



# BAV Circular

Heft 2 - 2022

## Ephemeriden

Unterlagen für die Planung der Veränderlichenbeobachtungen, Informationen zu allen BAV-Programmen und Empfehlungen zur Beobachtung

### Julianisches Datum 2022

	Jan	Feb	Mrz	Apl	Mai	Jun	Jul	Aug	Spt	Okt	Nov	Dez
2450 000 +	9580	9611	9639	9670	9700	9731	9761	9792	9823	9853	9884	9914

jeweils für den Nullten des Monats um 12 Uhr Weltzeit

### Umwandlung von Julianischen Tagesbruchteilen in MEZ

JD	.00d	.10d	.20d	.30d	.40d	.50d	.60d	.70d	.80d	.90d
.00d	13 00	15 24	17 48	20 12	22 36	01 00	03 24	05 48	08 12	10 36
.01	13 14	15 38	18 02	20 26	22 50	01 14	03 38	06 02	08 26	10 50
.02	13 29	15 53	18 17	20 41	23 05	01 29	03 53	06 17	08 41	11 05
.03	13 43	16 07	18 31	20 55	23 19	01 43	04 07	06 31	08 55	11 19
.04	13 58	16 22	18 46	21 10	23 34	01 58	04 22	06 46	09 10	11 34
.05	14 12	16 36	19 00	21 24	23 48	02 12	04 36	07 00	09 24	11 48
.06	14 26	16 50	19 14	21 38	00 02	02 26	04 50	07 14	09 38	12 02
.07	14 41	17 05	19 29	21 53	00 17	02 41	05 05	07 29	09 53	12 17
.08	14 55	17 19	19 43	22 07	00 31	02 55	05 19	07 43	10 07	12 31
.09	15 10	17 34	19 58	22 22	00 46	03 10	05 34	07 58	10 22	12 46

Alle Vorhersagen (Ephemeriden) in Heft 2 sind in MEZ angegeben.

Während der Sommerzeit muss daher bei den Ephemeriden eine Stunde hinzugerechnet werden, um zur dazugehörigen Uhrzeit zu gelangen.

## Inhaltsverzeichnis

- 1 Julianisches Datum und Tagesbruchteile
- 2 Veränderungen gegenüber dem Vorjahr und Erläuterung der Ephemeriden-Tabelle
- 4 Ephemeriden für die BAV-Programme
  - Bedeckungsveränderliche "Standardprogramm 2010" S10
  - Bedeckungsveränderliche "Langperiodische 2010" L10
  - Bedeckungsveränderliche "Erwünschte Beobachtungen"
    - Selten beobachtete Sterne E10S
    - Die Elemente sind unbekannt oder fraglich E10U
    - Der Stern hat eine exzentrische Bahn mit Apsidendrehung E10X
    - Das (B-R)-Diagramm zeigt sehr viel Dynamik E10D
  - RR-Lyrae-Sterne Standardprogramm RR
  - RR-Lyrae-Sterne Programm 1990 90
- 75 Ephemeriden für das BAV-Programm Mirasterne (F. Vohla)

### Veränderungen gegenüber dem Vorjahr

Aktuelle Daten für E0 und P wurden teilweise von Paschke, Anton und Maintz, Gisela übernommen

### Erläuterung der Ephemeriden-Tabelle

#### Ephemeriden für Bedeckungsveränderliche und RR-Lyrae-Sterne (ab Seite 4)

Die Tabelle ist nach Monaten gegliedert. In den Zeilen sind jeweils die Veränderlichen, in den Spalten die Tage des Monats dargestellt. Für Bedeckungsveränderliche werden die Zeitpunkte der Minima und für RR-Lyrae-Sterne die Zeitpunkte der Maxima angegeben.

Nach dem Sternnamen wird der Kürzel für das BAV-Beobachtungsprogramm angegeben. Es folgt die Spalte "P" mit einer Beobachtungspriorität. Vorhersagen werden angegeben, wenn die Minima bzw. Maxima nach Sonnenuntergang bzw. vor Sonnenaufgang eintreten und der Veränderliche dann eine Höhe von mindestens 20 Grad über dem Horizont hat. Die Vorhersagen wurden für einen mittleren Ort in Deutschland (10 Grad östliche Länge, 50 Grad nördliche Breite) berechnet .

In den letzten Zeilen jeder Seite wird für jeden Tag das Julianische Datum angegeben.

**Priorität**

- 1 = Der Stern wurde noch nie innerhalb der BAV beobachtet
- 2 = Der Stern wurde seit über 2000 Tagen (rund 6 Jahre) nicht mehr innerhalb der BAV beobachtet
- 3 = Der Stern wurde seit über 1000 Tagen (rund 3 Jahre) nicht mehr innerhalb der BAV beobachtet

#### Tagesbruchteile

In der Spalte des Tages sind Julianische Tagesbruchteile (TB) eingetragen, die zum Teil ( bei einem Tagesbruchteil größer 46 ) für den folgenden bürgerlichen Tag gelten. Damit aber alle Erscheinungen einer Nacht in einer Spalte stehen, wird so getan, als ob um Mitternacht kein bürgerlicher Datumswechsel stattfindet. Eine Tabelle zur Umrechnung der Tagesbruchteile in MEZ befindet sich auf der Titelseite.

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## Erläuterung der Ephemeriden-Tabelle

### zu Ephemeriden für Bedeckungsveränderliche und RR-Lyrae-Sterne (ab Seite 4)

#### Zusätzliche Kennzeichen

- +** Sind aufgrund der Kürze der Periode mehrere Erscheinungen pro Nacht sichtbar, wurde hinter die Vorhersage ein " + " gesetzt.
- s** Ein Nebenminimum wird durch "s" hinter dem Tagesbruchteil markiert.
- \ /** Bei Bedeckungsveränderlichen vom Typ Algol, bei denen die Bedeckung länger als 36 Stunden dauert, werden neben dem Zeitpunkt des Minimums weitere Angaben gemacht:  
Der Beginn des Abstiegs wird zeitlich angegeben, gekennzeichnet durch ein "\" hinter dem Tagesbruchteil. Während des weiteren Abstiegs wird das Zeichen "/" weiterhin angegeben.  
Beim Anstieg wird entsprechend mit dem Kennzeichen "/" verfahren.
- \ /** Bei Beta-Lyrae-Sternen mit einer Periode länger als 16 Tage, wird nach der Hälfte des Abstiegs zusätzlich während des gesamten weiteren Abstiegs das Zeichen "/" angegeben.  
Beim Anstieg wird entsprechend mit dem Kennzeichen "/" verfahren.

#### Beispiel an Hand eines Ausschnitt aus der Tabelle vom Januar

#### Beispiele

#### Lösungen

2010	Jan	1	2	3	4	5	15	16	17	18	19	Spalte	Angabe	Datum	MEZ	Bemerkungen	
Ari	X	RR	30		25		32		27		23						
Ari	RS	L10			20							4	20	4.1.	17:48	Minimum von RS Ari	
Ari	AL	E10			34												
Aur	TZ	90	20+	38+	55	34+	51	30+	48	26+	44	22+	17	26+	17.1.	19:14	Maximum von TZ Aur, weitere sind in der Nacht sichtbar (+)
Aur	CQ	L10				6										00s	
Aur	IY	E10			50				47			3	50	3.1.	01:00	Minimum von IY Aur in der Nacht vom 3. / 4.1.	
Boo	TW	90	57	63	70	76	57+	47	53	60	45+						
Boo	AC	E10	65	53+	59+	64s	52+	75	45+	51+	57+	4	64s	4.1.	04:22	Nebenminimum (s) von AC Boo in der Nacht vom 4. / 5.1.	
Cam	SS	E10	28		70s		23+				16s	38+					
Cnc	RZ	L10					72\	\	34	97/			15	72\	15.1.	06:17	Die Bedeckung dauert 77,9 Stunden (D = 77,9h). Der Abstieg beginnt am 15.1. um 6:17, am 16.1. dauert der Abstieg an, das Minimum ist am 17.1. um 21:10, der Anstieg endet am 18.1. um 10:50.
												16	\				
												17	34	17.1.	21:10		
												18	97/	18.1.	10:50		

### Ephemeriden für Mirasterne (auf den letzten beiden Seiten)

**Kopfzeilen** Unter der Abkürzung des Monatsnamens geben die Zahlen " 123 " die Dekaden des Monats an.

**M** Ein Maximum wird vorhergesagt

**m** Ein Minimum wird vorhergesagt

2022 Jan	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
And SW RR 3				35	24		45	33	22		43	32	20		41	30			39	26			37	26			35	24		33	22			
And SY L10 1		80	85/																															
And TW S10																						23	29s	35										
And XX 90		33		50	22		39		28			45		34				23	40			29	46			35			24					
And CD L10 2		81\	\ 88	/	94/														3\	\		10s	/	17/										
And OV 90				48	42	36	30	24				48	42	36	30	24					42	36	30	24				42	36	30	24			
Aqr SW RR											21																							
Aqr SX 90 3				24							20																							
Aqr CD E10S 3					4				87																									
Aqr HH 90					25																		21											
Aqr LL L10 2																			31															
Aql V0889				7s											19s									31s										
Aql V1353 E10S															78s						73												76s	
Aql V1426 E10S							14+	32+	49	8+	25+	43s	2+	19+	37+	54	13+	30+	48s	7+	24+	42	59s	18+	36+	53s	12+	29+	47	6+	23+	41+		
Aql V1430 E10S																																	75	
Ari X RR 2		24		20	50		45		41			36	31		27				22				43	38		34	29	25						
Ari RS L10 2					20										0								81										61	
Ari AL E10S															30													29						
Aur TZ 90		48	26+	44	22+	40	57	35+	53	31+	49	27+	45	23+	40	58	36	54	32+	50	28+	45	24+	41	59	37	55	33	50	29+	46	25+		
Aur CQ L10 2									48						79s						10			41s					72					
Aur IY E10S			32									70		49			28								66			46					25	
Aur V0432			42s		50s				58s			67s		21			29			37			45		53			62						
Aur epsil L10 2																																		
Aur zeta L10 1																																		
Boo RS RR		59	73		61	75		63	76	52	65	78	54	67		56	69		58	71		59	73	48	61	74	50	63	76	52	65			
Boo TW 90		54	61	67	74					53	59	66	72	78				51	58	64	70	77			49		56	62	69	75				
Boo UY 90		73	64	55			75	67	58			78	69	61	52			72	63	55			74	66	57	49		77	68	60	51			
Boo UY 90			79	74			69		64	60								76	71			66		61	57			52					77	
Boo AC E10D		53+	58+	64	52+	58+	64s	52+	57+	63	51+	57+	63s	51+	57+	45+	50+	56+	44+	50+	56+	44+	50+	55+	43+	49+	55+	43+	49+	54+	43+	48+		
Boo CM 90			74	57			79		62			66		71			53	75		58			62		67			50	71	54	76			
Boo CQ 90 3		64	77	62	75		59	72	69			66	64	77	61		74	58	71	56	68		66	63	76		60	73	58	70	55	68		
Cam SS E10S 3		79		20s			61		3s			44		85s			26		67s			9		50s	91			32s	73					
Cam SV S10		39+	28+	47+	36+	25+	43+	32+	21+	40+	29+	48+	36+	25+	44+	33+	22+	41+	30+	48+	37+	26+	45+	34+	23+	41+	30+	49	38+	27+	45+	34+		
Cam AK E10S		45	57s	68	79s				25s	36		48s	59	70s						27	38s	50	61s	72				29s	40	52s				
Cam AN L10 3		45	57s	68	79s				25s	36		48s	59	70s						27	38s	50	61s	72				29s	40	52s				
Cam AT E10S		28	67	37s	77s	46		56s	25	65	35s	74s	44	54s	23		63	33s	72s	42		52s	21	61	31s	70s	40		50s	59	29s			
Cnc S L10							58										6									55								
Cnc RU L10 2									71										89										6					
Cnc RW 90		47	56	66	75		39	49	58	67	77	32	41	51	60	69		34	43	52	62	71		35	45	54	64	73	28	37	47	56		
JD 595 ..		81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99														
JD 596 ..																				0	1	2	3	4	5	6	7	8	9	10	11			

2022 Jan			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Cnc	RZ	L10	2				64\	\	26	89/								46\	\	8s	71/								26\	91	/	53/			
Cnc	TT	90	65		34	46	59		72		41	53	66		35	48	61			42	55	68		37	49	62		31	44	56		38	51		
Cnc	TU	E10S	3				94								50					6				62						18					
Cnc	TW	L10	2											97\	\	3	9/																		
Cnc	UU	L10	2																																
Cnc	AZ	L10	2	64\	67	69/																													
Cnc	AQ	90		67	76		41	51	60	70		44		54	64	73	38		48	57	67			41	51	61	70	35	45	54	64				
CVn	W	90		62	72		48		58	69	79			55	65	76			52	62	72			48	59	69		45	55	65	76			41	
CVn	Z	90		58		54	50			47	77	43	74	39	70	66			62		58	55		51		47		43	74	39	70	35	66		
CVn	RS	S10	3						64					44						63s						43s						63			
CVn	RZ	90			55	68				52	66	79		49	63	76	46		60	73		57		71		54	68			52	65				
CMa	R	S10	3	53				51s				48				46s				43				41s			39				36s				
CMi	AM	E10S						35	37	39	40	42	44	46	48	50	52	54		56	58	60	62												
Cas	RX	L10	2												\	\				56		/	/							\					
Cas	RZ	S10	3	24	44	63				22	41	61					39	58	78				36	56	75			34	54	73					
Cas	SX	L10	2												89\	\	72		/	55/															
Cas	TV	S10			53	34						78		59	40				21						47	28					72				
Cas	TW	S10			50	36		79		22	64			50		36			78		21	64		50		35			21	64					
Cas	TX	E10S			35s	28s		74		20s	67			60		52					45			38		30	77s		23	69s				62s	
Cas	AQ	L10	2	20\	25	30/			6\	11s	17/			92\	97	/	3/			78\	83s	89/			64\	69	75/				50\	55s			
Cas	BM	L10	3																																
Cas	DN	E10S		53s	69					31	46s	62	77s			24	40s		55	71s					33s	48	64s			26s	42		57s		
Cas	GG	E10S		53				29											57																
Cas	GU	E10U				59																					24			33				43	
Cas	IL	E10S	3	23		69								59								49					40								
Cas	IT	E10X		23		69								59							49					40s	40			30s					
Cas	OX	E10X		26+		75+			24+		73+			22+		71+			20+		69+					67+			65+						
Cas	PV	E10X		26+	32s	75+			24+	57s	73+	32s		22+		71+	57s		20+		69+					67+			65+		33s				
Cas	V0368				65							33s		55							23s	46				68s				36			59s		
Cas	V0375			77s	51	25s	72s	46	19s	67s	40	61s		35	56s	30	77		51s	24	72	45s		66	40s	61	35s		56	30s	77s	51	24s		
Cas	V0381			77+	51	25+	72s	46	19s	67s	40+	61+		35	56s	30	77+		51s	24	72	45s		66	40+	61	35s		56	30s	77+	51	24s		
Cas	V0459			47		22			3s		45	20					48s	44								42+				40				40s	
Cep	RZ	90		37+	29+	22+	45+	38+	30+	23+	47+	39+	32+	24+	48	40+	33+	26+	49	42+	34+	27+	20+	43+	36+	28+	21+	44+	37+	30+	22+	46+	38+	31+	
Cep	V000W			19+	30+	27+	25+	22+	20+	31+	28+	26+	23+	21+	32+	29+	27+	24+	22+	33+	30+	28+	25+	22+	20+	31+	29+	26+	23+	21+	32+	30+	27+	24+	
Cep	XX	S10		35		69					36	70								71						39	72			40				73	
Cep	XY	E10S						65			43			20						75		53				30								62	
Cep	ZZ	S10					24		38		52	66										23		37		51	66								
Cep	AI	E10S	3											29		41s							74												31s
Cep	CW	E10X				67+			40+								58+				31+					77+		50+		23+					
JD	595	..		81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99													
JD	596	..																		0	1	2	3	4	5	6	7	8	9	10				11	

2022 Jan			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Cep	EI	L10		40				62s				84				6s			28					50s				72					94s			
Cep	EX	L10										57													0								23s	26		
Cep	NN	E10S		41s	44	47s	50	53s	56	58s	61	64s	67	70s	73	76s																		25		
Cet	RR	RR					25	36				23	34				21	32				29				27										
Cet	RV	90		34		21			33		20			32					30					29				28							27	
Cet	TU	E10S	2			55				94					33				72					11			51						90			
Cet	TV	L10	2			67+								78+												88+						98+				
Cet	XY	E10S	2	45			23				40s						35								31s							26				
Com	S	90		54	72		48	65			58	76		52	69		45	62			56	73		49	66		42	59	77		53	70		46		
Com	ST	90	3		62			61			60			60		59				59		58		78		58		57	77		57	76				
CrB	U	S10																									75						65			
CrB	RV	90	3																														77	77		
Crt	W	90	2			64		70					64				59			65					59		65					59				
Cyg	Y	S10				64		70					64				59			65					59		65					59				
Cyg	UY	RR				26					19					23						28				20+				25					74	
Cyg	XZ	RR		36	30+	23+	63				36	30+	23+	63		36			29+	23+	63	56				29+	23+	63	56			29+		23+		
Cyg	BO	E10S				36	24s							26s		78s										29s							31s			
Cyg	BR	E10S		72s		72		71s		71		71s		71		71s		71		71s		71			71s		70		70s				70		70s	70
Cyg	DM	RR			25			19		29			23				27					21				24		76							22	
Cyg	EM	K10		19+		23					75		21+				74			77						72		75				70			74	
Cyg	V0367																		61	/	/						/	/	/							
Cyg	V0463							24s									77																		71	
Cyg	V0477							24s									77					21s													71	
Cyg	V0541													24+																		58+				
Cyg	V0548			67s		37	28s				79	69s				30s	20										72s	62		33s	23			74s	65	
Cyg	V0788									59	55	50/																								
Cyg	V0891											23																								
Cyg	V0909						78																													
Cyg	V1061	E10S							23							27																	35		70	
Del	DX	90	3				25	20																												
Del	NN	L10	1																																	
Dra	RW	RR		54		75	19+	52		74	62	51		72	61	50		27+	60	48		25+	58		47		24+	57	46		23+	56	44	77	21+	
Dra	SU	RR		34	66	32	65	31	63	29	61	27	59	25	57	23	55	21	53	53		51		50			48		46		44	76	42	74	40	72
Dra	SW	RR		56	69	26	40	54	68	25	39	53	67	24	38	52	66	23	37	51	65	22+	35		49	63	20+	34	48	62	76	33	47	61	75	
Dra	TZ	E10D		74s		78	21+				24+			70		73s	60s				77	20+				23+		69	56			73s	59s	76	62	
Dra	V000Z			65	30+	26+	22+	51	47+	43+	72	68	64	60	25+	21+	49	46+	42+	70	67	63	59		23+	20+	48	44+	41+	37+	65	62	58	22+	51	
Dra	WW	S10										77					40											66					29			
Dra	XZ	RR	3	53	49	44	39	35	30+	25+	21+	64	59	54	49	45	40	35	31+	26+	21+	64	59		55	50	45	41	36	31	27+	22+	65	60	55	
Dra	AI	S10					72					51	71				51		70							50	70				49	69				
JD	595	..		81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99														
JD	596	..																					0	1	2	3	4	5	6	7	8	9	10	11		

2022 Jan			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Dra	BF	L10					72					51	71	41s				51	70						50	70+					49	69+					
Dra	BK	90	32	51	69	28	47		65	24	43	61	20+	39	57	76	35	53	72	31	49	68	27		45	64	23	41	60			37	56	74	33	52	
Dra	BU	E10S			77	73s	69		65s	60	56s	52	47s	43	39s																74	70s	66	62s	57	53s	
Dra	DD	90	45+	43+	41+	39+	37+		35+	33+	31+	29+	27+	25+	23+	21+	52	50	48	46	44+	42+	40+		38+	36+	34+	32+	30+	28+	26+	24+	22+	53	51		
Dra	GV	L10							49																										34		
Equ	S	S10																20																			
Eri	SV	90	2			36			21		35			21		35			21		35				20		34				34						
Gem	RR	90	40	59	39	58	37		56	36	55	35	54	33+	52	32+	51	31+	50	29+	48	28+	47		26+	46	25+	44	24+	43	22+	42	21+	40		59	
Gem	RY	L10	2				69s					34					99s											29s			94						
Gem	SZ	90	32	33	33	33	33		34	34	34	34	34	35	35	35	35	36	36	36	36	36	37		37	37	37	38	38		38	38	38	39	39		39
Gem	WW	E10S	56s		42	66	28s		52s		37	61	23s	47s		32	56		42s		27	51			37s	61s	23	46		32s	56s		41		27s		
Gem	YY	S10	46	28+	50s	31+	54		35+	57s	39s	61	42	24+	46s	27+	49	31+	53s	34s	56	38	60s		41s	23+	45	26+	49s	30s	52	34	56s	37s		59	
Gem	OW	L10	2																																		
Gem	V0339													66						42																	
Her	TW	RR	3																						62		62		61		61		61			61	
Her	TX	S10	70s	73	76s	79																													54s	57	
Her	UX	E10D				75s						72								69s									66		76						
Her	V000X			75	66				75	67				76	67					77	68					78	69	60			70	61					
Her	V000Z		68				76	64			72	60		69			77		65			73	61					70	58		66			74		62	
Her	AK	S10		69	75s				70s	75		70		75s		71s	76		66s	71	76s				66	71s	77	66s	72	77s		67	72s				
Her	AR	90			77	71			65	59	53			76	70	64	58		52				75		69	63	57	51			74	68	62			56	
Her	AW	L10	3			90										70										51										31	
Her	DI	L10				90					37s					70					92s					51							47s			31	
Her	GU	E10U									61s			78												64s											
Her	LV	L10	2								61s			78											74s	64s											
Hya	SZ	90	2	46	54	61						45	52	60					43	51	58						41	49	56					40	47		
Hya	WZ	90	2	66						57	65					49	56	64				48			55	63					47	54	62				
Hya	AI	L10	2		35+							64+									93+									22+							
Hya	ET	90		54		60								46		51		57								42		48		54		59					
Lac	RW	L10		54		60+								46		51		57+								42		48	49s	54		59					
Lac	SW	S10	34	31	27+	23+	19+		32s	28s	24+	20+	32	29	25	21+	33s	30s	26s	22+	34	30	27		23	35s	31s	28s	24s	36	32	28	25	21		33s	
Lac	UW	E10S	48						77																	64				93							
Lac	CO	E10X				24+	78+			32+		41+				49+										20+	75+		29+		37+		46+				
Lac	V0345		23+								73+								22+										71+							20+	
Lac	V0364		23+			21s					73+								22+										71+							20+	
Leo	RR	RR	39	74	65	55	46		36	72	62	53	43	79	70	60	50	41	77	67	58	48	39		74	65	55	46	36	72	62	53	43	34		70	
Leo	SS	RR	77		65		53		79		66		54				68		55								70		58		45		71		59		
Leo	ST	RR	51						77	72	68	63	59	55	50	46					76	72	67	63		58	54	50	45			75	71	66		62	
Leo	WY	E10S			40						39						38												35					33			
JD	595	..	81	82	83	84	85		86	87	88	89	90	91	92	93	94	95	96	97	98	99															
JD	596	..																					0	1	2	3	4	5	6	7	8	9	10			11	

2022 Jan			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Leo	AG	E10S					51s					59					66s		36						47s					56					65s
Leo	AM	S10	61	53+	63s	54+	46+		55+	47+	56+	48+	58+	49+	59+	50+	60+	51+	43+	53+	44+	54+	45+	55+	46+	56+	48+	39+	49+	40+	50+	42+	51+	43+	
Lyn	TY	E10S	3	66								32					65									31				65					
Lyn	CD	E10S	3						29s		56						39s			66						21		49s		76					31
Lyr	RR	RR		69	25					22+				19+			72						69	26			66	22			62	76			
Lyr	RZ	90							69	20+	22+	75	78																	65	67	69	71		74
Lyr	UZ	S10		25	19s								76s	71									22s								73	67s			
Lyr	CN	90				73			79	20				72	78						72	77			65	71			77		65				
Lyr	EZ	RR							68	20+	78									66	71	76							64	69	74				
Lyr	IO	90	74				20+							70					74				78			67			71					75	
Lyr	beta	S10	3								99						46s								93						40s				
Mon	UX	E10S	2		44s				39		34s			29		25s				20				15s		10			6s		1				
Mon	V000V		72		74s				77		79s			82				84s		87				89s		92			94s				97		
Mon	AQ	E10S	2		53s						34			44						53				35s					44s						
Mon	AR	L10	1				73/		57	42/								33/	18s	3/								94/	78	63/					
Mon	AT	E10S	2								52s		99				47s			34	37			39	42	45		48	51				54		
Mon	AV	E10S	2		5														94				41s		89			36s				84			
Mon	EZ	E10U	2	48s	42+	36+	49s	43	37+	50s	44	38+	32+	45	39+	33+	46	40s	34+	47	41s	35+	48	42s	36+	30+	43s	37+	31+	44s	38	32+	45s	39	
Mon	IL	E10S	2		49				51					54			57				59				62				65					67	
Mon	V0448		38s	50s	62s	30			42	53		33s		45s	57s		36		48		28s	40s		52s		31	43		55		34s	46s			
Mon	V0530		40	45	50	55	34+		39s	44s	49s	54s	33+	38	43	48	53	32+	37s	42s	48s	26+	31+	37	42	47	26+	31+	36s	41s	46s	25+	30+	35	
Mon	V0536										39			50	61										45+				30	41	53				
Mon	V0634																							76											
Oph	U	ST			79s																72				76										
Oph	ST	90			78															74								75							
Ori	Z	E10S	2		41						62						82					2				23							43		
Ori	BM	E10S	3						33					80							27				74										
Ori	CP	E10S	2	9						41					73						5				37				69						
Ori	DN	L10	2									99													96										
Ori	EW	E10X	3																	51+					44+										
Ori	FO	L10	2								3																		83						
Ori	FT	E10X			29s				44s		3+														34s			83	49s						
Ori	GG	E10X			29		33s		44		59														34+				49						
Ori	V0536																	32		49															
Ori	V1016	L10																																	
Ori	V1031	E10S	2											37s					48						29				40s						
Ori	V1366	L10	1	6+	63	42	21+	78	57	36	14+	72	50	29	8+	65	44	23	1+	59	37	16+	74	52	31	10+	67	46	24	3+	61	39	18+	75	
Peg	U	S10		34s	28	22s	34s	28	22s	34s	28	21s	34s	28	21s	34s	27	21s	34s	27	21s	33s	27	21s	33s	27	21s	33s	27		33s	26			
Peg	V000V			33	31	28	26		24	22	19																	26	24	22					
JD	595	..	81	82	83	84	85		86	87	88	89	90	91	92	93	94	95	96	97	98	99													
JD	596	..																				0	1	2	3	4	5	6	7	8	9	10	11		



2022 Jan	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Peg V000W			33	31	28	26	24	22	19																		26	24	22					
Peg AV RR			24	19				32	27			22					30	25	20								23							
Peg AW L10 2										30						62s											24s					55		
Peg BH 90			28	21						33		26							31	23								28	21					
Peg BK E10S							39s										37s											35s						
Peg CG 90						27	20					27	21						28	22							22							
Peg DF L10 3		24														94														63				
Peg DH RR		20	23	25	27	29							21	23	26											22								
Peg GH E10S 3									28								23s																	
Per RW L10 2							98															18												
Per RY E10S 3			43								29											59s						45s						
Per AG E10X			43								29											59s						45s				23s		
Per AR 90		51	36	21+	48	34	19+	46	31	59	44	29	57	42	27	55	40	25	53	38	23	51	36	21+	49	34	61	46	32	59	44	29		
Per AY L10 3						12											89											67						
Per IQ E10X		45+	19+				68+	42+					65+	39+							63+		37+				60+	34+						
Per KN E10U		50s	36s	23s	53	40	26	56s	43s	29s	59	46	33		49s	36s	23s	53	39	26	56s	42s	29s		46	32	49s	36s	22s	52	39			
Per LX L10							86					88s			90						92s			93			95s					97		
Per beta S10 3			50			37			24				54s		41s						27s						44	31						
Psc RU 90 3		22	39	34			29	46	24	42	20	37	32	27			44	22	39	35			30	25			37	33				28		
Psc RY 90 2							19	25	31						20	26												26						
Psc SS 90 3		20	35	22	37	23	38	24	40	26	41	27	42	29	44	30		32	33			35	21	36	22	37	24	39	25	40	27			
Sge SY E10S 3											19s																							
Ser V000Y			79					79								64		78		64			78				64					64		
Ser AN 90 3		65	69	74	78											66	70	75									62	67	71	75				
Ser BH 90 3		76	63			67			71	58		75	62			66			70	57		75	61				66		70	57		74		
Ser EG L10 3				48s			97		45s			94		43s			91		40s			89		37s			86		35s			83		
Ser LX K10 3		75	70	65	76	71	66	61+	72	67	62+	73	68	63	58+	69	64	59+	70	65	60+	71	66	61+	56+	67	62	58+	68	63	59+	54+		
Sex T 90		50	47	45	75	72	69	67	64	62	59	57	54	51	49	46	44	41	71	68	66	63	60	58	55	53	50	47	45	42	40	37		
Tau RW S10 3			46				23								54						31								38					
Tau CD S10 3			46s					61		33s					48			20s				35						50s	22					
Tau EN E10S		36	60	22s	46s		32	56	41s			65s	27	51	37s		61s	23	47	33s		56s	42	28s			52s	38	24s		48s			
Tau V1094 L10 2									11+										9+									8+						
Tau V1125 E10S 1			30	44			28	41			25	39			23	36					20	34					32		29	43		27		
Tri X S10 3		34	31	28	25	22	20																											
Tri RU E10S 2							45					35s					25								42s				32					
Tri UX 90 3		46	39	33	26	19		46	40	33		26	20		47		40	33	27	20			47	40	34	27	21			41		34		
UMa W S10		22+	22+	22+	22+	22+	22+	22+	22+	22+	22+	22+	23+	23+	23+	23+	23+	23+	23+	23+	23+	23+	23+	23+	24+	24+	24+	24+	24+	24+	24+	24+	24+	
UMa RV RR		55	49	42	76		70	64	57	51	44	38	78	72	66	59	53	47	40	34	74						68	61	55	49	42			
UMa RW E10S					65					31s							64s				30							63					30s	
JD 595 ..		81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99														
JD 596 ..																					0	1	2	3	4	5	6	7	8	9	10	11		

2022 Jan			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31							
UMa	TU	RR		42	54	65	77		44	55	67	79		46	57	69		48	59	71		38	50	61	73		40	52	63	75							42				
UMa	TX	S10		49			56				62		68		75									64	35			75	45												
UMi	W	S10		23			63			33		74		44																											
Vir	ST	90	2	74		79				67		72		77									70	76			63	69	74			62			67						
Vir	AG	E10D		64	61s	57	54s	50	78	75s	71	68s	64	60s	57	53s	50	46+	75s	71	67s	64	60s	57	53s	49	46s	42+	71	67s	63	60s	56	53s							
Vir	AH	S10		67	69s	50+	52+	54+	56+	58+	59	61s	63	65s	67	49+	50+	52+	54+	56+	58+	60	62s	64	45+	47+	49+	51+	53+	54+	56+	58s	60	42+							
Vir	AT	90	2							62	67	73	78											56	61	66	72	77	55	60	65	71	76								
Vir	AV	90		63		60	57			54							76						74	71	68		65	62			59	56			53						
Vir	CG	E10S					78s		71s	65s						73	66										68s	61s			76	69	63	56							
Vul	Z	S10	3																								75														
Vul	BN	90	3											20+		76																									
Vul	EV	E10S	3								76																														
JD	595	..		81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																		11	
JD	596	..																					0	1	2	3	4	5	6	7	8	9	10								
2022 Feb			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31							
And	SW	RR	3			31				29				27			25																								
And	SY	L10	1			66\	71	75/																																	
And	TW	S10																																							
And	XX	90		41		30					36			25	42						31						37	26													
And	CD	L10	2				26\	\	32	/	39/																48\	\	54s	/	61/										
And	OV	90						36	30	24						36	30	24									36	30													
Aqr	CD	E10S	3																																						
Aqr	LL	L10	2																																						
Aql	V0889						43s															55s																68s			
Aql	V1353	E10S					71															74s						69									64s				
Aql	V1426	E10S		58s	17+	34+	52	11+	28+	46s	4+	22+	40+	57	16+	33+	51s	10+	27+	45	3+	21+	38+	56s	15+	32+	50	8+	26+	43s	2+										
Aql	V1430	E10S						74									72																								
Ari	X	RR	2					41		36		32		27																											
Ari	RS	L10	2								41																												2		
Ari	AL	E10S															28																					27			
Aur	TZ	90		42	60	38	55	34	51	30+	47	25+	43	60	39	56	35	52	30	48	26+	44	61	40	57	35	53	31	49	27	45										
Aur	CQ	L10	2				3s				34						66s																					28s			
Aur	IY	E10S									63						42																					39			
Aur	V0432			24s			32s				40s			48s		57s												27		35						43					
Aur	epsil	L10	2																																						
Aur	zeta	L10	1																																						
Boo	RS	RR		54	67		56	69	44	57	71	46	59	72	48	61	74	50	63		52	65	40	54	67	42	55	69	44	57	71										
JD	596	..		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42							

2022 Feb	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Boo TW	90		48	54	61	67	74			40	46	53	59	66	72		38	45	51	58	64	70			37	43	50	56							
Boo UY	90		71	62	54	45		74	65	56	48			68	59	50			70	62	53	45	73	64	56	47									
Boo UY	90	73	68	63			58	54				49	74				70	65	60			56	51			46	41								
Boo AC	E10D	54+	42+	48+	54+	42+	47+	53+	41+	47+	53+	41+	47+	52+	40+	46+	52+	40+	46+	51+	40+	45+	51+	39+	45+	51+	39+	44+	33+						
Boo CM	90		59		63		46	68		51		72	55				60		64			47	69	51	73	56									
Boo CQ	90	3	52	65	62	75	60	72	57	70	54	67	52	64	49	62	74	59	72	56	69	54	66	51	64	48	61	46	58						
Cam SS	E10S	3	14s	56			97s		38			79s		20			62s		3			44s	85			26s	68								
Cam SV	S10		23+	42+	31+	49s	38+	27+	46+	35+	24+	43+	31+	50	39+	28+	47	36+	25+	43+	32+	51s	40+	29+	47s	36+	25+	44+	33+	51					
Cam AK	E10S		63	74s					31	42s	54	65s							33s	44	56s	67				35									
Cam AN	L10	3	63	74s					31	42s	54	65s							33s	44	56s	67				35									
Cam AT	E10S		68s	38		47s	57	27s	66s	36		45s	55	25s	64s		34	74	43s	53		62s	32	72	41s	51									
Cnc S	L10			3									52									0													
Cnc RU	L10	2							23										41									58							
Cnc RW	90		66	30	39	49	58	68	22	32	41	51	60	70	24	34	43	53	62	26		36	45	55	64	28	38	47							
Cnc RZ	L10	2					10\	73s	/	35/							93\	\	55	/	17/					75\									
Cnc TT	90		64	33	45	58		27	40	52		34	47	60			29	41	54			36	48		30	43	55								
Cnc TU	E10S	3	74						30					87					43					99											
Cnc TW	L10	2																																	
Cnc UU	L10	2							\	\											19														
Cnc ZZ	L10	2																				83\	86	88/											
Cnc AQ	90		38	48	58	67	32	42	51	61		35	45	55	64		29	39	48	58			32	42	52	61	26								
CVn W	90		52	62	72		48	59	69			45	55	66			41	52	62	73		38	48	59	69	35	45	55							
CVn Z	90		62	59			55	51	47			43	74	40	70		36	67	32	63	28	59	55	51		47									
CVn RS	S10	3			43							62s					42s						62			42									
CVn RZ	90		49	62	76	46	59	73	43	57		70	40	54	67		37	51	64			48	62			45	59	72							
CMa R	S10	3		47			45s					43		40s					38				35s			33									
CMi AM	E10S																					25	27	29	31	33	34	36							
Cas RX	L10	2	72s		/	/							\	\			89		/	/															
Cas RZ	S10	3	32	51	71		29	49	68			27	46	66					25	44		64				42	61								
Cas SX	L10	2																	46\	\		29	/	12/											
Cas TV	S10		53	34								40							65			47	28			72									
Cas TW	S10		50		35			64				49		35					64			49		35		63									
Cas TX	E10S			55s			47s		40s			33s		25s			72		64			57		50		43									
Cas AQ	L10	2	61/			36\	41	47/				22\	27s	33/			8\	13	19/			94\	00s	/	5/	80\									
Cas BM	L10	3																																	
Cas DN	E10S		73				35	51s	66				28	44s	59		75s					37s	53	68s		30s									
Cas GG	E10S			36															39																
Cas GU	E10U								71																		27								
Cas IL	E10S	3	30		75							65							56						46										
JD 596	..		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42		

2022 Feb	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Cas IT E10X		30			75							65						56							46							
Cas OX E10X			62+					60+					58+					56+					54+						52+			
Cas PV E10X			62+					33s 60+					58+ 33s					56+ 58s		33s			54+		58s				52+			
Cas V0368								26		49s								39s		62									30s			
Cas V0375		72s	45	66s	40			61s	35	56s		29	50s	24	71		45s	66	40s			61	34s	55	29s			50				
Cas V0381		72s	45	66s	40+			61s	35	56s		29	37s	50s	24	71		45s	66	40+		61	34s	55	29s		34s	50				
Cas V0459						39		86s					37					32s		36							78s	34				
Cep RZ 90		23+	47	40+	32+	25+	48	41+	33+	26+	50	42+	35+	27+	51	43+	36+	29+	52	45	37+	30+	53	46	39+	31+	55	47	40+			
Cep V000W		22+	33+	31+	28+	25+	23+	34+	32+	29+	26+	24+	35+	32+	30+	27+	25+	36+	33+	31+	28+	26+	37+	34+	32+	29+	27+	38+	35+			
Cep XX S10						41		75					42							43								44				
Cep XY E10S			40									72		50				27								59			37			
Cep ZZ S10				22	37			51		65											36		50		64							
Cep AI E10S 3			42				65		76s												32			55		66s						
Cep CW E10X			69+			42+								60+				33+							52+				25+			
Cep EI L10					16					37s			59					81s				3				25s						
Cep EX L10							44														87											
Cep NN E10S		28s	31	34s	37	40s	43	46s	49	52s	55	58s	61	63s	66	69s	72	75s														
Cet RR RR					22						31					28																
Cet RV 90						25					24																					
Cet TU E10S 2				29				68					7				46				85					24						
Cet TV L10 2								9+										19+										29+				
Cet XY E10S 2										38								33s						28								
Com S 90		63		39	57	74		50	67		43	61		37	54	71		47	64		40	58		34	51	68		44	62			
Com ST 90 3		56	76		56	75		55	75		55	74		54	74		53	73		53	73		52	72		52	72		51			
CrB U S10							56								46																	
CrB RV 90 3		76	76	75	75	74	74	73	73	72	72	71	71	70	70	69	69	68	68	67	67	66	66	65	65	64	64	63	63			
Crt W 90 2				54	60						54		60					55					49		55							
Cyg Y S10				54	60						54		60					55					49		55							
Cyg UY RR						22					71				75						68				72				65			
Cyg XZ RR		63	56				29+	22+	62	56	49		29	69	62		56	49				69	62	56	49				69			
Cyg BO E10S			22			73				24			75					27											68s			
Cyg BR E10S			70s		70		70s		70	69s		69		69s			69	69s		69			69s		69		68s		68			
Cyg DM RR			74								72				72			69						73			67					
Cyg EM K10						68		72		75		66		70			74		65			68		72			63		66			
Cyg V0367		\	\	21	/	/						\	\	51s	/	/					\	\	81	/	/							
Cyg V0463		77s																65	71s													
Cyg V0477		77s									68s							72s	65	71s												
Cyg V0541											92+																	25+				
Cyg V0548			26					67	58s			28					70	60s	50						72		63s	53				
JD 596 ..		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42

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Cyg V0788																								44\	40	35/										
Cyg V0891								72																												
Cyg V0909													65s						66								68s									
Cyg V1061 E10S						74																														
Del DX 90 3								75									73									71										
Del NN L10 1																																				
Dra RW RR		54	43	76	64	53	41	74	63	51	40	73	62	50	39	72	60	49	37	70	59	47	36	69	57	46	35	67	56							
Dra SU RR		38	70	36	69	35	67	33	65	31	63	29	61	27	59	25	57	23	55		54		52		50		48		46							
Dra SW RR		32	46	60	74	31	44	58	72	29	43	57	71	28	42	56	70	27	41	55	69	26	40	53	67		38	52	66							
Dra TZ E10D				65s			68	55	72s	58s		75	61				64s	51s	67	54			71s	57s			60	47								
Dra V000Z		47	43+	40+	36+	64	61	57	53	49	46	42+	38+	35+	63	59	56	52	48	45	41+	37+	34+	30+	58	55	51	47	43							
Dra WW S10							55																			44										
Dra XZ RR 3	51	46	41	37	32		27+	22+	65	61	56	51	47	42	37	33	28+	23+	66	61	57	52	47	43	38	33	28	71	67							
Dra AI S10			49	69					48	68																	47									
Dra BF L10			49	69					48+	68																65s	47	67				25s	46	66		
Dra BK 90		70	29	48	66	25	44	62		40	58		36	54	73	32	50	69	28	46	65	24	42	61		38	57		35							
Dra BU E10S			49	44s	40	36s	32															59s	54	50s	46	41s	37	33s	29							
Dra DD 90			49	47	45	43+	41+		39+	37+	35+	33+	31+				29+	27+	25+	23+	54						42	40+	38+	36+	34+			32+	30+	28+
Dra GV L10																											20									
Eri SV 90 2			34																																	
Gem RR 90		39	58	37	57	36	55	35	54	33	53	32	51	31	50	29	48	28	47	27	46	25	44	24	43		42		40							
Gem RY L10 2			59s				25				90s					55										20s		85								
Gem SZ 90		39	40	40	40	40	41	41	41	41	41	42	42	42	42	43	43	43	43	44		44	44	44	45	45	45	45	45	46						
Gem WW E10S			51s	37	22s		46s	32	56			41s	27	51			36s		46				31s		41		27s	50s								
Gem YY S10		41	22+	44s	26+	48	29	51s	33s	55	36	59s	40s	62	44	25	47s	29s	51	32	54s	36s	58	39	61s	43s		46	28							
Gem OW L10 2																																				
Gem V0339								46																												
Her TW RR 3			61		60		60	60		60		60	59				59	59		59			59	58			58		58							
Her TX S10		60s	63	66s	69	72s	75																													
Her UX E10D				73s							70																64									
Her V000X			71	62			72	63				73	64	55			74	65	56				66	57				67								
Her V000Z				70	58		67	55		75		63	51		71	59							64	52		72	60	48								
Her AK S10		62	67s	73		62s	68	73s		63	68s	74	58	63s	69	74s	58s	64	69s		59	64s	70		59s	65	70s	54s	60							
Her AR 90		50	44			73	67	61	55	49	43					72	66	60				54	48	42			71	65	59	53	47		41			
Her AW L10 3											11										91														71	
Her DI L10										11+											91							71								
Her GU E10U					67s											53																		55		
Her LV L10 2					67s											53																		61s	55	
Hya SZ 90 2	55						38	46	53							37	44	52										33	41							
JD 596 ..		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42				

2022 Feb	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Hya WZ 90 2				46	53	61					45	52					44	51						43	50											
Hya AI L10 2					51+							80+								9+																
Hya ET 90			39	45			51	56					36	42			47	53						33		39	44									
Lac RW L10			39	45+			51	56					36	42+			47	53						33	60s	39	44									
Lac SW S10		29s	26s	22s	34	30	27	23		31s	27s	24s			28	25			29s	25+				26+	71s		27s	72								
Lac UW E10S			22				51					80						9						38			67									
Lac CO E10X								71+	25+				34+				42+						59+		67+											
Lac V0345							69+									19+							68+													
Lac V0364							69+									19+							68+													
Leo RR RR		60	51	41	32	67	58	48	39	29+	65	55	46	36	27+	63	53	44	34	24+	60	51	41	32	67	58	48	39	29							
Leo SS RR		47	72	60			48	73	61			49		62			50		63			51	39	64		52	40									
Leo ST RR		58	53	49	44	40		75	70	66		61	57	53	48	44	39	35		70		65	61	56	52	48	43	39	34							
Leo WY E10S				32				31					29					28					26				25									
Leo AG E10S			34					43s					52					61s	30					39s												
Leo AM S10		52+	44+	54+	45+	37+	46+	38+	47+	39+	49+	40+	50+	41+	51+	42+	34+	44+	35+	45+	36+	46+	37+	47+	39+	48+	40+	31+	41+							
Lyn TY E10S 3						31				64								30					64													
Lyn CD E10S 3			59s							41		68s					23s	51						33s		61										
Lyr RR RR		72				69				66			63					59	73			56	70				66									
Lyr RZ 90		76																59	61	63	65	68	70	72	74											
Lyr UZ S10													75	69s			64	59s																		
Lyr CN 90		70		76			64	70	75				63	69			75		63			68		56		62										
Lyr EZ RR							62	67	72								60	65	70							58	63	68								
Lyr IO 90			63				67				71		60	75				64				68		56		72										
Lyr beta S10 3				87							34s						81						28s													
Mon UX E10S 2		96s		91			86s			82			77s				72		67s			63		58s		53										
Mon V000V			00s				2		5s			7					10s		12			15s		17		20s										
Mon AQ E10S 2		53s			35				44				26s						35s				44s			26										
Mon AR L10 1							54\	39s	24\									14\	84\							75\	60s									
Mon AV E10S 2				31s			78					26s		73					20s			68		15s		63										
Mon EZ E10U 2		33+	27+	40	34+	28+	41	35s	29+	42	36s	30+	24+	37s	31+	25+	37s	32	26+	38s	32	27+	39s	33	27+	40s	34	28s	41s							
Mon IL E10S 2				70				72				75					78		80				83			86										
Mon V0448			26	38	50		29s	41s	53s			33	44				24s	36s	48s			27	39			31s	42s									
Mon V0530		40	45	24+	29+	34s	39s	45s	23+	28+	34	39	44	23+	28s	33s	38s	43s	48s	27	32	37	42	47	26s	31s	36s	42s	47s							
Mon V0634													33				44																			
Oph U ST				66s					69s															62												
Oph ST 90		70			75					71						66			71				67				72									
Ori Z E10S 2				63					83				4									24			44											
Ori BM E10S 3		21					68							15													9									
Ori CP E10S 2				1					33					65								97			29											
JD 596 ..		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42				

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Ori DN L10 2						92												69																		
Ori EW E10X 3	38+								32+							25+																				
Ori FO L10 2																63																				
Ori FT E10X														24s		63	39s			54s																
Ori GG E10X														24			39			54								38s								
Ori V0536					30				47															28												
Ori V1016 L10																							74													
Ori V1031 E10S 2											32																		34							
Ori V1366 L10 1	54	33	11+	69	48	26	5+	62	41	20+	77	56	35	13+	71	49	28	7+	64	43	22	79	58	36	15+	72	51	30								
Peg U S10	26		26			26			26		26			26			25			25			25													
Peg AV RR																75								73												
Peg AW L10 2						86s						17					48s					79							11s							
Peg BH 90						26									23																					
Peg CG 90		76	23																																	
Peg DF L10 3																																				
Per RW L10 2					38												58																			
Per RY E10S 3					32s																															
Per AG E10X		26s	32s	29s		32s	35s		37s			40s		43s		46s		49s		48																
Per AR 90	57	42	27	55	40	25	53	38	23	51	36	49	34			47	32		44	30			42	27	55	40	25	53	38							
Per AY L10 3									45													22														
Per IQ E10X			57+	32+					55+		29+					52+	27+							50+												
Per KN E10U	26	42s	29s		45	32	49s	35s		52	39	25				42s	29s	45	32			48s	35s			38	25									
Per LX L10			99s					1				3s					5					7s		9												
Per beta S10 3			48s				34s										38			25																
Psc RU 90 3		23		35		30	26						33			28							31		26											
Psc SS 90 3	28	30	31		33	34				35		23				25	26		28			29	30			32										
Sge SY E10S 3				73																		66s														
Ser V000Y			64				64							63					63						63											
Ser AN 90 3			58	63	67	72	76								55	59	64	68	72								51	56	60							
Ser BH 90 3	61		65	52	69	56	74		60					65	52		69	56	73			60	47		64	51		68	55							
Ser EG L10 3			32s	81		29s	78					27s	76				24s	73					22s	70												
Ser LX K10 3	64	60+	55+	66	61+	56+	67	62	57+	52+	63	58+	53+	64	59+	54+	49+	60	55+	50+		61	56+	51+	62	57+	52+	47+	58							
Sex T 90	67	64	62	59	57	54	51	49	46	44	41	38	36	33	63	61	58	55	53	50		48	45	42	40	37	35	32	29							
Tau RW S10 3							46				23																									
Tau CD S10 3			37s				53	24s							40																					
Tau EN E10S		34	57	43s		29	53	39s		25	49	35s					44		30s		54s	40		26s		50s	36									
Tau V1094 L10 2				7+									6+																							
Tau V1125 E10S 1	40		24	38			22	36					33				31					28														
Tri X S10 3	43	40	37	34	31	29	26	23																												
JD 596 ..		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42				

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Tri	RU	E10S	2					23s						40					30s																			
Tri	UX	90	3	28					41	35	28						35	28						35	29									36				
UMa	W	S10		24+	24+	25+	25+	25+	25+	25+	25+	25+	25+	25+	25+	25+	26+	26+	26+	26+	26+	26+	26+	26+	26+	26+	26+	26+	26+	26+	26+	26+	26+	26+	27+	27+	27+	
UMa	RV	RR		44	38	32	72	66	59	53	46	40	34	27+	68	61	55	49	42	36	29	70	63	57	51	44	38	31	25+	66	59							
UMa	RW	E10S												29														28s										
UMa	TU	RR		53	65	76	32	44	55	67		34	46	57	69		36	48	59	71		38	49	61	73	28	40	51	63		30							
UMa	TX	S10									25			32		38										57			63									
UMi	W	S10				55		25			66		36				46								27			67		37								
Vir	ST	90	2	72			60		65	71	53			58		64	69	51	75	57		62		68	50	73	55		61									
Vir	AG	E10D		49	45s	42+	70	67s	63	60s	56	52s	49	45s	42+	38+	66s	63	59s	56	52s	48	45s	41+	38+	34+	63	59s	55	52s	48							
Vir	AH	S10		43+	45+	47+	49+	51+	53+	55+	57	59s	40+	42+	44+	46+	48+	49+	51+	53+	55s	37+	38+	40+	42+	44+	46+	48+	50+	52+	53							
Vir	AT	90	2					54	59	64	69	75				48	53	58	63	68							47	52	57	62	67							
Vir	AV	90		50		47			76		73		70		67	64		61		58		55		52		49		46		43								
Vir	CG	E10S					71s	64s	58s					72	66	59	53				74s	67s	61s	54s					69	62	56							
Vul	Z	S10	3																	75					66													
Vul	BN	90	3					75			72			69		66														73								
JD	596	..		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41			42		
2022 Mrz																																						
And	SW	RR	3																																			
And	SY	L10	1																																			
And	XX	90											27																									
And	CD	L10	2											70\	\	77	/	83\																				
And	OV	90					30							30	71																							
Aqr	CD	E10S	3																																			
Aqr	LL	L10	2																																			
Aql	AA	RR																																				
Aql	V0341																																					
Aql	V0889																																					
Aql	V1353	E10S																																				
Aql	V1426	E10S		20+	37+	55	14+	31+	49s	7+	25+	42	1+	19+	36+	54s	12+	30+	47	6+	24+	41s	59s	18+	35+	53	11+	29+	46s	5+	23+	40+	58		16+			
Aql	V1430	E10S																																				
Ari	X	RR	2																																			
Ari	RS	L10	2																																			
Aur	TZ	90		62	40	58	36	54	32	50	28	46		41	59	37	55	33	51	29	46	42																
Aur	CQ	L10	2																																			
Aur	IY	E10S																																				
JD	596	..		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69			70		



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Aur V0432				52											30s		38s		47s														
Aur epsil L10	2																																
Aur zeta L10	1																																
Boo RS RR	46	59	72	48	61	37	50	63	38	52	65	40	53	67	42	55	69	44	57	33	46	59	35	48	61	36	50	63	38	51	65		
Boo TW	90	62	69		35	41	48	54	61	67			33	40	46	53	59	66			32	38	45	51	58	64			30	37	43		
Boo UU	90	67	58	50	41	70	61	52	44			64	55	46	38		66	58	49	40		69	60	52	43	34		63	54	46	37		
Boo UY	90	72		67	62		57	53			48	43	38			69	64	59			54	50				45	40	35			36		
Boo AC E10D		38+	44+	32+	38+	44+	32+	37+	43+	31+	37+	43+	31+	37+	42+	30+	36+	42+	30+	36+	41+	30+	35+	41+	29+	35+	41+	46+	34+	40+	46+	34+	
Boo CM	90	60		43	65		48	70	52				57	40		61	44	66			49		53			36	58	40	62				
Boo CQ	90	3	71	56	68	53	66	50	63	48	60	45	58	42+	55	68	52	65	50	62	47	60	44	57	42	54	39+	52	64	49	62	46	59
Cam SS E10S	3			9s	50		91s			32		73s			15		56s		97			38s		79		21s		62					
Cam SV S10		40+	29+	48	37+	26+	44	33+	52s	41+	30+	49s	38+	27+	45s	34+	53	42s	31+	49	38+	57s	46	35+	53s	42	31+	50s	39+	57	46s	35+	
Cam AK E10S	3	47s	58	69s						37s		49	60s	71					28s	39		51s	62					30	41s		53		
Cam AN L10	3	47s	58	69s						37s		49	60s	71					28s	39		51s	62					30	41s		53		
Cam AT E10S	3	60s	30	69	39s		49		58s	28	67	37s		47	56s		65	35s		45		54s		63	33s		42		52s		61		
Cnc S L10				49										97									45										
Cnc RU L10	2									75													92									10	
Cnc RW	90	56	66		30	40	49	58		32	41	51	60			34	43	53	62			36	45	55				38	47	57			
Cnc RZ L10	2	37s	99/							57\		\	19	81/							39\	\	1s	64/									
Cnc TT	90	25	37	50			32	44	57		39	51		33	46					28	40	53		35	47			42					
Cnc TU E10S	3		55					11					67										80								36		
Cnc TW L10	2																					73\	79	85/									
Cnc UU L10	2			/																								\					
Cnc ZZ L10	2																																
Cnc AQ	90	36	45	55			29	39	49	59		33	42	52				36	46	56			30	40	49			33	43		53		
CVn W	90	66		42	52	62		38	48	59	69	35	45	55	66	31	42	52	62			38		49	59		35				45		
CVn Z	90	44		40	71	36	67	32	63	28	59	55	52	48	44	40						36	67	32	63		59	56				52	
CVn RS S10	3						61s					41s				61						41										60s	
CVn RZ	90		43	56	70	40	53	67	37	50	64	34	48	61	31	45	58	29	42	55	69					39	53	66			36		
CMa R S10	3			30s			28										34s					32					30s						
CMi AM E10S	3	38	40	42	44	46	48	50																									
Cas RX L10	2		\	\			5s		/	/							\	\				22		/	/								
Cas RZ S10	3			39	59					37	56				35	54						32	52					30	49				
Cas SX L10	2																										21	85	/			68/	
Cas TV S10	3			34							59	41									66											53	
Cas TW S10			49			35		63				49				35						49			34					63			
Cas TX E10S			35			28		67s				60s				52s		45s				38s		30s									
Cas AQ L10	2	86	91/			66\	72s	77/				52\	58	63/				38\	44s	49/			24\	30	35/				10\		16s		
Cas BM L10	3																																
JD 596 ..		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	

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Cas DN E10S		46	61s						39	55s	70				33	48s	64							41s	57					35s	50		
Cas GG E10S							43																										
Cas GU E10U			36										64																				
Cas IL E10S 3						37						27											62					53					
Cas IT E10X					37+				26s			27											62				53				64s		
Cas OX E10X					50+				47+					45+										41+					39+				
Cas PV E10X					50+		34s		47+			59s	34s	45+				59s	43+	34s				41+	59s		34s		39+				
Cas V0368		52									43		65s										33	55s						46s			
Cas V0375		71s	45	66s	39		60s	34	55s	29	50s						44s	65	39s				60	34s	55		49		44				
Cas V0381		71s	45	66s	39+		60s	34	55s	29	31s	50s					44s	65	39+				60	34s	55		49		44				
Cas V0459					32		23s					31	69s						29					15s							61s		
Cep RZ 90		32+	25+	49	41+	34+	26+	50	42	35+	28+	51	44	36+	29+	52	45	38+	30+	54	46		39	32+	55	48	40	33+	56	49	42	34+	
Cep V000W		33+	30+	28+	39+	36+	34+	31+	29+	40+	37+	35+	32+	29+	27+	38+	36+	33+	30+	28+	39+		37+	34+	31+	29+	40+	38+	35+	32+	30+	41+	
Cep XX S10					46								47							48												49	
Cep XY E10S								69				47												57		34							
Cep ZZ S10							35	49				63												34	48		63						
Cep AI E10S 3														56s			67															46s	
Cep CW E10X					71+			44+							63+				35+								54+						
Cep EI L10		47				69s			91					13s					35					57s			79					1s	
Cep EX L10						31													74														
Cep NN E10S								28s	30	33s		36	39s	42	45s	48	51s	54	57s	60	63s		65	68s									
Cet TU E10S 2		64					3				42				81																		
Cet TV L10 2								40+									50+																
Com S 90			38	55	72	31	48	66	42	59		35	52	69	28		45	63		39	56			32	49	67		43	60	36	53		
Com ST 90 3		71	51	71			50	70		50	70		49	69	49		68	48	68				48	67	47	67		46	66	46	66		
CrB U S10			72							63							53							44								34	
CrB RV 90 3		62	62	61	61	60	60	59	59	58	58	57	57	56	56	55	55	54	54	53	53		52	51	51	50	50	49	49	48	48	47	47
Cri W 90 2		50					44	50						44	50																		
Cyg Y S10		50					44	50						44	50																		
Cyg UY RR					70					62														64									
Cyg XZ RR		62	55	49			69	62	55	49		42		69	62		55	49	42				69	62	55	48	42		68	62	55	48	
Cyg BO E10S							71s								61								63										66
Cyg BR E10S			68s	68			68s	68	68s			68	68s				67	67s	67					67s	67		67s	67	67s	67	67s		
Cyg DM RR			71				65					69		63						67				60				64					58
Cyg EM K10			70		61		65	68				59	63				66	70	57				61	65	68		55	59	63				
Cyg V0367		\	\	11s	/	/						\	\	40	/	/						\	\	70s	/	/							
Cyg V0463							59	65s	71																53	59s	65						
Cyg V0477							59	65s	71														58s						62s				
Cyg V0541														59+																			93+
JD 596 ..		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59		60	61	62	63	64	65	66	67	68	69	70

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Cyg V0548							65s	56	46s								68s	58	49s							61	51s	41					
Cyg V0788																																	
Cyg V0891		69		59																					65		56						
Cyg V0909						69							70s																54s				
Cyg V1061 E10S				55							59						63									67							
Del DX 90 3							69									67										65							
Del NN L10 1																			19														
Dra RW RR		45	33	66	55	43	32	65	53	42	30	63	52	41	29	62	51	39	28	61	49	38		59	48	36		58	46	35	68	57	
Dra SU RR			44		42		40		39	71	37	69	35	67	33	65	31	63	29	61		59		58		56		54		52		50	
Dra SW RR			37	51	65		36	50	64	35		49	62	33	47		61		32	46	60			31	45	59		30	44	58		42	
Dra TZ E10D		63s	50s		67	53		70s	56s			59	46		62s	49s		66	52		69s	55s	42s		58	45		62s	48s		65	51	
Dra V000Z		40+	36+	32+	29+	57	53	50	46	42	39+	35+	31+	27+	56	52	48	45	41	37+	34+	30+	58	55	51	47	44	40	36+	33+	61	57	
Dra WW S10		70					33									59													48				
Dra XZ RR 3		62	57	53	48	43	38	34	29		67	63	58	53	49	44	39	34	30		68	63	59	54	49	44	40	35	30			64	
Dra AI S10					46	66					45	65					45	65						44	64				43	63			
Dra BF L10					46	66		46s		45	65						45	65		67s			44	64					43	63			
Dra BK 90		53	71	31	49	67	27	45	63		41	59		37	56		33	52	70	29	48	66		44	62		40	58		36	54		
Dra BU E10S															68	64s	60	56s	51	47s	43	38s	34	30s									
Dra DD 90		26+	57	55	53	51	49	47	45	43	41	39	37+	35+	33+	31+	29+	60	58	56	54	52	50	48	46	44	42	40	38	36	34+	32+	
Dra GV L10																					5												
Gem RR 90		59	39	58	38	57	36	55	35	54	33	53	32	51	31	50	29	49	28	47			46		45		43		42		40		39
Gem RY L10 2		50s					15				80s					45					10s				75					40s			
Gem SZ 90		46	46	46	46	47	47	47	47	48	48	48	48	48	49	49	49	49	50	50	50	50	50	50	51	51	51	51	51	51	51	51	
Gem WW E10S		36			45s		31			41s						36s			45		31s				40				35				
Gem YY S10		50s	31s	54	35	57s	39s	42		46s		27s	49	31	53s	34s	56	38		41s			45		49s	30s	52	34		37s	41		
Gem OW L10 2																																	
Gem V0339				50																													
Her TW RR 3			58		58		57		57		57		57		57		56		56		56		56		56		56		55		55		55
Her TX S10				47	50s	53	56s	59	62s	65	68s	71																					
Her UX E10D				61s			71s				58			68					55s		64s					52			61				49s
Her V000X		58			67		59	50		68		59	50		69		60	51				61	52	43			62	53	44				63
Her V000Z		68	56		65		53		61	49		69	57	45			65	53		62		50			58	46		66	54	42			63
Her AK S10		65s	70	55	60s	66	71s	55s	61	66s	71	56	61s	66	51	56s	62	67s	51s	57	62s	67	52	57s	62	47+	52s	57	63s	47+	53	58s	
Her AR 90		70	64	58	52	46	40		69	63		57	51	45	39	33			68	62	56	50	44	38	32		67	61	55	49	43	37	31
Her AW L10 3							51										31																
Her DI L10		12s					51						67s				31								23s	11							
Her GU E10U		73s											58												44s		61						
Her LV L10 2		73s											58											68s		44s		61					
Hya SZ 90 2		48					32	39	47					30	38	45					29	36	43					34	42				
JD 596 ..		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	

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Hya	WZ	90	2		42	49						41	49					32	40	48				31	39	47					31	38		
Hya	Al	L10	2	38+							67+							96+						25+										
Hya	ET	90		50				30	35			41	47								32		38	44										
Lac	RW	L10		50				30+	35			41	47							34s	32		38	44				71s						
Lac	SW	S10			72s	69s				70				70s	67s				68				68s	65s			66	62				66s		
Lac	UW	E10S					96						25					54					83					12						
Lac	CO	E10X		30+									55+		64+											65+		52+				60+		
Lac	V0345			17+							66+							15+							65+									
Lac	V0364			17+							66+							15+							65+									
Leo	RR	RR	65	55	46	36	27	63	53	44	34		60	51	41	32		58	48	39	29		56	46	37		53	44	34	60	51			
Leo	SS	RR	65		53	41				54	42				55	43			31	56	44		32	57	45		33	58	46					
Leo	ST	RR			69	65	60	56	51	47	43	38	34	29		64		60	55	51	46	42	38	33	29		63	59	55	50	46	41		
Leo	AG	E10S	48					57s		27					36s					44					53s						32s			
Leo	AM	S10	33+	42+	34+	43+	35+	45+	36+	28+	37+	29+	38+	30+	40+	31+	41+	32+	42+	33+	43+	35+	44+	36+	46	37+	47s	38+	30+	39+	31+	41+	32+	
Lyn	TY	E10S	3		30					63												29				63								
Lyn	CD	E10S	3					43s									53s						36										45	
Lyr	RR	RR		63				60			56		70		53	67			50	63			60				57						54	
Lyr	RZ	90							52	55	57		59	61	64	66	68	70											48	51			53	
Lyr	UZ	S10				72s	66	61s	55														68	63s	57	52s								
Lyr	CN	90	68		56			61		67			55		61	66				54	60		66		54		59	65	47					
Lyr	EZ	RR	73						56	61	66	71						49	54	59	64	69					47	52	57	62		67		
Lyr	IO	90	60			64			53	68				57				61			50	65			54	69		58		46		61		
Lyr	beta	S10	3	75						22s						69							16s				63							
Mon	UX	E10S	2		48s			43		39s			34		29s						24		20s		15		10s			5				
Mon	V000V			22				25s		27				30s		32					35s		37		40s		42			45s				
Mon	AQ	E10S	2				35															35s												
Mon	AR	L10	1	44/							35\		20	5/								96\	81s	65/								56\		
Mon	AT	E10S	2																						29		32		35				38	
Mon	AV	E10S	2			10s			57				5s		52					99s			47		94s			41					89s	
Mon	EZ	E10U	2	35	29s	42s	36	30s	43s	37	31s	44s	38	32s	39	33s		40	34s	28	41	35s	29		36s	30	37s	31		38s	32			
Mon	IL	E10S	2		88					91			94					96				99			1				4					
Mon	V0448				34	46				37s			29	41						32s				35				39s					30	
Mon	V0530		25	31	36	41	46	30s	35s	40s	45s		29	34	39	44				28s	33s	39s	44s		33	38	43		32s	37s				
Mon	V0536			26+						39+																								
Mon	V0634					35				47															38									
Oph	U	ST		66					69						56s							59s			62s				66s					
Oph	ST	90	62			68					63				68	58					64			69	59			64	54					
Ori	Z	E10S	2		65				85					5								26							66					
Ori	BM	E10S	3				57						4									51				98								45
JD	596	..		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70

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Ori	CP	E10S	2	61				93						25				58				90										22			
Ori	DN	L10	2		86													82													79				
Ori	FO	L10	2					43																		23									
Ori	FT	E10X						43	29s			44s														23						35s			
Ori	GG	E10X						29				44									28s											35			
Ori	V1016	L10																																	
Ori	V1366	L10	1	9+	66	45	23	2+	59	38	17+	74	53	32	10+	68	46	25	4+	61	40	19+	76	55	33	12+	70	48							
Peg	V000V													71																					
Peg	V000W													71																					
Peg	AV	RR						70																		66									
Peg	AW	L10	2			42											4																97s		
Peg	CG	90												67								67													
Peg	DF	L10	3																														43		
Peg	GH	E10S	3																																
Per	RW	L10	2	78														98															18		
Per	RY	E10S	3																																
Per	AG	E10X																																	
Per	AR	90		51	36		49	34		47	32		44	30			42				40			38										45	
Per	AY	L10	3				0																											55	
Per	IQ	E10X					47+					44+									42+													37+	
Per	KN	E10U		42s	28s		45	31				35s		38			41s	28s			31				34s		38							31	
Per	LX	L10		11s			13					14s					16				18s				20			22s					24		
Per	beta	S10	3		28s													32							35s										
Psc	RU	90	3				29																												
Psc	SS	90	3											27				27																	
Sge	SY	E10S	3																																
Ser	V000Y			63				63													66														
Ser	AN	90	3	64	69																63		48		63		48							62	
Ser	BH	90	3		73	59	46		64	51		68	55	42							63	50		67	54	41		58	45					63	
Ser	EG	L10	3		68		16s			65		14s									60			8s		57								54	
Ser	LX	K10	3	53+	48+	59	54+	49+	60	55+	50+	45+	56	51+	46+	57	52+	47+			42+	53+	48+	43+	54	49+	44+	55	50+	45+				40+	
Sex	T	90		59	57	54	52	49	46	44	41	39	36	33	31						53	50	48	45	42	40	37	35	32	30					
Tau	RW	S10	3																																30
Tau	CD	S10	3																																33s
Tau	EN	E10S					45s	31													44			31											
Tau	V1094	L10	2				4+																												0s
Tau	V1125	E10S	1																																
Tri	X	S10	3											32	29																				
Tri	RU	E10S	2	37s					27																										
JD	596	..		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	















2022 Mai	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
And SW RR 3												61				59					57														
And SY L10 1																						38\	43	48/											
And TW S10															61s																				
And XX 90															59												60								
And CD L10 2			36\	\	43s	/	50/														59\	\	65	/	72/										
And OV 90	59									59								59	53							59	53								
Aqr SW RR																60							57					54							
Aqr SX 90 3	63									60						56									60								56		
Aqr CD E10S 3					98						82					66																	17		
Aqr LL L10 2																																	47s		
Aql AA RR	63					61					59					57					55				51	59							57		
Aql V0341	63									57					62							55				60	49						53		
Aql V0889	63					40s				57					62							55				60	49	64s					53		
Aql V1353 E10S	60						55s					50			62s						45s	58			41	53s					48		60s		
Aql V1426 E10S	31+	48	7+	24+	42s		1+	18+	36+	53	12+	29+	47s	6+	23+	41+	58	17+	35+	52s	11+				28+	46	5+	22+	40+	57s	16+	33+	51	10+	27+
Aql V1430 E10S	61					54s			60	48				53s		59	47				52s				58	46				51s		57	45		
Ari RS L10 2																																			
Aur TZ 90							42		38												39														
Aur CQ L10 2						32																													
Aur epsil L10 2																																			
Aur zeta L10 1																																			
Boo RS RR	59		48	61	36		49		38	51		40	53		42	55		44	57		46		59		47	61	49		38	51			40		
Boo TW 90			37	43	50	56						42	48	55	61							40	46	53	59			38	45	51	58				
Boo UU 90	44	36			55		47	38		58		49	41			61	52	43							55	46	37	57	49	40				60	
Boo UY 90			55		50		46		41		36					62	57					52	47		43		38						54		
Boo AC E10D	35+	41+	47	35+	41+		47s	52s	40+	46	52	40+	46s	51s	39+	45	51	39+	45s	51s	39+			44	50	38+	44s	50s	38+	44	49	55	43s	49s	
Boo CM 90			51		56			38	60	43					47						52		57		39	61		44		48			53		
Boo CQ 90 3	60	44	57	41	54		39	51	36	49	62	46	59	43	56	41	53	38	51		48			61	45	58	43	55	40	53		50		47	
Cam SS E10S 3			38		79s			21		62s				3	44s		85				27s			68		9s		50		91s				32	
Cam SV S10	49s	38	57	46s	35		53	42s	61s	50	39s	57s	46		54s	43	61	50s	39	58	47s			54	43s		51	40s	59s	47		55s	44		
Cam AK E10S										38	50s	61										40s	52											42	54s
Cam AN L10 3										38	50s	61										40s	52											42	54s
Cam AT E10S				42s		51		60s			40s		49		58s			37s		47			56s				45		54s						
Cnc S L10										88												36													
Cnc RU L10 2											79																								
Cnc RW 90		40	49							42						44											38							40	
Cnc RZ L10 2				68\	\	30s	92/								50\	\	12	74/								32\	94s	/	57/						
Cnc TT 90				35									37																						
Cnc TU E10S 3			73							29					85							41													
JD 597 ..		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			

2022 Mai		P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Cnc	TW	L10	2																																	
Cnc	UU	L10	2																																	
Cnc	ZZ	L10	2																																	
Cnc	AQ	90				44				37					41											38										
CVn	W	90	35	45	56				42	52				38	49	59				45	56				42	52			39	49	59					
CVn	Z	90		56		52		49		45		41		37					60		57		53		49		45		41							
CVn	RS	S10	3					59						38						58s				38s									57			
CVn	RZ	90	57			41	54			38	52				49	62			46	59			43	57		40	54			38	51					
Cas	RX	L10	2				\				71s			/	/								\	\		87			/	/						
Cas	RZ	S10	3				35	55					52						50					47					45							
Cas	SX	L10	2		59\	\	42		/	25/																										
Cas	TV	S10								60		41								47									53							
Cas	TW	S10			48						62			48										48												
Cas	TX	E10S			35s									60			52			45			38													
Cas	AQ	L10	2			27\	32s	38/				13\	18	24/			99\	\	4s	10/			85\	90	96/			71\	76s	82/						
Cas	BM	L10	3				8																						/	/						
Cas	DN	E10S						48							41	57s								50s					43s	59						
Cas	GG	E10S					57																	60												
Cas	GU	E10U													50			60																		
Cas	IL	E10S	3				50							40																						
Cas	IT	E10X					50				61s			40	50s																					
Cas	PV	E10X						60s																	61s											
Cas	V0368											52s											43s											56		
Cas	V0375				59s		54s				49s			43s		38s		59		54				48			43		38				59s			
Cas	V0381				59s		54s				49s			43s		38s		59		54				48			43		38				59s			
Cas	V0459						44s							90s										36s										82s		
Cep	RZ	90	44	37	61	53	46		38	62	54	47	40		56	48	41		57	50	42	58		51	44	60	52	45			53	46	39			
Cep	V000W		42+	39+	36+	48+	45+		43+	40+	37+	49s	46+	44+	41+	38+	36+	47+	44+	42+	39+	37+	48		45+	43+	40+	38+	49	46+	44+	41+	39+	50	47s	
Cep	XX	S10								56						58								59						60						
Cep	XY	E10S												51											61			38								
Cep	ZZ	S10								46		60													46			60								
Cep	AI	E10S	3					38		49s		60															39s		50							
Cep	CW	E10X						48+											40+								58+									
Cep	EI	L10				77s				99					21s				43				65s				87					9s				
Cep	EX	L10											48														91									
Cep	NN	E10S																						37s	40	43s	46	49s	52	55s	58					
Cet	TU	E10S	2																																	
Cet	TV	L10	2																																	
Com	S	90			38	55		49			42	59			53			46			39	57				50		43					54			
JD	597	..	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			

2022 Mai	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Com ST	90	3		40	60	40	59		39	59		38	58		38	58		37	57		37	57		56		56		55		55		48			
CrB U	S10																							58								49			
CrB RV	90	3		63	63	62	62	61	61	60	60	59	59	58	58	57	57	56	56	55	55	54	54	53	53	52	52	51	51	50	50				
Crt W	90	2			36							36																							
Cyg Y	S10				36							36																							
Cyg UY	RR		57				50	62				54			47		59				51			44	56				48						
Cyg XZ	RR			61	55	48	41			61		54	48	41			61	54	48	41				61	54		48	41							
Cyg BO	E10S				54							57	44s						59	47s				49s											
Cyg DM	RR		49	59			53		47			57		51			61	45	55				48	58	42		52			46					
Cyg EM	K10		63	50	54	41	57	45	61	48		52	39	55	43	59	46		50	37	54	41	57	45	61	48	52	39	55	43	59				
Cyg V0367			/			\	\	20	/	/					\	\	\	50s	/	/				\	\		80	/	/						
Cyg V0463													41s	47			53s	59																	
Cyg V0477								52s					41+	47			53s	59				60s													
Cyg V0541													94+															28+							
Cyg V0548			62s	52	42s							54	45s										57	47s	38				60	50s					
Cyg V0788																																	14\		
Cyg V0891				58		48																		54		45									
Cyg V0909				60			41			62s			42s								44						45s								
Cyg V1061	E10S			56						60																									
Del DX	90	3					60	55									58	53							56	51	45								
Del NN	L10	1																																	
Dra RW	RR		57	46		56	44		54	43			53	41			52	40				50	39	60	49	37		59	47						
Dra SU	RR		54		52	50		48	47		45	43	41				39		37											60					
Dra SW	RR			46	60			45	59			44	58		43		57		42	56				40	54		39	53					38		
Dra TZ	E10D		56	42		59s	45s		62	48		52s	38s		55	41		58s	44s			61	47		51s	37s		54	40				57s		
Dra V000Z			39	35	60	56	52	49	45	41	38	62	59	55	51	48	44	40	37			61	58	54	50	46	43	39		60	56				
Dra WW	S10					51															40														
Dra XZ	RR	3	61	56	52	47	38			42		62	57	52	48	43	38						58	53	48	44	39								
Dra AI	S10			40	60					39	59				39	59						38	58				38	57							
Dra BF	L10			40+	60					39	59				39	59						38	58				38	57						54s	
Dra BK	90		51		47		43	62	39			58	36	54			50				46			42	60	38	56			53					
Dra BU	E10S		50s	45	41s	37				25												59	55s	51	47s	42	38s								
Dra DD	90		37	35		63	59	57	55	53	51	49	47	45	44	42	40	38					60	58	56	54	52	51	49	47	45		43		
Dra GV	L10				76																								61						
Equ S	S10							60																											
Gem RR	90		38		36	35																													
Gem RY	L10	2				60s				25																									
Gem WW	E10S					35s																													
Gem YY	S10			39s	42								38													37s									
JD 597	..		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		

2022	Mai	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Gem	OW	L10	2																																	
Her	TW	RR	3	52		52		51		51		51		51		50			50		50		50		50		49		49		49		49			
Her	TX	S10								38	41s	44		47s	50	53s	56	59s																		
Her	UX	E10D		46s			56s				43			53			40s			50s		60s	37			47			57							
Her	V000X			59	51	42		60	51	42			61	52	43				53	44			54	45				55	46							
Her	V000Z			45			53	41		61	49	37		58	46		54		42		50	38		58	47			55	43		51		39			
Her	AK	S10		56	40+	46s	51	35+		41+	46	52s	36+	41+	47s	52	36+	42s	47	53s	37+	42	48s	53	37+	43s	48	53s	38+	43	48s	54	38+	44s	49	
Her	AR	90				62	56		50	44	38			61	55	49	43		37		60		54	48	42				59	53	47		41			
Her	AW	L10	3								12															72										
Her	DI	L10					43s				12					98s										72+										
Her	GU	E10U			53s										39		56s											42		59s						
Her	LV	L10	2		53s										39		56s											42		59s						
Hya	AI	L10	2																																	
Lac	RW	L10									18s											55s								92s						
Lac	SW	S10		61	58	54		62s		59s	55s	51s	59	56	52		60s	57s		53s	49s	61	57	54	50		58s	55s	51s	47s	59	55	52	48	60s	
Lac	UW	E10S			15						44				73							2				31				61						
Lac	CO	E10X		45+			53+			62+											41+		50+			58+									7+	
Lac	V0345			10+							60+									9+						58+									7+	
Lac	V0364			10+							60+									9+	54s					58+									7+	
Leo	RR	RR				44					42			49	39						46	37			44				42							
Leo	SS	RR		41					42					43						44					45											
Leo	ST	RR		48	44	39	35							48	43	39										47	43	38								
Leo	AG	E10S													42s																38s					
Leo	AM	S10		41s	51s	43		44s		45	36s	46s	38	47	39s	48s	40		41s		42		43s		45		37		38s	40				41s		
Lyn	CD	E10S	3											40																						
Lyr	RR	RR			41	54			38	51				48	61				44	58		41		55		38	51			48						
Lyr	RZ	90								36	38	41		43	45	47	50	52																		
Lyr	UZ	S10		40																																
Lyr	CN	90		56	38	62	44		50		55	38	61	43		49	55								54		60	42		48		54		59		
Lyr	EZ	RR							39	44	49	54	59																40	45	50	55		60		
Lyr	IO	90		36	51				40	55		44							59		48				40	56		44	60		48					
Lyr	beta	S10	3				45							93s													87s								34	
Mon	UX	E10S	2																																	
Mon	V000V																																			
Mon	AR	L10	1																																	
Mon	AV	E10S	2																																	
Mon	IL	E10S	2																																	
Oph	U	ST					56s					59s	43				62s	46								52				56		39s				
Oph	ST	90					57	47				53	43												59	49	39		54	44				59		
JD	597	..		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		

2022 Mai	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
Ori Z	E10S 2																																				
Ori BM	E10S 3																																				
Ori CP	E10S 2																																				
Ori DN	L10 2																																				
Ori FO	L10 2																																				
Ori V1016	L10																																				
Ori V1366	L10 1																																				
Peg U	S10																																				
Peg V000V																																					
Peg V000W																																					
Peg AV	RR					60		56						58			53																				
Peg AW	L10 2	84s						15					46s					78																			
Peg BH	90														61																						
Peg CG	90	58	52							59	53						53																				
Peg DF	L10 3																																				
Peg DH	RR					62									58	60																					
Peg GH	E10S 3					58s									53																						
Per RW	L10 2																																				
Per AR	90					36																															
Per AY	L10 3					88																															
Per LX	L10																																				
Sge SY	E10S 3																																				
Ser V000Y						47																															
Ser AN	90 3																																				
Ser BH	90 3																																				
Ser EG	L10 3	36																																			
Ser LX	K10 3	37+	48+	43+	38+	49																															
Sex T	90																																				
Tau V1094	L10 2																																				
UMa W	S10	49s	49s	49s	49s	50s																															
UMa RV	RR	38																																			
UMa RW	E10S																																				
UMa TU	RR																																				
UMa TX	S10																																				
UMi W	S10																																				
Vir ST	90 2	46																																			
Vir AG	E10D	50s	46	43s	39	35s																															
Vir AH	S10	48	50s	52	53s	35+																															
Vir AT	90 2																																				
JD 597	..	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					



2022 Mai			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Vir	AV	90		50		47		44		41		38												55		52		49		46		43		40	
Vir	CG	E10S				62s	56s	50s	43s	37s				57	51	45	38					59s	52s	46s	40s			50		54	47	41			
Vul	Z	S10	3																								50					41			
Vul	BN	90	3			49			46			43	62	40	59				56				53		50			47			44			41	
Vul	DR	E10X								62+																									
Vul	EV	E10S	3					47															58		40										
JD	597	..		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
2022 Jun			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
And	SW	RR	3							59				57				55						53			51		60	49			59		
And	SY	L10	1																							29	34	39/							
And	TW	S10														53							59s												
And	XX	90				55																	56			51					57				
And	CD	L10	2					81/	\	88s	/	94/		59	53	47									3/	\	10	/	16/						
And	OV	90			59	53					57	48		59	53	47							59	53	47		56	48				53			
Aqr	SW	RR		59	51						57	48			53	47							59	51			56	48							
Aqr	SX	90	3						52	60					49	56							45	52	60					49	56				
Aqr	CD	E10S	3			1				84					68							52			36				20						
Aqr	HH	90																						56			58					60			
Aqr	LL	L10	2								56												65s							74					
Aql	AA	RR				55				53				51	60		49	58					47	56			45	54		43	52	60			
Aql	V0341					58			47				52			56							45		50			55			44	59			
Aql	V0889					58			47	76s			52			56							45	88s	50			55			44	59	0s		
Aql	V1353	E10S			43s	55				38	51s					46			58s			41s		53				48s							
Aql	V1426	E10S		45s	3+	21+	39+	56	15+	32+	50s	9+	26+	44	2+	20+	37+	55s	14+	31+	49	7+	25+	43s	1+	19+	36+	54	13+	30+	48s	6+	24+		
Aql	V1430	E10S			50s			56	43		49s				55	42			48s				54	41		60s	47s		53	40		59s	46s		
Ari	RS	L10	2												66										46							27			
Aur	CQ	L10	2																																
Aur	epsil	L10	2																																
Aur	zeta	L10	1																							17\									
Boo	RS	RR		53		42	55		44	57		45	59		47			49		38	51		40	53		42	55		43	57		45			
Boo	TW	90						43	50	56					42	48	55							40	47	53	59				38	45			
Boo	UU	90		51	43				54	45				57	48	39							59	51	42		53	45		56	47	39			
Boo	UY	90		49		44		40								51			46			42										48			
Boo	AC	E10D		55s	43+	48	54	42+	48s	54s	42+	48	53	41+	47s	53s	41+	47	52	41+	46s	52s	40+	46	52	40+	45s	51s	39+	45	51	39+	45s		
Boo	CM	90			57	40				45		49			41								41		46		50								
Boo	CQ	90	3	60	45	57	42	55	39	52		49		47	44	57	41		54	39	51		49		46		43		41	53	38	51			
JD	597	..		32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	

2022 Jun	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Cam SS	E10S	3	74s			15	56s	97				38s	80				21s	62				3s	44			85s		27							
Cam SV	S10		52s	41	59	48s	56	45s	52			41s	60s	49	38s	56s	45	53s	42	60		49s	38	57	46s		54	42s	50	39s					
Cam AK	E10S						44s	56									47	58s									49s	60							
Cam AN	L10	3					44s	56									47	58s									49s	60							
Cam AT	E10S		43		52s				41			50s	59				39	48s	57					46s		55									
Cnc S	L10																																		
Cnc RU	L10	2																																	
Cnc RZ	L10	2				14\	76	/	39/																										
Cnc TU	E10S	3																																	
Cnc TW	L10	2																																	
Cnc UU	L10	2																																	
Cnc ZZ	L10	2																																	
CVn W	90		46	56				42	52											46	56				42	53				39	49				
CVn Z	90					57	53	49				45	42	38											53		49	46	42						
CVn RS	S10	3										57s																							
CVn RZ	90		48				45	59				43	56	40			53							48				45							
Cas RX	L10	2					\	\				3s		/	/								\	\				20							
Cas RZ	S10	3			43					40		60					38	58					55						53						
Cas SX	L10	2							16\	98		/	81/																						
Cas TV	S10						60	41									47										54								
Cas TW	S10	48										47																							
Cas TX	E10S			55s			47s		40s														57		50			43							
Cas AQ	L10	2	57\	63	68/			43\	49s	54/				29\	35		40/				15\		21s	26/			1\	7	12/						
Cas BM	L10	3																																	
Cas DN	E10S						52							45															47s						
Cas GG	E10S																							43											
Cas GU	E10U												44				53																		
Cas IL	E10S	3				56						47																							
Cas IT	E10X					56						47					57s						47s												
Cas OX	E10X				60+				58+					56+						54+					52+				50+						
Cas PV	E10X				60+				58+					56+						54+					52+				50+						
Cas V0368							46																				49s								
Cas V0375			53s		48s			43s					58				53		48				42				58s			53s					
Cas V0381			53s		48s			60s	43s				58	59s			53		48				57s	42			58s	56s		53s					
Cas V0459							60+						59	73s									57		19s			56							
Cep RZ	90		55	47	40		56	49	41	57		50	43	59	51		44	60	53	45		38	54	46	39		55	48	40						
Cep V000W			45+	42+	40+	51	48s	46+	43+	41+	38+	49s	47	44+	41+	39+	50s	48	45+	42+	40+	51s	49	46+	43+	41+	38+	50	47s	44+	42+	39+			
Cep XY	E10S					48											58													45					
Cep ZZ	S10						45	59															44	58											
JD 597	..		32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62		

2022 Jun	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Cep AI E10S	3					50+						40	52s				42+						60+											
Cep CW E10X																								40s			62							
Cep EI L10		31					53s			75				97s																				
Cep EX L10								35																										
Cep NN E10S																										39	42s	45	48s	51				
Cet TU E10S	2																																	
Cet TV L10	2																																	
Com S 90		47				40				51		44			38						48			41						45				
Com ST 90	3	54				54				53		53			52						52													
CrB U S10							39																											
CrB RV 90	3	49	48	48	47	47	46	46	45	45	44	44	43	43	42	42	41	41	40	40	39		39	38	38									
Cyg UY RR		41	53				46	58				38	50				43	55					47	59		40	52				44			
Cyg XZ RR		54	47	41					54	47	41				54		47	41						54	47	40				60	54	47		
Cyg BO E10S										54s	42						57s	45						59s	47									
Cyg DM RR		56	40		50		60	44		54	38	48		58	42		52						55	39	49		59	43		53				
Cyg EM K10		46		50		54	41	57	45		48	52	39	55	43	59	46		50			54	41	57	45	48	52	39	55					
Cyg V0367			\	\		9s	/	/				\	\	39	/	/							\	\	69s	/	/							
Cyg V0463		41	47s	53	59s																	41s	47	53s	58									
Cyg V0477		41	47s	53	59s				38s								42s				41s	47	53s	58	46s						50s			
Cyg V0541																62+														96+				
Cyg V0548		40							53s	43									55s	45							58s	48	38s					
Cyg V0788		9	5/																															
Cyg V0891												60	51				41																	
Cyg V0909				46						48s								49						50s										
Cyg V1061 E10S						41						45									49					53								
Del DX 90	3	60	54	49	43							58	52	47	41							56	50	45	39				59	54	48			
Del NN L10	1																										46							
Dra RW RR		57	46			56	45			55	43				53	42						52	41			51	39		49	38		59	48	
Dra SU RR		58		56		54		52	51			49	47		45							43	41			39								
Dra SW RR		52				51				49							47						46	60		44	58				43	57		
Dra TZ E10D		43s		60	46		50s			53		39	56s	42s			59	46			49s			52	38	55s	41s		58	45				
Dra V000Z		53	49	45	42	38			59	55	51	48	44	40								58	54	50	47	43	39		60	57	53	49	45	42
Dra WW S10												55																						
Dra XZ RR	3	58	54	49	44	40						59	54	50	45	40							60	55	50	46	41							
Dra Al S10				57						56																		55			54			
Dra BF L10				57						56						56											55			54	57s			
Dra BK 90		49				45			41	59					55	51						47				43		39	58		54			
Dra BU E10S															56	52s	48	44s	39															
Dra DD 90		41	39						59	58	56	54	52	50	48	46	44	42	40	38							59	57	55	53	51	49		
JD 597 ..		32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62		

2022 Jun	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Dra GV L10																						47												
Equ S S10								52																										
Gem RY L10 2																																		
Gem OW L10 2																																		
Her TW RR 3		49		48			48		48		48		47				47		47		47		46			46		46		46				
Her TX S10												40	43s	46	49s		52	55s	58															
Her UX E10D		44s			54s			41				51			38s				48s			58s		45				55						
Her V000X		56	47	38			57	48	39			58	49	40			59	50	41			59	51	42			60	51	43					
Her V000Z			59	47			56	44			52	40	60	48				56	44			53	41		49			57	45					
Her AK S10		54s	39+	44	49s	55	39+	44s	50	55s	39s	45	50s	56	40	45s	51	56s	40s	46	51s	57	41	46s	52	57s	41s	47	52s	57	42			
Her AR 90					58		52	46	40				57	51	45		39					56	50	44	38				55	49				
Her AW L10 3			52										32									12							92					
Her DI L10			52		8s								32		63s							12				18s		92						
Her GU E10U								45														47												
Her LV L10 2			42s					45														47		49s										
Her MM E10S																													60					
Hya AI L10 2																																		
Lac RW L10									29s																						3s			
Lac SW S10		56s	53s	49s	45s	57	53	50	46	42+	54s	51s	47s	43+	55	51	48	44+	40+	52s	49s	45s	41+	53	49	46	42+	38+	50s	47s	43+			
Lac UW E10S			90						19						48										6						35			
Lac CO E10X								46+		54+														42+			51+		59+					
Lac V0345								56+							6+								55+						4+					
Lac V0364								56+	59s						6+								55+						4+					
Leo RR RR		39																																
Leo ST RR				42											41																			
Leo AM S10		42										38s	39																					
Lyn CD E10S 3					42s																													
Lyr RR RR			45	58			41	55		38		52			48							45	58		42	55		39	52					
Lyr RZ 90		39	41	43	46	48	50	52	55	57	59																44	46	48	51	53			
Lyr UZ S10		60s	55	50s	44	39s																57	52s	46	41s									
Lyr CN 90		41		47	53			59	41	47		52		58	40		46	52				57	40		45		51		57	39				
Lyr EZ RR							38	43	48	53	58						41	46	51	56							39	44	49	54				
Lyr IO 90			52		41		56		45	60				49			53		41			57		45				49						
Lyr beta S10 3							81s						28														22							
Mon UX E10S 2																																		
Mon V000V																																		
Mon AR L10 1																																		
Mon AV E10S 2																																		
Mon IL E10S 2																																		
JD 597 ..		32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62		

2022 Jun			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oph	U	ST					59	43s					46s					49s					52s			56s	39								
Oph	ST	90	49	40				55	45			60	50	40			56	46					51	41		56	46					52	42		
Ori	Z	E10S	2																																
Ori	BM	E10S	3																																
Ori	CP	E10S	2																																
Ori	DN	L10	2																																
Ori	FO	L10	2																																
Ori	V1016	L10																																	
Ori	V1366	L10	1																																
Peg	U	S10		57			56		56			56		56			56		56			56		56		55		55			55	49s			
Peg	V000V								59	57	55			52	50	48	45																59	57	
Peg	V000W								59	57	55			52	50	48	45																59	57	
Peg	AV	RR					44		57	52				47	42	59			55	50			45	40	57		52		48	43					
Peg	AW	L10	2		71s				2						33s						64				95s						27				
Peg	BH	90			56									53							58	50						56	48						
Peg	BK	E10S							55	49	42					60s											58s								
Peg	CG	90												92		56	49	43				57	50	44					57	51	44	38			
Peg	DF	L10	3																										62						
Peg	DH	RR				53	55		58	60						50	52		54	56	59						46	48	51	53	55	57	59		
Peg	GH	E10S	3				54									48s					59s				43				54						
Per	RW	L10	2													37																57			
Per	RY	E10S	3																																
Per	AG	E10X																																	
Per	AR	90																		60															
Per	AY	L10	3						21												99												77		
Per	IQ	E10X														60+													55+						
Per	KN	E10U																												55					
Per	LX	L10		55				57s			58					60s										64s		66				68s			
Psc	RU	90	3													57										60	55						58		
Psc	RY	90	2																							59									
Psc	SS	90	3																		56	57				59	60								
Sge	SY	E10S	3		53									38s															53s						
Ser	V000Y				46				46						46						46						46			46					
Ser	AN	90	3	53	57				40					45	49	54	58									41	46	50	54						
Ser	BH	90	3	55	42		59	46		50				54	41		59	45			50				54	41		45			49				
Ser	EG	L10	3		69s		17		66s		15				64s		12			61s		10				58s		7		56s		4			
Ser	LX	K10	3	42+	53	48	43+	38+	49	44+	39+	50	45	40	45	51	46	41+	52	47	42+	53	48	43+		38+	49	44	39+	50	45	40+	51	46	41+
Tau	V1094	L10	2																																
Tri	X	S10	3												58																				
JD	597	..		32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	

2022 Jun			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Tri	RU	E10S	2															59																
Tri	UX	90	3																		55						56							
UMa	W	S10		52s	52s	52s	52s	52s	52s	53s	53s	53s	53s	53s	53s	53s	53s	53s	53s	53s	54s								38	38	38	38	38	
UMa	RV	RR					55	48	42					57	50	44					59	52	46	40					54	48	42			
UMa	RW	E10S								54												53s											52	
UMa	TU	RR	43						45					47									39				41					43		
UMi	W	S10									44				54																	45		
Vir	ST	90	2	50				38	43	49					42				47					40	45						38	44		
Vir	AG	E10D							45	41s	38									41s								41s						
Vir	AH	S10	45	47s						38	40s	42		43s	45							38	40s	42								38		
Vir	AT	90	2					42										41																
Vir	AV	90																		48	45			42	39									
Vir	CG	E10S		55s	49s	42s							50	44						52s	45s	39s					47	40						
Vul	Z	S10	3												59								50				41							
Vul	RR	E10S	3						41					46						51						56								
Vul	BN	90	3	60	38	57			54		51				48				45		43			40	58			55		53				
Vul	DR	E10X		38+								38+									39+									39+				
Vul	EV	E10S	3					51																	44									
JD	597	..		32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62
2022 Jul			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
And	SW	RR	3	47				57	45			55	43					53	51				60	49			58	47						54
And	SY	L10	1																												20	25	30/	
And	TW	S10															45s		51		57s													
And	XX	90		46						52					58		47					53			42	59			48			37		
And	CD	L10	2									25\	\	32s	/	39/												47\	\	54	/	61/		
And	OV	90					59	53	47	42				59	53	47	42	42				59	53	47	42	36			59	53	47	41		
Aqr	SW	RR	45					58	50	42				55	47	39			61	52	44				58	50	41			55	47	39		
Aqr	SX	90	3					45	52	60				42	49	56						38	45	52	60			42	49	56				
Aqr	CD	E10S	3	3					87					71					55					38				22					6	
Aqr	HH	90							50				52			54					56				58		45	60		47	62			
Aqr	LL	L10	2								83s										92									1s				
Aql	AA	RR	41	50	58				48	56			46	54			44	52	61	42	50	59		40	48	57		37	46	55			44	
Aql	V0341			48					53		42	57			46					51		40		56		45	60			49			38	
Aql	V0889			48					53		42	57		12s	46					51		40		56	25s	45	60			49			38	
Aql	V1353	E10S	44		56s				39s	51					46s	58					41	53s				36s	49		61s			44s		
Aql	V1426	E10S	41	59s	18+	35+	53s		11+	29+	46	5+	23+	40+	58s	17+	34+	52	10+	28+	45s	4+	22+	39+	57	15+	33+	50s	9+	27+	44	3+	21+	38+
JD	597	..		62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92

2022 Jul			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Aql	V1430	E10S			52	39			58s	45s			51	38		57s	44s		60	50	37		56s	43s	62	49	36		55s	42s			48	
Ari	X	RR	2										7							87									67		62			57
Ari	RS	L10	2																												31			
Aur	CQ	L10	2																						99s									
Aur	epsil	L10	2																															
Aur	zeta	L10	1											61																				
Boo	RS	RR		47				49		38	51		40	53		41			43			45			47	36	49		38			40		
Boo	TW	90		51	58						43	50	56						42	48	55					40	47	53						
Boo	UU	90			58	50	41				52	44				55	46	38					49	40			52	43				46		37
Boo	UY	90		43			39												40															37
Boo	AC	E10D		50s	38+	44	50	38+	44s	49s	38+	43	49	37+	43+	49s	37+	42+	48	54	42+	48s	53s	42+	47	53	41s	47s	53s	41	46	52	40s	46s
Boo	CM	90			42			46								38			43											39			44	
Boo	CQ	90	3	48		45		43		40			50		47		45		42		39		37			47	44		41			39	36	
Cam	SS	E10S	3	68s			9		50s		91			33s		74			15s		56		97s			38	80s			21		62s		
Cam	SV	S10		58s	47		54s	43		51s	40	58	47s		55	44s		51	40s	59s	48	37s	55s	44	52s	41	60	49s	38	56	45s		53	
Cam	AK	E10S							39s	51									41	53s									43s	55				
Cam	AN	L10	3						39s	51									41	53s									43s	55				
Cam	AT	E10S		44s			53					42s		51		61s			40s		49		59s		38s		47		57s			36s		
Cnc	S	L10																																
Cnc	RU	L10	2																															
Cnc	RZ	L10	2																															
Cnc	TU	E10S	3																															
Cnc	TW	L10	2																															
Cnc	UU	L10	2																															
Cnc	ZZ	L10	2																															
CVn	W	90						46					42	53			39		49					46					42					39
CVn	Z	90			38											50	46				42		38											
CVn	RZ	90			42				39					50			47						44		41					39				36
Cas	RX	L10	2	/							\	\				36s			/	/						\	\				53			
Cas	RZ	S10	3					50						48						46					43					41	60			
Cas	SX	L10	2													72\			\	55	/	38\												
Cas	TV	S10					60		41										47							54								
Cas	TW	S10		47										47							61			47						61			47	
Cas	TX	E10S												60s			52s				45s		38s									62		
Cas	AQ	L10	2	87\	93s	98\			73\	79	84\				60\	65s	70\				46\	51		56\		32\		37s	42\				18\	
Cas	BM	L10	3																															
Cas	DN	E10S				41s		56								49							43	58s					36	52s				
Cas	GG	E10S									47															50								
Cas	GU	E10U														37					46		56											
JD	597	..		62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92

2022 Jul			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Cas	IL	E10S	3												53									43											
Cas	IT	E10X													53								43						54s			44s			
Cas	OX	E10X					47+					45+					43+						41+					39+				37+			
Cas	PV	E10X					47+					45+					43+					37s	41+				39+				37+	38s			
Cas	V0368								39s											52									43						
Cas	V0375					48s			42s					58			53				47		42			37	58s				52s	47s			
Cas	V0381					48s		54s	42s					58	52s		53			47		51s	42			37	58s	49s			52s	47s			
Cas	V0459					65s		54						11s	52								51+					49			2s				
Cep	RZ	90		56	49	42		58	50	43		59	52	44	37	60	53	46	38		54	47	39		55	48	41	57	49	42	58	51			
Cep	V000W			50	48s	45+	43+	40+	38+	49s	46+	44+	41+	38+	50s	47+	45+	42+	39+	37+	48	46+	43+	40+	38+	49	47+	44+	41+	39+	36+	47+	45+	42+	
Cep	XX	S10																												37					
Cep	XY	E10S												55														42							
Cep	ZZ	S10								43		57												43			57								
Cep	AI	E10S	3	42s			53																	43		55s									
Cep	CW	E10X						52+											44+								62+								
Cep	EI	L10	84s						6			28s					50				72s			94				16s				38			
Cep	EX	L10					22													65												9			
Cep	NN	E10S	54s	57	60s																											36s	39		
Cet	RR	RR															60						58				56				53				
Cet	TU	E10S	2										37			76							15			54		94							
Cet	TV	L10	2																					95+						61s		5+			
Cet	XY	E10S	2																																
Com	S	90		39								43										40									37				
CrB	U	S10	55									45																							
CrB	RV	90	3													60			59	59	58	58	57	57	56	56	55	55	54	54	53	53	52	52	
Cyg	UY	RR	57					49				42	54				46	58			39	51				43	55			36	48	60			
Cyg	XZ	RR	40				60		54	47	40				60	54	47	40					60	53	47	40			60	53	47	40			
Cyg	BO	E10S	50									52	40s				55		42s						57	45s							60	47s	
Cyg	BR	E10S												61s	61				60s	60		60s		60		60s		60	60	60s	60				
Cyg	DM	RR			47		57		41		51			45	55	39			49	59	43			52	62	46		56	40		50	60			
Cyg	EM	K10	43	59	46		50		54	41	57	45		61	48	52	39		55	43	59	46		50	37	54	41	57	45	61	48		52	39	
Cyg	V0367			99		/	/					/	/		29s	/	/					/	/		59	/	/			/	/	89s			
Cyg	V0463									41	47s	52	58s														41s	47	52s	58					
Cyg	V0477									41+	47s	52	58s						58s								41s	47	52s	58					
Cyg	V0541															30+																63+			
Cyg	V0548								60s	51	41s									53	44s						56	46s	36						
Cyg	V0788																			98\	94	90/													
Cyg	V0891					56		47		38																	53	43							
Cyg	V0909			52							53s					55									56s		36s				57				
JD	597	..	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92		



2022 Jul			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Cyg	V1061	E10S				57																												39	
Del	DX	90	3	43						57	52	46	41				61		55	50	44	39				59	53	48	42	37					
Del	NN	L10	1																											50	38		60	48	37
Dra	RW	RR			58	47			57	45			55	44			54	42				53	41			51	40		61	50			60	48	
Dra	SU	RR					60		58		56		55		53		51		49		47		45			43		41	40			38	36		
Dra	SW	RR				42	56			41	55			40	53			38	52			37	51				36	50				49	62		
Dra	TZ	E10D				48s			51			54s	41s		57	44		60s	47s				50			53s	40s	56	43			59s	46s	62	
Dra	V000Z			38			59	55	52	48	44	41			58	54	50	47	43	39			60	57	53	49	46	42	38			59	55		
Dra	WW	S10																				59													
Dra	XZ	RR	3	60	56	51	46	41						61	56	52	47	42	37							57	52	47	43	38					62
Dra	AI	S10				54							53					53								52						51			
Dra	BF	L10				54							53					53+								52			60s	51					
Dra	BK	90		50			46			42	60		38	56			52			48		44				40	59	36	55			51			
Dra	BU	E10S						58s	54	49s	45	41s																	59	55s	51	46s	42		
Dra	DD	90		47	45	43	41	39						60	58	56	54	52	50	48	46	44	42	40	38	36				61	59	57	55	53	
Dra	GV	L10																	32																
Equ	S	S10			57								45																						
Gem	RY	L10	2																																
Gem	OW	L10	2																																
Her	TW	RR	3	46		45			45	45		45			45	44			44	44	44				44	43	43		43	43					
Her	TX	S10																	39s	41	44s	47	50s	53	56s	59	62s								
Her	UX	E10D			42s			52s				39			49		58				46s				55s			43			52				
Her	V000X				52	43				53	44				54	45				55	46	37				47	38				48	39			
Her	V000Z				54	42			50	38		58	46		54	42				51	39		59	47			55	43				51	40	60	
Her	AK	S10		47s	52	58s	42s	48	53s	58	43	48s	53	38+	43s	48	54s	38s	44	49s	54	39	44s	49	55s	39s	44	50s	55	39	45s	50	40s		
Her	AR	90		43					60	54	48	42				59	53	47	41						58	52	46	40					57	51	
Her	AW	L10	3									72							52									32							
Her	DI	L10							73s		72									52+									32	83s					
Her	GU	E10U					50													53												39s	56		
Her	LV	L10	2				50											56s		53												39s	56+		
Her	MM	E10S				58s				56				54s				52					50s				48				46s		44		
Hya	AI	L10	2																																
Lac	RW	L10											40s										77s											14s	
Lac	SW	S10		39+	51	48	44+	40+	52s	48s	45s	41+	53	49	46	42+	38+	50s	46s	43+	39+	51	47	44+	40+	36+	48s	44+	41+	37+	49	45+	42+	38+	
Lac	UW	E10S						64					93						22					51					80						
Lac	CO	E10X												39+			47+			56+													44+		
Lac	V0345									53+								2+								52+							1+		
Lac	V0364									53+								2+								52+							1+		
Lyr	RR	RR			49				45	59			42	55			39	52					49				46	59		42	56			39	
JD	597	..		62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	

2022 Jul			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Lyr	RZ	90		55	57	60													38	40	42	44	47	49	51	53	56	58	60	62								
Lyr	UZ	S10							59	54s	48	43s	38													61	56s	51	45s	40								
Lyr	CN	90		45		50		56	38		44		50		55	38	61	43			49		55	37	60	43		48	54	36	60	42			48			
Lyr	EZ	RR		59							42	47	52	57							40	45	50	55	60						38	43	48			53		
Lyr	IO	90		38	53			42	57			46			50				38	54			42	58		46	62			50						39		
Lyr	beta	S10	3		69s							16						63s						10					57s									
Mon	UX	E10S	2																																			
Mon	V000V																																					
Mon	AR	L10	1																																			
Mon	AV	E10S	2																																			
Mon	IL	E10S	2																																			
Oph	U	ST		43					46					49											39s				42s									
Oph	ST	90			57	47				52	42				48	38				53	43				48	39			44					49	39			
Ori	Z	E10S	2																																			
Ori	BM	E10S	3																																			
Ori	CP	E10S	2																																			
Ori	DN	L10	2																																			
Ori	FO	L10	2																																			
Ori	V1016	L10																																				
Ori	V1366	L10	1																																			
Peg	U	S10		55	49s		55	48s		55	48s		54	48s	60s	54	48s	60s	54	48s	60s	54	48s	60s	54	47s	60s	53	47s	41+	53	47s	41+			53		
Peg	V000V			55	52	50	48	45	43	41	38														59	57	55	52	50	48	45	43	41	39	36			
Peg	V000W			55	52	50	48	45	43	41	38														59	57	55	52	50	48	45	43	41	39	36			
Peg	AV	RR		60	38	55		50		46		41	58		53		48		43	61	39	56			51	46	41		58	37	54	49						
Peg	AW	L10	2				58s					89						20s										82s									13	
Peg	BH	90							53		45					58	50				43					55		48	40			60				53		
Peg	BK	E10S							56s													54s								52s								
Peg	CG	90			58	52				45	38			59	52	46	39									40			60	54	47	41						
Peg	DF	L10	3											32															2									
Peg	DH	RR				45			47	49	51	54	56	58	60		41		44	46	48	50	52		55	57	59	61	38	40	42	44	47	49			51	
Peg	GH	E10S	3						49s						60s				43						55			38s							49s			
Per	RW	L10	2											77														97										
Per	RY	E10S	3																						47													
Per	AG	E10X																							47													
Per	AR	90								60				58	56					58s		61s			47				49	62	47		60			58		
Per	AY	L10	3											54														32										
Per	IQ	E10X				52+																																
Per	KN	E10U		59s							52s			55			58s									52s		55		58s			61			48		
Per	LX	L10				70					72s			74			76s											79s		81							83s	
JD	597	..		62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91				92	

2022 Jul			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Per	beta	S10	3			58s									61				48											52s					
Psc	RU	90	3		53					60	55			51					58		53	48				61	56				51		46		
Psc	RY	90	2	59							54	60									55	61								49	55	61			
Psc	SS	90	3			52		54		55	57			58	59	61					49	50			52	53				54		56	57		44
Sge	SY	E10S	3			38								46							54							62			39s				
Ser	V000Y			45					45						45				45							45					39	43	48		
Ser	AN	90	3		38	42	46		51						38	43	47	52			48														
Ser	BH	90	3	53	40			44			49			53	40			44			48					39		43				48			
Ser	EG	L10	3		53s			2		50s	99			48s	96					45s	94				42s	91				40s	88				
Ser	LX	K10	3	52	47	42	53	48	43	38+	49	44	39	50	45	40	51	46	41	37+	47	42	38		48	44	39	49	45	40	46	41	36		47
Tau	RW	S10	3																								59								
Tau	V1094	L10	2																86+								85+								
Tau	V1125	E10S	1																												62				
Tri	X	S10	3																59	56	53	50	47												
Tri	RU	E10S	2			56s																			54					44s					
Tri	UX	90	3		56						56	50							57	50						57	51	44					58		51
UMa	W	S10		38	38	38	38	38	38	39	39	39	39	39	39	39	39	39	39	40	40	40	40	40	40	40	40	40	40	40	40	41	41	41	41
UMa	RV	RR				57	50	44				59		52	46	39					54	48	42					56		50	44	37			
UMa	RW	E10S												52s																					
UMa	TU	RR													37																				
UMa	TX	S10											42																						
UMi	W	S10		55											46						56						37								47
Vir	ST	90	2							42					41										39						37				
Vir	AH	S10		40s																															
Vir	AV	90																	39																
Vir	CG	E10S		48s	42s							43	37						45s	38s						40									
Vul	Z	S10	3												60					51						42					45		42		61
Vul	BN	90	3		50			47			44			41	60		38	57			54				51		48								
Vul	DR	E10X								40+										40+								40+							
Vul	EV	E10S	3						55																		48								
JD	597	..		62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	
2022 Aug			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
And	SW	RR	3	43			52	41		62	50	39		60	48	37	58	58	46	35		56	45	33		54	43		64	52	41	62		50	
And	SY	L10	1																																
And	TW	S10														37				43s		49		55s		61									
And	XX	90			54			43		60		49			38	55				44		61		33		50			39		56			45	
JD	597	..		93	94	95	96	97	98	99																									
JD	598	..								0	1	2		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	

2022 Aug	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
And CD L10	2																70\ \ 76s	/ 83/														92\		
And OV 90		36				59	53	47	41	36				59	53	47	41	36			65	59	53	47	41	36				65	59	53	47	
Aqr SW RR			60	52	44	36				57	49	41			54	46			38		59	51				57	48	40	32			54		
Aqr SX 90	3			38	45	52	60					35	42	49	56	63				38	45	52	60			35	42	49	56					
Aqr CD E10S	3			90						74					57						41				25				9					
Aqr HH 90		50					52				54			41	56				43	58			45	60			47			49				
Aqr LL L10	2								10											19s									27					
Aql AA RR		53	61		42	51	59		40	48	57			38	46	55			36	44	53	34	42	51		32	40	49		38	47			
Aql V0341		54			43	58				47			37	52		41			57		46			35	50			39	55		44			
Aql V0889		54	37s		43	58				47			37	52	49s	41			57		46			35	50	61s		39	55		44			
Aql V1353 E10S		56		39			51s			34s			46		59s			42s	54				37		49s		32s	44						
Aql V1426 E10S		56s	14+	32+	49	8+	26+	43s	2+	19+	37+	54	13+	31+	48s	7+		25+	42	1+	18+	36+	53s	12+	30+	47	6+	23+	41+	58s	17+	35+	52	
Aql V1430 E10S		35		54s	41s				47		53s	40s			46				52s	39s			45			51s	38s		44			50s		
Ari X RR	2											64		60	55				50								62	57	53					
Ari RS L10	2			48										28									8							89				
Ari AL E10S										60									65															
Aur TZ 90																			61		57					66	62	58				53		
Aur CQ L10	2			62s					93						24s						55				86s				17					
Aur IY E10S				61															58														55	
Aur V0432				60																			55s		63s									
Aur epsilon L10	2																																	
Aur zeta L10	1	5/																																
Boo RS RR			41			43				45	34				36			38		39			41				32		34					
Boo TW 90		39	45	51							37	43	50						35	42					34	40								
Boo UU 90				48	40						42	34			45		36						39			42	33						44	
Boo UY 90																34																32		
Boo AC E10D		52s	40	46	51	39s	45s	51s	39	45	50	39s	44s	50s	38	44	50	38s	43s	49s	37						36	36	42	48	36s	42s	47s	
Boo CM 90									35	40																								
Boo CQ 90	3					43			41	38		35											35	32										
Cam SS E10S	3	3			44s		86			27s		68			9s		50		91s			33		74s		15	56s	97						
Cam SV S10		42s	60s	49	38s	57s	46	35s	53s	42	61	50s	39	57	46s	35	54	43s	62s	50	39s	58s	47	36+	55s	44	33+	51s	40	59	48s	37+		
Cam AK E10S					45		57s								36	48s	59								38s	50	61s							
Cam AN L10	3				45		57s								36	48s	59								38s	50	61s							
Cam AT E10S		45		55s					43	52s		62			41		50s	60				39	48s		58			37				46s		
Cnc S L10																																	69	
Cnc RU L10	2																																69	
Cnc RZ L10	2																					89\ \	52s	/ 14/								71\		
Cnc TU E10S	3																																	
Cnc TW L10	2																																	
JD 597 ..		93	94	95	96	97	98	99																										
JD 598 ..								0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			

2022 Aug			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Cnc UU	L10	2																				\															
Cnc ZZ	L10	2																																			
CVn W	90					36		46						42					39					36						32							
CVn Z	90				42		39			35														39		35											
CVn RS	S10	3															34														33s						
CVn RZ	90														41				38					35					33								
Cas RX	L10	2	/										\	\		69s			/	/									\	\			85				
Cas RZ	S10	3				39	58						36	56					34	53					51							49					
Cas SX	L10	2																					29\	\	12	94/											
Cas TV	S10			60		41											48							54		35											
Cas TW	S10							61				46							61			46			32				60		46						
Cas TX	E10S		55			48				40										65s				57s		50s			43s		35s						
Cas AQ	L10	2	23	29/				4\	9s	15/				90\	95	/	1/			76\	81s	87/			62\	67	73/			48\	53s		59/				
Cas BM	L10	3																																			
Cas DN	E10S				45s	60								38s	54						47	63s						40	56s								
Cas GG	E10S							54																57				33									
Cas GU	E10U																		40		49				58												
Cas IL	E10S	3													60													40									
Cas IT	E10X														60													40				61s					
Cas OX	E10X			35+																																	
Cas PV	E10X			35+		63s		38s							63s	38s							63s	38s				63s	38s								
Cas V0368								56s								46s										36s		59									
Cas V0375				42s		63		36s		57				52		47			41		62s	36			57s		52s		46s	67		41s					
Cas V0381				47s	42s	63		36s		57	46s			52		47			44s	41	62s	36			57s	43s	52s		46+	67+		41s					
Cas V0459				47		48s				46						94s							44			40s	43			66		41+					
Cep RZ	90		43	36	59	52	45	37	61	53	46	38		62	55	47	40	63		56	48	41	34+	57		50	42	35+	58	51		44	36	60	52	45	38
Cep V000W			40+	37+	35+	46+	43+	41+	38+	35+	47+	44+		42+	39+	36+	34+	45+		43+	40+	37+	35+	46+		44+	41+	38+	36+	33+		44+	42+	39+	37+	34+	32+
Cep XX	S10					38															41																
Cep XY	E10S					52																	62		39											49	
Cep ZZ	S10							42		56															41		55										
Cep AI	E10S	3								45s				56														35s	46		57s						
Cep CW	E10X				54+																					64+		37+									
Cep EI	L10				60s					82						4s			26						48s		70				92s						
Cep EX	L10															52												95									
Cep NN	E10S		42s	44	47s	50	53s	56	59s	62																											
Cet RR	RR				51	62				49	60					57											53	63				50	61				
Cet RV	90																64							63			62					60					
Cet TU	E10S	2		33					72					11													28				67						
Cet TV	L10	2								15+												26+								36+							
JD 597	..		93	94	95	96	97	98	99																												
JD 598	..								0	1	2			3	4	5	6	7		8	9	10	11	12		13	14	15	16	17		18	19	20	21	22	23

2022 Aug	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31										
Cet XY E10S 2		56															64s					59																				
CrB U S10												43					33																									
CrB RV 90 3		51	51	50	49	49	48	48	47	47	46	46	45	45	44	44	43	43	42	42	41	41	40	40	39	39	38	38	37	37	36	36										
Cyg UY RR		40	53				45	57				38	50	62				42	54				35	47	59				39	52	64	32	44	56								
Cyg XZ RR		60	53	47	40						60	53	46	40	33						60	53	46						40	33	66	60	53									
Cyg BO E10S		62					50s 38					52s 40					55s					43					57s 45 33s															
Cyg BR E10S		59s	59	59s				59	59s				59	59s	59						59s	58				58s						58	58s	58								
Cyg DM RR		44	54	38				48	58	42				52	36	62	46						56	40	50	33	59	43	53	37	63	47	57	41	67							
Cyg EM K10		55	43	59	46	63	50	37	54	41	57	45	61	48	35	52						39	55	43	59	46						34+	50	37	54	41	57	45	32+	48	35	52
Cyg V0367		/				\	\	19	/				/				\	\	48s	/	/						\	78	/	/	/	/	/	/	/	/	/					
Cyg V0463												35s 41 46s 52 58s					64										35 41s					46										
Cyg V0477		36s					40s					35s 41 46s 52 58s					64+					48s					35 41+					46										
Cyg V0541												97+															31+															
Cyg V0548		59 49s 39										61 51s 42										64 54s 44 35s					66					57s										
Cyg V0788																																										
Cyg V0891												59 49					40										43															
Cyg V0909		38				59s	39s						60	41				61s					42s					55														
Cyg V1061 E10S												47					51																									
Del DX 90 3		62	57	51	46	40	35				60	55	49	44	38						58	53				47	42	36						56	51	45	40					
Del NN L10 1																																										
Dra RW RR		58	47	36				57	46	56				44	54	43						64	53	42				63	52	40	62	50	39	60	49	37						
Dra SU RR							62	60	59				57	55				53	51	49				47	45				44	42	40											
Dra SW RR		47	61			46	60				45	59				44	58				42	56				41	55	40	54	54	39	53	67									
Dra TZ E10D		49	36	52s	39s				55	42	58s	45s	61	48	35	64	35	64s	51s	38s	54	41	57s	44s				60	47	34	50s	37s										
Dra V000Z		52	48	44	41	37	62	58	54	51	47	43	40	36	64	61	57	53	49	46				42	38	35	63	59	56	52	48	45	41	37								
Dra WW S10		48									37										62																					
Dra XZ RR 3		57	53	48	43	39				63	58	53	49	44	39	35				63				59	54	49	45	40	35				64	59								
Dra Al S10		51					50					50					49										49															
Dra BF L10		51					50					41s					50					49					63s					49										
Dra BK 90		47				43	61	39	57				35	54	50				46	64				42	60	38	56				34	52				48						
Dra BU E10S		38s															56 52s					48 43s 39 35s																				
Dra DD 90		51	49	47	45	43	41	39	37	35	64	62	60	58	56	54	52	50	48	46				44	42	40	38	36	34	32+	63	61	59	57								
Dra GV L10							18																																			
Equ S S10		50					37																				55															
Eri SV 90 2																	65					65					65															
Gem RR 90																	64					63					62					60					59					
Gem RY L10 2																						56					21s					86										
Gem WW E10S												61s					65					61					64s															
Gem YY S10																																										
JD 597 ..		93	94	95	96	97	98	99				3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
JD 598 ..							0 1 2					3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23										

2022 Aug	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Gem OW L10	2																																	
Her TW RR	3	43		42		42		42		42		42		41		41		41		41		41		40		40		40		40		40		
Her TX S10																																		
Her UX E10D				40s		49s				37		46					34s				43s						40							
Her V000X			49	40				50	41					42					43	34				43	34				44	35				
Her V000Z		48	36		56	44				52	40		49	37		57		45	33		53	41			49	37		46	34			42		
Her AK S10		45	51s	35s	40	46s	51	35	41s	46	52s	36s	41	47s		36		42s	47		37s	42	48s		37	43s		32	38s	43	33s	38		
Her AR 90		45	39					56	50	44	38				55		49	43	37						54	48	42	36						
Her AW L10	3				12							92											72									53		
Her DI L10					12			38s				92					93s						72					48s	53					
Her GU E10U											42s														45s									
Her LV L10	2										42s														43s									
Her MM E10S					42s				40					38s			36								34s		32							
Hya AI L10	2																																	
Lac RW L10											50s																						24s	
Lac SW S10		50s	46+	42+	39+	35+	47+	43+	40+	36+	48+	44+	40+	37+	49	45+	41+	38+	34+	46+	42+	38+	35+	47+	43+	39+	36+	32+	44+	40+	36+	33+		
Lac UW E10S	9						38					67					96						25					54						
Lac CO E10X				52+			61+											40+						57+			65+							
Lac V0345							50+							99+									48+						97+					
Lac V0364							50+							99+									48+						97+					
Lyn CD E10S	3																															59		
Lyr RR RR		53			36	49	63			46	59			43	56			40	53				36	50	63		33	46	60		43	56		
Lyr RZ 90							36	38	41	43		45	47	50	52	54	56	58	61									32	34	37		39		
Lyr UZ S10							53	47s	42	36s		53	47s	42	36s													60s	55	49s	44		39s	
Lyr CN 90		53	36	59	41		47		53	35		58	41		46		52	34	58	40			46	51	34	57	39	45	51			33		
Lyr EZ RR		58	63				36	41	46	51		56	61					34	39	44	49		54	59				32	37	42	47		52	
Lyr IO 90		54			43	58			47	62		35	51		39		55			43	59						36	51			40		55	
Lyr beta S10	3			4							51s						98							45s						92				
Mon UX E10S	2																																	
Mon V000V																																		
Mon AR L10	1																																	
Mon AV E10S	2																																	
Mon IL E10S	2																																	
Mon V0530																																		66
Oph U ST		46s											36					39						42										
Oph ST 90					45	35				40				45	35				41						36			41						
Ori Z E10S	2					75					95						15						36				56						76	
Ori BM E10S	3																											27						
Ori CP E10S	2				91					23					55												19						51	
JD 597 ..		93	94	95	96	97	98	99																										
JD 598 ..								0	1	2		3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	





2022 Aug			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Tri	X	S10	3																	65	62	59	56	54	51	48	45	42	39								
Tri	RU	E10S	2			61					51s				41									58s				49							39s		
Tri	UX	90	3	44					58	51	45				58	52	45		38			65	59	52	45	39		66	59	52	46	39					
UMa	W	S10	3	41	41	41								59s	59s	59s	59s	59s	59s	59s	59s	59s	59s	59s	59s	60s	60s	60s	60s	60s	60s	60s	60s	60s	60s		
UMa	RV	RR		52	46	39						48	41	35						50	44	37					46	39	33								
UMi	W	S10				58							38						48					59					39								
Vir	ST	90	2			36							34																								
Vir	CG	E10S		41s	35s						36															33											
Vul	Z	S10	3					60						51						42					33												
Vul	BN	90	3	39	58	36		55		52				49		46				43				40	59	37	56		34	53	32			50			
Vul	DR	E10X			41+									41+										41+											42+		
Vul	EV	E10S	3					59		41															52			35									
JD	597	..		93	94	95	96	97	98	99																											
JD	598	..							0	1	2		3	4	5	6	7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		23		
2022 Spt																																					
And	SW	RR	3	39		60	48	37		58	46	35	67	56	44	33	65	54	42	31	63	52	40	29	61	50	38	27+	59	48	36	69	58		31		
And	SY	L10	1		11\	16	21\																														
And	TW	S10													29s					35		41s		47		53s	60			66s	72						
And	XX	90		62	34	51		68	40	57		29	46	63	35	52	69	41	58	30			47	58	30		47	64	36								
And	CD	L10	2	98	/	5/													14\	\	21s	/	27/														
And	OV	90		41	36		65	59	53	47	41	36	30	30	47	41	36	30	65	59	53	47	41	35	30	71	65	59									
Aqr	SW	RR		46	37			51	43	34				48	40	32				45	37	29		50	42	34		47	39								
Aqr	SX	90	3	31	38	45	52				35	42	49	56					31	38	45	52				27	34	42	49								
Aqr	CD	E10S	3	92				76						60						44				28				11									
Aqr	HH	90		37	51		39	54		41	56				43				30	45		32	47		34	49		36	51								
Aqr	LL	L10	2					36s												45								54s									
Aql	AA	RR		36	45			34	43	51	32		41	49	30	39		47	28	37	45			35	43		33	41									
Aql	V0341			33	49			38		42				31	47				36				40		29	45		34									
Aql	V0889			33	49	73s		38		42				31	47	85s			36				40		29	45		97s	34								
Aql	V1353	E10S		39s	52			35		47s				30s		42						37s		49		32		45s		27s							
Aql	V1426	E10S		11+	28+	46s	5+	22+	40+	57	16+	34+	51s	10+	27+	45	4+	21+	39+	56s	15+	32+	50	9+	26+	44s	3+	20+	38+	55	14+	31+	49s				
Aql	V1430	E10S		37s		43	30	49s	36s				42	29		35s						41	28		34s		40	27		33s							
Ari	X	RR	2	48				64	60					55	50			46					67	62	57		53	48									
Ari	RS	L10	2					69												49								30									
Ari	AL	E10S		64																63				38													
Aur	TZ	90			67	63		58	54				50	68	63				59	55	51		68	47	64	60		56	52	69							
Aur	CQ	L10	2			48s				80						11s											73s										
JD	598	..		24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54			

2022 Spt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Aur IY E10S															51										69			48								
Aur V0432								50			58			67											45s		53s			62s						
Aur epsil L10	2																																			
Aur zeta L10	1																																			
Boo RS RR			36			37									30						32													28		
Boo TW 90			32	39							31	37									29	35						27	34							
Boo UU 90		36					38	30				41	32								35				37	29				31						
Boo AC E10D		36	41	47	35s	41s		35	40		34s	40s		34	40						33s	39s		33	39		33s	38s		32	38	32s	37s	26		
Boo CM 90			33												29																					
Boo CQ 90	3		34			31										30					28													27		
Cam SS E10S	3		39s		80			21s		62			3s		44		86s				27			68s		9		50s		92						
Cam SV S10		55	44s	33+	52	41s	30+	48	37+	56s	45	34+	52s	41	30+	49s	38+	57	46s	34+	53		42s	31+	50	39+	28+	46	35+	54s	43+	32+				
Cam AK E10S				40	52s	63							31	42s	54	65s									33s	44	56s	67								
Cam AN L10	3			40	52s	63							31	42s	54	65s									33s	44	56s	67								
Cam AT E10S			56		65s	35		44s		54		63s	33		42s		52		61s	31	70		40s		50	59s		29	68	38s		47				
Cnc S L10											17										66													14		
Cnc RU L10	2									86												4												21		
Cnc RW 90									63						65									67				60	69							
Cnc RZ L10	2	34	96/								54\		\	16s	78/									36\	98	/	60/									
Cnc TT 90																						65												67		
Cnc TU E10S	3						64								20						76						32						89			
Cnc TW L10	2																																			
Cnc UU L10	2	56											/	/																						
Cnc ZZ L10	2													59\	62	64/																				
Cnc AQ 90																												70						63		
CVn W 90		39					36					32					29															32				
CVn Z 90													31																		70					
CVn RS S10	3							33																												
CVn RZ 90																32						29														
Cas RX L10	2		/									\	\				2s				/	/														
Cas RZ S10	3			46	66						44	63					41	61							39	59					37	56				
Cas SX L10	2																											85\	\	68	/	51/				
Cas TV S10		60		41							67		48		29									54		35									60	
Cas TW S10			32				60		46								60				46				31									46		
Cas TX E10S							67		60				52		45						38				31			70s						62s		
Cas AQ L10	2			34\	39		45/			20\		26s	31/				6\	12	17/					92\	98s	/	3/			78\	84	89/				
Cas BM L10	3																																			
Cas DN E10S			34	49s	65						42s	58						36s	51	67s						29s	45	60s								
Cas GG E10S							61				37																									
JD 598 ..		24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54				

2022 Spt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Cas GU E10U																	33				42			52		61			70							
Cas IL E10S	3			31											66						57						47									
Cas IT E10X			31+				40s					30s	66								57						47									
Cas OX E10X													66+								64+				62+					60+						
Cas PV E10X		63s	38s					64s				39s	66+			64s	39s	64+						64s	62+	39s				60+	64s					
Cas V0368				49									39	62s									30	52s												
Cas V0375		62	36s	57			30s	51				46	67s	41			62s	36	57s	30			51s		46s		67	41s	62							
Cas V0381		62	36s	65s	57		30+	51				46+	67+	41			62s	36	62s	57s	30+		51s		46+		67+	41s	62							
Cas V0459				65			39	32s				63	38				77s		62	36					60+		34									
Cep RZ 90	61	54	46	39	31+		55	47	40	33+	56	49	41	34+	57	50	43	35+	28+	51	44		37+	29+	53	45	38+		30+	54	47	39+	32+			
Cep V000W		43+	40+	38+	35+	32+	30+	41+	39+	36+	33+	31+	42+	40+	37+	34+	32+	29+	41+	38+	35+		33+	30+	28+	39+	36+		34+	31+	29+	26+	37+			
Cep XX S10		43						44							46									47						48						
Cep XY E10S										59				36								68			46											
Cep ZZ S10				40			55																54		68											
Cep AI E10S	3													36			47s	59	70s																	
Cep CW E10X			56+											48+									66+		39+											
Cep EI L10			14				36s					58			80s						2				24s			46								
Cep EX L10								39															82													
Cep NN E10S		32	35s	38	41s		44	46s	49	52s	55	58s	61	64s	67																					
Cet RR RR		48	59				46	56	67				44	54	65									39	50	60			37	47	58					
Cet RV 90			59					58				69	56				68	55					67	54			66	53								
Cet TU E10S	2	6					46			85					24					63					2			41								
Cet TV L10	2				46+										57+									67+												
Cet XY E10S	2			54s								49			67s				45s				62									57s				
Com S 90																																		72		
CrB U S10																																	31			
CrB RV 90	3	35	35	34	34	33	33	32	32	31	31	30	30	29	29		28																			
Cyg UY RR			37	49	61			41	53			34	46	58			38	50			31		43	55		35	48				28	40				
Cyg XZ RR		46	39	33	66		59	53	46	39	33		66	59	53	46		39	33	66	59		53	46	39	32	66	59	52	46	39					
Cyg BO E10S			60s	48	36s						62s	50	38s					65s	53	40s	28				67s	55	43s	31								
Cyg BR E10S		58s	58				57s	57	57s			57	57s	57s			57	57s	57				56s	56		56s	56	56s	56	56s						
Cyg DM RR		51	35	61	45		55	39	65	49	33	59	43	53	37		63	47	31	57	40		50	34	60	44	28	54	38	48						
Cyg EM K10		39	55	43	59	46	34	50	37	54	41	57	45	32	48	35	52	39	55	43	30		46	34	50	37	54	41	28	45	32	48				
Cyg V0367			\	\			8s	/	/				\	\	38		/	/					\	\	68s		/	/								
Cyg V0463		52s	58														29	35s	40	46s	52															
Cyg V0477		52s	58				56s								29		35s	40	46+	52					34s											
Cyg V0541													65+																98+							
Cyg V0548		47	37s					59s	50			40s	30						62s	52	42s	33					65s	55	45s	35						
Cyg V0788			83\	79	74\																															
JD 598 ..		24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54				

2022 Spt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Cyg V0891			55		46		36																51		42		32							
Cyg V0909						45s						46								47s		28s				49		29						
Cyg V1061 E10S			59							63				32			67						36	71				40						
Del DX 90 3	34						54	49	43	38	32					52	47	41	36	30					50	45	39	34	28					
Del NN L10 1																																		
Dra RW RR			59	48	36		58	46	35	56		45	33	55	43		32	53	42	31		52	41	29		51	39	28+	49					
Dra SU RR	38			36		34	66	32	64	30	63	29	61	59			57	55	53			51	49				48	46	44					
Dra SW RR			37	51	65		36	50	64	35		49	63	34	48		62	33	46	60		31	45	59			30	44	58	72	29			
Dra TZ E10D			53	40		56s	43s	30s	59	46	33			49s	36s	52	39	55s	42s	29s		45	32		48s		35s	51	38					
Dra V000Z	33	62	58	54	51		47	43	40	36	32	29+	57	53	50	46	42	38	35	31		56	52	48	45	41	37	34	30	26	55			
Dra WW S10							51															40										66		
Dra XZ RR 3	55	50	45	41	36		31		65	60		55	51	46	41	37	32	70	65	61		56	51	47	42	37	32	28	71	66	61			
Dra AI S10	48							47					47														46							
Dra BF L10	48							47		44s			47														46	65s						
Dra BK 90	67		44	63			40	59		36	55		32	51	69		47	65		43	61		39	57		35	53	31	49	68				
Dra BU E10S												53	49s	45	40s	36	32s														72s	67		
Dra DD 90	55	53	51	49	47		45	43	41	39	37	35+	33+	31+	29+	60	58	56	54	52	50		48	46	44	42	40	38+	36+	34+	32+	30+		
Dra GV L10			3																								89							
Equ S S10			42							30																		48						
Eri SV 90 2	65						64					64										63		49			63		49					
Gem RR 90											67		66		64		63	62		60		59	58				56	55	54					
Gem RY L10 2			51s					16					81s					46					11s				76							
Gem WW E10S			65s					60s					55s				65	50s				60		69s			55		64s					
Gem YY S10						60s		64		67s						56s	59	63s		66		70s	51s		55		59s		62					
Gem OW L10 2						67																												
Gem V0339											60																							
Her TW RR 3		39		39			39	39		39			38		38			38		38			37		37			37	37		37			
Her TX S10																							33	36s	39	42s	45	48s						
Her UX E10D			37s		47s					34			44				31s		41s						28		38							
Her V000X			36						37					38	29					39	30					31					32			
Her V000Z			50	38			47	35				43	31		39					47	35		44	32			40	28		36				
Her AK S10	43s		33	39s	44		34s	39				34	39s		29	35s	40		30s	35	40s		30	35s			30s	36		26s	31			
Her AR 90	47	41	35							46	40	34							45	39	33					44	38	32	26					
Her AW L10 3										33																		93						
Her DI L10										33+																	93							
Her GU E10U			31																		34												37	
Her LV L10 2			31																		34						30s				37			
Hya AI L10 2								4+													33+					62+								
Lac RW L10											61s																							
JD 598 ..		24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54		

2022 Spt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Lac SW S10		45+	41+	37+	34+	30+	42+	38+	35+	31+	43+	39+	35+	32+	44+	40+	36+	33+	29+	41+	37+	33+	30+	42+	38+	34+	31+	27+	39+	35+	31+	
Lac UW E10S		83						12				41					70					99						28				
Lac CO E10X			37+				45+		53+			62+									33+		41+				50+		58+			
Lac V0345						47+						96+										45+						94+				
Lac V0364						47+						96+									51s	45+						94+				
Leo RR RR																						68					66					
Leo WY E10S												68										67				66						
Lyn TY E10S 3					56														56													
Lyn CD E10S 3											51s												61s						43			
Lyr RR RR			40	53			37	50				33	47	60	30		43	57			40	54			37	50		34	47			
Lyr RZ 90		41	43	46	48	50	52	55													28	30	33	35	37	39	42	44	46	48		
Lyr UZ S10		33												57	52s		46	41s	35	30s												
Lyr CN 90			39	44			50	32	38			44	49	32			37		43	49			31		37	42		48	30	36		
Lyr EZ RR		57					30	35	40	45	50	55					28	33	38	43	48		53				31	36	41	46		
Lyr IO 90			44				32	48		36		52		40				29	44				33	48		37			41			
Lyr beta S10 3						39s						86													80							
Mon UX E10S 2																33s		29			24s			19			14s		9			
Mon V000V			76s				79		81s			84					86s		89				91s		94			96s		99		
Mon AR L10 1							63	48s	33/								24	93/									84	69s	54/			
Mon AV E10S 2								68s				15				62s			10				57s		5				52s			
Mon EZ E10U 2														65s			66s				67s			68s	62		69s	63	70s	64		
Mon IL E10S 2										12				14					17					20			22			25		
Mon V0448		65					68s										63s				66				70s			61				
Mon V0530						66s				65							64s	69s			63	69			63s	68s				62		
Mon V0536																														65		
Mon V0634																																
Oph U ST			33s					36s																29				33				
Oph ST 90		37					32			37							33					28			34				29			
Ori Z E10S 2						97						17					37						58				78					
Ori BM E10S 3			74						21								68							15				62				
Ori CP E10S 2				83						15						47						79						11				
Ori DN L10 2		39													35													32				
Ori FO L10 2											44																			24		
Ori FT E10X											44											62s								24		
Ori GG E10X																						62						59s				
Ori V0536										57																				55		
Ori V1016 L10							4																									
Ori V1031 E10S 2																						68										
Ori V1366 L10 1		24	3+	60	39	18+	75	54	33	11+	69	47	26	5+	62	41	20+	77	56	34	13+	71	49	28	7+	64	43	21	79	58	36	
JD 598 ..		24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54

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Peg U S10		39+	32+	45+	39+	32+	45+	38+	32+	44+	38+	32+	44+	38+	32+	44+	38+	32+	44+	38+	31+	44+	37+	31+	44+	37+	31+	43+	37+	31+	43+			
Peg V000V		57	55	53	50	48	46	43	41	39	36	34	32	29								62	60	57	55	53	50	48	46	43	41	39		
Peg V000W		57	55	53	50	48	46	43	41	39	36	34	32	29		35s						62	60	57	55	53	50	48	46	43	41	39		
Peg AV RR		67	45	62	40	57	36	53	31	48								51	29	46	41						58	36	53	31	48	44	39	56
Peg AW L10	2	0					31s					62					94s						25				56s							
Peg BH 90		58		50		42		35	63		55		47		40		32	60		52		45	37		29		58		50		42			
Peg BK E10S											44s								67			42s								65				
Peg CG 90		44	38	31		65	58	51	45	38	32			59	52	45	39	32		59		53	46	40	33		60	53	47	40				
Peg DF L10	3								12													81												
Peg DH RR		45	47	49	52	54	30+	33+	35+	37	39	41	44	46	48	50	52	29+	31+	34	36	38	40	42	45	47	49	51	28+	30+	32			
Peg GH E10S	3				56						39s					50s				34			45				28s	56						
Per RW L10	2		57													76												96						
Per RY E10S	3							52							38									68s										
Per AG E10X								52						42s	38	45s		47s		50s		53s		56s	68s	59s	62s		65s					
Per AR 90		50		62	47		60	45	58	43		56	41	69	54		39	67	52	37	64	50	35	62	47	33	60	45	30	58	43			
Per AY L10	3									43												20												
Per IQ E10X			55+							52+							49+						47+					70+	44+					
Per KN E10U		54	41		57s	44s	60	47		64s	50s	37s	67	54	40		70s	57s	43s		60	47	33	63s	50s	37s	67	53	40	70s	57s			
Per LX L10	99s						0			2s				4								6s	8				10s				12			
Per beta S10	3			66s				53s		39s							56		43			30					60s			47s				
Psc RU 90	3	43	60	38	55	33	50	67	45	63	41	58	36	53	31	48	65	43	60	38	56	34	51	29+	46	63	41	58	36	53	32+			
Psc RY 90	2	57	63				40	46	52	58		64			35		41	47	53	59				35	41		47	53	59					
Psc SS 90	3	38+	53	40	55	41	56	43	58	44	59	45	32+	47	33+	48	35+	50	36+	51	38+	53	39+	54	40+	56	42+	28+	43+	30+	45			
Sge SY E10S	3		55		32s							40s										48s						32						
Ser V000Y												33										30												
Ser AN 90	3																																	
Ser BH 90	3																32							27				31						
Ser EG L10	3		70			19s		67		16s		65		13s			62		11s			59			8s		57			5s				
Ser LX K10	3	31		37	32		38	33		34		29	35	30			31					32		33	28		29			30				
Tau RW S10	3									66				43									50											
Tau CD S10	3		63							50						66s						53s					68							
Tau EN E10S		59s					55s			64		50s			60			70s		56			65s		51			61s		47	71			
Tau V1094 L10	2								80+													78+					77+							
Tau V1125 E10S	1			54				52	65			49	63				60				58				56	69			53	67				
Tri X S10	3																					68	65	62	60	57	54	51	48	45	43	40	37	
Tri RU E10S	2			66s					56					46s							36		63				53s							
Tri UX 90	3		66	59	53	46	40	33		66	60	53	47	40	33		67	60	54	47	40	34		67	61	54	47	41	34	28	68			
UMa W S10		60s	60s	61s	61s	61s	61s	61s	61s	61s	61s	61s	61s	61s	61s	62s	62s	28+	28+	62s	62s	62s	62s	62s	62s	62s	63s	63s	46+	46+	46+	46+		
UMa RV RR			41	35						43	37	31					39	33			67				35		29	69						
JD 598 ..		24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54		

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UMa TX S10											68																							
UMi W S10			50					60		30				40					51					61		31			71					
Vul Z S10 3									51					42					33						61									
Vul RR E10S 3							32					37					42						48				53							
Vul BN 90 3			47				44			42			39			36			33	52			30	49		27	46			43				
Vul DR E10X								42+										42+									43+							
Vul EV E10S 3									46																			39						
JD 598 ..		24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43		44	45	46	47	48	49	50	51	52	53	54	
2022 Okt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
And SW RR 3		46	34	67	56	44	32	65	54	42	30	63	52	40	29	61	50	38	27	59	48	36	25	57	46	34	23	55	44	32		53		
And SY L10 1								2\	7	11\																								
And TW S10																		27s		33			39s		45		52s		58					
And XX 90		53		70	42		59	31		48		65	37		54	26	71	43		60	32		49		66	38		55	27		44			
And CD L10 2					36\	\	43	/	50\													58\	\	65s	/	72\								
And OV 90		53	47	41	35	30	71	65	59	53	47	41	35	30	24+	65	59	53	47	41	35	30	24	65	59	53	47	41	35	30	24		65	
Aqr SW RR		31			44		36	28				41	33	25				39	30					36	28			41	33	25				
Aqr SX 90 3		31	38	45				27	34	42		49			24		31	38	45					27	34	42							31	
Aqr CD E10S 3		95					79					63					47						30				14					98		
Aqr HH 90			39		26		41			28	43			30	45			32	47				34			36			24	38				
Aqr LL L10 2							63											72s										81						
Aql AA RR		31	39		29		37			27	35			24	33				31	40			29	37			27	35					33	
Aql V0341			39		28		43			32				37			26	42			31				35		24						29	
Aql V0889			39		28		43		9s	32				37			26	42		21s	31				35		24					33s	29	
Aql V1353 E10S		40					35s					30		42s			25s		37					33s					28					
Aql V1426 E10S		8+	25+	43	1+	19+	36+	54s	13+	30+	48	6+	24+	42s	59s	18+	35+	53	12+	29+	47s	5+	23+	40+	58	17+	34+	52s	10+	28+	46		4+	
Aql V1430 E10S			39	26			32s			38	25			31s			37	24			30s			36	23			29s			35		22	
Ari X RR 2		43		39	69		64		60	55		50	46				41	71	37	67			62	57	53		48		44				39	
Ari RS L10 2						10								90										71									51	
Ari AL E10S			62				37											61					36											
Aur TZ 90		48	65	43	61		57		53	70	48	66	44	62		58		53	71	49	67		45	63	41	58	76	54	72	50	68	46	64	
Aur CQ L10 2		4					35s					66						97s					29					60s						
Aur IY E10S									65					45										62			41							
Aur V0432				70s								40			48			57			65			73					35s				43s	
Aur epsil L10 2																																		
Aur zeta L10 1																																		
Boo RS RR				30											24			26												71				22
JD 598 ..		54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73		74	75	76	77	78	79	80	81	82	83	84	

2022 Okt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Boo TW	90				26	32						24	31								23	29					74	27					
Boo UU	90			34	25				28				31								25			27					76				
Boo AC	E10D	31	37		31s	37s	25	30	36		30s	36+	24	30	35+		29s	35+	23	29	70	23+	28s	69s	75s	28	69	22+	27s	68s	74s	27	
Boo CM	90																										75						
Boo CQ	90	3										24																					
Cam SS	E10S	3	33s	74			15s	56	97s				39	80s				21	62s				3	45s			86	27s					
Cam SV	S10		50s	39+	28+	47s	36+	25+	43+	32+	51	40+	29+	47	36+	25+	44+	33+	52s	41+	29+	48s	37+	26+	45+	34+	23+	41+	30+	49	38+	27+	45+
Cam AK	E10S			35	47s	58	69s					26	37s	49	60s	71						28s	39	51s	62	73s						30	
Cam AN	L10	3		35	47s	58	69s					26	37s	49	60s	71						28s	39	51s	62	73s						30	
Cam AT	E10S		57s	27	66	36s		45	55s	25		64	34s	74s	43		53s	23	62	32s	72s	41	51s	60		30s	69s	39	49s				
Cnc S	L10							63										11									60						
Cnc RU	L10	2								38											56										73		
Cnc RW	90							63	73				56	65							58	67			60	69					52	62	
Cnc RZ	L10	2	18\	80s	/	42\							0\	62	/		25\						82\	\	44s	/	7\						
Cnc TT	90			61				68				63					57	70				64			59	71		53	66				
Cnc TU	E10S	3			45						1						57						13				69						
Cnc TW	L10	2																				1\	7	13\									
Cnc UU	L10	2					\	\										90s												/	/		
Cnc ZZ	L10	2																															
Cnc AQ	90				67					60	70						64	73					57	67				61	70				
CVn W	90		29				26										74						70	26			67	22					
CVn Z	90	28										74	70	67			63										75	71					
CVn RS	S10	3			72s												71										70s						
CVn RZ	90																	23								74		71					
CMa R	S10	3			70			68s					65										74				72s				69		
CMi AM	E10S									59	61	63	64	66	68		70	72	74														
Cas RX	L10	2	18		/	/								\	\							35s	/	/							\		
Cas RZ	S10	3		34	54	73			32		51	71					30	49	69				27	47	66			25	44	64			
Cas SX	L10	2																															
Cas TV	S10		42						67		48	29							73	54			36						61			42	
Cas TW	S10		31				60	45			31	74					60		45				31	74			59	45					
Cas TX	E10S		55s		48s		40s		33s			26s	72				65		57				50				43		35				
Cas AQ	L10	2		64\	70s	75\			50	56	61\			36\			42s	47\				22\	28	33\			9\	14s	19\				
Cas BM	L10	3																															
Cas DN	E10S		38	53s	69				31	47s	62						24	40s	55	71s					33s	49	64s						26s
Cas GG	E10S						68			43													71			47			23				
Cas GU	E10U																	26				36		45			54		64				
Cas IL	E10S	3		37							28		73									63						53					
Cas IT	E10X			37+				58s			28	47s	73				37s				27s	63						53					
JD 598	..		54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84



2022 Okt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Cas OX E10X					58+					56+					54+					52+					49+					47+			
Cas PV E10X			39s		58+		64s		56+						54+		40s		52+		65s	40s	49+				65s	47+	40s				
Cas V0368				43s	65								33s		56						23s	46	69s										
Cas V0375		35s	56	30s			51	25s	72s	46		67s	40	61s	35		56s	30	51s		24	72	45s	66		40s	61	35s		56			
Cas V0381		35s	58s	56	30+		51	25s	72s	46+		67+	40	61s	35		55s	56s	30+	51s	24	72	45+	66+		40s	61	35s	52s		56		
Cas V0459			58	69s	33					57		31	15s				55	30	61s				53	28					7s	52			
Cep RZ 90		55	48	40+	33+	26+	49	42+	34+	27+	50	43+	36+	28+	52	44	37+	30+	53	46	38+	31+	23+	47	40+	32+	25+	48	41+	33+	26+	49	
Cep V000W		35+	32+	29+	27+	38+	36+	33+	30+	28+	25+	37+	34+	31+	29+	26+	24+	35+	32+	30+	27+	25+	36+	33+	31+	28+	26+	23+	34+	32+	29+	26+	
Cep XX S10							49							50														53					
Cep XY E10S					56			33									65		43								75		53				
Cep ZZ S10					39		53		67									24		38		52		66									
Cep AI E10S 3	26		38s		49		60s		71						50+					28s		39		50s		62							
Cep CW E10X				58+			31+								50+					23+		69+		41+									
Cep EI L10			68s				90					12s			34								77				99s						
Cep EX L10							26														69												
Cep NN E10S					25		28s	31	34s	37	40s	43	46s	49	51s	54	57s	60	63s	66	69s	72	75s										
Cet RR RR			35	45	56					32	43	53	64		41	51	62			38	49	60		36	47		57		34	44		55	
Cet RV 90				51						50					49									46					45				
Cet TU E10S 2		80					19					58			98										76			15					
Cet TV L10 2			77+									88+									98+									8+			
Cet XY E10S 2							52			69s					47s		64		42					60s		38s						55	
Com S 90										69								73		66						70		64					
Cyg UY RR		52		33	45					25	37	49			30	42	54			34	46		27	39	51		31	44				24	
Cyg XZ RR		32	26	66	59	52	46	39	32	26		59	52	46	39	32	26	59	52	45	39	32	25	59	52	45	39	32	25				
Cyg BO E10S			58	45s	33					60	48s	36	24s								50s	38	26s			53s	41	29s				55s	
Cyg BR E10S			56		56s		56		56s	55		55s		55			55s																
Cyg DM RR		32	58	42	26	52	36		46	30	56	40	24	50	34		44	28	54	38		47	31		41	25	51	35		45	29		
Cyg EM K10		35	52	39	26	43	30	46	34	50	37	25	41	28	45	32	48	35	23	39	26	43	30	46	34		37	25	41	28	45		32
Cyg V0367		\	\	98	/	/	/	/	/	/	/	\	\	28s	/	/					\	\	58	/	/			\	\			88s	
Cyg V0463			29s	34	40s		46														23s	29	34s	40	46s								
Cyg V0477			38s	29s	34	40s	46			42s							46s				23s	29	34s	40	46s								
Cyg V0541															32+															66+			
Cyg V0548		26s						57	48s	38	28s						60	50s	41	31s							53s	43	33s	24			
Cyg V0788																						68\	64	59/									
Cyg V0891															48		38		29														
Cyg V0909			50s				31s							32													35						
Cyg V1061 E10S					44								48								52						56					25	
Del DX 90 3			48	42	37		32	26					46	40	35	29	24					44	38	33	27	22				42		36	
Del NN L10 1			73																														
JD 598 ..		54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	

2022 Okt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Dra RW RR		38	27+	48	37	25+	47	35				45	34				44	33		43	31+		41	30+			40	28+						
Dra SU RR			42	40	72	38	70	36	68	34		67	33	65	31	63	29	61	27	59	25	57	23	55		53		52	50			48		
Dra SW RR		43	57	71	28	42	55	69	26	40	54	68	25	39	53	67	24	38	52	66	23	37	51	64		35	49	63	34	48		62		
Dra TZ E10D			41s	28s	44	31		47s	34s			50	37	24	40s		27s		43	30		46s	33s		36	23		39s	26s			42		
Dra V000Z		51	47	44	40+	36+	32	29	25	53	50	46	42+	39+	35+	31	28	24		49	45	41+	37+	34+	30	26	23	47	44+	40+		36+		
Dra WW S10						29										55												44						
Dra XZ RR 3	57	52	47	43	38	33	28	71	67	62		57	53	48	43	38	34	29	24+	67	63	58	53	48	44	39	34	30	25+	68	63		59	
Dra AI S10		45						44						24	44					23	43				23	43					22		42	
Dra BF L10		45						44+						24	44					23+	43				23+	43					22		42	
Dra BK 90		27	45	64		41	60		37	56		34	52	70	30	48	66	26	44	62		40	58		36	55	73	32	51	69	28		47	
Dra BU E10S						46s	42	37s	33	29s												73	69s	64	60s					39	34s		30	
Dra DD 90		28+	26+	57	55	53	51	49	47	45	43	41+	39+	37+	35+	33+	31+	29+	28+	26+	24+	54	52	50	48	46	44	42+	40+	38+	36+		35+	
Dra GV L10																				74														
Equ S S10				35																								40						
Eri SV 90 2	63			48			63			48		62			48		62			48		62			47		61			47				
Gem RR 90			52	71	51	70	49	69	48	67	47	66		65	63			62		61		59		58	56		76	55	74	54	73		52	
Gem RY L10 2	41s						6			71s						36					1s				66					31s				
Gem SV E10S 1									44					45			45								47				47					
Gem SZ 90																						49	49	49	49		50	50	50	50	51		51	
Gem WW E10S	50			60s			45	69		55s				64		50s	74s		59		45s	69s		54		40s	64s		50	73		59s		
Gem YY S10	66s	69	51	73s			54s	58		61s		65	46	69s	50s		72	54		57s		61		64s	46s	68	49	71s	53s	75	56			
Gem OW L10 2																												69						
Gem V0339			64																									34	34					
Her TW RR 3		36		36			36		36	36		35		35			35		35	35		34		34				34	34		34			
Her TX S10																						23	26s	29	32s		35	38s						
Her UX E10D			35s							32								29s							26								23s	
Her V000X				33						25						26									27									
Her V000Z				33			41	29				37	25		33					30			38	26			34	22			30			
Her AK S10	36s	26	31s				26s	32				27	32s		27s	33				28			23	28s			23s	29			24		29s	
Her AR 90		43	37	31		25						36	30	24							35	29	23						34	28+	22			
Her AW L10 3				73											53										33								13	
Her DI L10				73					68s						53										25s							78s		13
Her GU E10U																									25s									
Her LV L10 2																									25s									
Hya SZ 90 2															73							71								70				
Hya WZ 90 2																														70				
Hya AI L10 2			91+									20+								49+										78+				
Hya ET 90	70											67		72											63	69				75				
Lac RW L10	70+											72s	67		72										9s	63	69			75				
JD 598 ..		54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83		84	

2022 Okt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Lac SW S10		26+	40+	36+	32+	29+	25+	37+	33+	29+	26+	36+	34+	30+	27+	39+	35+	31+	27+	24+	36+	32+	26+	25+	37+	33+	29+	25+	22+	34+	30+	26+	
Lac UW E10S				57					86					15						44				73								2	
Lac CO E10X			67+					29+		38+				46+			55+		63+				72+		26+				34+		43+		
Lac V0345						43+							93+															91+					
Lac V0364						43+						57s	93+															27s	91+				
Leo RR RR	64					71	61				69					66				73	69					71	62			69	59		
Leo ST RR																												73	68				
Leo WY E10S						63					61				60											57				56			
Leo AG E10S										69s																		65s				74	
Leo AM S10						71s	72		73s			74					68s	69		70s			72		73s	64		74	65s	75s	67	76	68s
Lyn TY E10S 3	55														55														54				
Lyn CD E10S 3	71s								53								63								46s		73						
Lyr RR RR		30	44				27	41	54			37	51		34		47			31	44				27	41			24	38			
Lyr RZ 90											26		29	31	33	35	38																23
Lyr UZ S10			48	43s	37		32s	27															45s	40	34s	29	23s						
Lyr CN 90		42			30		35		41			29		35			41	23		29			34		40		28		34		39	22	
Lyr EZ RR							29	34	39	44							27	32	37	42								25	30	35	40		
Lyr IO 90		29	45				33				37			26	41			30					34					38		26			
Lyr beta S10 3	27s						74								21s													16s					
Mon UX E10S 2		5s			0		95s		90						86s		81		76s				71		66s			62				57s	
Mon V000V				1s			4		6s				9				11s		14				16s		19			21s				24	
Mon AQ E10S 2		63					72										63s						72s							63			
Mon AR L10 1								44	29	14										5	74								65	50	35		
Mon AV E10S 2	99				47s			94				41s		89									84				31s		78				
Mon EZ E10U 2		71s	65		72s	66	60s	73s	67	61s		74s	68	62s	74s	69	63s	57+	69	64s	58		70	64s	58	71	65s	59	53+	66s	60	54+	67s
Mon IL E10S 2			28				30					33					36				38				41			43					
Mon V0448			64s				56	68				59s	71s							63	74				54s	66s		57	69			49s	
Mon V0530		67	72		56s	61s	66s	71s	55	60		66	71		55s	60s	65s	70s	75s	54	59		64	69	74	53s	58s	63s	68s	74s	52	57	63
Mon V0634																	56				68												
Oph U ST															26s																		
Oph ST 90								30						25										26									
Ori Z E10S 2	98						19					39					59						80					0					
Ori BM E10S 3					9						56							3							50					97			
Ori CP E10S 2	43						75					7						39					72					4					
Ori DN L10 2										29																25							
Ori FO L10 2																		4															
Ori FT E10X							52s		67s									4									42s		57s				
Ori GG E10X							52		67									48s									42		57	75s			
Ori V0536		71																															
JD 598 ..		54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73		74	75	76	77	78	79	80	81	82	83	84

2022 Okt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
Ori V1016 L10																																					
Ori V1031 E10S 2		60s					70											62s				73								54							
Ori V1366 L10 1		15+	72	51	30	8+	66	45	23	2+	59	38	17+	74	53	32	10+	68	46	25	4+	61	40	19+	76	55	33	12+	69	48	27	6+					
Peg U S10		37+	31+	43+	37+	30+	43+	37+	30+	43+	36+	30+	24+	36+	30+	24+	36+	30+	23+	36+	30+	23+	36+	29+	23+	35+	29+	23+	35+	29+	23+	35+					
Peg V000V		36	34	32	29	27	25							55	53		50	48	46	43	41		39	37	34	32	30	27	25	23							
Peg V000W		36	34	32	29	27	25+							55	53		50	48	46	43	41		39	37	34	32	30	27	25+	23							
Peg AV RR		34	51	29	46		41		37	54	32	49	27	44	39		35	52	30	47		25	42		37		32	50	28	45	23			40			
Peg AW L10 2		87						18s						49					80s						11						43s						
Peg BH 90		34	34	27	55		47		40			32	24	52			45	37	29				50	42			34	27									
Peg BK E10S		40s								63				38s								61		36s													
Peg CG 90		34	27			54	48	41	34	28				55	48	42	35	29			49	42	36	29	23			50	43	37	30			23			
Peg DF L10 3							51															21															
Peg DH RR		34	37	39	41	43	45	48	50	27+	29	31	33	35	38	40	42	44	46	23+	25		27	30	32	34	36	38	41	43	45	22+				24	
Peg GH E10S 3		40s					51s					34					45				29s				40s												
Per RW L10 2												16																									
Per RY E10S 3		54s						41s								27s			70							56											
Per AG E10X		54+	70s			73s		41s								27s			70							56											
Per AR 90		71	56	41	69	54	39	67	52	37	65	50	35	62	48	33	60	45	31+	58	43		28+	56	41	26+	54	39	24+	52	37	22+			50		
Per AY L10 3		98														76										53											
Per IQ E10X						67+		42+						65+	39+						62+		37+				60+	34+									
Per KN E10U		43s	30s	60	46	33	63s	50s	36s	66	53	40	26+	56s	43s	29+	59	46	33	63s	49s		36s	23+	53	39	26+	56s	43s	29+	59	46			32+		
Per LX L10					14s			16						18s			20					21s			23						25s						
Per beta S10 3					33s			63		50				37			24	67s				54s		40s		27s	71								57		
Psc RU 90 3		49	27+	44	61	39	56	34	51	29+	47	25+	42	59	37	54	32	49	27+	44	23+		40	57	35	52	30	47	25+	42	59	38			55		
Psc RY 90 2		2	30	36	42	48	54					31	36	42	48	54					25	31		37	43	49				26	32	38			44		
Psc SS 90 3		31+	46	33+	48	34+	49	36+	51	37+	52	38+	25+	40+	26+	41	28+	43	29+	44	31+		46	32+	47	33+	49	35+	50	36+	23+	38			24+		
Sge SY E10S 3					40											25s						33s								41s							
Ser AN 90 3					26											27												23									
Ser BH 90 3					27											26																					
Ser EG L10 3		54				3s						52		0s			49		98s				46		95s		44		92s		41		90s				
Ser LX K10 3			31	26				27		28		24		25					26		27				23			24									
Sex T 90								73	71	68											75	72	69	67	64											76	
Tau RW S10 3					58			35								65				42								73			50						
Tau CD S10 3					55				70s	42						57s						73				44s			60								
Tau EN E10S					57s		66		52s		62			48s	72s	58			43s	67s	53				39s	63s	49	73		59s	44						
Tau V1094 L10 2						76+										75+									74+												
Tau V1125 E10S 1			51	64			48	62		46		60		44	57	71			41	55	68				39	52	66	36	50	64					48		
Tri X S10 3		34	31	28																						71	68	66	63	60	57	54	51	49			46
Tri RU E10S 2		44			70		34s		61s			24			51											68s	31		58		22s						
JD 598 ..		54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73		74	75	76	77	78	79	80	81	82	83				84	

2022 Okt		P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Tri	UX	90	3	61	54	48	41	35	28	68	61	55	48	42	35	28	68	62	55	49	42	35	29	69	62	56	49	42	36	29	22+	63	56	49			
UMa	W	S10		46+	47+	47+	47+	47+	47+	47+	47+	47+	47+	47+	47+	48+	48+	48+	48+	48+	48+	48+	48+	48+	48+	49+	49+	49+	49+	49+	49+	49+	49+	49+	49+		
UMa	RV	RR		37	31	71	65					33	26+	67	60					28+	69	62			31	24+	65	58									
UMa	TU	RR		67						69				71					73					63	75			65						67			
UMa	TX	S10																						57			63		70								
UMi	W	S10		41					52					62	32				72	43					53	23			63		33						
Vir	AG	E10D												73s								73s	69					76	72s	69							
Vir	AH	S10												73s										69s	71	73s	75										
Vul	Z	S10	3											43					34					25													
Vul	BN	90	3	40			37			34		31			28				25	44		41			38		35		32								
Vul	DR	E10X					43+								43+										44+												
Vul	EV	E10S	3												32													43		25							
JD	598	..		54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84			
2022 Nov		P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
And	SW	RR	3	42	30		51	40	28	61	49	38	26	59	47	36	24	57	45	34	22	55	44	32	20	53	42	30		51	40	28					
And	SY	L10	1										93/	97	/	2/																					
And	TW	S10																					25s		31	38s		44		50s							
And	XX	90		61	33		50	22	67	39		56	28		45	62	34		51	23		40		57	29		46		63	35	52						
And	CD	L10	2							81\	\	87	/	94/											3\	\	9s	/	16/								
And	OV	90		59	53	47	41	35	30	24	65	59	53	47	41	35	30	24		59	53	47	41	35	29	24	59	53	47	41	35	29					
Aqr	SW	RR			38	30	22				35	27					32	24						29	21			26									
Aqr	SX	90	3	38					27	34					24	31	38		38					20	27	34			24	31							
Aqr	CD	E10S	3			82				65					49							33				17			1								
Aqr	HH	90		26	40			28			30				32				34			21	36		23			25									
Aqr	LL	L10	2						90s										99									8s									
Aql	AA	RR			23	31				21	29				27				25			23				21	30		19	28							
Aql	V0341					33				22				27			32				21				25			30		19							
Aql	V0889				33					22		45s		27			32				21			57s	25			30		19							
Aql	V1353	E10S			23s	35						30s			26							21s					28s										
Aql	V1426	E10S		22+	39+	57s	16+	33+	51	9+	27+	44s	3+	21+	38+	56	14+	32+	49s	8+	26+	43	2+	20+	37+	55s	13+	31+	48	7+	25+	42s	1+				
Aql	V1430	E10S			28s					21		27s			20				26s						25s												
Ari	X	RR	2	34	64	30	60			55	50			46	41	37						32	62	27	57		53	48	44	39	34						
Ari	RS	L10	2								31											12						92									
Ari	AL	E10S		60				35											59			34															
Aur	TZ	90		42	59	38+	55	73	51	69	47	64	43	60	39+	56	34+	52	69	48	65	44	61	39	57	35+	53	31+	49	66	44	62	40+				
Aur	CQ	L10	2	91						22s					53					84s					15			46s									
JD	598	..		85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																			
JD	599	..																	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			

2022 Nov	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Aur IY E10S							59			38							76			55			35											
Aur V0432				51s			60s			68s				76s	30		38			46			55			63			71					
Aur epsil L10 2																																		
Aur zeta L10 1																																		
Boo RS RR	73			75				77					67			69			71			73		75		63	77		65	78				
Boo TW 90				66	73		26					65	71	77							63	69	76					61	68	74				
Boo UU 90					24					72						75	21				78	69					72							
Boo UY 90			75													77			72									79		74				
Boo AC E10D	68	21+	27s	67s	73s		26	67	73	26s	67s	20+	25+	66	72	25+	66s	72s	24+	65	71	24+	65s	71s	24+	64	70	23+	64s	70s	23+			
Boo CM 90							71			76													77											
Boo CQ 90 3				76									78	75			73						77			75	72		69					
Cam SS E10S 3	68		9s				50	92s				33	74s			15	56s	98				39s	80				21s	62						
Cam SV S10	34+	23+	42+	31+	49s		38+	27+	46+	35+	24+	42+	31+	20+	39+	28+	47+	36+	24+	43+	32+	21+	40+	29+	47+	36+	25+	44+	33+	22+	40+			
Cam AK E10S	41s	53	64s	75						21	32s	43	55s	66	77s						23s	34	45s	57	68s			25	36s					
Cam AN L10 3	41s	53	64s	75						21	32s	43	55s	66	77s						23s	34	45s	57	68s			25	36s					
Cam AT E10S	58	28s	67s	37	77		47s	56	26s	65s		35	75	45s	54		24s	63s	33	73	42s	52	22s	61s	31	71	40s	50	20s					
Cnc S L10							8									57																		
Cnc RU L10 2									90												8								25					
Cnc RW 90	71			54			64	73		47		56	66	75			49	58	67	77		50	60	69	79		43	52	62	71				
Cnc RZ L10 2		64\	\	27			89/							46\	\		9s	71/					29/			91	/	53/						
Cnc TT 90		60	73				55	67				49	62	74			56	69				63	76	45	58	70			52	65				
Cnc TU E10S 3		25					82							38					94					50						6				
Cnc TW L10 2																																		
Cnc UU L10 2																																		
Cnc ZZ L10 2			78\	81			83/																											
Cnc AQ 90	54	64	74				58	68	77			51	61	71				55	65	74			49	58	68	78			52	62				
CVn W 90		74					71					67	77				64	74				60	71					67	78					
CVn Z 90	67		63	59										75			71		67	63		60	56			52			79					
CVn RS S10 3									70													69s												
CVn RZ 90		68					66					76					74			71			68					65	79					
CMa R S10 3			67s				65					62s		60								55						52s						
CMi AM E10S																											47	49	51	53	55			
Cas RX L10 2			51				/	/								\	\			67s		/	/											
Cas RZ S10 3			22	42	61				40		59						37	57	76				35	54	74			32	52	71				
Cas SX L10 2		42\	\	25	/	7/																												
Cas TV S10		23					67	48				29					73	54	36								61	42						
Cas TW S10	31	73			59			45				30	73		59			45				30	73		59			44						
Cas TX E10S			28	74s	21	67s		60s				53s			45s			38s			31s		77		23s	70		62			55			
Cas AQ L10 2	95\	\	0	5/			81\	86s	91/					67\	72	78/					53\	58s	64/		39/		44	50/						
JD 598 ..	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																			
JD 599 ..																	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		

2022 Nov	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Cas BM L10 3																		36																
Cas DN E10S		42	58s	73				35	51s	66				29			44s	60	75s					22	37s	53	69s				31s			
Cas GG E10S					75				50				26												54					30				
Cas GU E10U			73															20						29		38			48		57			
Cas IL E10S 3				44							34							24						70					60					
Cas IT E10X				44							34	65s					54s	24		44s			70		34s				60+					
Cas OX E10X				45+					43+				41+						39+						37+				35+					
Cas PV E10X				45+	65s		40s		43+			65s	41+						39+		41s				37+	66s		41s	35+					
Cas V0368		36	59s							27		49s	72										40s		62						30s			
Cas V0375		29s	77s	50	24s	71s	45	66s	40			61s	34	55s	29		76	50s	24	71	45s			66	39s	60		34s	55	29s	76s			
Cas V0381		29+	77s	50	24s	71s	45+	66+	40			61s	34	49s	55s	29+	76	50s	24	71	45+		66+	39s	60		34s	45s	55	29+	76s			
Cas V0459		26					50+	25					49	98s	23						47			22	44s				45		20			
Cep RZ 90		42+	35+	27+	51	43+	36+	29+	21+	45+	37+	30+	22+	46+	39+	31+	24+	47+	40+	32+	25+		49	41+	34+	26+	19+	42+	35+	28+	20+	44+		
Cep V000W		24+	21+	33+	30+	27+	25+	22+	34+	31+	28+	26+	23+	21+	32+	29+	27+	24+	22+	33+	30+		28+	25+	23+	20+	31+	29+	26+	23+	21+	32+		
Cep XX S10			54						21	55				23				56						24		58				25				
Cep XY E10S		30								63			40										72		50				27					
Cep ZZ S10		23		37			52		66									22		37			51		65		79							
Cep AI E10S 3									29	40s		52		63s												19			31s		42			
Cep CW E10X			60+			33+							52+				25+						71+		44+									
Cep EI L10		21			43s					65			87s					9						31s				53			75s			
Cep EX L10			13													56															99			
Cep NN E10S								21s	24	27s		30	33s	36	39s	42	45s	48	51s	53	56s		59	62s	65	68s	71	74s	77					
Cet RR RR				31	42	53		29	40	50			27	38	48				25	35	46				22	33	44		20	31	41			
Cet RV 90				44				43					41					40							39				37					
Cet TU E10S 2		54					93					32		71							11					50			89					
Cet TV L10 2									19+									29+										39+						
Cet XY E10S 2			33					50s					45										40s		57				35					
Com S 90			74				68			61			71				65		58	75				69				62	79		55	73		
Com ST 90 3										66			65				65		64					63		63			62					
CrB U S10										73																								
CrI W 90 2													77							77								78						
Cyg Y S10													77							77								78						
Cyg UY RR		36	48			29	41			21	33	45		26	38						30	42			23	35				27	40			
Cyg XZ RR			52	45	39	32	25			52	45	38	32+	25			52	45	38	32+	25+			52	45	38		32+	25+					
Cyg BO E10S		43	31s						46	34s	21			48			36s	24						51	39s	26					41s			
Cyg BR E10S			21		21s		21					20s	20				20s	20		20s			20		20s			19	19s		19			
Cyg DM RR		39	23	49	33		43	27		37	21	47	31	41	25		35		45	28			38	22		32		42	26		36			
Cyg EM K10			35	23	39	26		30		34	21	37	25		28		32		35	23			26		30		34	21		25	28			
Cyg V0367		/	/	/	/	/	/	/	/	17	/	/	/	/	/	/	/	/	/	47s	/	/	/	/	/	/	/	/	/	/	77	/	/	
JD 598 ..		85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																		
JD 599 ..																	0	1	2	3	4		5	6	7	8	9	10	11	12	13	14	15	

2022 Nov	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Cyg V0463								23	28s	34	40s														23s	28	34s									
Cyg V0477				24s				23	28s	34	40s	28s					32s								23+	28	34s									
Cyg V0541													00+																34+							
Cyg V0548				56s	46		36s	26				78s		48	39s	29									51	41s	32	22s			73					
Cyg V0788																																				
Cyg V0891				36s			35	25																			31	22								
Cyg V0909											37																21									
Cyg V1061 E10S							29								33								37					41								
Del DX 90 3	31	25							40	34	29	23						38	32	27	21						36	30	25	19						
Del NN L10 1																																				
Dra RW RR	38	27+			37		26+			36	24+			34	23+			33+	22+						32+	20+		30+	19+		29+	62				
Dra SU RR		46		44	76		42	74	40	72	38	71	37	69	35	67	33	65	31	63	29				61	27	59	25	57	23	56	22	54	20		
Dra SW RR	76	33	47	61	75		32	46	60	74	30	44	58	72	29	43	57	71	28	42	56				70	27	41	55	69	26	39	53	67	24		
Dra TZ E10D	29			32s				35	22	38s				25s	41	28			31+							21		37s	24s			27		30+		
Dra V000Z	33+	29+	25	22			46	43+	39+	35+	31+	28+	24	20	77		41+	38+	34+	30+	27+				23+		76	40+	36+	33+	29+	25+	22+			
Dra WW S10							70					33															22									
Dra XZ RR 3	54	49	44	40	35		30	26+	21+	64	59	54	50	45	40	36	31	26+	22+	65	60				55	50	46	41	36	32+	27+	22+	65	60		
Dra AI S10					22		41					21							20								20			79		19				
Dra BF L10				50s	22		41					21			71s				20							31s	20			79		19				
Dra BK 90	65	24	43	61			39	57	76	35	53	72	31	49	68	27	45	64	23	41	60					78	37	56	74	33	52	70	29	48	66	
Dra BU E10S	26s	21										78	74s	70	66s	61	57s	53									31s	27	23s							
Dra DD 90	33+	31+	29+	27+	25+		23+	21+	51	49	47	45+	43+	42+	40+	38+	36+	34+	32+	30+	28+					26+	24+	22+	20+	50	49	47+	45+	43+	41+	
Dra GV L10													59																							
Equ S S10				27																										33						
Eri SV 90 2			47					46						46					46								45			45						
Gem RR 90	72	51	70	50	69		48	67	47	66	46	65	44	63	43	62	41	61	40	59	39+					58	37+	57	36+	55	35+	54	33+	52	72	
Gem RY L10 2			96					61s						26					91s								56			21s				86		
Gem SV E10S 1	48			49						49				50					50								51			52			52			
Gem SZ 90	51	51	51	52	52		52	52	53	53	53	53	54	54	54	54	54	55	55	55	55					56	56	56	56	56	57	57	57	57	58	
Gem WW E10S	45	68		54s			40	64		49s	73s	35	59		44s	68s	54	78	40s	63s						49	73	35s	58s		44	68		54s		
Gem YY S10	60s	41s	64	45	67s		49s	71	52	74s	56s	78	59	41	63s	44s	66	48	70s	51s	73					55	36+	58s	40s	62	43	66s	47s	69	51	
Gem OW L10 2																			73								49									
Gem V0339		45																	73																	
Her TW RR 3	33		33	33				33	33			32	32	32				32	32																	
Her TX S10										76																		21s	24	27s	30					
Her UX E10D											30							27s										24								
Her V000X											21				22					77							78					79				
Her V000Z			27					23		31				28					24							76	20		28			25				
Her AK S10			24s					25				25s		20s	26				21								21s	79	21							
JD 598 ..	85	86	87	88	89		90	91	92	93	94	95	96	97	98	99																				
JD 599 ..																	0	1	2	3	4					5	6	7	8	9	10	11	12	13	14	15



2022 Nov			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Her	AR	90						33	27+	21+						32	26+	20+							78	25+	19+				77	24+			
Her	AW	L10	3								93									73									53						
Her	DI	L10									93		33s							73		88s							53						
Her	GU	E10U						28s																											
Her	LV	L10	2					28s																		25s									
Hya	SZ	90	2			68	75							66	74						65	72					63	70	78						
Hya	WZ	90	2			69	77							68	76						67	75					66	74							
Hya	AI	L10	2				7+									36+								65+						94+					
Hya	ET	90			60	66				72	77					57			63	68	74						54		60	65					
Lac	RW	L10		46s		60	66			72	77			83s		57			63	68	74				20s		54		60	65					
Lac	SW	S10		23+	35+	31+	27+	23+	36+	32+	28+	24+	21+	33+	29+	25+	21+	34+	30+	26+	22+	35+	31+	27+	23+	20+	32+	28+	24+	20+	33+	29+	25+		
Lac	UW	E10S				31						60					89						18					47					76		
Lac	CO	E10X		51+		60+				68+	22+				31+			39+		48+			56+		64+			19+			27+				
Lac	V0345					40+								89+							38+						88+								
Lac	V0364					40+								89+				33s	38+								88+								
Leo	RR	RR		76	66	57				73	64	54		71	62	52			78	69	59	50	76	66	57		74	64	55						
Leo	SS	RR				68						69				70						71				72			74						
Leo	ST	RR							76	72	68	63								76	71	67	63					79	75	71	66				
Leo	WY	E10S				54						53				51						50				49					47				
Leo	AG	E10S												62s					71							49					58s				
Leo	AM	S10		69		70s	62		71	63s	73s	64	74	65s	75s	66	76	68s	59+	69	60+	70s	61	71	63s	72s	64	73	65s	56+	66	58+	67s		
Lyn	TY	E10S	3									54						65s																	
Lyn	CD	E10S	3			55s						38						65s			48	75s				30s			58						
Lyr	RR	RR	34				31		44			28	41		25	38			21	35				31			28				25				
Lyr	RZ	90		25	27	29	32	34	36	38														21	23	25	28	30	32						
Lyr	UZ	S10								42	36s	31		25s	20												38s	33	28s	22					
Lyr	CN	90		27		33				21		27		32		20			26	32			20	25	31			19	24	29	34				
Lyr	EZ	RR							23	28	33	38							21	26	31	36													
Lyr	IO	90		30				34			23			27				31							23			27							
Lyr	beta	S10	3			63						10s				57								4s					51						
Mon	UX	E10S	2			52			47s		43			38s		33				28s			24		19s			14			9s				
Mon	V000V					26s			29		31s			34		37s				39			42s		44			47s			49				
Mon	AQ	E10S	2			72					54s					63s				72s				54				63							
Mon	AR	L10	1									26\ 95/									86\ 71	56/									47\				
Mon	AT	E10S	2						54		57			60	63	66			69		72														
Mon	AV	E10S	2		26s		73				20s			68				15s		62				10s			57				5s				
Mon	EZ	E10U	2	61	55+	68s	62	56+	50+	63	57+	51+	64	58s	52+	65	59s	53+	66	60s	54+	48+	61s	55	49+	62s	56	50+	63s	57	51+	45+	58		
Mon	IL	E10S	2	46			49		49		51				54				57							62					64				
Mon	V0448			61s	73s		52		64	76		55s		67s		47	59	71		50s	62s		74s	42	54	65		45s	57s	69s					
JD	598	..		85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																	
JD	599	..																	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

2022 Nov	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																																							
Mon V0530		68	73	52s	57s	62s	67s	72s	51+	56	61	66	45+	50+	55s	60s	65s	44+	49+	55	60	65	44+	49+	54s	59s	64s	43+	48+	53	58																																								
Mon V0536		62+						75+																																																															
Mon V0634		59					70						50					62	73																																																				
Oph U ST		23																																																																					
Oph ST 90		22																																																																					
Ori Z E10S 2		20					41					61					81					2					22																																												
Ori BM E10S 3							45						92					39					86																																																
Ori CP E10S 2		36					68					0					32					64					96																																												
Ori DN L10 2		22															19																																																						
Ori EW E10X 3																											66+																																												
Ori FO L10 2							84															64																																																	
Ori FT E10X		72s	84										48s					63s					78s					64																																											
Ori GG E10X		72											48					64s					63					78					49					65																																	
Ori V0536							51					67																																																											
Ori V1016 L10												48																																																											
Ori V1031 E10S 2		65s										46s					57										49s																																												
Ori V1366 L10 1		63	42	20+	78	56	35	14+	71	50	29	7+	65	43	22	1+	58	37	16+	73	52	30	9+	67	45	24	3+	60	39	17+	75																																								
Peg U S10		29+	23+	35+	29+	22+	35+	28+	22+	35+	28+	22+	34+	28+	22+	34+	28+	22+	34	28+	21+	34	28+	21+	34	27+	21+	34	27+	21+	33																																								
Peg V000V							48					46					44					41					39					37					34					32					30					27					25					23					20				
Peg V000W							48					46					44					41					39					37					34					32					30					27					25					23					20				
Peg AV RR		35	30			47	26	43	21	38	33	28			45	23	41	36			31	26	43	21	38	34	29																																												
Peg AW L10 2		74					5s					36					67s					98					29s																																												
Peg BH 90		47	39			32	24	44			37	29			21	42			34	26			19	30s	39			32																																											
Peg BK E10S		59	34s			31	24			45	38			31	25	45	39			32	26	39			33	26	20																																												
Peg CG 90		44					37	31	24			45	38			31	25	45	39			32	26	39			33	26	20																																										
Peg DF L10 3		91															61					21					24					26					28					30					32					35					37					39									
Peg DH RR		26	28	31	33	35	37	39	42	44	23	25			27	29	31	34	36			38	40	24	41s			35	19s																																										
Peg GH E10S 3		35					46					29s					41s					24					35					19s																																							
Per RW L10 2							56					72s					59s					76					45s																																												
Per RY E10S 3		43	29					72+					28s					31s					34s					59s					36s					39s					42s					45+					48s					51s													
Per AG E10X		43	60					46	31+	58	43	29+	56	41	26+	54	39	24+	52	37	22+	50	35+	20+	48	33+	61	46	31+	58	44	29+	86																																						
Per AR 90		35	63	48	33+	60	46	31+	58	43	29+	56	41	26+	54	39	24+	52	37	22+	50	35+	20+	48	33+	61	46	31+	58	44	29+																																								
Per AY L10 3		31					54+					29+					78+					52+					26+					75+					49+					24+					72+					47+																			
Per IQ E10X		57+	31+			39	26+	56s	42s	29+	59	45	32+	62s	49s	35s	22+	52	39	25+	55s	42s	29+	59	45	32	62s	48s	35s	22+																																									
Per KN E10U		62s	49s	36s	22+	52	39	26+	56s	42s	29+	59	45	32+	62s	49s	35s	22+	52	39	25+	55s	42s	29+	59	45	32	62s	48s	35s	22+																																								
Per LX L10		27	29s			31					33s					35					37s					39					41s																																								
Per beta S10 3		44					31	74s	61s			48s					21s					64					51					38					25					68s																													
Psc RU 90 3		33	50	28	45	23+	40	57	35	53	31	48	26	43	21+	38	55	33	50	29	46	24	41	19+	36	53	31	48	26	44	22																																								
Psc RY 90 2		49	38			44	26	32	38	44	21	27			33	39	45	21	27			33	21	27			33	39	22																																										
JD 598 ..		85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																																																							
JD 599 ..																	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15																																							

2022 Nov			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Psc	SS	90	3	39	26+	41	27+	42	29+	44	30+	45	31+	47	33+	48	34	21+	36	22+	37	24+	39	25+	40	26+	42	26+	43	29	44	31	46		
Sge	SY	E10S	3					26							33																	26s			
Ser	AN	90	3																			77										76			
Ser	BH	90	3									77										77								72					
Ser	EG	L10	3	38		87s			36		84s			33		82s			30		79s			28		76s			25		74s				
Ser	LX	K10	3				21		22					76		77			78					74		76				77	72		78		
Sex	T	90		73	71	68	66	63	60						77	75	72	69	67	64	62	59	56			79	76		73	71	68	66	63		
Tau	RW	S10	3									57			34								65			42									
Tau	CD	S10	3	75s		47					62s	34			77		49s						64			36s				51					
Tau	EN	E10S			54s		40	64		50s	74s	36	60		45s	69s	55			41s	65s		51	75	37s	61s		46	70	32s	56s		42		
Tau	V1094	L10	2	73+								72+										70+										69+			
Tau	V1125	E10S	1	61			45	59				43	56		40	54			38	52			36	49		33	47		60		31	44	58		
Tri	X	S10	3	43	40	37	34	31	29	26	23																					60	57		
Tri	RU	E10S	2	48s					39		65			29s		56s						46				36s				63s		26			
Tri	UX	90	3	43	36	29	23	63	56	50	43	36	30	23	63	57	50	43	37	30	24	64	57	50	44	37	31	24		57	51	44	38		
UMa	W	S10		49+	49+	49+	50+	50+	50+	50+	50+	50+	50+	50+	34+	34+	34+	34+	34+	34+	34+	34+	34+	34+	34+	35+	35+	35+	35+	35+	35+	35+	35+		
UMa	RV	RR			26+	67	60	54			75	22+		62	56				77	24+	64	58	52			79	73	20+	60	54	47				
UMa	RW	E10S						77s											76													75s			
UMa	TU	RR					58	69				59	71			61	73						63	75			54	65	77		55	67	79		
UMa	TX	S10		76																															
UMi	W	S10			74		44				54			24		64			35		75			45					55		25				
Vir	ST	90	2																		76						74								
Vir	AG	E10D							76	72s	69	65s					75		72s	68	65s	61				79s	75	72s	68	64s	61				
Vir	AH	S10		68	70s	72	73s	75	77s			64		66s	68	70s	72	74s	76	77s			63s	65	66s	68	70s	72	74s	76	78s	59s	61		
Vir	AT	90	2												78											72	77								
Vir	AV	90				75	72																			77			74		71		68		
Vir	CG	E10S																				78s							79						
Vul	Z	S10	3												34						25														
Vul	BN	90	3	29			26				23		21				36				33		31			28			25			22			
Vul	DR	E10X		44+																	20+								20+						
Vul	EV	E10S	3													36																	29		
JD	598	..		85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																	
JD	599	..																	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
2022 Dez			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
And	SW	RR	3	49	38	26		47	36	24		45	34	22		43	32	20			41	30		39	28		37		26		47	35	24		
And	SY	L10	1														84/		88	93/															
And	TW	S10																								23s	30			36s	42				
JD	599	..		15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	

2022 Dez			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
And	XX	90		24	41			58	30		47	19		36		53	25		42			31		48	20		37		54	26		43			
And	CD	L10	2												25\	\	32	/	38/											47\	\		54s		
And	OV	90		24			53	47	41	35	29	24			53	47	41	35		29	24			47	41	35	29	24			47	41		35	
Aqr	SW	RR			32	23					29	21					26						23					20							
Aqr	SX	90	3						20	27							24	31						20	27						24				
Aqr	CD	E10S	3			84					68						52				36					19				3					
Aqr	HH	90			28				30			32					19				21				23			25			27				
Aqr	LL	L10	2								17										26s								34						
Aql	AA	RR						26			24			22					20																
Aql	V0341							24									22											20							
Aql	V0889				69s	24											81s	22									94s	20							
Aql	V1353	E10S		23					19s								26s				21														
Aql	V1426	E10S		18+	36+	53	12+	30+	47s	6+	24+	41+	59	17+	35+	52s	11+	29+	46	5+	22+	40+	57s	16+	34+	51	10+								
Aql	V1430	E10S		24s							23s						22s																		
Ari	X	RR	2		30	60	25	55	20	51		46		41		37		32				27		23	53		48		44		39		34		30
Ari	RS	L10	2					72									53											33							
Ari	AL	E10S		58																						32									
Aur	TZ	90		58	36+	54	32+	49	28+	45	63	41	59	37+	54	33+	50	29+	46	24+	42	59	38+	55	34+	51	29+	47	25+	43	21+	39+	56	34+	
Aur	CQ	L10	2			78					9s						40						71s						2						33s
Aur	IY	E10S		73				52			31						69				49				28							66			
Aur	V0432			25s	79		33s			41s		50s					58s			66s		20	74s		28		36		45			53			
Aur	epsil	L10	2																																
Aur	zeta	L10	1																																
Boo	RS	RR			67			69			71		60	73		61	75		63	77		65	78		67		56	69		58	71		59	73	
Boo	TW	90							60	66	73	79					58	65		71	77					57	63	69	76			55		61	
Boo	UU	90		74	66				77	68				79	71	62						73	65			76	67	59		79	70	61			
Boo	UY	90			70		65									76		71				67		62					78		73		68		
Boo	AC	E10D		64	69	22+	63s	69s	57+	63	69	57+	62s	68s	56+	62	68	56+	61+	67s	55+	61+	67	55+	61+	66s	54+	60+	66	54+	60+	66s	54+	59+	
Boo	CM	90		69			73			78						65		69				74			79		61		66			70			
Boo	CQ	90	3			79		77			74		71	69		66	79		76		73		71		68		65	78	63	75		73		70	
Cam	SS	E10S	3		3s		45			86s		27			68s		9			51s		92			33s		74		15s		57		98s		
Cam	SV	S10		29+	48+	37+	26+	44+	33+	22+	41+	30+	19+	37+	26+	45+	34+	23+	42+	31+	20+	38+	27+	46+	35+	24+	42+	31+	20+	39+	28+	46+	35+	24+	
Cam	AK	E10S		48	59s	70					27s	38		50s	61	72s						29	40s		52	63s	74				20	31s	42	54s	
Cam	AN	L10	3		48	59s	70				27s	38		50s	61	72s						29	40s		52	63s	74			20	31s	42	54s		
Cam	AT	E10S		59s	29	69	38s	78s	48		57s	27	67		36s	76s	46	55s		25	64	34s	74s	44		53s	23	62	32s	72s	42	51s	21	60	
Cnc	S	L10				54											2											50							
Cnc	RU	L10	2									42												59								77			
Cnc	RW	90			45	54	64		73			47	56	66	75		39	49		58	68	77		41		51	60	70	79		43	53	62	71	36
Cnc	RZ	L10	2						11\	73s	/	35/								93\	\	55	/	18/						75\	\	37s	00/		
JD	599	..		15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	

2022 Dez	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Cnc TT 90		77	46	59	72		41	54	66	79		48	61	73			42	55	68			50	62	75		44	57	69		38	51		64
Cnc TU E10S 3					62							18					75					31					87						
Cnc TW L10 2																																	
Cnc UU L10 2							24												/	/													
Cnc ZZ L10 2																								97\		0	/	2/					
Cnc AQ 90		71		46	55		65	75		49		59	68	78	43		52	62	72			46	56	65	75		40	49	59	69	78		78
CVn W 90			64	74				60	71				57	67	78			54	64	74			60	71				57	67				
CVn Z 90		75	71	67			64	60				56	52	48			79	75	72			68	64				60	56	53				
CVn RS S10 3				69									68s														68						
CVn RZ 90		62	76				60	73		57		70							65	78			62	75			59	72					56
CMa R S10 3		64					61s			59			56s					54					52s				49				47s		
CMi AM E10S		57	58	60	62	64	66	68	70	72	74								\	\		0s		/	/								
Cas RX L10 2		\	\		84		/	/																									
Cas RZ S10 3				30	50		69			28		47	67				25	45	64				23	42	62			21	40	60			79
Cas SX L10 2							98\	\	81		/	64/																					
Cas TV S10		23					67	48		30							55	36									61	42	23				
Cas TW S10		30	73		59			44				30	73		58			44				30	73		58			44					30
Cas TX E10S			48				40		33	79s		26	72s				65s		57s			50s		43s				35s					28s
Cas AQ L10 2		25\	30s	36/			11\	16	22/			97\	\	2s	8/		83\	88	94/				69\	75s		80/			55\			61	
Cas BM L10 3												/																					
Cas DN E10S		46	62s	77			24s	40	55s	71				33			48s	64	79s				26	42s	57	73s			19	35s			51
Cas GG E10S								57					33										61					37					
Cas GU E10U			66																				22	32				41					50
Cas IL E10S 3						50						41							31				76				21		67				
Cas IT E10X						50						41							31				76	51s			21		67+				
Cas OX E10X			32+					30+	79+			28+	77+				26+	75+				24+	73+				22+	71+					
Cas PV E10X		66s	32+	41s				30+	66s	79+	41s	28+	77+				26+	75+				24+	73+				22+	71+					
Cas V0368		52	75s					20s				43	65s						33				56s	78				23					46s
Cas V0375		50	24s	71s	45		66s	39	60s	34		55s	29	76	50s		23	71	44s	65		39s	60	34s			55	28s	76s	49	23s		70s
Cas V0381		50	24s	71s	45+		66s	39	60s	34		42s	55s	29	76	50s	23	71	44+	65		39s	60	34s	39s		55	28s	76s	49	23s		70s
Cas V0459		90s		44						36s		42						40+							39			27s					
Cep RZ 90		36+	29+	22+	45+	38+	30+	23+	46+	39+	32+	24+	48+	40+	33+	25+	49	42+	34+	27+	19+	43+	35+	28+	21+	44+	37+	29+	22+	45+	38+		31+
Cep V000W		30+	27+	24+	22+	19+	31+	28+	25+	23+	20+	32+	29+	26+	24+	21+	19+	30+	27+	25+	22+	20+	31+	28+	26+	23+	20+	32+	29+	27+	24+		21+
Cep XX S10		59					26	60					27	61					29				62					30	63				
Cep XY E10S						60			37								69		47				24					79					
Cep ZZ S10		22		36			50	64		78								21	35			49	63		78								
Cep AI E10S 3		53s											21s				32		43s				77										
Cep CW E10X			62+			35+							54+					27+					73+		46+								
Cep EI L10					97				19s				41						63s				85				7s						29
JD 599 ..		15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	

2022 Dez	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Cep EX L10												43													66								
Cep NN E10S												21s	23	26s	29	32s	35	38s	41	44s	47	50s	53	56s	58	61s	64	67s	70	73s			
Cet RR RR				28	39					26	37	47		24	35	45				22	32	43		19	30	41			28	38			
Cet RV 90				36					35					34					32				31					30					
Cet TU E10S 2				28			67					6				45								23				63					
Cet TV L10 2						50+										60+							70+										
Cet XY E10S 2			53s			31s				48		26					43s		21s				38							33s			
Com S 90				66			59	76		52	70		63				56	74					60	78		54	71			64			
Com ST 90 3	62			61			61			60			60	79			59	79		59	78		58	78	58	77		57	77	56			
CrB U S10																	71							61									
CrB RV 90 3					21	20	20	19	19												79	79	78	78	77	77	76	76	75	75	74	74	
Crt W 90 2	72		78						72				67		73							67		73				68					
Cyg Y S10	72		78						72				67		73							67		73				68					
Cyg UY RR			20	32					25	37			29				22	34					26			19	31			24			
Cyg XZ RR	45	38	31+	25+					45	38	31+	25+			45		38	31+	25+	65				38	31+	24+	64		38	31+			
Cyg BO E10S	29							44s	31	19s					34		22s						36	24s				39	27s				
Cyg BR E10S		19s	19				19s	19	19s																								
Cyg DM RR	20		30	40			24		34			28		38	22		32			26			35	19		29		23		33			
Cyg EM K10		32	19	23				26	30			21		25			28			19			23	26				21+		25			
Cyg V0367	/		\	\	\	7s	/	/								\	\	37	/	/			\	\		67s	/	/					
Cyg V0463													22	28s																	22s		
Cyg V0477													22	28s														22s				22s	
Cyg V0541														67+																1+			
Cyg V0548		44s	34	24s					76			47s	37	27s					78	69s			39	30s	20			71s					
Cyg V0788								53\	48	44\																							
Cyg V0891																		27															
Cyg V0909				22s								23							25s						26								
Cyg V1061 E10S						45												19						23								27	
Del DX 90 3							28	23									26	21															
Del NN L10 1																																	
Dra RW RR		39	28+	60			38	26+	59	36		25+	58	35+	23+		56		33+	22+	55		32+	21+	54		31+	19+	52	29+	62		
Dra SU RR	52		50		48			46	78	44	76	42	75	41	73	39	71	37	69	35	67	33	65	31	63	29	61	27	60	26	58	24	
Dra SW RR	38	52	66	23	37		51	65	22+	36	50	64	21+	35	49	62	19+	33	47	61	75	32	46	60	74	31	45	59	73	30	44	58	
Dra TZ E10D			33+	20			36s	23s		26+							32+	19		79	22+			25+		28+		75s					
Dra V000Z		78	75	71	35+		32+	28+	24+	20+		77	74	70	34+	30+	27+	23+	19+	48	76	72	69	33+	29+	26+	22+	50	47+	75	71	68	
Dra WW S10					48											74												62					
Dra XZ RR 3	56	51	46	42	37		32	28+	23+	66	61	56	52	47	42	38	33	28+	23+	19+	62	57	52	48	43	38	34	29+	24+	19+	62	58	
Dra AI S10			79		19				78																			57	76			56	
Dra BF L10			79+		19				78						73s	78					57+	77				57	76			55s	56		
JD 599 ..		15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	

2022 Dez		P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Dra BK	90		25	44	62	21	40	58	77	36	54	73	32	50	69	28	46	65	24	42	61	20+	38	57	75	35	53	71	31	49	67	27	45		
Dra BU	E10S					75	71s	67	63s	58	54s	50						24	20s								77s	72	68s	64	60s	55			
Dra DD	90		39+	37+	35+	33+	31+	29+	27+	25+	23+	21+	19+	50	48	46+	44+	42+	40+	38+	36+	34+	32+	30+	28+	26+	24+	22+	20+	51	49	47+	45+		
Dra GV	L10							45																									30		
Equ S	S10						20																										25		
Eri SV	90	2	31				45	30				45	30				44	30				44	30				44	29			43		29		
Gem RR	90		51	70	50	69	48	68	47	66	46	65	44	63	43	62	42	61	40	59	39+	58	38+	57	36+	55	35+	54	33+	53	32+	51	31+		
Gem RY	L10	2					51s					16					81s				46				11s						76				
Gem SV	E10S	1					53					53	54				55				55				56			56			56		57		
Gem SZ	90		58	58	58	59	59	59	59	59	60	60	60	60	61	61	61	61	61	61	62	62	62	62	63	63	63	63	63	64	64	64	64	65	
Gem WW	E10S			39	63		49s	72s	34	58		44s	68s	29	53		39s	63s	48	72	34s	58s		44	67	29s	53s		39	62	24s	48s			
Gem YY	S10		73s	54s	36+	58	39	61s	43s	65	46	68s	50s	31+	53	35+	57s	38+	61	42	64s	46s	27+	49	31+	53s	34+	56	38+	60s	41s	63	45		
Gem OW	L10	2																																	
Gem V0339													77					53								29									
Her TX	S10												69s	72	75s	78																20			
Her UX	E10D		21s																		79s						76								
Her V000X												72					73				74												76	67	
Her V000Z			77	21				73				70					78	22			74			70			79	67				75	19		
Her AK	S10											76s					76				77s			77			72	78s				73s	78		
Her AR	90		65					76	23+	64						75	22+	63	57						74	21+	62	56					79	73	
Her AW	L10	3					33										14								94									74	
Her DI	L10		43s				33						98s				14								94+									74	
Her GU	E10U																				71s													74s	
Her LV	L10	2					78s														71s													74s	
Her MM	E10S											78s					76																		
Hya SZ	90	2	61	69	76			52	60	67			75			51	58	66	73							49	57	64				48	55	62	
Hya WZ	90	2		65	73						64	72						63	71							55	62	70				54	62	69	
Hya AI	L10	2									23+																	81+							
Hya ET	90		71					51	56	62			68					48	53				59		65						44		50		
Lac RW	L10		71	57s				51	56	62			68+					48	53				59		65+						44		50		
Lac SW	S10		21+	34+	30+	26+	22+	34+	31+	27+	23+	19+	32+	28+	24+	20+	32	29+	25+	21+	33s	30+	26+	22+	34	30	27+	23+	19+	31s	28+	24+	20+		
Lac UW	E10S							5					34					63							92								21		
Lac CO	E10X						36+					44+						24+	78+			32+			40+					49+					
Lac V0345							37+						86+																		84+				
Lac V0364							37+					38s		86+																	84+				43s
Leo RR	RR		71	62	52		78	69	59	50		76	67	57	47		74	64	55	45		71	62	52	43	78	69	59	50	40	76	67	57		
Leo SS	RR		61				75	62				76	64				77	65				78	66			79	67				55			68	
Leo ST	RR		62	57						79	74	70	66	61	57							78	74	69	65	61	56	52					78	73	
Leo WY	E10S						46					44						43					42									39			
JD	599	..	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45		

2022 Dez	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Leo AG E10S					67						76s	45					54s					63				72s	42						
Leo AM S10		59+	68	60+	70s	61+	53+	62s	54+	64	55+	65s	56+	66	57+	67s	59+	50+	60+	51+	61+	52+	62s	54+	63	55+	64s	56+	47+	57+	49+	58+	
Lyn TY E10S 3					53													52														52	
Lyn CD E10S 3					40s		68							50s	77							60s							42		70s		
Lyr RR RR		38			22+	35					32					28			25			22+			19+	32			72	29			
Lyr RZ 90															19	21		24+	26+	28+													
Lyr UZ S10							79										30s	24	19s					75s									
Lyr CN 90		30						24							23				76			23			75			22					
Lyr EZ RR								22	27										20	25+								71	23+				
Lyr IO 90						20+					24					28									24		71					75	
Lyr beta S10 3						98s						45						92s						39								86s	
Mon UX E10S 2			4			00s			95			90s		85			81s							71s			66					61s	
Mon V000V					52s					57s						62s		64				67s		69				72s				74	
Mon AQ E10S 2	45s						54s					63s			45										63							45s	
Mon AR L10 1	32s 16/											7/	77/									68\	52s	37/									
Mon AV E10S 2				52			99s				47				94s			41			89s			36				84s				31	
Mon EZ E10U 2		52+	46+	59	53s	47+	60	54s	48+	42+	55s	49+	43+	56s	50	44+	56s	51	45+	39+	51	45+	40+	52	46s	40+	53	47s	41+	54	48s	42+	
Mon IL E10S 2				67				70				72			75						78			80				83				86	
Mon V0448				48	60			40s	52s	63s		43	55	67			46s	58s				38	50	62			41s	53s	65s		33	44	
Mon V0530		63	42+	47+	52s	57s	62s	41+	46	52	57	62	41+	46s	51s	56s	61s	40+	45	50	55	60	39+	44s	49s	54s	33+	38+	43	49	54	32+	
Mon V0536									42+							55+																	
Mon V0634									41			53		64														44				56	
Ori Z E10S 2				42					62					83						3				23				44					
Ori BM E10S 3		33							80						27							74						21					
Ori CP E10S 2					28					60						92										56						88	
Ori DN L10 2	15														12													8					
Ori EW E10X 3			60+								54+							47+						41+								35+	
Ori FO L10 2															44																		
Ori FT E10X							38s		53s					68s	44										28s			43s				58s	
Ori GG E10X							38		53+					68											28			43	43s			58	
Ori V0536																47																28	
Ori V1016 L10																																	
Ori V1031 E10S 2				60							41					52s												44					
Ori V1366 L10 1	54	32	11+	68	47		26	4+	62	41	19+	77	55	34	13+	70	49	27	6+	64	42	21+	78	57	36	14+	72	51	29	8+	65	44	
Peg U S10		27+	21+	33	27+	21+	33	27+	20+	33	27+	20+	33	26+	20+	32	26s	20+	32	26s	20+	32	26s	19+	32	26s	19+	32	25s	19+	32	25s	
Peg V000V		41	39	37	34	32	30	27	25	23	20															34	32	30	27	25	23	20	
Peg V000W		41	39	37	34	32	30	27	25	23	20														34	32	30	27	25	23	20	20	
Peg AV RR		24	41	19	36		31		27	22		39		34	29				25		20	37				32		27				30	
Peg AW L10 2						60					92s						23								54s		85						
JD 599 ..		15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	



2022 Dez	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Peg BH 90		24						37	29			21					34	26	19						31	24								
Peg BK E10S								28s										26s										23s						
Peg CG 90		40	34	27			20					34	28	21				35	28	22					36	29	22							
Peg DF L10 3						31														1														
Peg DH RR		20	22	24			27	29	31	33	35				19	21	23	25	28	30	32						20	22	24	26	28	31		
Peg GH E10S 3						30s									25									19s				30s						
Per RW L10 2		96																16											36					
Per RY E10S 3		31s										61							47								34							
Per AG E10X		54s	31s	57s	59s		62s	65s				68s	61						47								34							
Per AR 90		56	41	27+	54	39	24+	52	37	22+	50	35	20+	48	33	61	46	31+	59	44	29+		56	41	27+	54	39	24+	52	37	22+	50	35	
Per AY L10 3												64													42									
Per IQ E10X		21+			70+		44+	19+				67+	42+						65+			39+					62+	36+						
Per KN E10U		52	38	25+	55s	42s	28s	58	45	32	61s	48s	35s	21+	51	38	25	55s	41s	28s	58	45	31	61s	48s	34s	21+	51	38	24	54s	41s		
Per LX L10				42			44s					46			48s				50						52s		54						56s	
Per beta S10 3		55s			41s		28s					58		45					32			19	62s		49s		35s					22s		
Psc RU 90 3		39	56	34	51	29	46	24	41	19	37	54	32	49	27	44	22	39	34	52		30	47	25	42	20	37	32	28			45		
Psc RY 90 2			22	28	34	40						23	28	34						23		29	35						24	30				
Psc SS 90 3		32	19+	34	20+	35	22+	37	23+	38	24+	40	26	41	27	42	29	44	30	45	32		47	33	19+	35	21+	36	22	37	24	39	25	
Sge SY E10S 3															19							27												
Ser V000Y																																		69
Ser AN 90 3		78										74	78												70	75	79							
Ser BH 90 3							71		76				67				71		75				79	66			70		75	61				
Ser EG L10 3		23		71s																														
Ser LX K10 3		73	79	74			75	70	76			71	77	72	67		78	73	68	79	74	69	75	70	65		76	71	66	77	72		67	
Sex T 90		60	58	55	53		77	75	72	70		67	64	62	59	57	54	51	49	79	76	73	71	68	66	63	61	58	55	53	50		48	
Tau RW S10 3				49			26								57				34															41
Tau CD S10 3			66s	38					54s			25		69			41s					56		28s				43						
Tau EN E10S		66	28s	52s	76s	38	61		47s	71s	33	57		43s	67s	29	53		39s	62s	24	48		34s	58s		44	68	30s	54s			40	
Tau V1094 L10 2							68+										67+									66+								
Tau V1125 E10S 1		28	42	56			26	40	53			37	51		35		48					32	46			30	44		28	41				25
Tri X S10 3		55	52	49	46	43	40	38	35	32	29	26	23	20																				
Tri RU E10S 2			53						43s										24s		51s					41							31s	
Tri UX 90 3		31	24		58	51	45	38	31	25		58	52	45	38	32	25	19		52	45	39	32	26	19		52	46	39	33	26		19	
UMa W S10		35+	35+	35+	36+	36+	36+	36+	36+	36+	36+	36+	36+	36+	36+	37+	37+	37+	37+	37+	37+	37+	37+	37+	37+	37+	37+	37+	37+	37+	37+	37+	37+	21+
UMa RV RR		75	22+	62	56	50			77	71	64	58	52	45	79		73	66	60	54	47	41		75	69	62	56	49	43				77	71
UMa RW E10S		42						74					41s							74s					40								73	
UMa TU RR			57	69			48	59	71			50	61	73			52	63	75			53	65	76		44	55	67	78				46	
UMa TX S10					46			52				58			65				71							77								
UMi W S10		66	36				76	46						56	27					67	37				77	47							58	
JD 599 ..		15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44		45	









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## BAV-Materialien für Beobachter veränderlicher Sterne

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### BAV Einführung in die Beobachtung Veränderlicher Sterne

Die vierte, ergänzte und erweiterte Auflage des bewährten Buches liegt seit Oktober 2009 vor. W. Braune, B. Hassforth und W. Quester beschreiben die Beobachtungsvorbereitung, die Beobachtung und die Auswertung der Ergebnisse. CCD-Technik und visuelle Beobachtung sind ausführlich erläutert. Prof. Dr. E. Geyer gibt eine Übersicht der astrophysikalischen

Die 4. Auflage enthält wesentliche Erweiterungen weiterer Autoren zum Thema Auswertung. 318 Seiten, 118 Abbildungen, 10 Tabellen, Format 16 x 22,5 cm, glanzfolient 22.00 €

### BAV-Umgebungskarten

#### Gedruckt auf Karton DIN A5

Bedeckungsverändc - Standardprogramm	32 Karten	4.00 €
RR-Lyrae-Sterne - Standardprogramm	30 Karten	4.00 €
Delta-Scuti-Sterne	27 Karten	3.50 €
Cepheiden - Feldstechersterne	20 Karten	3.00 €
Cepheiden - Teleskopische St	35 Karten	4.50 €

#### Auf CD-ROM im Format JPEG

Sämtlichen links aufgeführten BAV-Umgebungskarten, zusätzlich	
Bedeckungsverändc - Beobachtung erw	87 Karten
Bedeckungsverändc - Langperiodisch	2 62 Karten
RR-Lyrae-Sterne - Programm	90 57 Karten
	CD-ROM

10.00 €

**Hinweis:** Für Mirasterne, Halb- und Unregelmäßige, Eruptive und Kataklysmische werden von der BAV die bewährten AAVSO-Karten verwendet. Sie sind unter folgendem Link zu finden: [www.aavso.org/observing/charts/vsp/](http://www.aavso.org/observing/charts/vsp/). Bei Fragen hilft Kerstin Rätz (s.Vereinsseite) gern weiter.

### BAV Blätter

Hilfsmittel zur Vorbereitung und Auswertung von Beobachtungen

1 Kleines Programm - Elf Umgebungskarten für Einsteiger	DIN A5 2. Aufl., 2009	16 S.	2.00 €
2 Tabellen - JD und Tagesbruchteile	DIN A5 4. Aufl., 2007	8 S.	1.00 €
3 Lichtkurvenblätter - Dokumentation von Maxima und Minima	DIN A5 6. Aufl., 2013	16 S.	2.00 €
5 Der Sternhimmel - Mit griechischen Buchstaben aller Sterne	DIN A5 2. Aufl., 2008	4 S.	0.50 €
7 Feldstechersterne - Veränderliche bis zur Grenzgröße 8,5 <sup>m</sup>	DIN A5 3. Aufl., 2006	4 S.	0.50 €
8 Die Übung der Argelandermethode (mit CD-ROM)	DIN A5 3. Aufl., 2010	12 S.	4.00 €
<b>16 Beobachtungsmeldungen an die BAV</b>	<b>DIN A4</b> 2. Aufl., 2012	5 S.	1.00 €

### BAV Informationspaket

Die sinnvolle Erstausrüstung für Einsteiger  
BAV Einführung, BAV Blätter komplett, BAV Circular mit aktuellen Jahresvorhersagen zu den BAV-Programmen und

Drei gedruckte BAV-Kartensätze (Bedeckungsveränderliche Standardprogramm 2010, RR-Lyrae-Sterne Standardprogramm, Cepheiden Feldstechersterne) 37.50 €

BAV-Materialien auf der BAV-Website! BAV-Umgebungskarten und BAV Blätter können dort unentgeltlich herunter geladen werden.

0.00 €

### Bestellungen bitte an:

BAV, Munsterdamm 90, 12169 Berlin oder [zentrale@bav-astro.de](mailto:zentrale@bav-astro.de)  
Porto wird zusätzlich in Rechnung gestellt, wir bitten dafür um Verständnis

## BAV-Veröffentlichungen

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### BAV Mitteilungen

Die Beobachtungsergebnisse der BAV seit 1950, mehr als 210 Publikationen.

Unsere Mitglieder erhalten die BAV Mitteilungen, den

### BAV Rundbrief

Das Mitteilungsblatt für unsere BAV-Mitglieder erscheint 4xjährlich seit 1952.

BAV Rundbrief und das BAV Circular regelmäßig.

### BAV Circular

Daten und Jahresvorhersagen zu den Veränderlichen der BAV-Programme.

Alle BAV-Veröffentlichungen sind auf der

### BAV Dateien

Sämtliche Maxima und Minima der BAV seit 1950, über 47.000 Ergebnisse.

BAV-Website verfügbar.

### BAV Journal

Das neue E-Journal der BAV

**Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne.V. (BAV)**

[www.bav-astro.eu](http://www.bav-astro.eu)