

MAS RR Lyrae Ephemeris for December 2016

all times in U.T.

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	SW	XX	AT	SW	TZ	YZ	AA	BO	BR	DN	TZ	BH	RS	ST	SW	SZ	TV	TW	UU	UY	UY	RW	TT
	AND	AND	AND	AQR	AQR	AQR	AQR	AQR	AQR	AQR	AUR	AUR	BOO	BOO	BOO	BOO	BOO	BOO	BOO	BOO	CAM	CNC	CNC
MAX	9.3	10.3	10.8	10.5	11.6	12.1	11.4	11.6	10.8	10.7	11.2	11.1	9.8	10.6	11.3	12.0	10.8	10.8	11.2	10.6	11.5	10.7	11.0
MIN	10.8	11.6	11.5	12.1	12.4	12.9	13.0	12.6	11.9	11.5	12.8	12.6	11.3	11.8	12.7	13.4	11.5	12.1	12.7	12.0	11.9	12.6	12.3
RISE	2	3	3	1	3	2	2	3	2	3	2	2	2	3	2	2	3	2	1	2	3	2	3
0- 1	8.5	6.0	5.0	0.5					2.5		5.5	5.0	12.0		10.0		12.5		12.5		0.5		
1- 2	5.5				3.0				1.5		0.0	3.0		13.0	10.5	8.5	11.0		10.5	8.0	2.0	3.0	4.5
2- 3	3.0	10.0	1.5						0.5	4.5	4.5	1.0	9.5		11.0	10.0	9.5		8.0		3.5	5.5	8.0
3- 4	0.0	3.5	7.0			2.0					8.5	9.5	12.5	9.5	11.5	11.0	8.0	8.0			5.0	7.5	11.0
4- 5	8.0			3.5		4.5	1.0	1.5		2.0	3.5	7.5		0.5	12.5	12.0	6.5	9.5			0.5	10.0	
5- 6	5.0	7.5	3.5	1.5	3.0						7.5	5.5	10.0				12.5	11.0	13.0		2.0	12.0	3.5
6- 7	2.5	0.5	9.0					3.5			2.5	3.5	13.0	12.0			11.0	12.5	11.0		3.5		6.5
7- 8			0.0				2.0				6.5	1.0					9.5		9.0		5.5	3.5	9.5
8- 9	7.5	4.5	5.5			1.0					1.5	10.0	10.5	9.0			8.0			12.0	0.5	6.0	12.5
9-10	4.5				3.0	3.5				3.5	5.5	8.0					6.5				2.0	8.0	
10-11	2.0	9.0	2.0	3.0			3.0		5.0		0.5	6.0					12.5			11.0	4.0	10.5	5.0
11-12		2.0	7.5	1.0					4.5	1.5	4.5	4.0	10.5	11.5			11.5	7.5	11.5		5.5	12.5	8.0
12-13	7.0								3.5		9.0	1.5				8.0	10.0	9.0	9.5	10.0	0.5		11.0
13-14	4.5	6.0	4.0		3.0	0.5	4.0	2.0	2.5		3.5	10.5	8.0	8.5		9.5	8.5	10.5			2.5	4.0	
14-15	1.5					3.0			1.5		8.0	8.5	11.0			10.5	7.0	12.0		8.5	4.0	6.5	4.0
15-16		10.0	0.5				0.0	4.0	1.0		2.5	6.5			7.0	11.5	13.0				5.5	8.5	7.0
16-17	6.5	3.5	6.0	2.0						3.0	7.0	4.0	8.5	11.0	8.0	12.5	11.5		12.0		1.0	11.0	10.0
17-18	4.0			0.5	3.0						1.5	2.0	11.5			8.5		10.0		10.0	2.5		13.0
18-19	1.0	7.5	2.5				1.0			0.5	6.0	11.0		8.0	9.0		8.5		8.0		4.0		
19-20		1.0	8.0			2.0					0.5	9.0	9.0		10.0		7.0	7.0			5.5	4.5	5.5
20-21	6.0					4.5		0.5			5.0	6.5	12.0		10.5		13.0	8.5			1.0	6.5	8.5
21-22	3.5	5.0	4.5	3.5	3.0		2.0			4.5	9.0	4.5		10.5	11.0		11.5	10.0	13.0	12.5	2.5	9.0	11.5
22-23	0.5			1.5				2.5			4.0	2.5	9.5		12.0		10.0	11.5	10.5		4.0	11.0	
23-24	8.5	9.0	1.0						5.5	2.5	8.0	0.5	12.5		12.5		8.5		8.5	11.5	6.0		4.0
24-25	5.5	2.5	6.5			1.0	3.0	4.5	4.5		3.0	9.0				9.0	7.0				1.0	2.5	7.0
25-26	3.0				3.0	3.5			3.5		7.0	7.0	10.0			10.0	13.0		10.0		2.5	5.0	10.0
26-27	0.0	6.5	3.0						3.0		2.0	5.0	13.0	10.0		11.0	11.5				4.5	7.0	
27-28	8.0		8.5	3.0			4.5		2.0		6.0	3.0				12.0	10.0		11.5	9.0	6.0	9.5	3.0
28-29	5.0	10.5		1.0					1.0	4.0	1.0	1.0	10.0				8.5	8.0	9.5		1.0	11.5	6.0
29-30	2.5	4.0	5.0		3.0	0.5	0.0	1.0	0.0		5.0	9.5		13.0			7.0	9.5			3.0		9.0
30-31						3.0				1.5	9.0	7.5					13.0	11.5			4.5	3.0	12.0

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	VZ	VZ	KV	SS	RV	RZ	VW	YZ	AN	RR	RU	RV	RX	RZ	UU	XX	XZ	DM	RW	XZ	RX	SV	BB
	CNC	CNC	CNC	CVN	CAP	CAP	CAP	CAP	CAP	CET	CET	CET	CET	CET	CET	CYG	CYG	CYG	DRA	DRA	ERI	ERI	ERI
MAX	7.2	7.2	11.9	11.2	10.2	12.5	12.6	11.0	12.0	9.3	10.8	10.3	11.0	11.2	11.5	11.4	9.1	11.2	11.0	9.6	9.2	9.6	10.9
MIN	7.9	7.9	13.0	12.5	11.6	13.5	13.5	11.6	13.0	10.3	12.1	11.2	11.7	12.4	12.4	12.5	10.5	12.7	12.0	10.3	10.1	10.2	11.9
RISE	1	1	2	2	2	3	2	3	5	2	3	3	3	2	3	1	3	2	2	3	3	5	2
0- 1	7.5	3.5	6.0	8.0		1.5	2.5			5.0			2.0	2.0		4.5	8.5		4.5	3.5	1.0	3.5	
1- 2	9.5	5.0	6.0	7.0			1.0			7.5	0.0	4.5	5.5	2.5	5.0	0.0	7.0	6.0	2.0	2.5	5.5		
2- 3	11.0	7.0	6.5		1.5	1.5		1.5			4.0			3.5		5.0	5.0	2.0	10.0	1.5	9.5	7.0	4.0
3- 4	4.0	8.5	6.5									1.5		4.0	0.5	0.5	3.5		7.0	0.5		0.5	7.0
4- 5	6.0	10.0	6.5			1.5				1.5		7.5	2.0	4.5	6.0	6.0	2.0	4.5	4.5	10.5	4.0		
5- 6	7.5	3.5	6.5					1.5		4.5	2.5		6.0	5.0		1.0	0.5	0.5	1.5	9.5	8.0	3.5	
6- 7	9.0	5.0	6.5		2.0	1.5	2.0		1.5	7.0	6.5	4.0		5.5	1.5	6.5	10.0		9.5	8.5			3.5
7- 8	11.0	6.5	7.0	12.0			0.5							6.0		1.5	8.5	3.0	6.5	7.5	2.5	7.0	7.0
8- 9	4.0	8.5	7.0	11.0		2.0		2.0			1.0	1.0	2.5	6.5		7.0	7.0		4.0	6.0	6.5	0.0	10.5
9-10	5.5	10.0	7.0	10.0						1.0	5.0	7.0	6.0	7.0	2.0	2.5	5.0	5.5	1.5	5.0	10.5		
10-11	7.5	3.0	7.0	9.0	3.0	2.0				3.5				7.5		7.5	3.5	1.5	9.0	4.0	1.0	3.5	3.5
11-12	9.0	5.0	7.0	8.0	0.5		2.5	2.0	1.5	6.5		4.0		8.0		3.0	2.0		6.5	2.5	5.0		6.5
12-13	11.0	6.5	7.5	7.0		2.0	1.0				3.5		3.0	8.5	3.0	8.0	0.5	4.0	3.5	1.5	9.0	7.0	10.0
13-14	4.0	8.0	7.5	6.0				0.0				1.0				3.5	10.0		1.0	0.5		0.0	
14-15	5.5	10.0	7.5			2.0		2.5		0.5		6.5				8.5	8.5		9.0	11.0	3.5		3.0
15-16	7.5	3.0	7.5		1.0					3.0	2.0				3.5	4.0	7.0	2.5	6.0	9.5	7.5	3.5	6.5
16-17	9.0	4.5	7.5			2.0		0.0	1.5	5.5	6.0	3.5	3.5			9.0	5.0		3.5	8.5			10.0
17-18	10.5	6.5	8.0				2.0	2.5		8.5						4.5	3.5	5.0	0.5	7.5	2.0	7.0	
18-19	4.0	8.0	8.0	12.5		2.5	0.5				0.0	0.5			4.5	9.5	2.0	1.0	8.5	6.5	6.0	0.0	3.0
19-20	5.5	9.5	8.0	11.0	1.5			0.5		0.0	4.5	6.5	0.0			5.0	0.5		5.5	5.0	10.5		6.0
20-21	7.0	11.5	8.0	10.0		2.5		2.5		2.5			4.0	0.0		0.5	10.0	3.5	3.0	4.0		3.5	9.5
21-22	9.0	4.5	8.0	9.0					1.0	5.0		3.5		0.5	5.0	5.5	8.5		0.5	3.0	4.5		
22-23	10.5	6.0	8.5	8.0		2.5	2.5	0.5		7.5	2.5			1.0		1.0	6.5	5.5	8.0	2.0	8.5	7.0	2.5
23-24	3.5	8.0	8.5	7.0	2.5		1.0	3.0			7.0	0.0	0.5	1.5	0.5	6.0	5.0	2.0	5.5	0.5			6.0
24-25	5.5	9.5	8.5	6.0		2.5						6.0	4.0	2.0	6.0	1.5	3.5		2.5	11.0	3.0		9.5
25-26	7.0	11.5	8.5					1.0		2.0	1.0			2.5		6.5	2.0	4.0	10.5	10.0	7.0	3.5	
26-27	8.5	4.5	8.5					3.0	1.0	4.5	5.0	3.0		3.0	1.5	2.0	0.5	0.5	8.0	8.5			2.5
27-28	10.5	6.0	9.0							7.0			1.0	3.5		7.5	10.0		5.0	7.5	1.5	7.0	5.5
28-29	3.5	7.5	9.0		0.5		2.0	1.0					4.5	4.0		2.5	8.5	3.0	2.5	6.5	5.5		9.0
29-30	5.0	9.5	9.0	12.5			0.5				3.5	6.0		4.5	2.0	8.0	6.5		10.0	5.5	10.0		
30-31	7.0	11.0	9.0	11.5						1.5				5.0		3.0	5.0	5.0	7.5	4.0		3.5	2.0

	RX	SS	RR	GQ	TW	VX	VZ	AR	DL	DY	DY	DY	LS	SZ	UU	DG	DH	RR	SS	ST	TV	WW	AA	
	FOR	FOR	GEM	GEM	HER	HER	HER	HER	HER	HER	HER	HER	HER	HYA	HYA	HYA	HYA	LEO	LEO	LEO	LEO	LEO	LEO	
MAX	11.1	9.4	10.7	13.6	10.5	9.9	10.7	10.6	11.0	10.2	10.2	10.2	10.8	10.6	10.7	11.6	11.4	10.0	10.5	10.8	11.5	11.0	11.3	
MIN	12.5	10.6	11.9	14.6	11.8	10.4	12.0	11.6	12.4	10.6	10.6	10.6	11.1	11.7	12.3	12.6	12.6	11.7	12.0	12.3	12.6	12.0	12.4	
RISE	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	3	2	2	2	2	2	3	2	
0- 1		3.0	8.0			0.5	10.5	8.0					13.0	11.5		5.0	4.5		5.5		11.5		8.5	
1- 2		2.5	3.0	3.0	12.0				0.5							5.0	6.0		13.0		9.5	10.5	12.0	8.5
2- 3	4.5	2.5	8.0	6.0						11.0						7.0	7.5	10.5	12.5	12.0		9.5		
3- 4		2.0	3.0	9.5	12.0		1.5				12.0		11.5	8.5	8.5	4.5	12.0	9.5	6.5	8.5	12.5	4.0	8.0	
4- 5		2.0	7.5	13.0				2.0						10.5	9.5		11.5	7.5	12.5	7.5		9.0	13.0	
5- 6	4.0	2.0	2.5	2.5	12.0	11.5		0.5						12.5	10.5	11.0	11.0	5.0			6.5			
6- 7		1.5	7.0	6.0				10.5		11.5			11.5		12.0	5.0	10.5		9.5			4.5	8.0	
7- 8		1.5	2.0	9.5	12.0		1.0	9.0	12.5		12.5				13.0		10.0	11.5				9.0	12.5	
8- 9	3.5	1.0	7.0	13.0				7.5								5.0	11.5	9.5	9.0	6.5				
9-10	8.5	1.0	2.0	2.5	2.5						11.0	11.5	6.5		5.5	8.5	7.0	12.5				4.5	8.0	
10-11		0.5	6.5	6.0		11.5			11.5	12.0				8.5			8.0	4.5		12.5		9.5	12.5	
11-12	3.5	0.5	1.5	9.5	2.5		10.5				13.0			10.0	5.0	12.0	7.5		10.0	11.5				
12-13	8.0	0.0	6.0	12.5				2.0					11.5	12.0	6.0	6.0	7.0	11.0		10.5	6.5	5.0	7.5	
13-14		0.0	1.0	2.5	2.5			0.5				11.0				7.5		6.5	8.5	7.0	9.5	10.0	12.5	
14-15	3.0		6.0	6.0			2.0	10.0	1.0	12.0					8.5	12.5	6.0	6.0	13.0	8.5	7.0			
15-16	7.5		1.0	9.0	2.5	12.0		9.0					11.5		9.5	6.5	5.5	4.0		7.5		5.5	7.5	
16-17			5.5	12.5				7.5						6.0	10.5		5.0	12.5	10.0	6.5	7.5	10.0	12.0	
17-18	2.5		0.5	2.0	2.5								11.5		8.0	12.0	12.5	4.5	10.0					
18-19	7.5		5.0	5.5			1.0			12.5				11.5	10.0		7.0		8.0	7.0		8.0	5.5	7.5
19-20			10.0	9.0	2.0									11.5				5.5				10.5	12.0	
20-21	2.5		5.0	12.5		12.0		1.5	13.0		11.0												8.5	
21-22	7.0		9.5	2.0	2.0			0.0					12.0	11.5			7.0		12.0	10.5	12.5		6.0	7.0
22-23			4.5	5.5			0.0	10.0		13.0					5.0			9.5		11.5	9.0	11.0	12.0	
23-24	2.0		9.0	9.0	2.0			8.5	12.0					6.0	6.0			7.5	7.5	10.5				
24-25	6.5		4.0	12.5				7.0			11.0		11.5	7.5	7.5	7.5	12.5	5.0		9.5	9.5	6.5	7.0	
25-26			9.0	2.0	2.0	12.5	2.0					12.0		9.5	8.5		12.0			8.0		11.0	11.5	
26-27	1.5		4.0	5.5			10.0							11.0	9.5		11.5	11.5	10.5	7.0	9.5			
27-28	6.5		8.5	8.5	2.0								11.5	13.0	11.0	8.0	11.0	9.0		6.0		6.5	7.0	
28-29			3.5	12.0				1.5			11.5				12.0		10.5	7.0	7.5		10.0	11.5	11.5	
29-30	1.5		8.0	2.0	2.0		1.0	11.0				12.5					10.0	4.5						
30-31	6.0		3.0	5.0		12.5		9.5	0.0				11.5	5.5		8.5	9.5				10.5	7.0	6.5	

	VY	U	SZ	SZ	SZ	RR	RZ	ST	AV	BH	KZ	RU	DF	RV	TU
	LMI	LEP	LYN	LYN	LYN	LYR	LYR	OPH	PEG	PEG	PUP	SCL	SER	UMA	UMA
MAX	13.6	9.8	9.1	9.1	9.1	7.1	10.0	11.3	9.9	10.0	11.3	9.3	11.4	10.1	9.2
MIN	14.6	11.1	9.6	9.6	9.6	8.1	12.0	12.7	10.9	10.8	12.8	10.8	13.0	11.2	10.2
RISE	2	2	1	1	1	2	2	3	2	3	3	2	2	3	3
0- 1	2.5	8.5	3.5	6.5	0.5		2.0		6.0			4.5		1.5	
1- 2	4.0		5.5	8.5	2.5	13.0	2.5		0.5			4.0		11.0	7.0
2- 3	5.0	2.5	7.5	2.0	5.0	2.5	3.5		4.5	5.5		3.5	10.0	9.5	10.0
3- 4	6.5	6.5	1.0	4.0	7.0			13.0				3.5		8.0	12.5
4- 5	7.5	10.5	3.0	6.0	0.0				3.5	4.0		3.0		6.5	
5- 6	9.0		5.0	8.0	2.0	12.0						3.0	11.5	5.0	4.5
6- 7	10.0	4.0	7.0	1.5	4.0	1.5			2.5	2.0		2.5		3.5	7.5
7- 8	11.5	8.0	0.5	3.5	6.5	5.0						2.0		2.0	10.5
8- 9	12.5		2.5	5.5	8.5				1.0	0.0		2.0		0.5	
9-10		2.0	4.5	7.5	1.5	11.5			5.0			1.5	10.0	10.0	
10-11	2.5	6.0	6.5	1.0	3.5	1.0						1.0		8.5	5.0
11-12	4.0	9.5	8.5	3.0	5.5	4.0			4.0	5.0		1.0		7.0	8.0
12-13	5.0		2.0	5.0	8.0							0.5	12.0	5.5	10.5
13-14	6.5	3.5	4.0	7.0	1.0				3.0	3.0		0.0		4.0	
14-15	7.5	7.5	6.0	0.5	3.0	0.0								2.5	
15-16	9.0		8.0	2.5	5.0	3.5			2.0	1.5				1.0	5.5
16-17	10.0	1.5	1.5	4.5	7.0								10.5	10.5	8.5
17-18	11.5	5.5	3.5	6.5	0.5				0.5					9.0	11.0
18-19	12.5	9.0	5.5	8.5	2.5	13.0	12.0		4.5	6.5				7.5	
19-20			7.5	2.0	4.5	2.5	0.0						12.0	6.0	
20-21	2.5	3.0	1.0	4.0	6.5		0.5		3.5	4.5				4.5	6.0
21-22	4.0	7.0	3.0	6.0	0.0		1.5							3.0	9.0
22-23	5.0		5.0	8.0	2.0	12.0	2.0	0.0	2.5	2.5				1.5	11.5
23-24	6.5		7.0	1.0	4.0	2.0	2.5						10.5	11.0	
24-25	7.5	4.5	0.5	3.5	6.0	5.0	3.0		1.5	0.5				9.5	
25-26	9.0	8.5	2.5	5.5	8.0		3.5		5.5					8.0	6.5
26-27	10.0		4.5	7.5	1.5	11.5			0.0				12.0	6.5	9.5
27-28	11.5	2.5	6.5	0.5	3.5	1.0			4.0	5.5			9.0	5.0	12.0
28-29	12.5	6.5	8.5	2.5	5.5	4.0								3.5	
29-30		10.5	2.0	5.0	7.5				3.0	4.0				2.0	
30-31	2.5		4.0	7.0	1.0						4.0		10.5	0.5	7.0