

MAS Eclipsing Binary Ephemeris for July 2015

all times in U.T.

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	RT	TW	UU	WZ	XZ	AB	AB	AD	AD	BD	BX	DS	QX	QX	V376	V376	RY	CX	CZ	XZ	KO	KP	OO
	AND	AND	AND	AND	AND	AND	AND	AND	AND	AND	AND	AND	AND	AND	AND	AND	AQR	AQR	AQR	AQL	AQL	AQL	AQL
MAX	9.3	8.8	11.2	11.6	10.0	9.3	9.3	11.1	11.1	11.3	8.6	10.8	11.3	11.3	7.7	7.7	8.8	10.7	10.3	9.3	8.3	9.7	9.2
MIN	10.2	11.0	14.1	12.6	13.0	10.2	10.2	11.6	11.6	11.7	9.5	11.4	11.6	11.6	8.0	8.0	10.1	12.0	11.2	11.2	9.3	10.5	10.1
DUR	3	11	8	4	3	3	3	4	4	3	4	4	3	3	4	4	5	3	3	7	5	4	3
TOT		2																					

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

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	OO	V342	V343	V346	RX	SS	SS	RY	SX	WW	WW	AP	AP	AR	AR	CL	EM	EP	HP	HP	IM	SS	SS
	AQL	AQL	AQL	AQL	ARI	ARI	ARI	AUR	AUR	AUR	AUR	AUR	AUR	AUR	AUR	AUR	AUR	AUR	AUR	AUR	AUR	BOO	BOO
MAX	9.2	9.0	10.6	9.0	9.4	10.1	10.1	11.7	8.2	5.7	5.7	10.9	10.9	6.0	6.0	11.7	11.0	10.8	10.8	10.8	7.9	10.3	10.3
MIN	10.1	12.5	12.3	10.4	9.9	11.1	11.1	14.0	9.0	6.4	6.4	11.4	11.4	6.7	6.7	13.2	11.9	11.3	11.5	11.5	8.5	11.0	11.0
DUR	3	7	4	4	4	3	3	6	4	5	5	4	4	5	5	4	4	3	3	3	4	18	18
TOT		3																				6	6
	(S)						(S)				(S)	(S)		(S)					(S)		(2)		
0- 1					6.5	7.0						1.5						10.5					
1- 2	2.0				7.0		7.5		10.0														
2- 3	2.5				7.5	7.5																	
3- 4	2.5				8.5		8.0											9.5	10.5				
4- 5	3.0	4.5			9.0	8.5									9.5								
5- 6	3.0		11.0		10.0		9.0		11.0														
6- 7	3.5				10.5	9.0																	
7- 8	4.0		7.0	3.0			9.5																
8- 9	4.0			5.5		10.0								8.5						10.0			
9-10	4.5		3.5	8.0			10.5								9.0								
10-11	5.0			11.0		10.5	5.5		7.5					10.0									
11-12	5.0					6.0	11.0						11.0										
12-13	5.5						6.5										9.5					5.5	8.5
13-14	6.0					7.0							11.0					10.5	9.5				
14-15	6.0	9.0					7.0									8.5							
15-16	6.5						7.5							10.5									
16-17	7.0						8.0		8.5										9.5				
17-18	7.0			2.0			8.5						10.5										
18-19	7.5		8.5	4.5			8.5	9.0												9.0	11.0		
19-20	8.0			7.0			9.0									8.0							
20-21	8.0		5.0	9.5			9.5																
21-22	8.5	3.5					9.5						10.0										
22-23	9.0						10.0		9.5														
23-24	9.0					10.5							10.0				8.0		8.5		10.5		
24-25	9.5						6.0	11.0															
25-26	10.0						11.0	6.0					10.0										
26-27	10.0						6.5												10.5				
27-28	10.5							7.0														10.5	
28-29	10.5			3.5			7.5		11.0											8.0	10.5		
29-30	11.0		10.5	6.0				7.5											9.5				
30-31				8.5			8.0						11.0							11.0			

	SS	TU	TU	TY	TY	TZ	TZ	VW	VW	ZZ	AD	AD	BW	BW	Y	SV	AL	CD	CD	RW	TY	RZ	TV
	BOO	BOO	BOO	BOO	BOO	BOO	BOO	BOO	BOO	BOO	BOO	BOO	BOO	BOO	CAM	CAM	CAM	CAM	CAM	CAP	CAP	CAS	CAS
MAX	10.3	11.7	11.7	11.8	11.8	10.6	10.6	10.5	10.5	6.8	9.8	9.8	7.1	7.1	10.6	8.6	10.5	11.6	11.6	9.8	10.5	6.4	7.3
MIN	11.0	12.7	12.7	12.3	12.3	11.1	11.1	11.0	11.0	7.6	10.4	10.2	7.5	7.5	12.4	9.4	11.3	11.8	11.8	10.8	11.6	7.8	8.4
DUR	18	3	3	3	3	3	3	3	3	5	4	4	5	5	10	3	5	5	5	5	4	4	4
TOT	6																						
	(3)		(S)		(S)		(S)		(S)	(S)		(S)		(S)					(S)				
0- 1			5.0	6.5	2.5	4.5	8.0	2.5	6.5							11.0	10.0	9.5			2.0		
1- 2		8.0	4.5	5.5	9.0	1.5	5.5	3.0	7.5									4.0					
2- 3		7.5	3.5	4.0	8.0	6.5	2.5	4.0								5.5			7.5				
3- 4		7.0	3.0	3.0	7.0	3.5	7.0	4.5		3.5						10.0		11.0	2.0				
4- 5		6.0	2.5	2.0	5.5	8.0	4.5	5.0									9.5	5.5			8.5	4.0	
5- 6		5.5		8.5	4.5	5.5	2.0	6.0							3.0	4.5			9.0			8.5	
6- 7		5.0		7.0	3.5	3.0	6.5	6.5	2.5										3.0	3.5			8.0
7- 8		4.5	8.0	6.0	2.0	7.5	4.0	7.0	3.0				4.0					6.5			5.0		
8- 9		3.5	7.5	5.0	8.5	5.0	8.5	7.5	3.5	3.0					10.5	4.0	9.0		10.0				3.5
9-10		3.0	7.0	3.5	7.5	2.5	6.0		4.0			3.5				8.5			4.5				
10-11		2.5	6.0	2.5	6.5	7.0	3.5		5.0									8.0				3.5	
11-12			5.5	9.0	5.0	4.0	8.0		5.5							3.0		2.5				8.0	
12-13			5.0	7.5	4.0	9.0	5.0	2.0	6.0							7.5	9.0		6.0				
13-14		8.0	4.5	6.5	3.0	6.0	2.5	2.5	7.0	3.0								9.5					
14-15		7.5	3.5	5.5	9.0	3.5	7.0	3.5	7.5							2.0		4.0			8.0		
15-16		7.0	3.0	4.0	8.0	8.0	4.5	4.0								6.5			7.5				9.5
16-17		6.0	2.5	3.0	7.0	5.5	2.0	4.5								11.0	8.5	11.0		7.5		3.0	
17-18		5.5		2.0	5.5	3.0	6.5	5.5					4.0					5.0			4.0	7.5	5.0
18-19		5.0		8.5	4.5	7.5	4.0	6.0	2.0	3.0					8.5	6.0			8.5				
19-20		4.5	8.0	7.0	3.5	5.0	8.5	6.5	2.5			2.0	3.5			10.5			3.0				
20-21	2.0	3.5	7.5	6.0	2.0	2.0	6.0	7.5	3.0		3.0						8.0	6.5					
21-22		3.0	7.0	5.0	8.5	6.5	3.0		4.0			3.5				5.0			10.0		10.5		
22-23		2.5	6.0	3.5	7.5	4.0	7.5		4.5		4.5					9.5			4.5			2.5	
23-24			5.5	2.5	6.5	8.5	5.0		5.0	2.5		5.5						8.0		2.5		7.0	
24-25			5.0	9.0	5.0	6.0	2.5		5.5		6.0					4.0	7.5	2.0			7.0		11.0
25-26		8.0	4.0	8.0	4.0	3.5	7.0	2.5	6.5			7.0				8.5			5.5				
26-27		7.5	3.5	6.5	3.0	8.0	4.5	3.0	7.0		8.0							9.0					6.5
27-28		7.0	3.0	5.5	9.5	5.5	2.0	3.5	7.5			8.5		4.0		3.5		3.5			3.5		
28-29		6.0	2.5	4.5	8.0	2.5	6.5	4.0		2.5					6.5	8.0	7.5		7.0			2.0	2.0
29-30		5.5		3.0	7.0	7.5	3.5	5.0				3.5						10.5				6.5	
30-31		5.0		2.0	6.0	4.5	8.0	5.5								2.5		5.0					

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	TW	ZZ	AB	CW	CW	DZ	GT	IR	IS	IT	MM	OR	OX	PV	V364	V364	V375	V380	U	SU	WW	WZ	WZ
	CAS	CAS	CAS	CAS	CAS	CAS	CAS	CAS	CAS	CAS	CAS	CAS	CAS	CAS	CAS	CAS	CAS	CAS	CEP	CEP	CEP	CEP	CEP
MAX	8.3	10.7	10.2	11.8	11.8	11.6	11.9	10.8	11.6	11.0	11.3	11.4	10.1	10.0	11.2	11.2	10.1	10.4	6.7	8.8	11.1	11.4	11.4
MIN	8.9	11.1	12.2	12.5	12.5	12.3	12.8	12.1	12.6	11.8	11.9	12.4	10.9	10.6	11.7	11.7	10.9	11.1	9.8	9.8	11.9	12.0	12.0
DUR	5	4	4	3	3	4	5	4	5	5	5	4	5	3	4	4	5	5	4	4	4	3	3
TOT																			2				
					(S)											(S)							(S)
0- 1			7.5	6.5	3.0										3.0			6.0		6.5		10.5	5.5
1- 2	6.5			5.5	2.0			5.5	2.5			3.0						9.0		4.0		6.5	
2- 3				4.5	8.5	10.0	7.0					9.0		10.5		10.5						2.5	7.5
3- 4				3.5	7.5	5.0		6.5		11.0			5.0		5.0						8.0	8.5	3.5
4- 5	3.0	6.0	10.0	2.5	6.5						3.0			4.5			8.0	7.5				4.5	9.5
5- 6				9.0	5.5		7.0	7.5			7.0											10.5	5.5
6- 7				8.0	4.0	8.0					11.0	2.5			7.0							6.5	
7- 8			3.5	7.0	3.0	3.0		8.5		8.5		8.5				2.0	6.5					2.5	7.5
8- 9	10.0			6.0	2.0		6.5		11.0				4.5					9.5		9.0		8.5	3.5
9-10		5.5		5.0	8.5			9.5					10.5	9.5					11.0	7.0		4.5	9.5
10-11				4.0	7.5	6.5		2.0	7.5							4.0	5.5			4.5		11.0	6.0
11-12	6.5		6.0	3.0	6.5		6.5	10.5		6.0	2.0	2.0		4.5				2.5		2.0		7.0	2.0
12-13				2.0	5.5			3.0	3.5		6.0	8.0						11.0				3.0	8.0
13-14				8.5	4.5	10.0					9.5		4.0			6.0	4.0					9.0	4.0
14-15	3.0	5.0		7.5	3.5	4.5	6.0	4.0											11.0			5.0	10.0
15-16		11.0	8.5	6.5	2.5						3.5							4.0				11.0	6.0
16-17				5.5	9.0			5.0				1.5	10.5		8.0	2.5						7.0	2.0
17-18				4.0	8.0	8.0	6.0					7.5		2.5						9.5	3.0	3.0	8.0
18-19	10.0		2.0	3.0	7.0	3.0		6.0					3.5	4.5						7.0		9.0	4.0
19-20		4.5	11.0	2.0	6.0						4.5					10.0		6.0	10.5	4.5		5.0	10.0
20-21		10.0		9.0	5.0		5.5	7.0			8.5				4.5					2.5			6.0
21-22	6.5			7.5	4.0	6.0			8.5													7.0	2.0
22-23			4.5	6.5	3.0			8.0			7.0											3.5	8.5
23-24				5.5	2.0		5.5		4.5				3.0	10.5	6.5			7.5				9.5	4.5
24-25	3.0	3.5		4.5	8.5	9.5		9.0											10.0			5.5	10.5
25-26		9.5		3.5	7.5	4.5								4.5									6.5
26-27			7.0	2.5	6.5		5.0	10.0			3.5				8.5		10.5			10.0	8.0	7.5	2.5
27-28				9.0	5.5			2.0			7.5	7.0				3.0		9.5		7.5		3.5	8.5
28-29	9.5			8.0	4.0	7.5		11.0			11.0		2.5							5.0		9.5	4.5
29-30		3.0		7.0	3.0	2.5	5.0	3.0							10.5		9.0		10.0	2.5		5.5	10.5
30-31		9.0	9.5	6.0	2.0									10.5		5.5		2.5					6.5

	XX	ZZ	DK	DL	DV	EG	EK	GK	TT	TW	TW	TX	RW	RW	RZ	RZ	SS	SS	CC	CC	U	RW	TW	
	CEP	CEP	CEP	CEP	CEP	CEP	CEP	CEP	CET	CET	CET	CET	COM	COM	COM	COM	COM	COM	COM	COM	COM	CRB	CRB	CRB
MAX	8.5	9.3	12.2	12.4	11.6	9.6	8.2	6.9	10.8	10.4	10.4	10.9	11.0	11.0	10.0	10.0	10.9	10.9	11.0	11.0	7.6	10.1	10.5	
MIN	9.6	10.0	14.2	13.2	12.4	10.6	9.5	7.4	11.3	11.2	11.2	11.5	11.6	11.6	10.7	10.7	11.5	11.5	11.9	11.9	8.8	10.6	11.3	
DUR	4	5	4	5	4	3	6	4	3	3	3	4	3	3	3	3	4	4	2	2	5	4	4	
TOT												1												
										(S)			(S)		(S)		(S)		(S)					
0- 1		5.0			8.5	11.0				9.0			2.5	5.5	2.0	6.5		3.5	2.0	4.5			3.0	
1- 2													7.0	4.0	2.5	6.5	4.0		4.5			4.5	7.5	
2- 3	2.5	8.0				2.5					10.5		5.5	3.0	3.0			5.0		4.0				
3- 4						4.5					9.0		4.5		3.5		5.5		4.0		9.5	8.5	1.5	
4- 5	10.5			6.0		6.5					8.0		3.5	6.0	3.5			6.5		4.0		2.0	6.0	
5- 6			11.0			9.0	7.5			10.5			2.0	5.0	4.0			2.5	3.5	6.5			10.5	
6- 7			10.5		4.0	11.0				9.5			6.5	3.5	4.5		3.0		6.0	3.5		6.5		
7- 8			10.5		8.0				10.5	8.0		10.5	5.5	2.5	5.0			4.0	3.5	6.0			4.5	
8- 9			10.0			2.0			10.0		10.5		4.0	7.0	5.0		4.5		6.0	3.0			9.0	
9-10	2.5		9.5	3.0		4.5		10.5	9.0		9.5		3.0	6.0	5.5			5.5	3.0	5.5			4.0	
10-11			9.5			6.5		9.0	8.5		8.5	10.0		4.5	6.0	2.0	6.0		5.5	3.0	7.5		3.5	
11-12	11.0		9.0			8.5		7.5	8.0	11.0			6.0	3.5	6.5	2.0	2.0		2.5	5.5		8.5	7.5	
12-13			8.5	9.5		10.5		5.5	7.0	10.0			5.0	2.0	6.5	2.5		2.5	5.0	2.5		2.0		
13-14			8.0		3.0			4.0		8.5		9.0	4.0	6.5		3.0	3.5		2.5	5.0			2.0	
14-15			8.0		7.0	2.0	4.0	2.5					2.5	5.5		3.5		4.5	5.0	2.0		6.0	6.5	
15-16		4.5	7.5		11.0	4.0					10.0			4.0		3.5	5.0		2.0	4.5				
16-17	3.0		7.0			6.0					9.0	8.0	6.0	3.0		4.0		6.0	4.5	2.0				
17-18		8.0	7.0	7.0		8.5							4.5	2.0		4.5	6.5			4.5	5.0	4.0	5.0	
18-19	11.0		6.5			10.5				10.5			3.5	6.0		5.0	2.5		4.0				9.0	
19-20			6.0							9.0		7.0	2.0	5.0		5.0		3.0		4.0			8.0	
20-21			6.0		2.5					8.0			6.5	4.0		5.5	4.0		4.0				3.5	
21-22			5.5		6.5	4.0					10.5		5.5	2.5	2.0	6.0		4.5	6.5	3.5			8.0	
22-23			5.0	4.5	10.5	6.0					9.5		4.0		2.5	6.5	5.5		3.5	6.0		6.0		
23-24	3.5		5.0			8.0					8.0		3.0	6.0	2.5	6.5			6.0	6.0	3.5		2.5	
24-25			4.5			10.0		10.0	10.5	11.0			2.0	4.5	3.0			2.0	3.0	6.0	2.5	10.0	6.5	
25-26			4.0	10.5				8.5	10.0	9.5			6.5	3.5	3.5		3.0		5.5	3.0		3.5		
26-27			4.0					6.5	9.5	8.5			5.0	2.0	4.0			3.5	3.0	5.5				
27-28			3.5		2.0	3.5	10.5	5.0	8.5		11.0	11.0	4.0	6.5	4.0		4.5		5.5	2.5		8.0	5.0	
28-29			3.0		6.0	5.5		3.5	8.0		10.0		2.5	5.5	4.5			5.0	2.5	5.0			9.5	
29-30			3.0		9.5	8.0		2.0	7.5		8.5			4.5	5.0		6.0		5.0	2.5				
30-31	3.5	4.5	2.5	8.0		10.0						10.0	6.0	3.0	5.5		1.5	6.5	2.0	5.0		5.5	4.0	

	W	W	RV	V	Y	Y	SW	WW	ZZ	AE	BR	CG	DK	KR	KV	MY	MY	V346	V387	V388	V401	V456	V466
	CRV	CRV	CRV	CRT	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG	CYG
MAX	10.6	10.6	9.0	9.5	7.0	7.0	9.3	9.9	10.7	11.8	9.4	11.0	10.3	9.2	11.5	8.3	8.3	11.8	11.5	9.7	10.8	10.8	10.8
MIN	11.2	11.2	10.0	10.2	7.6	7.6	11.8	13.2	12.0	12.8	10.5	11.8	10.8	10.0	12.6	9.0	9.0	13.6	12.3	10.3	11.6	11.9	11.6
DUR	4	4	4	4	6	6	5	5	4	4	4	3	4	4	5	4	4	5	3	3	4	3	4
TOT							2																
		(S)	(S)			(S)										(S)							
0- 1			4.0			3.0			9.0				7.5							2.0	5.5		
1- 2					9.0		6.0	5.5				5.0	6.0			8.5			3.5		9.5		
2- 3									6.5			11.0	4.5	9.0					10.5				9.0
3- 4	4.0		4.0			3.0				11.0	6.0	2.5	3.0	5.5		8.5					3.5		
4- 5		3.5		2.0	9.0				3.5	10.0		8.5		2.0					8.5	9.0	7.5		
5- 6	2.5								9.5	9.5						8.5				5.5	5.5	8.5	4.0
6- 7		2.0	3.5			3.0				8.5		6.0	10.0					5.5	6.5	2.0		6.0	
7- 8					9.0				7.0	8.0	6.0		9.0	11.0		9.0					5.5	3.5	
8- 9										7.0		3.5	7.5	7.0					4.5		9.5		
9-10			3.5			3.0			4.0	6.5		9.5	6.0	3.5	10.0	9.0							8.0
10-11	3.5				8.5		9.5		10.5	5.5			4.5							2.5	9.5	3.5	
11-12		3.0		2.5				4.5		5.0	6.0	7.0	3.0			9.0			9.5	6.0	7.5		
12-13	2.0		3.0			3.0			7.5	4.0			2.0		6.5					2.5			3.0
13-14					8.5					3.5		4.5		9.0		9.0			7.5			9.0	
14-15									5.0	2.5		11.0	10.0	5.0				11.0			5.0	6.5	
15-16			2.5			2.5			11.0	2.0	6.0	2.0	9.0		2.5	9.0			5.5		9.0	4.0	
16-17		4.0			8.5				2.0			8.5	7.5							9.5			7.0
17-18	3.5								8.5				6.0			9.0		5.0	4.0	6.0	3.0		
18-19		2.5	2.5	3.0		2.5						6.0	4.5	10.5					10.5	3.0	7.0		
19-20	2.0				8.5				5.5		6.0		3.0	7.0		9.0			2.0		11.0		2.0
20-21												3.5	2.0	3.0					8.5				
21-22			2.0			2.5		3.5	3.0			9.5				9.0					5.0	9.5	
22-23					8.5				9.0				10.5						7.0	10.0	9.0	7.0	
23-24		3.5									6.0	7.0	9.0			9.5			6.5		4.5	6.0	
24-25	3.0		2.0			2.5	2.5	11.0	6.5				7.5	8.5					5.0	3.0	3.0	2.0	
25-26		2.0			8.0							4.5	6.0	5.0		9.5		10.5			7.0		
26-27									3.5			10.5	4.5		11.0				3.0		11.0		
27-28						2.5			9.5		6.0	2.0	3.0			9.5			10.0				10.5
28-29				8.0								8.0	2.0					4.0		10.0	5.0		
29-30	4.0								7.0					10.5	7.0	9.5			8.0	7.0	9.0	10.0	
30-31		3.5				2.0						5.5	10.5	6.5						3.5		7.5	5.0

	Z	RX	SZ	TT	TU	UX	CC	CT	DI	DI	HS	HS	LT	V728	AV	DF	DF	SW	SW	VX	AW	CM	CO
	HER	HER	HER	HER	HER	HER	HER	HER	HER	HER	HER	HER	HER	HER	HYA	HYA	HYA	LAC	LAC	LAC	LAC	LAC	LAC
MAX	7.3	7.1	10.2	9.7	10.6	8.9	9.5	9.9	8.4	8.4	8.5	8.5	10.7	10.9	10.2	11.0	11.0	9.2	9.2	10.9	10.6	8.5	10.5
MIN	8.2	7.7	12.0	10.4	13.4	9.8	12.8	11.2	9.1	9.1	9.0	9.0	11.1	11.5	10.6	11.5	11.5	10.0	10.0	12.3	11.3	9.5	11.0
DUR	8	5	4	4	5	5	4	4	6	6	4	4	4	3	4	4	4	3	3	4	5	4	5
TOT					1																		
										(S)		(S)					(S)		(S)				
0- 1							2.5					2.0		4.0				7.0	3.0	7.0	7.0		2.5
1- 2				9.5									2.5					6.0	2.0	8.5	10.5	6.0	
2- 3	8.0		9.5	7.5														5.0	9.0	10.5			
3- 4		7.5	5.0	5.5								8.5		11.0	1.5			4.0	8.0				4.5
4- 5				3.5				5.5			3.5			9.5				3.5	7.0			11.0	
5- 6		2.0			8.0		7.5							8.5				2.5	6.0				
6- 7	8.0													7.0				9.0	5.5				6.5
7- 8			7.5			3.5					10.5			5.5		2.0		8.0	4.5		3.5		
8- 9			3.0									6.5		4.0		2.0		7.5	3.5		7.0		
9-10													2.5	3.0				6.5	2.5		10.5	6.5	8.5
10-11	7.5	10.0				6.0			2.0				4.5					5.5	9.5				
11-12			9.5	10.5				9.0					6.5					4.5	8.5				
12-13		4.5	5.0	8.5	3.0		6.0				8.0		8.5	10.0				3.5	7.5	2.5			10.5
13-14				6.0		8.0		4.0				4.5		8.5				3.0	6.5	4.0			
14-15	7.5			4.0	9.5									7.0				2.0	5.5	6.0		2.0	
15-16				2.0										6.0				8.5	5.0	8.0	3.5		
16-17			7.0			10.5						11.0		4.5				8.0	4.0	9.5	7.0		
17-18			3.0								6.0		3.0					7.0	3.0		10.5	7.0	
18-19	7.5									5.0		2.5			2.5			6.0	2.0				
19-20		7.5					4.5											5.0	9.0				
20-21			9.5					7.5						10.5				4.0	8.0				3.5
21-22		2.0	5.0		4.5	2.0						9.0		9.0				3.0	7.0				
22-23	7.0			9.0				2.5			4.0		3.0	7.5				2.5	6.0			2.5	
23-24				7.0	11.0								5.0	6.0				9.0	5.0		3.5		5.5
24-25				5.0		4.5	9.5						7.0	4.5				8.0	4.5		7.0		
25-26			7.0	3.0							10.5		9.0	3.5				7.5	3.5		10.5	7.5	
26-27	7.0	10.0	3.0				3.0					7.0		2.0				6.5	2.5				7.5
27-28						6.5					2.0							5.5	9.5	3.5			
28-29		5.0												10.5		2.0		4.5	8.5	5.0			
29-30			9.5					6.0						9.0				3.5	7.5	7.0			9.5
30-31	7.0		5.0		6.5	9.0					8.5			8.0				2.5	6.5	9.0		3.0	

	CO	DG	GX	Y	UU	UV	VZ	WZ	XY	XZ	AM	RR	SS	DELT	RY	UZ	EW	FL	U	SX	V501	V508	V839	
	LAC	LAC	LAC	LEO	LEO	LEO	LEO	LEO	LEO	LEO	LEO	LEP	LIB	LIB	LYN	LYR	LYR	LYR	OPH	OPH	OPH	OPH	OPH	
MAX	10.5	10.8	10.1	9.5	11.4	9.5	10.6	11.3	9.5	10.6	9.2	10.2	10.4	4.8	11.9	9.8	11.2	8.7	5.8	10.5	10.9	10.1	8.8	
MIN	11.0	12.0	10.4	12.7	12.7	10.2	11.7	12.0	9.9	11.2	9.8	10.9	11.3	5.9	13.3	11.0	13.6	9.5	6.5	11.2	11.8	10.7	9.4	
DUR	5	4	6	5	4	3	4	5	2	3	3	4	6	7	4	5	5	4	5	5	4	3	3	
TOT	(S)																							
0- 1										4.0	4.5					10.5						5.5	8.0	
1- 2										3.0												6.0	4.0	
2- 3	10.0					3.0				2.5			6.5			8.0						7.0	9.0	
3- 4		6.0								2.0	2.5						10.5		8.0			8.0	5.0	
4- 5														5.5	2.5	5.5						8.5	10.5	
5- 6		11.0			2.5	3.0							3.5				9.0					9.5	6.0	
6- 7																3.0		5.0				2.0		
7- 8											3.0						8.0					3.0	7.0	
8- 9						3.0												9.0	8.5			3.5	2.5	
9-10			2.0														7.0					4.5	8.0	
10-11	3.0				3.0				4.0													5.5	3.5	
11-12						3.0					3.5			5.0			5.5					6.0	9.0	
12-13		2.0							3.5													7.0	5.0	
13-14	5.0																4.5		9.5			7.5	10.5	
14-15		7.0				3.0			3.0		2.0				3.5							8.5	6.0	
15-16			10.5								4.0		5.0				3.0					11.0	9.5	
16-17	7.0			2.0					3.0													10.0	2.0	7.0
17-18						3.0											2.0	2.5				9.5	3.0	2.5
18-19									2.5		2.5	11.0	2.0	4.5	10.5				10.0			8.5	3.5	8.0
19-20	9.0							2.0								8.5		6.5			8.0	4.5	3.5	
20-21						3.0			2.5	3.5									2.5			7.0	5.0	9.0
21-22				3.0						3.0						6.0		11.0				6.5	6.0	5.0
22-23	11.0								2.0	2.5	3.0									2.0	5.5	7.0	10.0	
23-24		3.0				3.0				2.0						3.5						5.0	7.5	6.0
24-25									2.0						4.5						3.5	4.0	8.5	
25-26		7.5											6.5	4.0					3.0			3.5	9.5	7.0
26-27						3.0		3.0			3.5									5.0	2.5	2.0	2.5	
27-28	2.0																					1.5	2.5	8.0
28-29			4.0				3.0						3.5							6.5			3.5	3.5
29-30						3.0					2.0												4.5	9.0
30-31	4.0										4.0							4.0	4.0	8.0		5.0	4.5	

	1010	EF	EF	EQ	ER	ER	ET	FH	FL	FT	U	U	TY	UX	AQ	AQ	AQ	BB	BB	BG	BX	DI	GP
	OPH	ORI	ORI	ORI	ORI	ORI	ORI	ORI	ORI	ORI	PEG	PEG	PEG	PEG	PEG	PEG	PEG	PEG	PEG	PEG	PEG	PEG	PEG
MAX	6.2	12.6	12.6	10.3	9.5	9.5	11.2	10.5	10.5	9.1	9.7	9.7	10.5	10.7	10.3	10.3	10.3	10.6	10.6	10.5	10.9	9.6	10.2
MIN	7.0	14.1	12.8	13.3	10.2	10.2	12.4	11.5	13.2	9.7	10.5	10.5	12.6	12.0	13.0	13.0	13.0	11.2	11.2	11.8	11.5	10.8	11.0
DUR	4	6	6	4	3	3	5	5	3	4	3	3	6	5	12	12	12	3	3	4	3	2	4
TOT															5	5	5			1			
			(S)			(S)						(S)			(2)		(3)		(S)				
0- 1	8.5										4.5	9.0		3.5				2.5	7.0		8.0	8.0	
1- 2											7.5							4.5	9.0	3.0	4.0		
2- 3	8.5										10.5	6.0						6.5	11.0		7.0		
3- 4								11.0			4.5	9.0		5.5				8.5	4.5		3.0	4.5	
4- 5	8.0	10.5									7.5					2.5	10.5	6.5			6.0		
5- 6						10.5					10.5	6.0						4.0	8.5		2.5	7.5	
6- 7	7.5										4.5	9.0		8.0				6.0	10.5		5.0		
7- 8											7.5							8.0	3.5		8.0	11.0	
8- 9	7.0										10.5	6.0						10.0	5.5		4.5	4.0	
9-10					11.0						4.5	9.0		10.0	11.0			3.5	8.0		7.0		
10-11	7.0										7.5							5.5	10.0		3.5	7.5	
11-12							11.0				10.5	6.0						7.5	3.0		6.5		
12-13	6.5						10.0				4.5	9.0						9.5	5.0		2.5	10.5	10.5
13-14											7.5							3.0	7.0		5.5	3.5	10.0
14-15	6.0										10.5	5.5						5.0	9.0		8.5		9.5
15-16											4.0	8.5				2.5	5.0	7.0	2.5		4.5	7.0	9.0
16-17	5.5					10.5					7.0							9.0	4.5		7.5		8.5
17-18											10.0	5.5		3.0				11.0	6.5		3.5	10.0	8.0
18-19	5.5										4.0	8.5						4.5	8.5		6.5		7.0
19-20											7.0							6.5	10.5		3.0		6.5
20-21	5.0										10.0	5.5		5.5				8.5	4.0		5.5	6.5	6.0
21-22		10.5									4.0	8.5						10.5	6.0		2.0		5.5
22-23	4.5										7.0		4.5					4.0	8.0		5.0	9.5	5.0
23-24								10.5			10.0	5.5		7.5				6.0	10.0		7.5		4.5
24-25	4.0										4.0	8.5						8.0	3.5		4.0		3.5
25-26									10.5		7.0		6.5					10.0	5.5		7.0	6.0	3.0
26-27	4.0										10.0	5.5		9.5	2.5	5.0	7.5	3.0	7.5		3.0		2.5
27-28						11.0					4.0	8.5						5.0	9.5		6.0	9.5	
28-29	3.5										7.0		8.5					7.5	3.0	11.0	2.0		
29-30											10.0	5.5						9.5	5.0		5.0		
30-31	3.0		11.0								4.0	8.5						2.5	7.0	10.0	8.0	5.5	

	Z	RT	RV	ST	XZ	IT	IU	KW	V432	BETA	Y	RV	U	V505	1968	RS	AO	CC	CC	Y	RW	RZ	TY
	PER	PER	PER	PER	PER	PER	PER	PER	PER	PER	PSC	PSC	SGE	SGR	SGR	SER	SER	SER	SER	SEX	TAU	TAU	TAU
MAX	9.9	10.6	10.3	9.7	10.6	9.9	10.5	10.5	11.0	2.2	9.0	11.3	6.4	6.4	12.3	10.8	10.6	11.1	11.1	9.8	8.0	10.5	11.5
MIN	12.4	12.0	12.7	13.2	12.7	10.5	11.6	11.5	11.7	3.5	12.0	12.0	9.1	7.6	13.3	11.5	12.1	11.7	11.7	10.2	12.5	11.2	12.0
DUR	6	4	8	5	4	4	5	4	3	8	7	3	6	5	4	4	4	4	4	3	4	3	2
TOT	2			1									2								1		
																							(S)
0- 1					10.5	4.5		8.5	6.5			9.0		2.0	9.5		9.5		3.5				
1- 2	4.5							6.5	10.0					6.5		2.5	6.5		4.5			9.0	
2- 3		10.5						5.0						10.5	2.0	7.5	4.0		5.0				
3- 4		6.5				6.0	8.5	3.5	8.0				3.5		5.0				6.0		8.0	11.0	
4- 5	6.0						5.0					6.0			8.0	2.5			6.5	3.0			
5- 6								6.0				8.5				7.0			7.5				
6- 7						8.0		9.5				11.0						2.0	8.0			8.5	
7- 8	7.5			6.5	8.5									4.0	4.0	2.0		2.5	9.0				9.5
8- 9		9.0							7.5					8.5	7.0	7.0	7.5	3.5				10.5	
9-10		5.5				9.5	8.5					5.5			10.0		4.5	4.0					
10-11	8.5						5.0		5.5		11.0	8.0					2.0	5.0					
11-12									9.0			10.5				2.5	6.5		6.0				
12-13						11.0		11.0		11.0						5.5		6.5		2.5			
13-14	10.0							9.0	7.0				7.0	2.0	8.5	1.5		7.5				10.5	
14-15		7.5			6.0			7.5	11.0		5.5	5.0			6.5		6.5		8.0	2.0	10.0		
15-16				10.0			8.5	6.0	5.0	8.0		7.5		11.0			8.5	9.0	2.5				
16-17							5.0	4.0	9.0			10.5			4.0		5.5		3.5				
17-18								2.5							7.0	6.0	2.5		4.0				
18-19									7.0										5.0			10.0	
19-20		10.0							10.5			5.0							5.5				
20-21		6.5										7.5		4.5	2.5	6.0			6.5				
21-22							8.5		8.5			10.0		9.0	5.5				7.5				9.5
22-23					7.5		5.0								9.0		9.0	2.0	8.0				
23-24						5.0			6.5				10.5			6.0	6.5	2.5	9.0			9.5	
24-25									10.0			4.5					3.5	3.5					
25-26		8.5										7.0			4.5			4.0		2.5			
26-27		5.0				6.5		10.0	8.0			9.5		2.5	7.5	5.5		5.0					
27-28							8.5	8.5						7.0		10.5		5.5					
28-29			10.5	11.0			5.0	7.0	6.0									6.5				9.5	
29-30					5.5	8.0		5.0	9.5		7.0				3.0	5.5		7.5					
30-31		11.0	10.0		9.0			3.5				6.5	5.0		6.0	10.0	7.0	8.0	2.0				

	WY	AQ	EQ	EQ	HU	V	X	RS	RV	W	W	TX	TY	TY	UX	UX	VV	XZ	ZZ	AF	W	RU	VV	
	TAU	TAU	TAU	TAU	TAU	TRI	TRI	TRI	TRI	UMA	UMA	UMA	UMA	UMA	UMA	UMA	UMA	UMA	UMA	UMA	UMA	UMI	UMI	VIR
MAX	11.5	12.0	10.3	10.3	6.0	10.9	8.9	10.3	11.4	9.1	9.1	6.8	11.7	11.7	12.7	12.7	10.1	10.1	9.8	10.8	8.6	10.7	11.7	
MIN	11.7	12.9	11.0	11.0	6.8	11.9	12.0	11.0	12.5	9.9	9.9	8.9	12.4	12.4	13.8	13.8	11.0	11.7	11.2	11.6	9.7	11.4	13.5	
DUR	4	5	3	3	6	4	4	4	4	3	3	6	3	3	1	1	3	3	4	8	7	4	4	
TOT																								
				(S)						(S)				(S)										
0- 1			10.5			8.5	9.0		9.0	6.0	2.0		8.0	4.0	6.5	2.0		3.0						
1- 2			11.0				8.5			6.0	2.0		9.5	5.5	11.0	6.0	8.0		8.0		5.5			
2- 3	9.5			7.5			7.5			6.0	2.0		2.5	7.0	6.0	10.5				4.5		2.0		
3- 4				8.0		6.5	7.0		9.0	6.0	2.0		4.0	8.5	10.0	5.5	9.5					3.0	4.5	
4- 5		10.0		9.0		11.0	6.5			6.0	2.0		5.5	10.0	5.0	9.5	2.0					4.0	2.0	
5- 6				9.5			5.5			6.5	2.5		7.0	3.0	9.5	4.5						5.5		
6- 7				10.0		5.0			9.5	6.5	2.5		8.5	4.5	4.0	9.0	3.5	5.5			8.0	6.5		
7- 8				10.5		9.0				6.5	2.5		10.0	6.0	8.5	4.0		11.0		11.0		8.0	5.0	
8- 9				11.0				10.5		6.5	2.5		3.5	7.5	3.5	8.0	5.0		6.0			9.0	2.0	
9-10			7.5						10.0	6.5	2.5		5.0	9.0	7.5	3.0						10.0		
10-11			8.0			7.0		8.0		6.5	2.5		6.5	2.0	2.5	7.5	6.5							
11-12	9.5		8.5							6.5	2.5		8.0	3.5	7.0	2.0		3.0			10.5		5.0	
12-13			9.5					6.0	10.5	6.5	2.5		9.5	5.0	2.0	6.5	8.0						2.5	
13-14			10.0			5.5				6.5	2.5	2.5	2.5	6.5	6.0	11.0					3.5	2.5		
14-15			10.5			9.5				6.5	2.5		4.0	8.0	10.5	5.5	9.5					3.5		
15-16		8.5	11.0		9.5				10.5	6.5	2.5		5.5	9.5	5.5	10.0	2.0		3.5			5.0	5.5	
16-17				7.5					4.5	6.5	2.5	4.0	7.0	2.5	9.5	5.0	11.0					6.0	3.0	
17-18				8.0	11.0	7.5				6.5	2.5		8.5	4.0	4.5	9.0	3.5	5.5	10.5			7.0		
18-19				8.5					11.0	6.5	2.5		10.0	6.0	9.0	4.0		11.0			6.0	8.5		
19-20				9.0					5.0	6.5	2.5	5.5	3.0	7.5	3.5	8.5	5.0					9.5	6.0	
20-21	10.0			10.0		6.0				6.5	2.5		4.5	9.0	8.0	3.5						11.0	3.5	
21-22		10.5		10.5		10.0				6.5	2.5		6.0	2.0	3.0	7.5	6.5							
22-23				11.0					5.5	6.5	2.5	7.0	7.5	3.5	7.0	2.5		3.0						
23-24										6.5	2.5		9.0	5.0	2.0	7.0	8.0			5.5	8.5	1.5	6.5	
24-25			8.0			8.5				6.5	2.5		2.0	6.5	6.5	11.0		8.0				3.0	3.5	
25-26			8.5						6.0	6.5	2.5		3.5	8.0	10.5	6.0	9.5					4.0		
26-27			9.0							6.5	2.5		5.0	9.5	5.5	10.5	2.0					5.5		
27-28			10.0			6.5				6.5	2.5		7.0	2.5	10.0	5.0	11.0					6.5		
28-29			10.5			10.5			6.0	7.0	3.0		8.5	4.0	5.0	9.5	3.5	5.5			11.0	7.5	4.0	
29-30	10.0		11.0							7.0	3.0		10.0	5.5	9.0	4.5		11.0				9.0		
30-31						4.5				7.0	3.0		3.0	7.0	4.0	8.5	5.0					3.5	10.0	

	AG	AH	AH	AK	AW	AW	AX	AZ	AZ	BH	MS	MS	NY	Z	AW	AX	AY	BE	BO	BS	BT	BU	CD	
	VIR	VIR	VIR	VIR	VIR	VIR	VIR	VIR	VIR	VIR	VIR	VIR	VIR	VUL	VUL	VUL	VUL	VUL	VUL	VUL	VUL	VUL	VUL	
MAX	8.8	9.7	9.7	10.0	10.8	10.8	10.0	11.0	11.0	9.9	9.4	9.4	13.3	7.4	10.8	11.0	11.0	9.9	10.4	11.0	11.8	10.6	11.5	
MIN	9.4	10.2	10.2	11.5	11.9	11.9	10.8	11.8	11.8	11.3	9.7	9.7	14.2	9.2	11.9	12.5	12.9	11.4	13.3	11.5	12.5	11.4	12.6	
DUR	4	4	4	4	3	3	4	3	3	4	3	3	1	6	5	5	4	5	4	3	3	3	4	
TOT			(S)		(S)		(S)		(S)															
0- 1			4.0		2.5		4.5		5.0		2.0		7.0	9.0					4.0	7.5	10.5	10.0		
1- 2		4.5			4.0		6.0	3.5	3.5		2.0	5.5	2.5	6.5	4.5				2.5	10.5		2.5		
2- 3			5.0		5.5		3.0		2.0	6.0	2.5		9.5									3.5		
3- 4	5.0	5.5		2.5	4.0		4.0		4.5	2.5											7.0	4.0		
4- 5			5.0	4.0	3.5	5.0		3.0	3.0		8.0	10.0		7.0					10.5		10.5			
5- 6	3.0			5.5		6.5	2.0	5.5	5.0		3.0		3.0		3.0					9.5			5.0	
6- 7		2.0			2.5	6.0		3.5	3.5		3.5		3.5	3.0	10.5	2.5				8.5		3.5		
7- 8			2.5		4.0		4.5		2.0	6.0	3.5		3.0					9.5		7.0	3.5	6.5	6.0	
8- 9		3.0			5.5		5.5			4.5	4.0		8.5							6.0	7.0	10.0		
9-10			3.5	3.0		2.5				2.5	4.0		4.0							5.0	10.5		7.5	
10-11		3.5	4.0	4.5		4.0		3.0	5.0		2.0								10.5	3.5		3.0		
11-12			4.0	6.0		4.0	5.0		3.5		2.0									2.5		6.0	8.5	
12-13	5.0	4.5			3.0	6.5	2.0		2.0	5.5	2.5		9.5						9.0			9.5		
13-14			5.0		4.5		3.0		4.0	2.5			5.0		8.0								10.0	
14-15	3.0	5.5		2.0	6.0		4.5	5.0		2.5	3.0									7.5	10.5	2.5	2.5	
15-16				3.5		5.5		5.0		3.0							3.5			9.5	3.5	5.5	11.0	
16-17			3.5	5.0		2.0	2.5	7.0		3.5		3.5		10.0						6.5	8.0	7.0	9.0	3.5
17-18		2.0		6.5	2.0		3.5		2.0	5.5	3.5		5.5							7.0	10.0			
18-19			2.5		3.5	4.5	5.0			4.0	4.0	10.0			4.0	6.0	5.0	6.0				2.0	5.0	
19-20		3.0			5.0		6.0	2.0	2.5		2.5	4.0										5.0	5.5	
20-21			3.5	2.5		3.0		5.0		2.0		11.0								4.0	3.5		8.5	6.0
21-22	5.0	4.0		4.0		4.0		3.5		2.0		6.5			8.5					2.5				
22-23			4.0	2.5	5.5		5.5		2.0	5.5	2.5								2.5				7.0	
23-24	3.0	4.5			2.5	2.5	2.5	6.5	4.5		4.0	2.5	7.5								3.0	5.0		
24-25			5.0		4.0		3.5		2.5	3.0										10.5	6.5	8.0	8.5	
25-26		5.5			5.5	5.0	5.0			5.0		3.0		7.0		9.5				9.5	10.0			
26-27				2.5		6.0	1.5		3.5		3.5			2.5									9.5	
27-28				4.0		3.0	6.5	2.0	5.5	3.5											7.0		4.5	2.0
28-29		2.0		2.0	5.5		4.0	2.5		4.0	4.0	5.5									6.0		8.0	11.0
29-30			2.5		3.0		5.5		2.5	4.0				8.0		3.0						11.0	3.5	
30-31	4.5	3.0			4.5	3.0	2.0	6.5		5.0		2.0		3.0		5.5								

all times in U.T.

ER
VUL
MAX 7.3
MIN 7.5
DUR 4
TOT

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