.5		8.0	7.0	8.0	12.0	
9-10					3.5			4.5						6.0	3.5	7.5	3.0	0.5	12.0	9.0	3.5	
10-11	0.5				0.0	1.0		8.0				3.5		0.0	3.5	7.5		9.5		10.5	10.5	
11-12		1.5													3.5	7.5		2.0		11.5		
12-13						0.5									3.5	7.5	4.5	11.0		0.0	8.5	
13-14	3.0											1.5		0.5	3.5	7.5		3.5	4.0	1.5		
14-15		1.5			6.0										4.0	8.0		12.5	9.5	2.5	7.0	
15-16					2.5										4.0	8.0	6.0	5.0		4.0		13.0
16-17	5.5							2.5		7.0				1.0	4.0	8.0				5.0	5.0	
17-18		1.5						6.0				4.0	5.0		4.0	8.0		6.5		6.0	12.0	
18-19							6.5						4.0		4.0	8.0	7.5		1.5	7.5	3.5	
19-20										1.5		3.5	1.5	4.0	8.0		8.0	7.0	8.5	10.0	12.5	
20-21		1.0			4.5							2.5	3.0		4.0	8.0		0.5	12.0	10.0		
21-22					1.0				6.0				2.0		4.0	8.0	9.0	9.5		11.0	8.5	
22-23			2.5									1.5	1.5	4.0	8.0		2.0			12.0		
23-24		1.0						0.0		0.5	0.5	1.0			4.0	8.0		11.0		1.0	7.0	12.0
24-25								4.0	3.0			4.5	0.0		4.0	8.0	10.5	3.5	4.0	2.0		
25-26			2.5		7.0			7.5		1.5				2.0	4.0	8.0		12.5	9.5	3.0	5.0	
26-27		1.0			3.5		5.0								4.0	0.0		5.0		4.5	12.0	
27-28	2.0									2.5	3.0				4.0	0.0	12.0			5.5	3.5	11.5
28-29			2.5											2.5	4.0	0.0		6.0		7.0	10.0	

AAVSO Eclipsing Binary Ephemeris for March 2008

all times in U.T.

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	RT	TW	WZ	XZ	AB	CX	XZ	OO	OO	V342	V343	V346	WW	WW	ZZ	Y	SV	AL	R	UU	RW	RZ	TV
	AND	AND	AND	AND	AND	AQR	AQL	AQL	AQL	AQL	AQL	AQL	AUR	AUR	BOO	CAM	CAM	CAM	CMA	CMA	CAP	CAS	CAS
MAX	9.3	8.8	11.6	10.0	9.3	10.7	9.3	9.2	9.2	9.0	10.6	9.0	5.7	5.7	6.8	10.6	8.6	10.5	6.2	10.0	9.8	6.4	7.3
MIN	10.2	11.0	12.6	13.0	10.2	12.0	11.2	10.1	10.1	12.5	12.3	10.4	6.4	6.4	7.6	12.4	9.4	11.3	6.8	12.5	10.8	7.8	8.4
DUR	3	11	4	3	3	3	7	3	3	7	4	4	5	5	5	10	3	5	4	5	6	4	4
TOT										3													
									(S)				(S)	(S)									
0- 1							10.5	10.0									3.5	12.0	1.5			0.5	
1- 2								10.5			9.5						8.0		5.0			5.5	
2- 3								11.0								3.5	12.5					10.0	
3- 4	10.0							11.0		9.5							2.5	4.0					11.5
4- 5	1.0							11.5				10.0	4.0				7.0	11.5					
5- 6			1.5					12.0				12.5			10.5	11.5				3.0			
6- 7																	1.5						
7- 8																	6.0	3.5				5.0	2.5
8- 9	10.5																10.5	11.5				9.5	
9-10	1.5												5.0				1.0		3.5				
10-11					1.0												5.5						
11-12					1.0												10.0	3.0					
12-13			0.5		1.0						11.0					1.5		11.0					
13-14	11.5				1.0												4.5					4.5	
14-15	2.5		2.5	1.0	1.0								6.5				9.0			12.0	9.0		
15-16					0.5			9.0			11.5				12.5	8.5		2.5					
16-17					0.5			9.5									3.5	10.5					4.0
17-18					0.5			9.5									8.0		2.5				
18-19	12.0			3.0				10.0					1.5						5.5	3.0			
19-20								10.5						7.5			3.0	2.5				3.5	
20-21	9.5					12.5		10.5							12.5		7.5	10.0				8.5	
21-22	0.5		1.5					11.0									12.0						
22-23								11.5									2.0						
23-24								11.5					2.5				6.5	2.0					10.0
24-25								12.0									11.0	10.0					
25-26	10.0					12.5					9.0	10.5			12.0	6.5	1.0		1.5			3.0	
26-27	1.5																5.5		4.5			8.0	
27-28																	10.0	1.5				12.5	1.0
28-29		12.0	0.5										3.5					9.5					
29-30																	5.0						
30-31	11.0		2.5			12.5									12.0		9.5						

	Z	TW	UZ	UZ	AI	YY	YY	RW	SZ	TU	CT	AV	SW	SW	VX	CM	SS	DELT	T	EW	FL	RU	RU
	DRA	DRA	DRA	DRA	DRA	ERI	ERI	GEM	HER	HER	HER	HYA	LAC	LAC	LAC	LAC	LIB	LIB	LMI	LYR	LYR	MON	MON
MAX	10.8	7.8	9.9	9.9	7.2	8.4	8.4	9.6	10.2	10.6	9.9	10.2	9.2	9.2	10.9	8.5	10.4	4.8	10.2	11.2	8.7	10.6	10.6
MIN	13.6	9.5	10.7	10.7	8.2	9.1	9.1	11.6	12.0	13.4	11.2	10.6	10.0	10.0	12.3	9.5	11.3	5.9	12.6	13.6	9.5	11.3	11.3
DUR	4	5	5	5	4	3	3	5	4	5	4	4	3	3	4	4	6	7	6	5	4	5	5
TOT		1																					
				(S)			(S)							(S)									(S)
0- 1					10.5	1.5			7.5			2.0											
1- 2						0.5										0.5							5.0
2- 3	9.0											3.5											
3- 4							3.0										12.0						
4- 5			5.0				2.0		9.5	11.0	4.5												
5- 6	2.0				5.5		1.0																
6- 7	10.5	10.0			10.5						5.5	5.5		0.5									
7- 8			11.0			3.5										10.5					6.0		
8- 9						2.5			12.0	8.0		7.0					10.0						
9-10	4.0	5.0		2.0		1.5			7.5													10.5	
10-11	12.5					0.5						8.0	0.5					11.5					
11-12					5.5							0.5					7.0						
12-13		0.5		8.5	10.0		3.0					9.5			10.5								
13-14	5.5						2.0	5.5	9.5		9.0	1.5			12.5								
14-15							1.0							1.0								4.0	
15-16												3.0				11.0							
16-17						3.5		2.5															
17-18	7.5		6.0		5.5	2.5			12.0	9.5		4.0						11.0		12.0			
18-19					10.0	1.5			7.5								11.5						
19-20						1.0						5.5								11.0			3.0
20-21	0.5	10.5	12.0																			7.5	
21-22	9.0						3.0					6.5					8.5		0.5	9.5			
22-23				3.5			2.0		9.5		7.5										12.0		
23-24		6.0			5.0		1.0					7.5		0.5		11.5					8.5		
24-25	2.0				10.0													10.5	1.0				
25-26	11.0			9.5		3.5						9.0									7.0		
26-27		1.5				2.5			12.0	11.5		1.5											
27-28			0.5			1.5			7.5				0.5		11.5					1.5			
28-29	4.0					1.0						2.5											
29-30					5.0					11.0													
30-31			7.0		10.0		3.0					3.5								2.0			

	W	TX	VV	XZ	RU	AG	BU
	UMA	UMA	UMA	UMA	UMI	VIR	VUL
MAX	9.1	6.8	10.1	10.1	10.7	8.8	10.6
MIN	9.9	8.9	11.0	11.7	11.4	9.4	11.4
DUR	3	6	3	3	4	4	3
TOT							
	(S)						
0- 1				1.5	8.0	1.5	
1- 2			7.5	7.0	9.0	8.5	
2- 3				12.0	10.5		11.5
3- 4			9.0		11.5	6.5	
4- 5			1.5				
5- 6			10.5		1.5	5.0	
6- 7			3.0	4.0	2.5	12.0	11.0
7- 8			12.0	9.5	3.5	3.0	
8- 9			4.5		5.0	10.0	
9-10					6.0	1.5	
10-11			6.0		7.5	8.5	10.5
11-12				1.5	8.5		
12-13			7.5	7.0	9.5	6.5	
13-14				12.0	11.0		
14-15			9.0		12.0	5.0	10.0
15-16			1.5		0.5	11.5	
16-17	0.5		10.5		2.0	3.0	
17-18	0.5		3.0	4.0	3.0	10.0	
18-19	0.5		12.0	9.5	4.5	1.5	9.5
19-20	0.5		4.5		5.5	8.5	
20-21	0.5				6.5		
21-22	0.5		6.0		8.0	6.5	
22-23	0.5			1.5	9.0		9.0
23-24	0.5		7.5	7.0	10.5	5.0	
24-25	0.5			12.0	11.5	11.5	
25-26	0.5		9.0			3.0	
26-27	0.5	1.5	1.5		1.5	10.0	
27-28	0.5		10.5		2.5	1.5	12.0
28-29	0.5		3.0	4.0	3.5	8.0	
29-30	0.5	3.0	12.0	9.5	5.0		
30-31	0.5		4.5		6.0	6.5	

	RT	WZ	XZ	RY	CX	XZ	OO	OO	V342	V343	V346	WW	WW	ZZ	Y	SV	AL	R	UU	RW	RZ	TV	AB
	AND	AND	AND	AQR	AQR	AQL	AQL	AQL	AQL	AQL	AQL	AUR	AUR	BOO	CAM	CAM	CAM	CMA	CMA	CAP	CAS	CAS	CAS
MAX	9.3	11.6	10.0	8.8	10.7	9.3	9.2	9.2	9.0	10.6	9.0	5.7	5.7	6.8	10.6	8.6	10.5	6.2	10.0	9.8	6.4	7.3	10.2
MIN	10.2	12.6	13.0	10.1	12.0	11.2	10.1	10.1	12.5	12.3	10.4	6.4	6.4	7.6	12.4	9.4	11.3	6.8	12.5	10.8	7.8	8.4	12.2
DUR	3	4	3	5	3	7	3	3	7	4	4	5	5	5	10	3	5	4	5	6	4	4	4
TOT									3														
								(S)					(S)	(S)									
0- 1							8.0										1.5		3.0	11.0	2.5		
1- 2	8.0						8.5									4.0	9.0				7.5	11.5	
2- 3			1.0				9.0					5.0				8.5							9.0
3- 4				11.5			9.0											3.5			7.0		
4- 5	11.5						9.5				9.5			11.5	4.5	3.0							
5- 6				11.0			10.0			10.5						7.5	9.0					2.5	2.5
6- 7	9.0						10.0		7.5												2.0		11.0
7- 8		11.0	11.5	10.0			10.5			7.0		6.0									6.5		
8- 9							11.0														11.5		
9-10							11.0							11.5		11.5	8.5						5.0
10-11							11.5									1.5							
11-12	9.5												1.0			6.0		2.5					
12-13																10.5					1.5	8.5	
13-14																	8.0		3.0		6.0		7.5
14-15						9.0					8.5			11.5	2.5	5.0					11.0		
15-16							7.0				11.0					9.5							
16-17	10.5						7.5	11.5				2.0											
17-18							7.5								10.0	4.5	7.5			10.0			9.5
18-19	8.0						8.0			8.5						9.0							
19-20							8.5							11.0				1.0			5.5		
20-21							8.5									3.5					10.0		3.5
21-22	11.0		1.0				9.0					3.5				8.0	7.5				10.0		
22-23							9.5																
23-24	8.5	11.0					9.5									2.5							
24-25							10.0							11.0		7.0							5.5
25-26							10.5			10.0						11.5	7.0				5.0	1.0	
26-27			11.5				10.5					4.5				2.0			3.0		9.5		
27-28							11.0								8.0	6.5							
28-29	9.5				10.5		11.5									10.5		3.0					8.0
29-30							11.5			10.0				10.5		1.0	6.5						

	U	XX	EG	U	V	W	W	RV	Y	SW	WW	ZZ	BR	CG	V346	V387	V477	W	TT	TY	YY	FZ	Z
	CEP	CEP	CEP	CRB	CRT	CRV	CRV	CRV	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	DEL	DEL	DEL	DEL	DEL	DRA
MAX	6.7	8.5	9.6	7.6	9.5	10.6	10.6	9.0	7.0	9.3	9.9	10.7	9.4	11.0	11.8	11.5	8.3	9.4	10.6	9.6	11.0	10.2	10.8
MIN	9.8	9.6	10.6	8.8	10.2	11.2	11.2	10.0	7.6	11.8	13.2	12.0	10.5	11.8	13.6	12.3	9.2	12.7	12.5	10.8	12.0	11.3	13.6
DUR	4	4	3	5	4	4	4	4	6	5	5	4	4	3	5	3	4	7	5	4	4	3	4
TOT	2									2								2					
								(S)	(S)														
0- 1					5.0	8.5	4.0	1.5		11.5		6.5			9.5								
1- 2	8.0		3.0			3.0	7.5		7.5														5.5
2- 3			5.0		7.5	7.0	2.5	7.5					11.0	10.5		11.5			9.0			8.5	
3- 4		5.0	7.5			1.5	6.5					10.0									9.0		
4- 5			9.5			5.5	1.0		7.5					8.0		9.5							
5- 6			11.5		3.0		5.0	7.5				7.5					10.5						7.5
6- 7	7.5					4.0	9.0						10.5			7.5							
7- 8			3.0		5.5	8.0	3.5		7.0		6.0			11.5							8.0		
8- 9			5.0			2.5	7.5	7.0				11.0							8.0				
9-10			7.0	11.0	8.0	6.5	2.0							9.0								10.0	9.0
10-11		5.5	9.0			1.5	6.0		7.0			8.0	10.5										
11-12	7.0		11.5			5.0		6.5							9.0	10.5							
12-13					3.0	9.0	4.5					5.5					11.5						2.5
13-14			2.5			4.0	8.5		7.0			11.5				9.0							11.0
14-15			4.5		6.0	8.0	3.0	6.5					10.5	10.5									
15-16			7.0			2.5	7.0					9.0				7.0				11.5			
16-17	7.0		9.0	8.5		6.5	1.5		7.0					7.5								11.0	4.0
17-18		6.0	11.0		1.0	1.0	5.5	6.0				6.0						8.0	11.0				
18-19						5.0							10.5								10.5		
19-20			2.5		3.5	9.0	4.0		7.0					11.5									
20-21			4.5			3.5	8.0	6.0				9.5				10.0						9.0	6.0
21-22	6.5		6.5		6.5	7.5	3.0							9.0					10.5				
22-23			9.0			2.0	6.5		7.0			7.0	10.5		8.5	8.0					9.5		
23-24			11.0	6.0		6.0	1.5	5.5		8.0													
24-25		6.0			1.5		5.5																7.5
25-26			2.0			4.5	9.0		6.5			10.0											
26-27	6.0		4.5		4.0	8.5	4.0	5.5					10.5	10.0								8.5	
27-28			6.5			3.0	8.0					7.5					11.0			9.5		10.0	
28-29			8.5		7.0	7.0	2.5		6.5					7.5									9.0
29-30			10.5			1.5	6.5	5.0								9.0							

	TW	UZ	UZ	AI	YY	YY	RW	SZ	TU	CT	AV	VX	CM	SS	DELT	T	EW	FL	RU	RU	RW	BO	U
	DRA	DRA	DRA	DRA	ERI	ERI	GEM	HER	HER	HER	HYA	LAC	LAC	LIB	LIB	LMI	LYR	LYR	MON	MON	MON	MON	OPH
MAX	7.8	9.9	9.9	7.2	8.4	8.4	9.6	10.2	10.6	9.9	10.2	10.9	8.5	10.4	4.8	10.2	11.2	8.7	10.6	10.6	9.1	10.8	5.8
MIN	9.5	10.7	10.7	8.2	9.1	9.1	11.6	12.0	13.4	11.2	10.6	12.3	9.5	11.3	5.9	12.6	13.6	9.5	11.3	11.3	11.9	12.1	6.5
DUR	5	5	5	4	3	3	5	4	5	4	4	4	4	6	7	6	5	4	5	5	5	5	5
TOT	1																						
			(S)			(S)																	(S)
0- 1								9.5		6.0				10.0	10.0			5.0					
1- 2						1.5		5.0			5.0								2.0				
2- 3									6.5							2.5		9.5					
3- 4	11.5										6.0			7.0									11.5
4- 5			4.5	5.0																	3.5		
5- 6				9.5			3.5	7.5			7.5		8.0			3.0							
6- 7	7.0																			1.0	1.0		
7- 8			10.5							9.5					9.5								3.5
8- 9											1.0					3.5							
9-10	2.0	2.0						9.5		4.0		9.0											
10-11				5.0		1.5		5.0			2.0	11.0		11.5									
11-12				9.5					8.0									4.0					
12-13		8.0																					
13-14								12.0					8.5	8.5				7.0					
14-15								7.5			4.5				9.5	4.5							
15-16																		11.0					5.0
16-17				4.5						7.5	6.0			5.5								1.5	
17-18			5.5	9.5												5.0							
18-19								9.5	3.5		7.0												
19-20						1.5		5.0															
20-21	7.5		11.5						9.5								5.5						6.0
21-22													9.0		9.0								
22-23		3.0		4.5				11.5															
23-24	3.0			9.0				7.5		11.0	2.0	8.5		10.0		6.0					5.0		
24-25					1.0							10.0						4.0					
25-26		9.0					5.0			6.0	3.0						11.5				2.5		6.5
26-27														7.0		6.5		8.5					
27-28								9.5	5.0		4.0						10.5					4.5	
28-29				4.5		1.5	2.0	5.0							8.5								
29-30				9.0					11.5		5.5		9.5			6.5	9.0						

	SX	ER	ER	FL	AQ	Z	RT	RV	ST	XZ	BETA	U	V505	RW	AC	AM	RV	W	W	TX	VV	XZ	RU
	OPH	ORI	ORI	ORI	PEG	PER	PER	PER	PER	PER	PER	SGE	SGR	TAU	TAU	TAU	TRI	UMA	UMA	UMA	UMA	UMA	UMI
MAX	10.5	9.5	9.5	10.5	10.3	9.9	10.6	10.3	9.7	10.6	2.2	6.4	6.4	8.0	10.5	10.4	11.4	9.1	9.1	6.8	10.1	10.1	10.7
MIN	11.2	10.2	10.2	13.2	13.0	12.4	12.0	12.7	13.2	12.7	3.5	9.1	7.6	12.5	12.3	12.3	12.5	9.9	9.9	8.9	11.0	11.7	11.4
DUR	5	3	3	3	12	6	4	8	5	4	8	6	5	4	6	5	4	3	3	6	3	3	4
TOT					6	2			1			2		1									
				(S)																(S)			
0- 1							3.0											5.0					7.0
1- 2	5.5		1.0			11.5												5.0		5.0	6.0		8.5
2- 3		2.5								4.0								5.0				1.5	9.5
3- 4	7.0												9.5					5.0			7.5	7.0	11.0
4- 5																		5.0		6.5			
5- 6	8.5	1.5																5.0			9.0		
6- 7			3.0				1.5							3.0				5.0			1.5		2.0
7- 8	10.0										3.5							5.0		8.0	10.5		3.0
8- 9																	1.0	5.0	1.0		3.0	4.0	4.0
9-10	11.5		2.0							1.5								5.0	1.0			9.5	5.5
10-11		3.5																5.0	1.0	9.5	4.5		6.5
11-12							4.0										1.5	5.0	1.0				8.0
12-13			1.0	1.5												1.5		5.0	1.0		6.0		9.0
13-14		2.5										6.0						5.0	1.0	11.0		1.5	10.0
14-15																3.0	1.5	5.0	1.0		7.5	7.0	11.5
15-16					9.5													5.0	1.0				
16-17		1.5											10.0			4.0		5.0	1.0		9.0		1.0
17-18			3.0				2.5	3.5		3.0								5.0	1.0		1.5		2.5
18-19																		5.0	1.0		10.5		3.5
19-20								3.0										5.0	1.0		3.0	4.0	5.0
20-21			2.0															5.0	1.0			9.5	6.0
21-22		3.5						2.0										5.0	1.0		4.5		7.0
22-23																		5.0	1.0				8.5
23-24			1.5				1.0	1.5				9.5						5.5	1.5		6.0		9.5
24-25		2.5								1.0								5.5	1.5			1.5	11.0
25-26								1.0		4.5					1.5			5.5	1.5		7.5	7.0	
26-27																		5.5	1.5				
27-28		2.0							3.0							2.5		5.5	1.5		9.0		2.0
28-29			3.5				3.5											5.5	1.5		1.5		3.0
29-30													10.5					5.5	1.5		10.5		4.0

	AG	BU
	VIR	VUL
MAX	8.8	10.6
MIN	9.4	11.4
DUR	4	3
TOT		
0- 1		11.5
1- 2	5.0	
2- 3		
3- 4	3.0	8.0
4- 5	10.0	11.5
5- 6	1.5	
6- 7	8.0	
7- 8		7.5
8- 9	6.5	11.0
9-10		
10-11	4.5	
11-12		7.0
12-13	3.0	10.5
13-14	10.0	
14-15	1.0	
15-16	8.0	
16-17		10.0
17-18	6.5	
18-19		
19-20	4.5	
20-21		9.5
21-22	3.0	
22-23	9.5	
23-24	1.0	
24-25	8.0	9.5
25-26		
26-27	6.5	
27-28		
28-29	4.5	9.0
29-30		

	RT	TW	WZ	XZ	AB	CX	XZ	OO	OO	V342	V343	V346	WW	ZZ	Y	SV	AL	R	RW	RZ	TV	AB	U
	AND	AND	AND	AND	AND	AQR	AQL	AQL	AQL	AQL	AQL	AQL	AUR	BOO	CAM	CAM	CAM	CMA	CAP	CAS	CAS	CAS	CEP
MAX	9.3	8.8	11.6	10.0	9.3	10.7	9.3	9.2	9.2	9.0	10.6	9.0	5.7	6.8	10.6	8.6	10.5	6.2	9.8	6.4	7.3	10.2	6.7
MIN	10.2	11.0	12.6	13.0	10.2	12.0	11.2	10.1	10.1	12.5	12.3	10.4	6.4	7.6	12.4	9.4	11.3	6.8	10.8	7.8	8.4	12.2	9.8
DUR	3	11	4	3	3	3	7	3	3	7	4	4	5	5	10	3	5	4	6	4	4	4	4
TOT										3													2
					(S)			(S)					(S)										
0- 1	6.5		10.0		8.0			6.0								5.5							
1- 2					7.5			6.0			6.5					10.0			4.5		1.5	6.0	
2- 3					7.5			6.5												9.0	7.0	10.5	
3- 4	10.0				7.5	10.5		7.0		10.5						4.5	6.5						
4- 5					7.5			7.0				6.0		10.5		9.0			9.5				
5- 6	7.5				7.5			7.5				9.0										4.0	
6- 7					7.0			8.0								4.0		2.0					5.5
7- 8			9.0		7.0			8.0								6.0	8.5	6.0		4.0			
8- 9	11.0				7.0	10.5		8.5												8.5			
9-10			11.0		7.0			8.5						10.5		3.0						6.5	
10-11	8.0							9.0		5.0			2.0			7.5							
11-12				10.0				9.5									5.5				8.5		5.0
12-13	5.5							9.5			8.0					2.0							
13-14						10.5		10.0								6.5				3.5		9.0	
14-15							7.5	10.5						10.0		11.0				8.0			
15-16	9.0							10.5				8.0	3.0				5.0						
16-17			10.0				11.0	11.0				10.5				6.0						2.5	5.0
17-18	6.0								5.5							4.0	10.0						
18-19						11.0			5.5														
19-20									6.0					10.0		5.0	5.0				2.5		
20-21	9.5								6.5	9.5						9.5				7.5	10.0	5.0	
21-22									6.5										8.5				4.5
22-23	7.0								7.0							4.0					5.5		
23-24			9.0			11.0			7.0		9.5					8.5	4.5						
24-25									7.5					9.5								7.5	
25-26	10.5		11.0						8.0		6.0	6.5				3.5				2.0			
26-27									8.0			9.5				7.5				7.0			4.0
27-28	7.5								8.5							2.0	4.0						
28-29						11.0			9.0							2.5						10.0	
29-30		8.0					7.0		9.0					9.5		7.0							
30-31	11.0			10.0					9.5							9.5							

	XX	EG	U	V	W	W	RV	Y	SW	WW	ZZ	BR	CG	V346	V387	V477	W	TT	TY	YY	FZ	Z	TW
	CEP	CEP	CRB	CRT	CRV	CRV	CRV	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	DEL	DEL	DEL	DEL	DEL	DRA	DRA
MAX	8.5	9.6	7.6	9.5	10.6	10.6	9.0	7.0	9.3	9.9	10.7	9.4	11.0	11.8	11.5	8.3	9.4	10.6	9.6	11.0	10.2	10.8	7.8
MIN	9.6	10.6	8.8	10.2	11.2	11.2	10.0	7.6	11.8	13.2	12.0	10.5	11.8	13.6	12.3	9.2	12.7	12.5	10.8	12.0	11.3	13.6	9.5
DUR	4	3	5	4	4	4	4	6	5	5	4	4	3	5	3	4	7	5	4	4	3	4	5
TOT									2								2						1
								(S)	(S)														
0- 1			4.0		5.5						11.0	10.5	5.0							8.0			
1- 2	6.5	2.0		2.0	5.0		6.5								7.0	6.0					8.0	2.5	
2- 3		4.0			4.0		5.0				8.0											11.0	
3- 4		6.0		4.5	3.5								8.5	7.5	5.5				8.5				
4- 5		8.5			3.0		6.5				5.5	10.5								7.0			8.5
5- 6		10.5			6.5	2.0	4.5						6.0									4.0	
6- 7					6.0										10.0								
7- 8		1.5	1.5		5.5		6.5				9.0												4.0
8- 9	6.5	4.0		2.5	4.5	4.5					10.5	10.0		8.5	7.0					6.5	9.5		
9-10		6.0			4.0						6.0								7.5			6.0	
10-11		8.0		5.0	3.0		6.5		10.0				7.5		6.5			10.0					
11-12		10.5			2.5	7.0	4.0				3.5						8.5			10.5			
12-13					6.5	1.5					9.5	10.0	4.5								7.5		
13-14		1.5			5.5		6.0						11.0					7.0				7.5	
14-15		3.5			5.0		4.0				7.0			7.0									
15-16	7.0	6.0		3.0	4.0								8.5		9.5	8.0			6.5	9.5	10.5		
16-17		8.0			3.5		6.0	5.0			4.0	10.0							11.0				
17-18		10.0	10.0	5.5	3.0	3.5					10.0		6.0		7.5							9.5	
18-19					2.0	6.5																	9.5
19-20					6.0		6.0				7.5				5.5					8.5	8.5		
20-21		3.5			5.5	3.5			9.0		10.0	9.5										2.5	
21-22		5.5			4.5						4.5											11.0	4.5
22-23	7.0	7.5		3.5	4.0		6.0				11.0		7.0		10.5	9.0		10.0					
23-24		10.0			3.0		3.0													8.0	6.5		
24-25			8.0	6.0	7.0	2.5					8.0	10.0			8.5							4.0	
25-26					1.5	6.5		6.0	8.5				11.0	6.5									
26-27		3.0			5.5		3.0				5.5				7.0							9.5	
27-28		5.5		1.5	5.0								8.5							7.0			
28-29		7.5			4.0		6.0				10.0				5.0				9.0			6.0	
29-30	7.5	9.5		4.0	3.5	2.5					9.0		5.5			10.0							
30-31					3.0					8.0											7.5		

	U	TY	Z	RT	XZ	U	V505	AM	V	X	RV	W	W	TX	VV	XZ	RU	AG	BU
	PEG	PEG	PER	PER	PER	SGE	SGR	TAU	TRI	TRI	TRI	UMA	UMA	UMA	UMA	UMA	UMI	VIR	VUL
MAX	9.7	10.5	9.9	10.6	10.6	6.4	6.4	10.4	10.9	8.9	11.4	9.1	9.1	6.8	10.1	10.1	10.7	8.8	10.6
MIN	10.5	12.6	12.4	12.0	12.7	9.1	7.6	12.3	11.9	12.0	12.5	9.9	9.9	8.9	11.0	11.7	11.4	9.4	11.4
DUR	3	6	6	4	4	6	5	5	4	4	4	3	3	6	3	3	4	4	3
TOT			2			2													

	(S)																		
0- 1												5.5	1.5		3.0	4.0	5.5	3.0	
1- 2												5.5	1.5				6.5		5.0
2- 3					2.5							5.5	1.5		4.5		7.5		8.5
3- 4												5.5	1.5				9.0	8.0	
4- 5				2.0					10.0		10.0	5.5	1.5		6.0		10.0		
5- 6							8.0					5.5	1.5			1.5		6.0	
6- 7												5.5	1.5		7.5	7.0			8.0
7- 8										10.5		5.5	1.5					4.5	
8- 9												5.5	1.5		9.0		2.5		
9-10												5.5	1.5		1.5		3.5	3.0	
10-11						7.5					10.5	5.5	1.5				4.5		7.5
11-12									10.5			5.5	1.5		3.0	4.0	6.0		11.0
12-13							10.5					5.5	1.5				7.0	8.0	
13-14				10.5							11.0	5.5	1.5		4.5		8.5		
14-15												5.5	1.5	2.0			9.5	6.0	7.0
15-16												5.5	1.5		6.0		10.5		10.5
16-17												6.0	2.0			1.5		4.5	
17-18	9.0				2.0							6.0	2.0	3.5	7.5	7.0			
18-19							8.5		11.0			6.0	2.0				1.5	2.5	7.0
19-20												6.0	2.0		9.0		3.0		10.0
20-21	9.0					10.5						6.0	2.0	5.0	1.5		4.0		
21-22				2.0						10.5		6.0	2.0				5.5	8.0	
22-23												6.0	2.0		3.0	4.5	6.5		6.5
23-24	9.0		10.5									6.0	2.0	6.5			7.5	6.0	9.5
24-25												6.0	2.0		4.5		9.0		
25-26							11.0					6.0	2.0				10.0	4.5	
26-27	9.0											6.0	2.0	8.0	6.0				6.0
27-28						5.0						6.0	2.0			1.5		2.5	9.5
28-29									10.0			6.0	2.0		7.5	7.0			
29-30		10.5						2.0				6.0	2.0				2.0		
30-31												6.0	2.0		9.0		3.5	7.5	5.5

	RT	WZ	XZ	AB	RY	CX	XZ	OO	OO	V342	V343	V346	ZZ	Y	SV	AL	RW	RZ	TV	AB	U	XX	EG
	AND	AND	AND	AND	AQR	AQR	AQL	AQL	AQL	AQL	AQL	AQL	BOO	CAM	CAM	CAM	CAP	CAS	CAS	CAS	CEP	CEP	CEP
MAX	9.3	11.6	10.0	9.3	8.8	10.7	9.3	9.2	9.2	9.0	10.6	9.0	6.8	10.6	8.6	10.5	9.8	6.4	7.3	10.2	6.7	8.5	9.6
MIN	10.2	12.6	13.0	10.2	10.1	12.0	11.2	10.1	10.1	12.5	12.3	10.4	7.6	12.4	9.4	11.3	10.8	7.8	8.4	12.2	9.8	9.6	10.6
DUR	3	4	3	3	5	3	7	3	3	7	4	4	5	10	3	5	6	4	4	4	4	4	3
TOT										3											2		
								(S)					(S)										
0- 1							10.5	4.0	10.0							3.5			7.0	3.5	4.0		
1- 2	8.5	10.0					8.5	4.0	10.0						6.0			6.5					3.0
2- 3								4.5	10.5						10.5			11.0					5.0
3- 4	5.5				11.0			4.5	11.0														7.5
4- 5								5.0				5.5			5.0	3.5				6.0			9.5
5- 6					10.0			5.5			7.5	8.5			9.5						3.5	8.0	
6- 7	9.0	7.0					8.5	5.5		8.0		11.0											
7- 8				8.0	9.0			6.0			4.0				4.5		7.5	5.5					2.5
8- 9	6.5	9.0		8.0				6.5					9.0		9.0	3.0		10.5		8.5			5.0
9-10				7.5	8.5			6.5						7.5		11.0			8.5				7.0
10-11	3.5			7.5				7.0							3.5						3.0		9.0
11-12	10.0			7.5	7.5	8.5		7.5							8.0				4.0	2.0			
12-13				7.5				7.5								2.5				10.5		8.0	
13-14	7.0			7.5	7.0		6.5	8.0		3.0			9.0		2.5	10.5		5.0					2.5
14-15			8.0	7.0				8.5				4.5			7.0			10.0					4.5
15-16	4.5	8.0		7.0	6.0		10.0	8.5				7.5								4.5	3.0		7.0
16-17	10.5			7.0		8.5		9.0			9.0	10.0			2.0	2.5							9.0
17-18		10.0		7.0				9.5	3.0						6.5	10.0							
18-19	8.0		10.0	6.5				9.5	3.5		5.5		8.5		11.0				10.0				
19-20				6.5				10.0	4.0					5.5				4.5		6.5		8.5	2.5
20-21	5.0			6.5				10.5	4.0						5.5	2.0		9.0	5.5		2.5		4.5
21-22				6.5		8.5		10.5	4.5						10.0	10.0							6.5
22-23		7.0		6.5				11.0	5.0														8.5
23-24	8.5			6.0				5.0	7.0				8.5		4.5					9.0			11.0
24-25		9.0		6.0				5.5				3.5			9.0		6.5						
25-26	6.0			6.0				6.0				6.0				9.5		4.0			2.0		2.0
26-27				6.0		9.0		6.0				9.0			4.0			8.5		2.5		8.5	4.0
27-28	3.0			6.0				6.5		11.0					8.5								6.5
28-29	9.5			5.5			6.0	7.0					8.5										8.5
29-30				5.5				7.0			7.0			3.5	3.0	9.0			7.0				10.5

	AI	SZ	TU	CT	AV	SW	SW	VX	CM	SS	DELT	EW	FL	U	SX	U	U	TY	AQ	RT	RV	ST	XZ
	DRA	HER	HER	HER	HYA	LAC	LAC	LAC	LAC	LIB	LIB	LYR	LYR	OPH	OPH	PEG	PEG	PEG	PEG	PER	PER	PER	PER
MAX	7.2	10.2	10.6	9.9	10.2	9.2	9.2	10.9	8.5	10.4	4.8	11.2	8.7	5.8	10.5	9.7	9.7	10.5	10.3	10.6	10.3	9.7	10.6
MIN	8.2	12.0	13.4	11.2	10.6	10.0	10.0	12.3	9.5	11.3	5.9	13.6	9.5	6.5	11.2	10.5	10.5	12.6	13.0	12.0	12.7	13.2	12.7
DUR	4	4	5	4	4	3	3	4	4	6	7	5	4	5	5	3	3	6	12	4	8	5	4
TOT																		6				1	
								(S)										(S)					
0- 1			5.0				7.0						5.0										
1- 2							6.0			6.0				4.5		9.0							
2- 3		9.5					5.5				6.5		9.0		3.0		7.5						
3- 4	3.5	5.0			2.0			4.5				11.0											
4- 5	8.0					7.5		6.0		3.0					4.5	8.5		8.0					
5- 6				8.0	3.0	6.5		8.0	7.5			9.5					7.0			9.0			
6- 7						5.5		9.5						5.0	6.5								
7- 8		7.5		3.0		4.5						8.5										11.0	
8- 9		3.0					7.5								8.0		7.0						
9-10	3.5		6.5				6.5				6.0	7.0										10.5	
10-11	8.0						5.5								9.5	8.5							
11-12		9.5					5.0			7.5		6.0	2.0	6.0			7.0						10.0
12-13		5.0																					
13-14						7.0			8.0			4.5	6.5			8.5							
14-15				6.5		6.0				4.5							7.0						
15-16	3.0					5.0						3.5	11.0					10.5					
16-17	8.0	7.0	2.0								5.5			6.5		8.5			10.0		10.5		
17-18		3.0					7.0					2.5					7.0						
18-19			8.5		2.5		6.0	5.5	3.5														
19-20							5.0	7.0									8.5						
20-21		9.5						9.0									7.0						
21-22	3.0	5.0		10.0		7.0		10.5	8.5					7.5									
22-23	8.0					6.5										8.5			8.5				
23-24				5.0		5.5					5.0						7.0						
24-25						4.5				6.0			4.0									9.5	
25-26		7.0	3.5				7.5									8.5							
26-27		3.0					6.5		4.0				8.0	8.0			7.0	6.5					9.0
27-28	3.0		10.0				5.5			3.0										11.0			
28-29	7.5						4.5									8.5							
29-30		9.5				7.5			9.0								7.0	8.5					

	BETA	Y	U	V505	RW	V	X	RV	W	W	VV	XZ	RU	AG	BU
	PER	PSC	SGE	SGR	TAU	TRI	TRI	TRI	UMA	UMA	UMA	UMA	UMI	VIR	VUL
MAX	2.2	9.0	6.4	6.4	8.0	10.9	8.9	11.4	9.1	9.1	10.1	10.1	10.7	8.8	10.6
MIN	3.5	12.0	9.1	7.6	12.5	11.9	12.0	12.5	9.9	9.9	11.0	11.7	11.4	9.4	11.4
DUR	8	7	6	5	4	4	4	4	3	3	3	3	4	4	3
TOT			2		1										
											(S)				
0- 1				8.5		8.0			6.0	2.0			4.5		9.0
1- 2									6.0	2.0			6.0	6.0	
2- 3									6.0	2.0	3.0	4.5	7.0		
3- 4									6.0	2.0			8.0	4.5	5.0
4- 5						10.5			6.0	2.0	4.5		9.5		8.5
5- 6									6.0	2.0			10.5	2.5	
6- 7			8.5	6.5					6.0	2.0	6.0				
7- 8						8.5		8.0	6.0	2.0					5.0
8- 9									6.5	2.5	7.5				8.0
9-10		9.5							6.5	2.5			3.0		
10-11								8.5	6.5	2.5			4.0	6.0	
11-12						11.0			6.5	2.5			5.0		4.5
12-13				4.5					6.5	2.5			6.5	4.0	7.5
13-14			2.5	9.0				8.5	6.5	2.5	3.0	4.5	7.5		
14-15						9.0			6.5	2.5			9.0	2.5	
15-16									6.5	2.5	4.5		10.0		4.0
16-17								9.0	6.5	2.5					7.5
17-18									6.5	2.5	6.0				10.5
18-19									6.5	2.5					
19-20				7.0				9.5	6.5	2.5	7.5		2.0	6.0	3.5
20-21									6.5	2.5			3.5		7.0
21-22						9.5			6.5	2.5			4.5	4.0	10.0
22-23								10.0	6.5	2.5			6.0		
23-24			6.0						6.5	2.5			7.0	2.5	3.0
24-25						8.0	10.5		6.5	2.5	3.0	4.5	8.0		6.5
25-26				5.0	10.5		10.0	10.0	6.5	2.5			9.5		10.0
26-27	10.0			9.5			9.5		6.5	2.5	4.0		10.5		
27-28							8.5		6.5	2.5					
28-29						10.0		10.5	6.5	2.5	5.5			6.0	6.0
29-30									6.5	2.5					9.5

	RT	TW	WZ	XZ	AB	AB	CX	XZ	OO	OO	V342	V343	V346	ZZ	Y	SV	AL	RW	RZ	TV	AB	U	XX
	AND	AND	AND	AND	AND	AND	AQR	AQL	AQL	AQL	AQL	AQL	AQL	BOO	CAM	CAM	CAM	CAP	CAS	CAS	CAS	CEP	CEP
MAX	9.3	8.8	11.6	10.0	9.3	9.3	10.7	9.3	9.2	9.2	9.0	10.6	9.0	6.8	10.6	8.6	10.5	9.8	6.4	7.3	10.2	6.7	8.5
MIN	10.2	11.0	12.6	13.0	10.2	10.2	12.0	11.2	10.1	10.1	12.5	12.3	10.4	7.6	12.4	9.4	11.3	10.8	7.8	8.4	12.2	9.8	9.6
DUR	3	11	4	3	3	3	3	7	3	3	7	4	4	5	10	3	5	6	4	4	4	4	4
TOT											3												2
						(S)			(S)					(S)									
0- 1	6.5				5.5		6.0	9.0		7.5	2.0					7.5					5.0	2.0	
1- 2		8.0	8.0		5.5		9.0			8.0		3.5							3.5	2.5			
2- 3	4.0				5.5				2.0	8.0				11.0	2.0				8.0				
3- 4	10.0		10.0	8.0	5.0				2.5	8.5						6.5	8.5						9.0
4- 5					5.0				2.5	9.0			2.5					10.5			7.5		
5- 6	7.5	10.5			5.0		6.5		3.0	9.0			5.0										
6- 7			5.0		5.0		9.0		3.5	9.5			8.0			6.0							
7- 8	4.5			10.0	5.0				3.5	10.0			10.5			10.5	8.5		3.0				
8- 9	11.0		7.0		4.5				4.0	10.0									7.5	8.5	10.0		
9-10	2.0				4.5				4.5	10.5						5.0							
10-11	8.0		9.0		4.5		6.5		4.5	10.5	6.0	8.5				9.5				4.0			9.0
11-12					4.5		9.0		5.0	11.0							8.0	5.5			3.5		
12-13	5.5		11.0		4.5				5.5			5.0			9.0	4.0							
13-14					4.0			5.0	5.5							8.5				2.5			
14-15	3.0				4.0				6.0											7.0			
15-16	9.0		6.0		4.0	8.0	6.5	8.5	6.5				4.0			3.5	7.5				6.0		
16-17					4.0	8.0	9.0		6.5				6.5			8.0							
17-18	6.0		8.0		3.5	7.5			7.0				9.5										9.5
18-19				6.5	3.5	7.5			7.0							2.5							
19-20	3.5		10.0		3.5	7.5			7.5							7.0	7.5				5.5	8.5	
20-21	9.5				3.5	7.5	6.5		8.0	2.0	10.0										6.5		
21-22					3.5	7.5	9.5		8.0	2.0		10.5							10.0	11.0			
22-23	7.0		5.0	8.5	3.0	7.0			8.5	2.5				7.0	6.0							2.0	
23-24					3.0	7.0			9.0	3.0		6.5				10.5	7.0				11.0		
24-25	4.5		7.0		3.0	7.0			9.0	3.0													10.0
25-26	10.5				3.0	7.0	6.5		9.5	3.5		3.0	3.0			5.5							
26-27			9.0	10.0		7.0	9.5		10.0	4.0			5.5			10.0					6.0	4.5	
27-28	8.0				6.5				10.0	4.0	5.0		8.5				6.5		10.5				
28-29			11.0		6.5		4.5	10.5	4.5			11.0	7.0			4.5		4.5		7.0			
29-30	5.0				6.5				11.0	5.0						9.0							2.0
30-31		4.5			6.5	7.0	8.0		5.0												2.5	7.0	

AAVSO Eclipsing Binary Ephemeris for July 2008

all times in U.T.

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	EG	U	V	W	W	RV	Y	Y	SW	WW	ZZ	BR	CG	V346	V387	V477	W	TT	TY	YY	FZ	Z	TW	
	CEP	CRB	CRT	CRV	CRV	CRV	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	DEL	DEL	DEL	DEL	DEL	DRA	DRA	
MAX	9.6	7.6	9.5	10.6	10.6	9.0	7.0	7.0	9.3	9.9	10.7	9.4	11.0	11.8	11.5	8.3	9.4	10.6	9.6	11.0	10.2	10.8	7.8	
MIN	10.6	8.8	10.2	11.2	11.2	10.0	7.6	7.6	11.8	13.2	12.0	10.5	11.8	13.6	12.3	9.2	12.7	12.5	10.8	12.0	11.3	13.6	9.5	
DUR	3	5	4	4	4	4	6	6	5	5	4	4	3	5	3	4	7	5	4	4	3	4	5	
TOT									2								2						1	
					(S)		(S)																	
0- 1							5.0			10.5		10.0								9.5				
1- 2	2.0	7.5			3.0										4.0	6.5		2.5		4.5	10.5	4.5		
2- 3	4.0			2.5						7.5		7.5		10.5							5.0		7.0	
3- 4	6.0				2.0		4.5				9.5				2.0		5.5		2.5					
4- 5	8.5									5.0		5.0			8.5				7.0	8.5				
5- 6	10.5									11.0			10.0							4.0	8.5	6.0	2.5	
6- 7			2.0				4.5				2.0	2.5			7.0						3.0			
7- 8											8.0	9.5	9.0											
8- 9	4.0	5.0			3.0									4.0	5.0	7.5				8.0				
9-10	6.0			2.0			4.5		3.5	5.5		6.5								3.0	6.5	8.0		
10-11	8.0								2.0						3.0				6.0					
11-12	10.0										3.0	9.5	4.0		10.0				10.5					
12-13							4.5			11.0	9.0		10.0								7.0	9.5		
13-14															8.0					2.0	4.0	9.5		
14-15	3.5			3.0							6.0		7.5											
15-16	5.5	2.5			2.5		4.5					9.5			6.0	8.5		11.0						
16-17	8.0			2.0							3.5	5.0	9.5							5.0	6.0	7.5	3.0	8.0
17-18	10.0										9.5				4.0					9.5				
18-19							4.5					2.5		11.0				8.0						
19-20									5.5	2.5	7.0	9.5	8.5	3.0	2.5						10.5	10.5	3.5	
20-21	3.5														9.0						5.5	5.5	4.5	
21-22	5.5			3.0			4.0				4.0		6.0					5.0						
22-23	7.5				2.0					10.0	10.5				7.0	9.5	10.5			4.0				
23-24	10.0											9.0	3.5							8.5	9.5	8.5		
24-25							4.0				7.5		10.0		5.5						4.5	3.5	6.5	
25-26								11.0																
26-27	3.0										5.0		7.5		3.5									
27-28	5.5				3.0	3.5	4.0				11.0	9.0		8.5	10.0	2.5	6.0				8.5	6.5		
28-29	7.5			2.5			11.0		9.0		2.0		4.5							2.5	3.5		8.0	
29-30	9.5				2.0						8.5		11.0		8.5	10.5				7.5				
30-31						3.0	4.0						2.0	2.5								10.0	9.0	

	UZ	UZ	AI	RW	SZ	TU	CT	SW	SW	VX	CM	SS	DELT	EW	FL	U	SX	U	U	TY	AQ	Z	RT
	DRA	DRA	DRA	GEM	HER	HER	HER	LAC	LAC	LAC	LAC	LIB	LIB	LYR	LYR	OPH	OPH	PEG	PEG	PEG	PEG	PER	PER
MAX	9.9	9.9	7.2	9.6	10.2	10.6	9.9	9.2	9.2	10.9	8.5	10.4	4.8	11.2	8.7	5.8	10.5	9.7	9.7	10.5	10.3	9.9	10.6
MIN	10.7	10.7	8.2	11.6	12.0	13.4	11.2	10.0	10.0	12.3	9.5	11.3	5.9	13.6	9.5	6.5	11.2	10.5	10.5	12.6	13.0	12.4	12.0
DUR	5	5	4	5	4	5	4	3	3	4	4	6	7	5	4	5	5	3	3	6	12	6	4
TOT																					6	2	
		(S)							(S)										(S)				
0- 1					5.0		8.5	6.5	3.0				4.5					5.5					
1- 2		5.5						6.0		3.0					9.0			8.5					
2- 3							3.5	5.0		4.5									7.0	11.0			
3- 4			3.0					4.0		6.5						2.0	5.5						9.5
4- 5			7.5		7.0	5.0		3.0	7.0	8.0	4.5							8.5					
5- 6					3.0				6.0	10.0							3.5		7.0				5.5
6- 7	3.0								5.0														
7- 8								4.0			9.5	5.0	4.0		5.5		5.0	8.5					
8- 9					9.5			7.0	3.5							2.0			6.5				6.5
9-10	9.5		2.5		5.0		7.0	6.5							10.0		6.5	5.0					8.5
10-11			7.5					5.5				2.0						8.0					
11-12								4.5											6.5				8.0
12-13								3.5	7.5		5.0			10.5				5.0					
13-14					7.0	7.0		2.5	6.5							3.0		8.0			4.0		
14-15		7.0		10.5	3.0				5.5				3.5	9.0					6.5			9.5	10.5
15-16			2.5						4.5		10.0							5.0					7.0
16-17			7.5					7.5	4.0	4.0					8.0			8.0					
17-18					9.5			6.5	3.0	5.5		6.5							6.5			10.5	
18-19					5.0		5.0	6.0		7.5					6.5	3.0	3.5		5.0				
19-20	4.0							5.0		9.0									8.0				
20-21						2.0		4.0		11.0	5.5	3.5		5.5	7.0				6.5				9.5
21-22			2.5					3.0	7.0				3.0					5.0					
22-23	10.5		7.0		7.0	8.5			6.0						4.0			8.0					
23-24					3.0				5.0		10.5					4.5			6.5				
24-25									4.0						3.0			5.0			6.5		
25-26							8.5	7.0	3.5									8.0					
26-27					9.5			6.0											6.5				8.0
27-28		8.0	2.0		5.0		3.5	5.5										5.0		4.5			
28-29			7.0					4.5			6.0		3.0			5.0		8.0					
29-30						3.5		3.5	7.5										6.5				
30-31								2.5	6.5	3.0		5.0						5.0		7.0			

	ST	XZ	BETA	Y	U	V505	RW	V	X	RV	W	TX	VV	XZ	RU	AG	BU
	PER	PER	PER	PSC	SGE	SGR	TAU	TRI	TRI	TRI	UMA	UMA	UMA	UMA	UMI	VIR	VUL
MAX	9.7	10.6	2.2	9.0	6.4	6.4	8.0	10.9	8.9	11.4	9.1	6.8	10.1	10.1	10.7	8.8	10.6
MIN	13.2	12.7	3.5	12.0	9.1	7.6	12.5	11.9	12.0	12.5	9.9	8.9	11.0	11.7	11.4	9.4	11.4
DUR	5	4	8	7	6	5	4	4	4	4	3	6	3	3	4	4	3
TOT	1				2		1										
											(S)						
0- 1									6.5		2.5				2.5	4.0	
1- 2						3.0		8.5		11.0	3.0				4.0		2.5
2- 3	8.0					7.0					3.0	2.5			5.0	2.5	5.5
3- 4		7.0			9.5						3.0				6.5		9.0
4- 5		10.5						6.5			3.0				7.5		
5- 6								11.0			3.0	4.0	2.5	4.5	8.5		2.0
6- 7											3.0				10.0		5.0
7- 8											3.0		4.0		11.0		8.5
8- 9						5.0		9.0			3.0	5.5					
9-10						9.5					3.0		5.5			4.0	
10-11	7.0				3.5						3.0				2.0		5.0
11-12		8.5						7.0		6.0	3.0				3.5	2.5	8.0
12-13											3.0				4.5		
13-14				7.0							3.0				5.5		
14-15						3.0				6.5	3.0				7.0		4.5
15-16						7.5		9.5			3.0				8.0		7.5
16-17											3.0		2.5	4.5	9.5		11.0
17-18										6.5	3.0				10.5		
18-19								7.5			3.0		4.0			4.0	4.0
19-20		10.0	8.5								3.0						7.5
20-21					7.0		8.5			7.0	3.0		5.5			2.0	10.5
21-22						5.5		6.0			3.0				2.5		
22-23						10.0		10.0			3.0				4.0		3.5
23-24										7.5	3.0				5.0		7.0
24-25											3.0				6.5		10.0
25-26								8.5			3.5				7.5		
26-27		8.0								7.5	3.5				8.5		3.0
27-28						3.5					3.5		2.5	4.5	10.0	4.0	6.5
28-29				8.5		8.0		6.5	10.5		3.5				11.0		10.0
29-30								10.5	10.0	8.0	3.5		4.0			2.0	
30-31					10.5				9.5		3.5						3.0

	RT	TW	WZ	XZ	AB	AB	RY	CX	XZ	OO	OO	V342	V343	V346	WW	WW	Y	SV	AL	RW	RZ	TV	AB	
	AND	AND	AND	AND	AND	AND	AQR	AQR	AQL	AQL	AQL	AQL	AQL	AQL	AUR	AUR	CAM	CAM	CAM	CAM	CAP	CAS	CAS	CAS
MAX	9.3	8.8	11.6	10.0	9.3	9.3	8.8	10.7	9.3	9.2	9.2	9.0	10.6	9.0	5.7	5.7	10.6	8.6	10.5	9.8	6.4	7.3	10.2	
MIN	10.2	11.0	12.6	13.0	10.2	10.2	10.1	12.0	11.2	10.1	10.1	12.5	12.3	10.4	6.4	6.4	12.4	9.4	11.3	10.8	7.8	8.4	12.2	
DUR	3	11	4	3	3	3	5	3	7	3	3	7	4	4	5	5	10	3	5	6	4	4	4	
TOT												3												
						(S)				(S)						(S)								
0- 1	2.5		6.0		2.5	6.5		9.5		5.5							3.5	6.0						
1- 2	8.5				2.0	6.0				5.5					9.5		5.0	8.0			5.5			
2- 3			8.0	5.0	2.0	6.0				6.0											10.0			
3- 4	6.0	7.5			2.0	6.0	10.0	4.0		6.5		8.0					3.0						9.5	
4- 5			10.0		2.0	6.0		7.0		6.5			2.0				7.5	6.0						
5- 6	3.0		3.0		2.0	5.5	9.0	9.5		7.0		4.5	4.5											
6- 7	9.5			6.5	1.5	5.5				1.5	7.5	9.0		7.0	11.0		2.0					8.5	3.0	
7- 8		10.5	5.0		1.5	5.5	8.5			1.5	7.5			10.0			6.5		9.0	4.5				
8- 9	6.5				1.5	5.5		4.5		2.0	8.0						11.0	5.5			9.5	4.0		
9-10			7.0		1.5	5.5	7.5	7.0		2.5	8.5													
10-11	4.0			8.5		5.0		9.5		2.5	8.5							5.5					5.5	
11-12	10.0		9.0		5.0	6.5				3.0	9.0						3.0	10.0						
12-13					5.0				4.0	3.0	9.5								5.0					
13-14	7.5		11.0		5.0	6.0	4.5			3.5	9.5	4.0						5.0				4.0		
14-15			4.0	10.0		5.0		7.0	7.5	4.0	10.0		10.0				10.0	9.5		3.5	9.0		7.5	
15-16	4.5				4.5	5.0	9.5			4.0				3.5								10.0		
16-17	11.0		6.0		4.5					4.5			6.0	6.0				4.0	5.0					
17-18	2.0			3.0	4.5	4.5				5.0				9.0				8.5				5.5	1.5	
18-19	8.0		8.0		4.5		4.5			5.0		2.5											10.0	
19-20					4.5	3.5	7.0			5.5								3.0				3.5		
20-21	5.5		10.0		4.0		10.0			6.0								7.5	4.5			8.0		
21-22	11.5		3.0	5.0		4.0	2.5			6.0													4.0	
22-23	2.5				8.0	4.0				6.5								2.5						
23-24	9.0		5.0		8.0	4.0	2.0	4.5		7.0		8.0						7.0						
24-25					8.0	4.0		7.0		7.0							8.0	11.5	4.0	8.0				
25-26	6.0		7.0	6.5	7.5	3.5		10.0		7.5	1.5			2.5	9.5		1.5					3.0	6.0	
26-27					7.5	3.5				8.0	1.5			5.0				6.0				7.5	7.0	
27-28	3.5		9.0		7.5	3.5			3.5	8.0	2.0		7.5	7.5				10.5						
28-29	9.5				7.5	3.5		4.5		8.5	2.5			10.5					3.5				2.5	
29-30			11.0	8.5	7.0	3.5		7.5	6.5	9.0	2.5		4.0					5.0	11.5				8.5	
30-31	7.0		4.0		7.0	3.0		10.0		9.0	3.0	2.5			10.5			9.5						

	U	XX	EG	U	Y	Y	SW	WW	ZZ	BR	CG	V346	V387	V477	W	TT	TY	YY	FZ	Z	TW	UZ	UZ
	CEP	CEP	CEP	CRB	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	DEL	DEL	DEL	DEL	DEL	DRA	DRA	DRA	DRA
MAX	6.7	8.5	9.6	7.6	7.0	7.0	9.3	9.9	10.7	9.4	11.0	11.8	11.5	8.3	9.4	10.6	9.6	11.0	10.2	10.8	7.8	9.9	9.9
MIN	9.8	9.6	10.6	8.8	7.6	7.6	11.8	13.2	12.0	10.5	11.8	13.6	12.3	9.2	12.7	12.5	10.8	12.0	11.3	13.6	9.5	10.7	10.7
DUR	4	4	3	5	6	6	5	5	4	4	3	5	3	4	7	5	4	4	3	4	5	5	5
TOT	2						2								2						1		
						(S)																	(S)
0- 1		10.0			11.0				5.5	9.0	8.5		6.5				8.0	4.5					
1- 2			3.0					9.0							1.5		3.0		9.5			5.0	
2- 3			5.0			4.0			3.0		6.0		4.5								4.0		
3- 4			7.0		11.0				9.0				11.5	3.5			1.5		8.0				
4- 5			9.5							9.0	3.5		2.5				6.0	7.0	2.5	3.0		11.5	
5- 6		2.5	11.5			4.0			6.0		9.5		9.5				11.0	2.0		11.5			
6- 7	11.5				10.5																		2.5
7- 8		10.5	2.5						3.5		7.0	8.0	7.5		10.0				11.0				
8- 9			5.0	6.5		3.5			9.5	9.0								6.0		4.5			
9-10			7.0		10.5						4.5		5.5					1.5					9.0
10-11			9.0						7.0		11.0	2.0		4.5		7.0	5.0		9.0				
11-12	11.0		11.5			3.5	2.5	7.5			2.0		4.0				9.5	10.5	3.5				
12-13		2.5			10.5				4.0	9.0	8.5		10.5					5.5		6.5			
13-14			2.5						10.5				2.0			4.0					9.5		
14-15		10.5	4.5			3.5			1.5		5.5		8.5						7.0			6.5	
15-16			6.5	4.5	10.5				7.5						11.5			9.5	1.5				
16-17	11.0		9.0							9.0	3.0		7.0				4.0	4.5		8.0	5.0		
17-18			11.0			3.5			5.0		9.5			5.5			8.5		10.0				
18-19					10.5				11.0			7.5	5.0						5.0				
19-20		3.0	2.0						2.0		7.0							8.5					3.5
20-21			4.5			3.5	6.0		8.5	9.0			3.0		7.0			3.5		10.0			
21-22	10.5	11.0	6.5		10.0			6.5			4.5		10.0						8.0				
22-23			8.5	2.0					5.5		10.5						3.0		3.0				10.0
23-24			11.0			3.5					2.0		8.0				7.5	8.0		3.0			
24-25					10.0				3.0	9.0	8.0			6.5				3.0		11.5			
25-26			2.0						9.0				6.0		2.0				6.0				
26-27	10.0	3.0	4.0			3.0					5.5												
27-28			6.5		10.0				6.5				4.0					7.0		4.5	10.5	7.5	
28-29		11.0	8.5							8.5	3.0		11.0				2.0	2.0	9.5				
29-30			10.5			3.0	9.5		3.5		9.5	6.5	2.0				6.5		4.0				
30-31					10.0				9.5				9.0			9.5	11.0				6.0		

	AI	RW	SZ	TU	CT	SW	SW	VX	CM	SS	DELT	T	EW	FL	RU	RW	U	SX	EQ	ER	ER	FL	U
	DRA	GEM	HER	HER	HER	LAC	LAC	LAC	LAC	LIB	LIB	LMI	LYR	LYR	MON	MON	OPH	OPH	ORI	ORI	ORI	ORI	PEG
MAX	7.2	9.6	10.2	10.6	9.9	9.2	9.2	10.9	8.5	10.4	4.8	10.2	11.2	8.7	10.6	9.1	5.8	10.5	10.3	9.5	9.5	10.5	9.7
MIN	8.2	11.6	12.0	13.4	11.2	10.0	10.0	12.3	9.5	11.3	5.9	12.6	13.6	9.5	11.3	11.9	6.5	11.2	13.3	10.2	10.2	13.2	10.5
DUR	4	5	4	5	4	3	3	4	4	6	7	6	5	4	5	5	5	5	4	3	3	3	3
TOT																							
								(S)													(S)		
0- 1			7.0			1.5	5.5	5.0	11.0					4.5									8.0
1- 2			3.0				4.5	6.5													9.5		
2- 3	2.0					7.5	3.5	8.5	1.5	2.0				9.0		6.0							5.0
3- 4	7.0				7.0	6.5	3.0	10.5															8.0
4- 5			9.5			5.5	2.0				2.5								11.5		9.0		
5- 6			5.0		2.0	5.0			6.5									2.5					5.0
6- 7		9.0				4.0																9.5	8.0
7- 8				5.5		3.0	7.0										6.5	4.0					
8- 9	2.0					2.0	6.0													9.5			5.0
9-10	6.5		7.0				5.0												5.5				8.0
10-11			2.5				4.0		2.5														
11-12						7.0	3.0				2.0			2.0					11.0	8.5			5.0
12-13					5.5	6.0	2.5			3.5											10.0		7.5
13-14			9.5			5.5	1.5	2.5	7.5					6.0									
14-15	2.0		5.0			4.5		4.0															4.5
15-16	6.5					3.5	7.5	6.0						10.5							9.0		7.5
16-17				7.0		2.5	6.5	7.5															
17-18						1.5	5.5	9.5								11.5							4.5
18-19			7.0				4.5	11.5	3.0		1.5								10.5				7.5
19-20			2.5			7.5	3.5														9.5		
20-21	1.5					6.5	3.0						9.5										4.5
21-22	6.5				3.5	5.5	2.0		8.0														7.5
22-23			9.5			5.0							8.5		11.5					8.5			
23-24			5.0	2.0		4.0															10.0	11.0	4.5
24-25						3.0	7.0						7.0	3.5									7.5
25-26				8.5		2.0	6.0			2.0		1.5							10.0				
26-27	1.5	10.5					5.0		3.5				6.0	8.0							9.0		4.5
27-28	6.5		7.0				4.0	1.5															7.5
28-29			2.5		7.0	7.0	3.0	3.5					4.5										
29-30						6.0	2.5	5.0	8.5								2.0						4.5
30-31					2.0	5.0	1.5	7.0					3.5							9.5			7.5

	U	TY	AQ	Z	RT	RV	ST	XZ	BETA	Y	U	V505	RW	AC	AM	V	X	RV	W	TX	VV	XZ	RU
	PEG	PEG	PEG	PER	PER	PER	PER	PER	PER	PSC	SGE	SGR	TAU	TAU	TAU	TRI	TRI	TRI	UMA	UMA	UMA	UMA	UMI
MAX	9.7	10.5	10.3	9.9	10.6	10.3	9.7	10.6	2.2	9.0	6.4	6.4	8.0	10.5	10.4	10.9	8.9	11.4	9.1	6.8	10.1	10.1	10.7
MIN	10.5	12.6	13.0	12.4	12.0	12.7	13.2	12.7	3.5	12.0	9.1	7.6	12.5	12.3	12.3	11.9	12.0	12.5	9.9	8.9	11.0	11.7	11.4
DUR	3	6	12	6	4	8	5	4	8	7	6	5	4	6	5	4	4	4	3	6	3	3	4
TOT			6	2			1				2		1										
	(S)																						(S)
0- 1	3.5				10.5		11.5						10.0		10.5	4.5	8.5		3.5				2.0
1- 2	6.5				6.5					3.0						9.0	8.0	8.5	3.5			1.5	3.0
2- 3		9.0						5.5				1.5					7.5		3.5				4.5
3- 4	3.5							9.0				5.5						6.5	3.5				5.5
4- 5	6.5		9.0													7.0	6.0	9.0	3.5				7.0
5- 6		11.0														11.0	5.0		3.5				8.0
6- 7	3.5				9.0						5.0						4.5		3.5		10.0		9.0
7- 8	6.5				5.5												5.5		9.0	3.5	2.5		10.5
8- 9							10.0		10.5								9.5		3.5		11.5		
9-10	3.5											3.5							3.5				
10-11	6.5							7.0				8.0							9.5	3.5			1.5
11-12					11.5			10.5	7.0					8.5		7.5			3.5				2.5
12-13	3.0				7.5					10.0									3.5			1.5	4.0
13-14	6.0													9.5				10.0	3.5				5.0
14-15													6.5			6.0		4.0	3.5				6.0
15-16	3.0		11.0									1.5	10.5			10.0			3.5				7.5
16-17	6.0						8.5			4.5	8.0	6.0						10.0	3.5				8.5
17-18					10.0			5.0								4.0		4.5	4.0		10.0		10.0
18-19	3.0				6.5			8.5								8.0			4.0		2.5		11.0
19-20	6.0					11.5												10.5	4.0				11.5
20-21																		4.5	4.0	2.5			
21-22	3.0					11.0										6.5			4.0				2.0
22-23	6.0											4.0				10.5		11.0					3.0
23-24					8.5	10.0					2.5	8.5						5.0				1.5	4.5
24-25	3.0				5.0		7.5										4.5						5.5
25-26	6.0					9.5		6.5					8.0			8.5		11.0					6.5
26-27				4.0				10.0											5.5				8.0
27-28	3.0	2.5				9.0				11.5													9.0
28-29	6.0				11.0							2.0				7.0					10.0		10.5
29-30	9.0			5.5	7.5	8.0						6.5				11.0		5.5			2.5		11.5
30-31	3.0	5.0															11.5						11.5

	AG	BU
	VIR	VUL
MAX	8.8	10.6
MIN	9.4	11.4
DUR	4	3
TOT		
0- 1		6.0
1- 2		9.5
2- 3		
3- 4		2.5
4- 5		5.5
5- 6		9.0
6- 7		
7- 8	2.0	2.0
8- 9		5.5
9-10		8.5
10-11		
11-12		1.5
12-13		5.0
13-14		8.0
14-15		11.5
15-16		
16-17	2.0	4.5
17-18		8.0
18-19		11.0
19-20		
20-21		4.0
21-22		7.5
22-23		10.5
23-24		
24-25		3.5
25-26	2.0	7.0
26-27		10.5
27-28		
28-29		3.0
29-30		6.5
30-31		10.0

AAVSO Eclipsing Binary Ephemeris for September 2008

all times in U.T.

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	RT	TW	WZ	XZ	AB	AB	CX	XZ	OO	OO	V342	V343	V346	WW	WW	Y	SV	AL	R	UU	RW	RZ	TV
	AND	AND	AND	AND	AND	AND	AQR	AQL	AQL	AQL	AQL	AQL	AQL	AUR	AUR	CAM	CAM	CAM	CMA	CMA	CAP	CAS	CAS
MAX	9.3	8.8	11.6	10.0	9.3	9.3	10.7	9.3	9.2	9.2	9.0	10.6	9.0	5.7	5.7	10.6	8.6	10.5	6.2	10.0	9.8	6.4	7.3
MIN	10.2	11.0	12.6	13.0	10.2	10.2	12.0	11.2	10.1	10.1	12.5	12.3	10.4	6.4	6.4	12.4	9.4	11.3	6.8	12.5	10.8	7.8	8.4
DUR	3	11	4	3	3	3	3	7	3	3	7	4	4	5	5	10	3	5	4	5	6	4	4
TOT											3												
						(S)			(S)						(S)								
0- 1					7.0	3.0			3.5												2.5	2.5	
1- 2	4.0	4.0	6.0	1.5	7.0	3.0	2.0		3.5								4.5	3.5				7.0	
2- 3	10.5			10.0	7.0	3.0	4.5		4.0								9.0	11.0				12.0	
3- 4	1.5		8.0		6.5	2.5	7.5		4.5							6.0			12.0				
4- 5	7.5		0.5		6.5	2.5	10.0		4.5			1.5		12.0			3.5						8.5
5- 6		7.0	10.0	3.5	6.5	2.5			5.0			4.0					8.0	3.0					
6- 7	5.0		3.0	12.0	6.5	2.5	2.0		5.5			6.5						11.0				2.0	4.0
7- 8	11.0				6.5	2.5	5.0		5.5								2.5		11.0			6.5	
8- 9	2.0		5.0		6.0	2.0	7.5		6.0					6.5			7.0					11.0	
9-10	8.5	10.0		5.0	6.0	2.0	10.0		6.5	7.0	5.5						11.5	2.5					
10-11			7.0		6.0	2.0		0.5	6.5								2.0	10.5			7.0		
11-12	5.5				6.0	2.0	2.0	3.0	7.0		2.0						6.5		10.5				
12-13	12.0		9.0		6.0	2.0	5.0		7.5								10.5					1.5	
13-14	3.0		1.5	6.5	5.5	1.5	7.5	6.0	7.5					8.0		4.0	1.0	2.5				6.0	10.5
14-15	9.0		11.0		5.5	1.5	10.5		2.0	8.0			0.5				5.5	10.0				10.5	
15-16			4.0		5.5	1.5			2.0				3.0				10.0						6.0
16-17	6.5				5.5	1.5	2.5		2.5	1.5		5.5			11.5								
17-18			6.0	8.5	5.5	1.5	5.0		3.0			8.0					4.5	2.0			2.0		1.5
18-19	3.5				5.0	1.0	7.5		3.0					9.0			9.0	10.0				0.5	
19-20	10.0		8.0		5.0	1.0	10.5		3.5													5.5	
20-21	1.0		0.5	1.5	5.0	1.0			4.0		7.0						4.0			11.0		10.0	
21-22	7.0		10.0	10.0	5.0	1.0	2.5		4.0								8.5	1.5					
22-23			3.0		4.5	1.0	5.0		4.5		3.5							9.5					12.0
23-24	4.5				4.5	0.5	8.0		5.0					10.5		2.5	3.0						
24-25	10.5		5.0	3.5	4.5	0.5			5.0								7.5						7.5
25-26	1.5			12.0	4.5				5.5			2.0					12.0	1.0				5.0	
26-27	8.0		7.0		4.5		2.5	2.0	5.5	6.0		4.5				9.5	2.0	9.0				9.5	3.0
27-28					4.0		5.0		6.0				7.0				6.5				6.0		
28-29	5.0		9.0	5.0	4.0		8.0	5.5	6.5					11.5			11.0		11.5				
29-30	11.5		1.5		4.0				6.5	0.5							1.5	1.0					

AAVSO Eclipsing Binary Ephemeris for September 2008

all times in U.T.

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	AB	U	XX	EG	SS	U	Y	Y	SW	WW	ZZ	BR	CG	V346	V387	V477	W	TT	TY	YY	FZ	Z	TW
	CAS	CEP	CEP	CEP	CET	CRB	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	DEL	DEL	DEL	DEL	DEL	DRA	DRA
MAX	10.2	6.7	8.5	9.6	9.4	7.6	7.0	7.0	9.3	9.9	10.7	9.4	11.0	11.8	11.5	8.3	9.4	10.6	9.6	11.0	10.2	10.8	7.8
MIN	12.2	9.8	9.6	10.6	13.0	8.8	7.6	7.6	11.8	13.2	12.0	10.5	11.8	13.6	12.3	9.2	12.7	12.5	10.8	12.0	11.3	13.6	9.5
DUR	4	4	4	3	5	5	6	6	5	5	4	4	3	5	3	4	7	5	4	4	3	4	5
TOT		2							2								2						1
								(S)															
0- 1		10.0		2.0						5.5	1.0	0.5	6.5			7.5				6.0		6.5	
1- 2	2.0			4.0				3.0			7.0	8.5		0.5	7.0					1.5	7.5		
2- 3	11.0		3.5	6.0		10.0							4.0				6.5				2.0		1.0
3- 4				8.0							4.0		10.5		5.0				1.0				
4- 5			11.5	10.5				3.0			10.5	0.5	1.5						5.5	5.5		8.0	
5- 6	4.5	9.5					10.0				1.5	8.5	8.0				3.5				5.0		
6- 7				1.5							7.5				10.0								
7- 8				3.5				3.0					5.5		1.5	8.0							1.5
8- 9				6.0	11.5		9.5				5.0	0.5			8.0					4.5	8.5	10.0	
9-10	7.0		3.5	8.0							11.0	8.5	3.0	6.0							3.0		
10-11		9.0		10.0				3.0		4.5	2.0		9.0		6.5				4.5				11.0
11-12			12.0		11.0		9.5				8.5								9.0	8.5		3.0	
12-13	0.5			1.5					2.5			0.5	6.5		4.5	1.0				3.5	6.5	11.5	
13-14	9.5			3.5				2.5			5.5	8.5					7.5				1.0		6.5
14-15				5.5	10.5		9.5						4.0		2.5	9.0							
15-16		9.0		8.0							3.0		10.0		9.5						8.0		5.0
16-17	3.0		4.0	10.0				2.5			9.0		1.5		0.5				3.5	3.0	4.5		2.0
17-18	12.0				10.0		9.5					8.5	7.5		7.5				8.0				
18-19				1.0							6.5						3.0						
19-20				3.5				2.5					5.0		5.5	2.0					7.0	7.5	6.5
20-21	5.5	8.5		5.5	9.0		9.5			3.5	3.5			5.5						2.0	2.5		
21-22				7.5					6.0		9.5	8.5	2.5		3.5								
22-23				9.5		3.5		2.5			1.0		9.0		10.5			8.5	2.5				
23-24			4.5	12.0	8.5		9.0				7.0				2.0				7.0	6.0	5.5	8.5	
24-25	8.0			1.0									6.5		8.5					1.0			
25-26		8.0		3.0				2.5			4.0	8.5					5.5						
26-27				5.0	8.0		9.0				10.5		3.5		6.5	3.0						9.0	1.5
27-28	1.5			7.5							1.5		10.0							5.5	3.5	10.0	7.5
28-29	10.5			9.5				2.5			7.5		1.0		5.0		2.5	1.0					
29-30				11.5	7.5	1.5	9.0					8.5	7.5						6.0				

	EQ	ER	ER	FL	U	U	TY	AQ	Z	RT	RV	ST	XZ	BETA	Y	U	V505	RW	AC	AM	V	X	RV	
	ORI	ORI	ORI	ORI	PEG	PEG	PEG	PEG	PER	PER	PER	PER	PER	PER	PSC	SGE	SGR	TAU	TAU	TAU	TAU	TRI	TRI	TRI
MAX	10.3	9.5	9.5	10.5	9.7	9.7	10.5	10.3	9.9	10.6	10.3	9.7	10.6	2.2	9.0	6.4	6.4	8.0	10.5	10.4	10.9	8.9	11.4	
MIN	13.3	10.2	10.2	13.2	10.5	10.5	12.6	13.0	12.4	12.0	12.7	13.2	12.7	3.5	12.0	9.1	7.6	12.5	12.3	12.3	11.9	12.0	12.5	
DUR	4	3	3	3	3	3	6	12	6	4	8	5	4	8	7	6	5	4	6	5	4	4	4	
TOT								6	2			1				2		1						
			(S)		(S)																			
0- 1					1.5	6.0					7.5			9.0	6.0						5.0	11.0	12.0	
1- 2	10.0		7.5		4.5	9.0		2.5	7.0			6.0	4.0								9.0	10.0	6.0	
2- 3		9.0			7.5	3.0	7.0				7.0		8.0			6.0						9.5		
3- 4				7.5	1.5	6.0				9.5			11.5	5.5							3.5	8.5		
4- 5			6.5		4.5	9.0		8.5	6.0	6.5						4.0					7.5	8.0	6.5	
5- 6		8.0			7.5	3.0	9.5			2.5							10.0				11.5	7.5		
6- 7			9.5	10.0	1.5	6.0					5.5			2.5							1.5	6.5		
7- 8					4.5	9.0			9.5												5.5	6.0	6.5	
8- 9	9.5	7.0			7.5	3.0	11.5				5.0							4.5		6.5	9.5	5.5		
9-10			8.5		1.5	6.0				8.5		4.5	5.5									4.5		
10-11		10.0			4.5	9.0			11.0	5.0	4.5		9.5				2.0			7.5	4.0	4.0	7.0	
11-12					7.5	3.0											6.5				8.0	3.5		
12-13			7.5		1.5	6.0		5.0												9.0		2.5		
13-14		9.0			4.5	9.0																2.0	7.5	
14-15					7.5	3.0				10.5		12.0								10.0	6.0			
15-16	9.0		7.0		1.5	6.0				7.0					7.5						10.5			
16-17		8.0			4.0	8.5				3.5			3.5					12.0		11.0			8.0	
17-18			9.5		7.0	2.5						3.5	7.0				4.5				4.5		2.0	
18-19					1.0	5.5							11.0							12.0	8.5			
19-20		7.5			4.0	8.5									2.0	3.5		6.0					8.0	
20-21			8.5	9.0	7.0	2.5				9.5				10.5								2.5	2.0	
21-22		10.0			1.0	5.5				6.0												6.5		
22-23	8.5	6.5			4.0	8.5				2.0		10.5										11.0	8.5	
23-24			8.0	11.5	7.0	2.5		7.5						7.5			2.5		6.5				2.5	
24-25		9.0			1.0	5.5							5.0				7.0				5.0			
25-26					4.0	8.5				12.0			8.5						7.5		9.0		9.0	
26-27			7.0		7.0	2.5				8.0				4.0									3.0	
27-28		8.5			1.0	5.5	1.0			4.5									8.5		3.0			
28-29			10.0		4.0	8.5																7.5	9.0	
29-30	8.5				7.0	2.5										7.0		9.5		11.5			3.5	

	W	TX	VV	XZ	RU	BU
	UMA	UMA	UMA	UMA	UMI	VUL
MAX	9.1	6.8	10.1	10.1	10.7	10.6
MIN	9.9	8.9	11.0	11.7	11.4	11.4
DUR	3	6	3	3	4	3
TOT						
0- 1					1.5	
1- 2					2.5	3.0
2- 3					3.5	6.0
3- 4					5.0	9.5
4- 5		10.0			6.0	
5- 6					7.5	2.5
6- 7			8.5		8.5	5.5
7- 8		11.5	1.0		9.5	9.0
8- 9			10.0		11.0	
9-10						2.0
10-11			11.5	10.0	0.5	5.5
11-12					2.0	8.5
12-13					3.0	
13-14					4.5	1.5
14-15					5.5	5.0
15-16					6.5	8.0
16-17					8.0	
17-18			8.5		9.0	1.0
18-19			1.0		10.5	4.5
19-20			10.0		11.5	8.0
20-21						
21-22	0.5		11.5	10.0	1.5	1.0
22-23	0.5				2.5	4.0
23-24	0.5				3.5	7.5
24-25	0.5				5.0	
25-26	0.5				6.0	
26-27	0.5				7.0	3.5
27-28	0.5				8.5	7.0
28-29	0.5		8.5		9.5	
29-30	0.5		1.0		11.0	

	RT	TW	WZ	XZ	AB	AB	RY	CX	XZ	OO	OO	V342	V343	V346	WW	WW	Y	SV	AL	R	UU	RW	RZ
	AND	AND	AND	AND	AND	AND	AQR	AQR	AQL	AQL	AQL	AQL	AQL	AQL	AUR	AUR	CAM	CAM	CAM	CMA	CMA	CAP	CAS
MAX	9.3	8.8	11.6	10.0	9.3	9.3	8.8	10.7	9.3	9.2	9.2	9.0	10.6	9.0	5.7	5.7	10.6	8.6	10.5	6.2	10.0	9.8	6.4
MIN	10.2	11.0	12.6	13.0	10.2	10.2	10.1	12.0	11.2	10.1	10.1	12.5	12.3	10.4	6.4	6.4	12.4	9.4	11.3	6.8	12.5	10.8	7.8
DUR	3	11	4	3	3	3	5	3	7	3	3	7	4	4	5	5	10	3	5	4	5	6	4
TOT												3											
							(S)				(S)						(S)						
0- 1	2.5	0.5	11.0		4.0	8.0					1.0							6.0	8.5				
1- 2	8.5		4.0		4.0	8.0		2.5			1.5							10.0					4.0
2- 3				7.0	3.5	7.5		5.5			1.5					6.5		0.5					9.0
3- 4	6.0		6.0		3.5	7.5		8.0			2.0	0.5	5.0				0.5	5.0	0.5		11.0		
4- 5	12.0	3.5			3.5	7.5					2.5							9.5	8.5			1.0	
5- 6	3.0		8.0		3.5	7.5		0.0			2.5		1.5	1.0									
6- 7	9.5		0.5	8.5	3.5	7.5		2.5			3.0			3.5			7.5	4.0		10.5			
7- 8	0.5		10.0		3.0	7.0		5.5			3.5			6.0		7.5		8.5	0.0				3.5
8- 9	6.5	6.5	3.0		3.0	7.0		8.0			3.5								8.0				8.5
9-10			12.0	1.5	3.0	7.0					4.0							3.5					
10-11	4.0		5.0	10.0	3.0	7.0		0.0			4.0							7.5					
11-12	10.0				3.0	7.0	6.0	3.0	1.5		4.5							12.0					
12-13	1.5	9.5	7.0		2.5	6.5		5.5			5.0					9.0		2.5	7.5				
13-14	7.5			3.5	2.5	6.5	5.0	8.0	5.0		5.0	4.5						7.0					3.0
14-15			9.0	12.0	2.5	6.5					5.5							11.5		9.5		5.0	8.0
15-16	4.5		1.5		2.5	6.5	4.0	0.0			6.0			0.0				1.5					
16-17	11.0		11.0		2.5	6.0		3.0		0.0	6.0		3.0	2.5			5.5	6.0	7.5		11.0		
17-18	2.0		4.0	5.0	2.0	6.0	3.5	5.5		0.5				5.0		10.0		10.5					
18-19	8.0				2.0	6.0		8.5		1.0								1.0					
19-20			6.0		2.0	6.0	2.5			1.0								5.0					2.5
20-21	5.5				2.0	6.0		0.5		1.5								9.5	7.0				7.0
21-22	11.5		8.0	7.0	1.5	5.5	2.0	3.0		1.5					5.0								12.0
22-23	3.0		0.5		1.5	5.5		5.5		2.0						11.5		4.5		8.0			
23-24	9.0		10.0		1.5	5.5	1.0	8.5		2.5								9.0		11.5			
24-25	0.0		3.0		1.5	5.5				2.5									6.5				
25-26	6.0		12.0	8.5	1.5	5.5	0.0	0.5		3.0								3.5					2.0
26-27	12.5		5.0		1.0	5.0		3.0	1.0	3.5				1.5	6.0		3.5	8.0					6.5
27-28	3.5				1.0	5.0		6.0		3.5			4.5	4.0		12.5							11.5
28-29	9.5		7.0	1.5	1.0	5.0		8.5	4.5	4.0								2.5	6.0				
29-30	1.0			10.5	1.0	5.0				4.5							11.0	7.0			10.5		
30-31	7.0		9.0		1.0	5.0		0.5		4.5		3.5						11.5					

	TV	AB	U	XX	EG	SS	V	Y	Y	SW	WW	ZZ	BR	CG	V346	V387	V477	W	TT	TY	YY	FZ	Z	
	CAS	CAS	CEP	CEP	CEP	CET	CRT	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	DEL	DEL	DEL	DEL	DEL	DRA	
MAX	7.3	10.2	6.7	8.5	9.6	9.4	9.5	7.0	7.0	9.3	9.9	10.7	9.4	11.0	11.8	11.5	8.3	9.4	10.6	9.6	11.0	10.2	10.8	
MIN	8.4	12.2	9.8	9.6	10.6	13.0	10.2	7.6	7.6	11.8	13.2	12.0	10.5	11.8	13.6	12.3	9.2	12.7	12.5	10.8	12.0	11.3	13.6	
DUR	4	4	4	4	3	5	4	6	6	5	5	4	4	3	5	3	4	7	5	4	4	3	4	
TOT			2							2								2						
								(S)																
0- 1			8.0	4.5	0.5						2.0	5.0				3.0						6.5	3.0	
1- 2		4.0			3.0			2.0						5.0	5.0						4.5	1.5	11.5	
2- 3					5.0	6.5						2.0	0.5			1.0								
3- 4	9.0				7.0							8.5	8.0	2.5		8.0	4.0							
4- 5					9.5			2.0						8.5						0.0		4.5	5.0	
5- 6	4.5	6.5	7.5		11.5	6.0					5.5					6.0				4.5	3.5			
6- 7					0.5								0.0	6.0										
7- 8				5.0	2.5			2.0				3.0	8.0			4.0								
8- 9					5.0	5.5								3.5								2.5	6.5	
9-10		8.5			7.0																	3.0		
10-11			7.0		9.0			2.0			1.0	6.5	0.0	1.0		9.0	5.0							
11-12					11.0	5.0								8.0	7.5					3.5		6.0		
12-13	10.5	2.5			0.5							3.5				4.0	7.0		3.5		7.0	0.5	8.5	
13-14		11.0			2.5			2.0						4.5							2.0			
14-15	6.0			5.0	4.5	4.0				3.0		1.0	0.0			5.0						4.0	1.5	
15-16			7.0		6.5							7.0	8.0	2.0									4.0	1.5
16-17	1.5	5.0			9.0			2.0						8.5		3.5						6.0	10.0	
17-18					11.0	3.5						4.5					6.0				2.5	1.0		
18-19					0.0								0.0	6.0		1.5		5.0	7.0			7.0		
19-20					2.0			1.5				1.5	8.0			8.0						2.0	3.5	
20-21		7.0	6.5		4.5	3.0						7.5		3.5							5.5		12.0	
21-22	12.0			5.5	6.5											6.5		2.0			0.5			
22-23					8.5			1.5				5.0		1.0								5.0		
23-24	7.5	1.0			11.0	2.5		8.5		6.5	7.5		8.0	7.0	3.5	4.5				1.5			5.0	
24-25		9.5										2.0					7.0			6.0	4.5			
25-26	3.0		6.0		2.0				1.5			8.5		4.5		2.5								
26-27					4.0			8.0															3.0	
27-28		3.0			6.0							5.5	8.0	2.0		0.5							6.5	
28-29		12.0		5.5	8.5	12.5			1.5					8.5		7.5					3.5			
29-30					10.5			8.0				3.0								0.5		6.0		
30-31			6.0									9.0		5.5		5.5				5.0		1.0		

	TW	UZ	UZ	AI	YY	YY	RW	SZ	TU	CT	AV	SW	SW	VX	CM	T	EW	FL	RU	RU	RW	BO	U
	DRA	DRA	DRA	DRA	ERI	ERI	GEM	HER	HER	HER	HYA	LAC	LAC	LAC	LAC	LMI	LYR	LYR	MON	MON	MON	MON	OPH
MAX	7.8	9.9	9.9	7.2	8.4	8.4	9.6	10.2	10.6	9.9	10.2	9.2	9.2	10.9	8.5	10.2	11.2	8.7	10.6	10.6	9.1	10.8	5.8
MIN	9.5	10.7	10.7	8.2	9.1	9.1	11.6	12.0	13.4	11.2	10.6	10.0	10.0	12.3	9.5	12.6	13.6	9.5	11.3	11.3	11.9	12.1	6.5
DUR	5	5	5	4	3	3	5	4	5	4	4	3	3	4	4	6	5	4	5	5	5	5	5
TOT	1																						
			(S)			(S)							(S)						(S)				
0- 1	3.0											0.0	4.0				4.5				7.5		
1- 2				0.5		7.5						7.0	3.0										
2- 3		4.5		5.5		6.5						6.0	2.0		1.0		6.5						
3- 4						5.5		2.5		0.5	10.0	5.0	1.5										
4- 5						5.0						4.0	0.5				5.5		12.0			9.5	
5- 6		10.5							4.0		11.0	3.5	7.0		6.0								
6- 7					7.0							2.5	6.0			8.0	4.0						
7- 8			2.0	0.5	6.0			5.0			12.0	1.5	5.5										
8- 9				5.5	5.5		10.0	0.5				0.5	4.5				3.0						
9-10					4.5							7.5	3.5	1.0		8.5				11.0			
10-11			8.0			7.5						6.5	2.5	3.0	1.5		1.5						0.5
11-12	8.0					6.5	6.5					5.5	1.5	4.5				1.5					
12-13						5.5		2.5				4.5	1.0	6.5		9.0	0.5						
13-14				0.5		5.0						3.5	7.5	8.5	7.0			6.0					
14-15	3.5			5.0								3.0	6.5	10.0									
15-16		5.5			7.0							2.0	6.0			9.5							1.0
16-17					6.0			5.0			9.5	1.0	5.0										
17-18					5.5			0.5				0.0	4.0								11.5		
18-19		12.0			4.5						10.5	7.0	3.0		2.5	10.0							
19-20				0.0		7.5				2.5		6.0	2.0								9.0		
20-21			3.0	5.0		6.5					12.0	5.0	1.0										2.0
21-22						6.0		2.5	0.5			4.0	0.5		7.5	10.5					7.0		
22-23						5.0						3.0	7.0						10.0				
23-24			9.0									2.5	6.0	0.5									
24-25					7.0							1.5	5.5	2.0		11.0		3.5				10.0	
25-26	9.0	0.5		0.0	6.0			4.5				0.5	4.5	4.0									2.5
26-27				5.0	5.5			0.5				7.5	3.5	5.5	3.0			7.5					
27-28					4.5							6.5	2.5	7.5		11.5				9.0			
28-29	4.5	6.5				7.5	11.5			1.0		5.5	1.5	9.5									
29-30						6.5					9.0	4.5	0.5		8.0								
30-31						6.0		2.5	2.5			3.5	7.5				12.0						

	SX	EQ	ER	ER	FL	U	U	TY	AQ	Z	RT	ST	XZ	BETA	Y	U	V505	RW	AC	AM	V	X	RV
	OPH	ORI	ORI	ORI	ORI	PEG	PEG	PEG	PEG	PER	PER	PER	PER	PER	PSC	SGE	SGR	TAU	TAU	TAU	TRI	TRI	TRI
MAX	10.5	10.3	9.5	9.5	10.5	9.7	9.7	10.5	10.3	9.9	10.6	9.7	10.6	2.2	9.0	6.4	6.4	8.0	10.5	10.4	10.9	8.9	11.4
MIN	11.2	13.3	10.2	10.2	13.2	10.5	10.5	12.6	13.0	12.4	12.0	13.2	12.7	3.5	12.0	9.1	7.6	12.5	12.3	12.3	11.9	12.0	12.5
DUR	5	4	3	3	3	3	3	6	12	6	4	5	4	8	7	6	5	4	6	5	4	4	4
TOT									6	2		1				2		1					
				(S)			(S)																
0- 1			7.5			1.0	5.5	3.0				9.0			9.0		5.0	8.0			1.5		
1- 2				9.0	5.5	4.0	8.5				10.5		3.0					10.5			5.5		9.5
2- 3				5.0		7.0	2.5				7.0		6.5								9.5	12.0	3.5
3- 4			6.5			1.0	5.5	5.0			3.0	1.0	10.0					2.5	11.5			11.5	
4- 5				8.0	8.0	4.0	8.5								3.5						3.5	11.0	10.0
5- 6			9.5	4.5		7.0	2.5														8.0	10.0	4.0
6- 7		8.0	6.0			1.0	5.5	7.5								1.0	2.5				12.0	9.5	
7- 8				7.0	10.5	4.0	8.5				9.0										2.0	9.0	10.0
8- 9	1.5		8.5			7.0	2.5				5.5	8.0									6.0	8.0	4.5
9-10			5.0	10.0		1.0	5.5	9.5			2.0		4.5								10.0	7.5	
10-11				6.5		4.0	8.5						8.0	12.5							0.0	7.0	10.5
11-12			7.5			7.0	2.5			0.5			11.5					10.0			4.5	6.0	4.5
12-13				9.0		1.0	5.5				11.5						0.5				8.5	5.5	
13-14		7.5		5.5		4.0	8.5				8.0			9.0							12.5	4.5	11.0
14-15			7.0			7.0	2.5			2.0	4.0							4.5			2.5	4.0	5.0
15-16				8.0		1.0	5.5				0.5										6.5	3.5	
16-17			9.5	4.5		4.0	8.5					6.5	2.0	6.0		4.5					10.5	2.5	11.5
17-18			6.0			7.0	2.5			3.0			6.0								0.5	2.0	5.5
18-19				7.5	7.0	1.0	5.5				10.0		9.5								5.0	1.5	
19-20			9.0			4.0	8.5				6.5			2.5	5.0		3.0				9.0	0.5	11.5
20-21		7.0	5.0			6.5	2.5			4.5	3.0												5.5
21-22				6.5	9.5	0.5	5.0		1.0											5.0	3.0		
22-23			8.0			3.5	8.0											11.5			7.0		12.0
23-24				9.5		6.5	2.0			6.0										6.0	11.0		6.0
24-25				5.5	12.0	0.5	5.0				9.0	5.5	3.5								1.0		0.0
25-26			7.0			3.5	8.0				5.5		7.5			1.0	6.0			7.0	5.5		12.5
26-27				8.5		6.5	2.0			7.0	1.5		11.0								9.5		6.5
27-28		7.0	10.0	5.0		0.5	5.0													8.0			0.5
28-29			6.0			3.5	8.0															3.5	
29-30				7.5		6.5	2.0			8.5	11.0	12.5								9.0	7.5		7.0
30-31			9.0			0.5	5.0				7.5										11.5		1.0

	W	TX	VV	XZ	RU	AG	BU
	UMA	UMA	UMA	UMA	UMI	VIR	VUL
MAX	9.1	6.8	10.1	10.1	10.7	8.8	10.6
MIN	9.9	8.9	11.0	11.7	11.4	9.4	11.4
DUR	3	6	3	3	4	4	3
TOT							
	(S)						
0- 1			10.0		12.0		3.5
1- 2					0.5		6.5
2- 3			11.5	10.0	2.0		
3- 4					3.0		
4- 5					4.0		3.0
5- 6			5.5		5.5		6.0
6- 7					6.5	12.0	
7- 8			7.0	7.0	8.0		
8- 9					9.0		2.5
9-10			8.5		10.0		5.5
10-11					11.5		
11-12			10.0				
12-13					1.0		2.0
13-14			11.5	10.0	2.5		5.5
14-15					3.5		
15-16					5.0	12.0	
16-17			5.5		6.0		1.5
17-18					7.0		5.0
18-19			7.0	7.0	8.5		
19-20					9.5		
20-21		9.0	8.5		11.0		1.0
21-22					12.0		4.5
22-23			10.0		0.5		8.0
23-24	5.0	10.5			1.5		
24-25	5.0		11.0	10.0	3.0	11.5	1.0
25-26	5.5				4.0		4.0
26-27	5.5	12.0			5.5		7.5
27-28	5.5		5.0		6.5		
28-29	5.5				7.5		0.5
29-30	5.5		6.5	7.0	9.0		3.5
30-31	5.5				10.0		7.0

	RT	TW	WZ	XZ	AB	AB	CX	XZ	OO	OO	V342	V343	V346	WW	WW	Y	SV	AL	R	UU	RZ	TV	AB
	AND	AND	AND	AND	AND	AND	AQR	AQL	AQL	AQL	AQL	AQL	AQL	AUR	AUR	CAM	CAM	CAM	CMA	CMA	CAS	CAS	CAS
MAX	9.3	8.8	11.6	10.0	9.3	9.3	10.7	9.3	9.2	9.2	9.0	10.6	9.0	5.7	5.7	10.6	8.6	10.5	6.2	10.0	6.4	7.3	10.2
MIN	10.2	11.0	12.6	13.0	10.2	10.2	12.0	11.2	10.1	10.1	12.5	12.3	10.4	6.4	6.4	12.4	9.4	11.3	6.8	12.5	7.8	8.4	12.2
DUR	3	11	4	3	3	3	3	7	3	3	7	4	4	5	5	10	3	5	4	5	4	4	4
TOT											3												
						(S)				(S)					(S)								
0- 1			2.0		0.5	4.5	3.0							7.5			2.0		10.5		1.5		5.5
1- 2	4.5			3.5	0.5	4.5	6.0										6.5	6.0			6.0	9.0	
2- 3	10.5	0.0	4.0	12.0	0.5	4.5											11.0			11.0			
3- 4	1.5				0.5	4.5											1.0					4.5	
4- 5	8.0		6.0		0.5	4.5	0.5			0.0							5.5						8.0
5- 6				5.0	0.0	4.0	3.5			0.5			0.5	8.5		1.5	10.0	5.5					
6- 7	5.0	3.0	8.0		0.0	4.0	6.0			1.0			3.0				0.5				1.0		
7- 8			0.5		8.0	4.0				1.0							4.5		6.0		5.5		1.5
8- 9	2.5		10.0		8.0	4.0				1.5						9.0	9.0		9.0		10.0		10.5
9-10	8.5		3.0	7.0	7.5	3.5	0.5			2.0		2.5			3.5			5.0	12.5	6.5			
10-11		6.0			7.5	3.5	3.5	0.5		2.0				9.5			4.0	13.0				10.5	
11-12	6.0		5.0		7.5	3.5	6.0			2.5							8.5		10.5				4.0
12-13				0.0	7.5	3.5		3.5		3.0							13.0				0.5	6.0	13.0
13-14	3.0		7.0	8.5	7.5	3.5				3.0							3.0	4.5			5.0		
14-15	9.5	9.0			7.0	3.0	1.0			3.5					4.5		7.5	12.5			9.5	1.5	
15-16	0.5		9.0		7.0	3.0	3.5			4.0				11.0			12.0						6.5
16-17	6.5		2.0	2.0	7.0	3.0	6.0			4.0	2.5		2.0				2.0		8.0				
17-18				10.5	7.0	3.0											6.5	4.5	11.5				
18-19	4.0		4.0		7.0	3.0										7.0	11.0	12.5					0.0
19-20	10.0				6.5	2.5	1.0								6.0		1.5				4.5	12.0	9.0
20-21	1.0		6.0	3.5	6.5	2.5	3.5					4.0		12.0			6.0				9.0		
21-22	7.5			12.0	6.5	2.5	6.0										10.5	4.0				7.5	
22-23			8.0		6.5	2.5				0.0			0.5				0.5	12.0		6.5			2.5
23-24	4.5		0.5		6.5	2.5				0.5							5.0					3.0	11.5
24-25			10.0	5.0	6.0	2.0	1.0			0.5					7.0		9.5		7.0	10.5			
25-26	2.0		3.0		6.0	2.0	3.5			1.0								3.5	10.0		4.0		
26-27	8.0				6.0	2.0	6.5			1.5			1.0				4.0	11.5			8.5		5.0
27-28			5.0		6.0	2.0		3.0		1.5			3.5				8.5						
28-29	5.5			7.0	6.0	2.0				2.0						5.0							
29-30			7.0		5.5	1.5	1.0			2.5					8.5		3.5	3.5					

	U	XX	EG	SS	U	V	RV	Y	SW	WW	ZZ	CG	V346	V387	V477	W	TT	TY	YY	FZ	Z	TW	UZ	
	CEP	CEP	CEP	CET	CRB	CRT	CRV	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	DEL	DEL	DEL	DEL	DEL	DEL	DRA	DRA	DRA
MAX	6.7	8.5	9.6	9.4	7.6	9.5	9.0	7.0	9.3	9.9	10.7	11.0	11.8	11.5	8.3	9.4	10.6	9.6	11.0	10.2	10.8	7.8	9.9	
MIN	9.8	9.6	10.6	13.0	8.8	10.2	10.0	7.6	11.8	13.2	12.0	11.8	13.6	12.3	9.2	12.7	12.5	10.8	12.0	11.3	13.6	9.5	10.7	
DUR	4	4	3	5	5	4	4	6	5	5	4	3	5	3	4	7	5	4	4	3	4	5	5	
TOT	2								2							2						1		
								(S)																
0- 1			1.5				13.0	1.5			0.0										8.5		13.0	
1- 2			4.0	0.5							6.5	3.0		3.5					3.0					
2- 3			6.0			10.5															4.0			
3- 4			8.0				12.5	1.5			3.5	0.5	3.0	2.0								1.5		
4- 5	5.5	6.0	10.5			13.0															10.0			
5- 6			12.5								1.0				0.5	4.5		4.0	2.0					
6- 7			1.5		1.0		12.0	1.0			7.0	4.5		6.5							2.0			
7- 8			3.5																			3.5	1.5	
8- 9			6.0								4.5	2.0		5.0							12.0	10.0		
9-10	5.0		8.0		11.5	11.0	12.0	1.0												1.0				
10-11			10.0								1.5			3.0			4.0				0.0		7.5	
11-12		6.5	12.0									5.5						3.0			5.0	5.0		
12-13			1.5			11.5	1.0			5.5				1.0	1.5									
13-14			3.5								5.0	3.0					1.0		0.5	3.5				
14-15	5.0		5.5										2.0									0.5		
15-16			7.5					1.0	3.0		2.5	0.5		6.0							7.0			
16-17			10.0			11.0						6.5							4.5					
17-18			12.0											4.0			2.0			1.5				
18-19		6.5	1.0					1.0			5.5	4.0												
19-20	4.5		3.0											2.0	2.5						8.5			
20-21			5.5								3.0	1.5							3.5	4.5			2.5	
21-22			7.5					1.0						0.5										
22-23			9.5							4.0	0.0			7.0							1.5	10.5		
23-24			12.0			11.5					6.5	5.5					1.0				10.5		8.5	
24-25	4.0		1.0					0.5	6.5					5.0			5.5	3.0	2.5					
25-26		7.0	3.0								3.5	2.5	1.5									6.0		
26-27			5.0											3.5	3.5						3.5			
27-28			7.5					0.5			1.0	0.0									12.0			
28-29			9.5								7.0	6.5		1.5				2.0	0.5			1.5		
29-30	4.0		11.5													5.0								

	UZ	AI	YY	YY	RW	SZ	TU	CT	AV	SW	SW	VX	CM	T	EW	FL	RU	RU	RW	BO	EQ	ER	ER		
	DRA	DRA	ERI	ERI	GEM	HER	HER	HER	HYA	LAC	LAC	LAC	LAC	LMI	LYR	LYR	MON	MON	MON	MON	ORI	ORI	ORI		
MAX	9.9	7.2	8.4	8.4	9.6	10.2	10.6	9.9	10.2	9.2	9.2	10.9	8.5	10.2	11.2	8.7	10.6	10.6	9.1	10.8	10.3	9.5	9.5		
MIN	10.7	8.2	9.1	9.1	11.6	12.0	13.4	11.2	10.6	10.0	10.0	12.3	9.5	12.6	13.6	9.5	11.3	11.3	11.9	12.1	13.3	10.2	10.2		
DUR	5	4	3	3	5	4	5	4	4	3	3	4	4	6	5	4	5	5	5	5	4	3	3		
TOT	(S)			(S)							(S)						(S)						(S)		
0- 1				5.0	8.0				10.0	3.0	6.5											5.5			
1- 2				4.0						2.0	5.5										12.5		6.5		
2- 3	4.0		7.0	3.5					11.5	1.0	5.0			12.5						8.0		8.0	3.0		
3- 4			6.5	2.5	5.0					0.0	4.0		3.5					13.0			6.5	4.5	9.5		
4- 5			5.5			0.5			12.5	7.0	3.0					0.5							6.0		
5- 6	10.5		4.5							6.0	2.0			12.5					12.5				7.0		
6- 7			3.5	7.5						5.0	1.0		8.5			5.0							3.5	8.5	
7- 8			3.0	6.5						4.0	0.5	1.5							10.5			10.0	5.0		
8- 9				6.0		2.5				3.0	7.0	3.0									12.0		6.5		
9-10				5.0					7.5	2.5	6.0	5.0					8.5		8.0				2.5	8.0	
10-11				4.0						1.5	5.0	7.0									6.0		9.0	4.0	
11-12			7.0	3.5					8.5	0.5	4.5	8.5	4.0						6.0				5.5		
12-13			6.5	2.5						7.0	3.5													7.0	
13-14		4.5	5.5			0.5			10.0	6.5	2.5									11.0			8.5	3.0	
14-15			4.5							5.5	1.5				3.5			7.0					4.5	9.5	
15-16	5.0		4.0	7.5					11.0	4.5	0.5										11.5			6.0	
16-17			3.0	7.0						3.5	7.5				2.5		12.5						7.5	2.5	
17-18				6.0	12.5	2.5			12.5	2.5	6.5					2.5					5.5	4.0	9.0		
18-19	11.5			5.0						2.0	5.5				1.0									5.0	
19-20		4.5		4.0						1.0	5.0		4.5											6.5	
20-21			7.0	3.5	9.5					7.5	4.0													3.0	8.0
21-22			6.5	2.5						7.0	3.0	0.5						11.0						9.5	4.5
22-23			5.5			0.5		1.0	7.0	6.0	2.0	2.5								8.5	11.5	5.5			
23-24			4.5		6.0					5.0	1.0	4.0													7.0
24-25			4.0	7.5			1.0		8.5	4.0	0.0	6.0	0.0								5.5	8.5	3.5		
25-26		4.0	3.0	7.0						3.0	7.0	8.0												5.0	10.0
26-27				6.0	3.0	2.5			9.5	2.0	6.0								12.0						6.5
27-28				5.0						1.5	5.0		5.0				6.5							7.5	2.5
28-29	6.0			4.5					10.5	0.5	4.5								9.5					4.0	9.0
29-30			7.5	3.5						7.0	3.5										11.0				5.5

	FL	U	U	TY	AQ	Z	RT	RV	ST	XZ	BETA	Y	U	V505	RW	AC	AM	V	X	RV	W	VV	XZ
	ORI	PEG	PEG	PEG	PEG	PER	PER	PER	PER	PER	PER	PSC	SGE	SGR	TAU	TAU	TAU	TRI	TRI	TRI	UMA	UMA	UMA
MAX	10.5	9.7	9.7	10.5	10.3	9.9	10.6	10.3	9.7	10.6	2.2	9.0	6.4	6.4	8.0	10.5	10.4	10.9	8.9	11.4	9.1	10.1	10.1
MIN	13.2	10.5	10.5	12.6	13.0	12.4	12.0	12.7	13.2	12.7	3.5	12.0	9.1	7.6	12.5	12.3	12.3	11.9	12.0	12.5	9.9	11.0	11.7
DUR	3	3	3	6	12	6	4	8	5	4	8	7	6	5	4	6	5	4	4	4	3	3	3
TOT					6	2			1				2		1								
				(S)																	(S)		
0- 1		3.5	8.0	1.0			4.0	12.0		1.5						10.0	2.0			5.5	8.0		
1- 2	6.0	6.5	2.0		3.5	10.0	0.5		4.0	5.0					2.0		6.0		7.0	5.5			
2- 3		0.5	5.0					11.0		8.5	11.0		2.5				11.0	10.0		1.0	5.5	9.5	
3- 4		3.5	8.0	3.5						12.5		6.5			3.0		0.0				5.5		4.5
4- 5	8.5	6.5	2.0			11.5	10.0	10.5								12.0	4.0		7.5	5.5	11.0	10.0	
5- 6		0.5	5.0				6.5				7.5				8.0	4.0		8.0		1.5	5.5	3.5	
6- 7		3.5	8.0	5.5			2.5	10.0	11.0												5.5	12.5	
7- 8	11.0	6.5	2.0			12.5						0.5	1.0		5.0		2.5	11.0	8.0	5.5	5.0		
8- 9		0.5	5.0					9.5		3.0	4.5				2.5		6.5	10.5	2.0	5.5			
9-10		3.5	8.0	7.5			12.0		2.5	6.5						6.5		10.5	9.5		5.5	6.5	7.0
10-11		6.5	2.0				8.5	8.5		10.0								0.5	9.0	8.0	5.5		12.5
11-12		0.5	5.0				5.0				1.5					7.5		4.5	8.0	2.5	5.5	8.0	
12-13		3.5	8.0		6.0		1.5	8.0										8.5	7.5		5.5		
13-14		6.5	2.0													8.5			7.0	8.5	5.5	9.5	
14-15		0.5	5.0					7.5	9.5									3.0	6.0	2.5	5.5		4.5
15-16	5.0	3.5	8.0				11.0			1.0						9.5		7.0	5.5		5.5	11.0	10.0
16-17		6.5	2.0				7.5	7.0		4.5					9.5				5.0	9.0	5.5	3.5	
17-18		0.5	5.0				3.5		1.5	8.0						10.5		1.0	4.0	3.0	6.0	12.5	
18-19	7.5	3.5	8.0				0.0	6.0		11.5								5.0	3.5		6.0	5.0	
19-20		6.5	2.0												4.0	11.5		9.5	2.5	9.5	6.0		
20-21		0.5	5.0					5.5					1.5						2.0	3.5	6.0	6.5	7.0
21-22	10.0	3.5	8.0				9.5									12.5		3.5	1.5		6.0		12.5
22-23		6.5	2.0				6.0	5.0	8.5		12.5	2.5						7.5	0.5	9.5	6.0	8.0	
23-24		0.5	5.0				2.5			2.5									0.0	3.5	6.0		
24-25	12.5	3.5	7.5					4.0		6.0								1.5			6.0	9.5	
25-26		6.0	1.5							9.5	9.5							5.5		10.0	6.0		4.5
26-27		0.0	4.5				12.0	3.5										10.0		4.0	6.0	11.0	10.0
27-28		3.0	7.5				8.5								11.5						6.0	3.5	
28-29		6.0	1.5				4.5	3.0			6.0							4.0		10.5	6.0	12.5	
29-30	4.0	0.0	4.5				1.0						3.5					8.0		4.5	6.0	5.0	

	RU	AG	BU
	UMI	VIR	VUL
MAX	10.7	8.8	10.6
MIN	11.4	9.4	11.4
DUR	4	4	3
TOT			
0- 1	11.5		
1- 2	12.5		
2- 3	1.0	11.5	3.5
3- 4	2.5		
4- 5	3.5	10.0	
5- 6	4.5		
6- 7	6.0		3.0
7- 8	7.0		
8- 9	8.5		
9-10	9.5		
10-11	10.5		2.5
11-12	12.0	11.5	6.0
12-13	0.5		
13-14	1.5	10.0	
14-15	3.0		2.0
15-16	4.0		5.5
16-17	5.5		
17-18	6.5		
18-19	7.5		1.5
19-20	9.0		5.0
20-21	10.0	11.5	
21-22	11.0		
22-23	12.5	10.0	1.0
23-24	1.0		4.5
24-25	2.0		
25-26	3.5		
26-27	4.5		1.0
27-28	6.0		4.0
28-29	7.0		
29-30	8.0	11.5	

AAVSO Eclipsing Binary Ephemeris for December 2008

all times in U.T.

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	AB	U	XX	EG	U	V	W	W	RV	Y	SW	WW	ZZ	CG	V346	V387	W	TT	TY	YY	FZ	Z	TW
	CAS	CEP	CEP	CEP	CRB	CRT	CRV	CRV	CRV	CYG	CYG	CYG	CYG	CYG	CYG	CYG	DEL	DEL	DEL	DEL	DEL	DRA	DRA
MAX	10.2	6.7	8.5	9.6	7.6	9.5	10.6	10.6	9.0	7.0	9.3	9.9	10.7	11.0	11.8	11.5	9.4	10.6	9.6	11.0	10.2	10.8	7.8
MIN	12.2	9.8	9.6	10.6	8.8	10.2	11.2	11.2	10.0	7.6	11.8	13.2	12.0	11.8	13.6	12.3	12.7	12.5	10.8	12.0	11.3	13.6	9.5
DUR	4	4	4	3	5	4	4	4	4	6	5	5	4	3	5	3	7	5	4	4	3	4	5
TOT		2									2						2						1
								(S)		(S)													
0- 1	7.5			0.5		12.0			10.0	0.5			4.5	4.0								5.0	
1- 2				3.0																			
2- 3			7.0	5.0								3.0	1.5	1.5						1.0			
3- 4	1.0			7.0			9.0	10.0	0.5						4.5								
4- 5	10.0	3.5		9.0													0.5					7.0	
5- 6				11.5		10.0							5.0			2.5					1.5		
6- 7				0.5					9.5	0.5					1.0		0.5	3.5	0.5				11.5
7- 8	3.5			2.5		12.5							2.5	2.5		0.5						0.0	
8- 9	12.0			4.5																		8.5	
9-10		3.0	7.5	7.0			9.0			0.5													7.0
10-11				9.0		8.0																	
11-12	6.0			11.0																			2.0
12-13				0.0		10.5				0.0		2.0	3.0	3.5		3.5			2.0		3.0	10.5	2.5
13-14				2.5																			
14-15		3.0		4.5									0.0	1.0		2.0							
15-16	8.0			6.5						0.0													3.5
16-17			8.0	9.0			9.0														1.0	12.0	
17-18				11.0	11.0	8.5					3.5		3.5		0.5					3.0			
18-19	2.0																		1.0				
19-20	10.5	2.5		2.0		11.0							1.0	2.5		5.0							5.5
20-21				4.5																			12.5
21-22				6.5												3.0				2.0			
22-23	4.0			8.5			9.0					1.0	4.5										
23-24			8.0	10.5												1.0					2.0	7.0	7.5
24-25		2.0		13.0		9.0							1.5	3.5					0.0				
25-26				2.0																1.0			
26-27	6.5			4.0		11.5								1.0				2.5				0.0	3.0
27-28				6.0									5.0								0.0	9.0	
28-29			0.0	8.5												4.0	1.0						
29-30	0.0	2.0		10.5			9.0						2.5	4.5						0.5			
30-31	9.0		8.5	12.5												2.0							2.0

	UZ	UZ	AI	YY	YY	RW	SZ	TU	CT	AV	SW	SW	VX	CM	EW	FL	RU	RU	RW	BO	SX	EQ	ER
	DRA	DRA	DRA	ERI	ERI	GEM	HER	HER	HER	HYA	LAC	LAC	LAC	LAC	LYR	LYR	MON	MON	MON	MON	OPH	ORI	ORI
MAX	9.9	9.9	7.2	8.4	8.4	9.6	10.2	10.6	9.9	10.2	9.2	9.2	10.9	8.5	11.2	8.7	10.6	10.6	9.1	10.8	10.5	10.3	9.5
MIN	10.7	10.7	8.2	9.1	9.1	11.6	12.0	13.4	11.2	10.6	10.0	10.0	12.3	9.5	13.6	9.5	11.3	11.3	11.9	12.1	11.2	13.3	10.2
DUR	5	5	4	3	3	5	4	5	4	4	3	3	4	4	5	4	5	5	5	5	5	4	3
TOT																							
		(S)			(S)							(S)						(S)					
0- 1				6.5	2.5					12.0	6.5	2.5							7.5				7.0
1- 2		12.5		5.5	1.5		0.5				5.5	1.5								6.0		5.0	3.0
2- 3				4.5	1.0						4.5	0.5		0.5				5.0	5.0				9.5
3- 4	3.5			4.0						5.5	3.5										11.5		6.0
4- 5				3.0	7.0						2.5	6.5				12.5	10.5		3.0				2.0
5- 6				2.0	6.0					6.5	1.5	5.5		5.5									8.5
6- 7	10.0			1.5	5.0						1.0	4.5	1.5									10.5	5.0
7- 8				0.5	4.5					8.0	4.0	3.5			12.5								1.5
8- 9		1.0		7.5	3.5						6.5	3.0	5.5									4.5	8.0
9-10				6.5	2.5					9.0	6.0	2.0							9.5				4.0
10-11				5.5	2.0	11.0	0.5				5.0	1.0		1.0									0.5
11-12		7.0		5.0	1.0					10.5	4.0	0.0				1.5							7.0
12-13				4.0							3.0	7.0								9.0			3.5
13-14				3.0	7.0	7.5			11.5	11.5	2.0	6.0		6.5								10.0	10.0
14-15				2.0	6.0						1.5	5.0											6.0
15-16				1.5	5.0					12.5	0.5	4.0					4.5					4.0	2.5
16-17	4.5			0.5	4.5	4.5				5.0		3.5											9.0
17-18				7.5	3.5						6.0	2.5								11.0			5.0
18-19				6.5	2.5					6.5	5.5	1.5		2.0									1.5
19-20	11.0			5.5	2.0	1.0	0.0				4.5	0.5								9.0			8.0
20-21				5.0	1.0					7.5	3.5		1.0						3.5			10.0	4.5
21-22		2.0		4.0							2.5	6.5	2.5							6.5	6.5		0.5
22-23				3.0	7.0					8.5	1.5	5.5	4.5				8.5					4.0	7.0
23-24				2.0	6.0			12.0			1.0	4.5	6.5							4.5	12.0		3.5
24-25		8.5		1.5	5.5					10.0		3.5				3.0							10.0
25-26				0.5	4.5						6.5	3.0			1.5					2.0			6.5
26-27				7.5	3.5					11.0	6.0	2.0		2.5									2.5
27-28			13.0	6.5	2.5						5.0	1.0			0.5				7.5		12.5	9.5	9.0
28-29				5.5	2.0		0.0			12.5	4.0	0.0											5.5
29-30	5.5			5.0	1.0						3.0	7.0										3.5	2.0
30-31				4.0		12.5					2.0	6.0								4.5			8.5

	ER	FL	U	U	TY	AQ	Z	RT	RV	ST	XZ	BETA	Y	U	RW	AC	AM	V	X	RV	W	W	TX
	ORI	ORI	PEG	PEG	PEG	PEG	PER	PER	PER	PER	PER	PER	PSC	SGE	TAU	TAU	TAU	TRI	TRI	TRI	UMA	UMA	UMA
MAX	9.5	10.5	9.7	9.7	10.5	10.3	9.9	10.6	10.3	9.7	10.6	2.2	9.0	6.4	8.0	10.5	10.4	10.9	8.9	11.4	9.1	9.1	6.8
MIN	10.2	13.2	10.5	10.5	12.6	13.0	12.4	12.0	12.7	13.2	12.7	3.5	12.0	9.1	12.5	12.3	12.3	11.9	12.0	12.5	9.9	9.9	8.9
DUR	3	3	3	3	6	12	6	4	8	5	4	8	7	6	4	6	5	4	4	4	3	3	6
TOT						6	2			1				2	1								
	(S)			(S)																			(S)
0- 1	1.5		3.0						2.5	7.0	0.0				6.0						2.0	6.0	
1- 2	8.0		6.0	1.5							3.5	3.0				2.0	2.0				2.0	6.0	
2- 3	4.5	6.5	0.0	4.5				10.5	1.5		7.5						6.5		4.5	2.0	6.0	6.0	
3- 4	1.0		3.0					7.0			11.0				0.5	3.0					2.0	6.0	
4- 5	7.5		6.0	1.5	1.5			3.5	1.0								0.5				2.0	6.0	
5- 6	3.5	9.0	0.0	4.5			1.0									4.0	4.5		5.0	2.0	6.0	7.5	
6- 7	10.0		3.0						0.5								8.5				2.0	6.0	
7- 8	6.5		6.0	1.5	3.5								4.0			5.0					2.0	6.0	
8- 9	3.0		0.0	4.5			2.0	9.5		6.0	1.5						2.5		5.5	2.0	6.0	9.5	
9-10	9.5		3.0					5.5			5.0					6.0	7.0				2.0	6.0	
10-11	5.5		6.0	1.5	6.0			2.0			9.0										2.5	6.5	
11-12	2.0		0.0	4.5			3.5				12.5				7.5	7.0	1.0		6.0	2.5	6.5	11.0	
12-13	8.5		3.0														5.0				2.5	6.5	
13-14	4.5	3.0	6.0	1.5				11.5								8.0					2.5	6.5	
14-15	1.0			4.5			5.0	8.0							2.0				9.0	6.0	2.5	6.5	12.5
15-16	7.5		3.0					4.5				11.0				9.0	3.0	8.5	0.0	2.5	6.5		
16-17	4.0	5.5	6.0	1.5				1.0		4.5	3.0			1.0		1.0	7.5	7.5		2.5	6.5		
17-18				4.5			6.0				6.5						10.5		7.0	6.5	2.5	6.5	
18-19	6.5		3.0								10.5	8.0				2.0	1.5	6.0	0.5	2.5	6.5		
19-20	3.0	8.0	6.0	1.5				10.5									11.5	5.5	5.5		2.5	6.5	
20-21	9.5			4.5			7.5	6.5								3.0			5.0	7.0	2.5	6.5	
21-22	6.0		3.0			2.0		3.0				4.5					12.5		4.0	1.0	2.5	6.5	
22-23	2.0	10.5	6.0	1.5									5.5		9.5	4.0		4.0	3.5		2.5	6.5	
23-24	8.5			4.5			9.0				1.0							8.0	3.0	7.0	2.5	6.5	
24-25	5.0		3.0							3.0	4.5	1.5				5.0			2.0	1.5	2.5	6.5	
25-26	1.0		6.0	1.5				9.0			8.0				4.0			2.0	1.5		2.5	6.5	
26-27	7.5			4.5			10.0	5.5			12.0					6.0		6.0	1.0	7.5	2.5	6.5	
27-28	4.0	2.0	3.0					2.0											0.0	1.5	2.5	6.5	
28-29	0.5		6.0	1.5												7.5		0.0			2.5	6.5	
29-30	7.0			4.0						10.5									4.5		8.0	2.5	6.5
30-31	3.0	4.5	2.5					11.5								8.5		8.5		2.0	2.5	6.5	

	VV	XZ	RU	AG	BU
	UMA	UMA	UMI	VIR	VUL
MAX	10.1	10.1	10.7	8.8	10.6
MIN	11.0	11.7	11.4	9.4	11.4
DUR	3	3	4	4	3
TOT					
0- 1			9.5		0.5
1- 2	6.5	7.0	10.5	9.5	3.5
2- 3		12.5	12.0		
3- 4	8.0		0.5	8.0	
4- 5			1.5		0.0
5- 6	9.5		3.0		3.5
6- 7	2.0	4.5	4.0		
7- 8	11.0	10.0	5.0		
8- 9	3.5		6.5	11.5	
9-10	12.5		7.5		3.0
10-11	5.0		9.0	9.5	
11-12			10.0		
12-13	6.5	7.5	11.0	8.0	
13-14		12.5	12.5		2.5
14-15	8.0		1.0		
15-16			2.0		
16-17	9.5		3.5		
17-18	2.0	4.5	4.5	11.5	2.0
18-19	11.0	10.0	6.0		
19-20	3.5		7.0	9.5	
20-21	12.5		8.0		
21-22	5.0		9.5	8.0	1.5
22-23			10.5		
23-24	6.5	7.5	11.5		
24-25		12.5	0.5	13.0	
25-26	8.0		1.5		1.5
26-27			2.5	11.5	
27-28	9.5		4.0		
28-29	2.0	4.5	5.0	9.5	
29-30	11.0	10.0	6.5		1.0
30-31	3.5		7.5	8.0	4.0