



# BAV Circular

Heft 2 - 2020

## Ephemeriden

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

### Julianisches Datum 2020

	Jan	Feb	Mrz	Apl	Mai	Jun	Jul	Aug	Spt	Okt	Nov	Dez
2450 000 +	8849	8880	8909	8940	8970	9001	9031	9062	9093	9123	9153	9183

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

<b>1</b>	<b>Julianisches Datum und Tagesbruchteile</b>	
<b>2</b>	<b>Veränderungen gegenüber dem Vorjahr und Erläuterung der Ephemeriden-Tabelle</b>	
<b>4</b>	<b>Ephemeriden für die BAV-Programme</b>	
	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
<b>74</b>	<b>Ephemeriden für das BAV-Programm Mirasterne</b>	

## Veränderungen gegenüber dem Vorjahr

keine

## 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 Ausschnitts 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/							Die Bedeckung dauert 77,9 Stunden (D = 77,9h).
												15	72\	15.1.	06:17	Der Abstieg beginnt am 15.1. um 6:17,	
												16	\			am 16.1. dauert der Abstieg an,	
												17	34	17.1.	21:10	das Minimum ist am 17.1. um 21:10,	
												18	97/	18.1.	10:50	der Anstieg endet am 18.1. um 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

2020 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	29			39	27				37	25			35	23			33	21			31			40	29			38	27			36		
And SY L10 1															26		32s	38																
And TW S10 3																																		
And XX 90	53	25		42				31		48	20		37		26			43			32			21	38			27		44				
And CD L10 2									16\	\		23	/	30/																				
And OV 90			49	43	37		31	25	19				43	37	31	25					43			37	31	25			43	37	31		25	
Aqr SW RR 2	19																																	
Aqr SX 90 3						21															21													
Aqr CD E10S 3					55					39																								
Aqr HH 90 2		22					24																											
Aqr LL L10 2		72											81s											90										
Aql V341 90 3	20																																	
Aql V889 L10					2s								20			14s							32				26s							
Aql V1353 E10S																75s																		
Aql V1426 E10S							36+	54	12+	30+		47s	6+	24+	41	59s	18+	35+	53s	11+	29+	46	5+	23+	40+	58s	16+	34+	51	10+	28+	45s		
Aql V1430 E10S																								76s									75s	
Ari X RR 2	40		35		31		26		21				47		42		38		33		28		24				45		40			35		
Ari RS L10 2					49										29								9										90	
Ari AL E10S 3			33																		32													
Aur TZ 90	57	35+	53	31+	49		27+	45	23+	40	19+	36+	54	32+	50	28+	45	24+	41	20+	37	55	33+	50	29+	46	25+	42	60	38	55	34		
Aur CQ L10 2							51						83s					14					45s				76							
Aur IY E10S		44			24									62			41				20						58			38				
Aur V432 E10S 3	50			58			66		20s				29s			37s					45s		53s		61s				24					
Aur epsil L10 2																																		
Aur zeta L10 1																																		
Boo RS RR	74		63	76			65	78	53	67		55	68		57	70		59	72		61	74	50	63	76	51	65		53	66		55		
Boo TW 90		54	60	67	73					52		59	65	72	78				51	57	63	70	76				49	55	62	68	75			
Boo UU 90		74	66	57				77	68	60				71	62	54			74	65	56						50		70	62		53		
Boo UY 90		67	62				58					78	74	69				64	59			55					75	71	66					
Boo AC E10D	56+	62s	50+	56+	62+		50+	55+	61+	49+	55+	61+	49+	55+	60+	49+	54+	60+	48+	54+	60+	48+	53+	59+	47+	53+	59+	47+	53+	46+	52+			
Boo CM 90			71				75		58			62		67				72		54	76		59		63			68		51	72			
Boo CQ 90 3		66	79	64	76		61	74	58	71		68	66	78	63		76	60	73	58	70	55	68		65		62	75	60	72	57	70		
Boo CS 90			63	74					61	72				60	70							58	68			56	66	77		54	64	75		
Cam SS E10S 3		61s		2				43s		84			25s		66			7s		49		90s			31		72s		13			54s		
Cam SV S10	43+	32+	21+	39+	28+		47+	36+	25+	43+	32+	21+	40+	29+	47+	36+	25+	44+	33+	22+	41+	29+	48+	37+	26+	45+	34+	23+	41+	30+	49s	38+		
Cam AK E10S				30	41s		52	64s	75				20	32s	43		54s	66	77s				22s	34	45s		56	68s						
Cam AN L10 3													38s					3																
Cam AT E10S 3	52s	22	62	32s	71s		41		50s	20	60	30s	69s	39	48s			58	28s	67s	37	76	46s		56	25s	65s	35	74	44s		54		
Cnc S L10								27										76										24						
JD 588 ..	50	51	52	53	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		

2020 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 RU L10	2						20										37									54								
Cnc RW 90		79	33	43	52	62	71		35	45	54	64	73		37	47	56	65	75	30	39	48	58	67	77	32	41	50	60	69		33		
Cnc RZ L10	2	38	/	1/							58/	\	20s	83/								40\	\	3	65/									
Cnc TT 90		48	61	73	42		55	68		37	49	62		31	44	57	69		38	51	64			33	45	58		40	52	65		34		
Cnc TU E10S	3		81							38					94						50					6					62			
Cnc TW L10	2																																	
Cnc UU L10	2							82											/	/														
Cnc ZZ L10	2															93/	95	97/																
Cnc AQ 90	3	76		41	51	60	70			44	54	64	73		38	48	57	67			41	51	61	70		35	45	54	64			38		
CVn W 90		71				57	67	78			54	64	74			50	61	71			47	57	67	78	43	54	64	74				50		
CVn Z 90			65		62		58		54		50		46	77	43	73	39	70			66	62		58		54		51		47		43		
CVn RS S10	3			57							76s					56s							76					55						
CVn RZ 90			55	69			52	66	79		50	63	77		47	60	74				57	71		55	68		52	65				49		
CMa R S10	2	55s				52					50s			48				45s					43			40s				38				
CMi AM E10S		51	53	55	57	59	61	63	65																									
Cas RX L10	2		\	\			65		/	/											\	\		82s		/	/							
Cas RZ S10	3			34	53		73				31	51	71				29	49	68					27	46	66			24	44	63			
Cas SX L10	2												69/	\	51		/	34/																
Cas TV S10			23						48			30					73		55		36								42			24		
Cas TW S10	3		20	63			49			34	77		20	63			49				34	77		20	63		48		34	77				
Cas TX E10S	3	63s			56s		49s			41s			34s				27s	73		20s	66			59			51		44					
Cas AQ L10	2				48/		54	59/				34/	40s	45/				20/	26	31/			7/	12s	17/		93/	98	/		3/			
Cas BM L10	3																																	
Cas DN E10S	3		28s	44	59s	75				21s	37	52s	68					30	46s	61	77s			23	39s		54	70s						
Cas GG E10S				36																														
Cas GU E10U		47			56																						22		31					
Cas IL E10S	3						37							28				73						63									54	
Cas IT E10X				34		49s		24		39s				29s																				
Cas OX E10X		63s				43	61s				41	58s				39	56s				37	54s			35	52s			33	50s				
Cas PV E10X			54s	37	29s			79s		54s	37	29s					54s	37	29s					54s	37	29s							37	
Cas V368 E10S	3			57							25s		48		70s								38		61s						28			
Cas V375 E10D		23	71	44s		65	39s		60	34s		55	28s	76s	49	23s	70s	44		65s	39		60s	33		54s	28	75	49s	23	70	44s		
Cas V381 E10X	3				38s	32						36s	30												33s		27							
Cas V459 L10	3	16				32s				62				78s										24s				53			70s			
Cep RZ 90		34+	26+	19+	42+	35+	28+	20+	44+	36+	29+	21+	45+	37+	30+	23+	46+	39+	31+	24+	47+	40+	32+	25+	48	41+	34+	26+	50	42+	35+	27+		
Cep VW S10		21+	32+	30+	27+	25+	22+	19+	31+	28+	25+	23+	20+	32+	29+	26+	24+	21+	33+	30+	27+	25+	22+	20+	31+	28+	26+	23+	21+	32+	29+	27+		
Cep XX S10						44		78					45								46						48							
Cep XY E10S			38								71			48			26								58			36						
Cep ZZ S10			74									31		45		59		74									30		44		59			
JD 588 ..		50	51	52	53	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		

2020 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 AI E10S	3										21s		32		43s				66s		77								22			33s		
Cep CW E10X	3			28		55s			28s	74		47	74s		20	47s			20s	66			39	66s			38s				57		92	
Cep EI L10	3						61				82s				4					26s			48				70s			61				
Cep EX L10	2			74													17																	
Cep NN E10S		70s	73	76s	79																22s	25	28s	31	34s	37	40s	43	46s	49	52s	54		
Cet RR RR	2	22	33				20	30				28	39				26	36				23	34				21	32						
Cet RV 90	2					29					28					26					25			24						23				
Cet TU E10S	2	81					20			59				99						38			77					16						
Cet TV L10	2					42				91s				52						1s			62					12s						
Cet XY E10S	2					29s				46		24					41s						36							31s				
Com S 90		58	75		51	68			61	79		55	72		48	65			59	76		52	69		45	63			56	73			49	
Com ST 90	3	52	71		51	71		51	70	50		70	50	69			49	69		48	68		48	68		47	67	47	67				46	
CrB U S10						61																												
CrB RV 90	3							79	79	78	78	77	77	76	76	75	75	74	74	73	73	72	72	71	71	70	70	69	69	68	68			67
Crt W 90	2				62		68					62	68						62				57	63										57
Cyg UY RR					25					30			22+						27			75					24						73	
Cyg XZ RR		23+	63				36	30+	23+	63			36	29+	23+		63	56				29+	23+	63	56			29+	23+	63			56	
Cyg BO E10S								33	20s					35	23s								25s		77s				28s					
Cyg DM RR	3		25		19			29		23					27		78	20					24	76										22
Cyg EM K10	2			75	21+		24			74		77	23				72	75				21		70		74	77							68
Cyg V367 L10	2	\	\	61	/	/				\		\	91s	/	/				\	\		21	/	/				\	\				51s	
Cyg V463 E10S						74s	79								21s								74											
Cyg V477 E10X				22				27s				26															69			74s				
Cyg V541 L10	3						2							5s								36						39s						
Cyg V548 E10S	3		35s	25					77s	67			38s	28					69	60s			31	21s			72	62s						
Cyg V788 L10	3												22								61\	56	52\											
Cyg V891 E10S													77									75												
Cyg V909 E10S						75s																												
Cyg V1061 E10S			76																									23						
Cyg V1918 E10D		79	21	24+	27+	31+	34+	79s	20s	23+	26+	30+	33+	78	60	22+	26+	29+	32+	77s	59s	21+	25+	28+	73s	76	59	62s	24+	27+	72		75s	
Del DX 90	3							24													22													
Dra RW RR		46	79	23+	56		77	21+	54	76		20+	53		74	63	52		73	62	50		72	60	49		70	59	47		69		58	
Dra SU RR		74	40	72	38	70	36	68	34	66	32	64	30	62	28	60	27	59	25	57	23	55	21	53	51		49		47				46	
Dra SW RR		23	37	51	65	22+	36	49	63	20+	34	48	62	76	33	47	61	75	32	46	60	74	31	45	58	72	29	43	57	71	28		42	
Dra TZ E10D				23+		26+			73s			76	63		22+				69				72s	59s	75	62			21+				68	
Dra VZ 90		70	67	63	27+	23+	20+	48	44+	73	69	65	62	26+	22+	51	47	43+	40+	68	64	61	25+	21+	49	46	42+	38+	67	63	59		56	
Dra WW S10	2					38									64						27								53					
Dra XZ RR	3	37	33	28+	23+	66	61	57	52	47	43	38	33	28+	24+	67	62	57	53	48	43	38	34	29+	24+	67	63	58	53	48	44		39	
Dra AI S10						67						66							66											65				
JD 588 ..		50	51	52	53	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

2020 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		57s					36					78s					58					79																			
Dra BK 90		22	41	59	78	37	55	74	33	51	70	29	47	66	25	43	62	21	39	58	76	35	54	72	32	50	68	28	46	64	24	42									
Dra BU E10S		75s					66					57s					49					40s																			
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										
Dra EX K10	3	19+	24+	29+	34+	39+	22+	27+	32+	37+	21+	26+	31+	36+	20+	25+	30+	35+	40+	24+	29+	34+	39+	23+	28+	33+	38+	22+	27+	32+	37+	21+									
Dra GV L10	2																84																								
Eri SV 90	2	32					32					32					31					31																			
Gem U K10		41+	30+	36+	42+	31+	37+	43+	31+	37+	44+	32+	38+	27+	33+	39+	27+	34+	40+	28+	34+	40+	29+	35+	23+	30+	36+	24+	30+	36+	25+	31+									
Gem RR 90		57	36+	55	35+	54	33+	53	32+	51	31+	50	29+	49	28+	47	27+	46	25+	45	24+	43	23+	42	21+	40	60	39	58	38	57	36									
Gem RY L10	2	37					2s					67					32s					97																			
Gem SZ 90		74	74									27					27	27	28	28	28	28	28	28	29	29	29	29	29	29	29	31									
Gem WW E10S	3	31s	55s	41				64	26s	50s	36	60	22s	45s	31				55	40s	26	50	36s	59s	21	45	31s	54s				40									
Gem YY S10		64s	46s	27+	49	31+	53s	34+	56	38	60s	41s	23+	45	26+	49s	30+	52	34	56s	37s	59	41	22+	44s	26+	48	29+	51s	33s	55	36									
Gem OW L10	2																69					57																			
Gem V339 E10U	2	41					29										69					57					45														
Her TW RR	3	69	68	68				68	68				68	67	67				67	67				67	66	66				66	66	66									
Her TX S10							62					65s	68	71s	74				77s																						
Her UX E10D							77s					74					71s					68																			
Her VX RR	3	72					72					64				73	64				74	65				75	66				76	67	58								
Her VZ 90		73				69				78	66				74	62				70	58	78	67				75	63				71	59	67							
Her AK S10		72s	77				72	78s	67	73s	78				68s	73				68	74s				69s	74	64s	69	75s				64	70s	75	65s					
Her AR 90		76	70	64	58				52				69	63	57	51				74	68	62				56	50				73	67	61	55	49						
Her AW L10	3	44										24										4																			
Her DI L10	3						99s					41					54s					96					9s														
Her GU E10U		67s															70s										56														
Her LV L10	2	13															57					60					43					50	58								
Hya SZ 90	2	48					55	63				46					54	61				45					52				43	50	58								
Hya WZ 90	2	67				58	66				50					57	65				56					64				48	55	63									
Hya AI L10	2	80					50s					9					79s					38					8s					67									
Hya ET 90	2	49	55				60				40					46	51				57				43					48	54										
Lac RW L10	3	65s					90					2s					27					39s					64														
Lac SW S10		26+	23+	19+	31	27	24+	20+	32s	28s	24+	21+	33	29	25	22+	34s	30s	26s	22+	35	31	27	23	36s	32s	28s	24s	33	29	25	25									
Lac UW E10S	3	39					68					97					26					55					84														
Lac CO E10X		43s					24	78	52s	32				41	49	23s	77s				31s				40s	20	74	48s	29				37	45							
Lac CZ 90		22	39	25				41	27	43	30				32+					35+	21	37	24				40	26				28+	31+								
Lac V345 E10X	2	61					26s					10					75s					59					24s					8					73s				
Lac V364 E10X	3						22s																																		
Leo RR RR		67	58	48	39	75	65	56	46	37	72	63	53	44	34	70	60	51	41	77	68	58	49	39	75	65	56	46	37	72	63	53									
Leo SS RR		66	54	79				67	55				68	56				69	57				70	58				46	71	59				47							
JD 588 ..		50	51	52	53	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									

2020 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 ST RR		60	55	51					77	72	68	64	59	55	50	46				76	72	67	63	59	54	50	45	41		75	71			
Leo WY E10S			50					49					47				46					44					43							
Leo AG E10S			73s	43					52s					60						69s		39					48s							
Leo AM S10		59+	50+	60+	52+	61s	53+	44+	54+	45+	55+	47+	56+	48+	58+	49+	59+	50+	42+	51+	43+	53+	44+	54+	45+	55+	46+	56+	48+	39+	49+	40+		
Leo FM E10U 2									73s																	55								
Lyn TY E10S 3									33				66									32					65							
Lyn CD E10S 3			51s	79					34			61s							44	71s						26s	54							
Lyr RR RR 3				74				71	28			68	24						21+			75			71			68						
Lyr RZ 90														67			70	72	74	76														
Lyr UZ S10			24									75s	69									20s						77s	71	66s				
Lyr CN 90					71		76					70	76						69			75					69	75						
Lyr EZ RR		24+								69		22+									67	20+	77						65	70				
Lyr IO 90							70				74			78					67			71				75		63						
Lyr beta S10 3			36					83s						30								77s						24						
Mon UX E10S 2					1		97s		92				87s				82			77s		73			68s		63				58s			
Mon VV E10S 2			64s				67		69s			72		74s					77			79s		82			84s		87					
Mon AQ E10S 2			58					40s				49s										40					49		31s					
Mon AR L10 1												80	65	50/										41\	26s	10/								
Mon AV E10S 2					41			88s				35		83s						30			77s			25		72s						
Mon EZ E10U 2		40	53s	41	54s		42	55s	43	56s	44	57s	32s	45	58s	33s	46					34s	47	35s	48		36s	49	37s	50				
Mon IL E10S 2		68			71				73			76							79			81			84			87						
Mon V448 E10S 3		46	58		38s		49s	61s	29	41	53		32s	44s	56s				36	47				27s	39s	51s	30	42	54					
Mon V530 E10U 2		53	32+	37+	42s	47s	52s	31+	36+	41	46	51	30+	35+	40s	46s	51s	29+	35+	40	45	50	29+	34s	39s	44s	49s	28+	33	38	43	48		
Mon V536 E10X 2					50s				63s											37				50										
Mon V634 E10U 3			53														33	44				55												
Oph U ST		78s																	71			74					77							
Oph RZ L10 1																																		
Oph ST 90								78					73						78				74				69							
Ori Z E10S 2		77					97					18							38			58					79							
Ori BM E10S 3							19					66								13					61									
Ori CP E10S 2				18					50					82								14					46		84			78		
Ori DN L10 2			91											88																				
Ori EW E10X 3								27																										
Ori FO L10 2							80																			60								
Ori FT E10X 3			36s	41	51s		56	66s														26s	31	41s	46		56s							
Ori GG E10X 2												49s					28																	
Ori V536 E10S 2									26				43															24						
Ori V1016 L10 2																																		
Ori V1031 E10S 2			36s						47								28					39s												
JD 588 ..		50	51	52	53	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		



2020 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 U	S10	34	27s	21+	33	27s	21	33	27s	21	33	27s	20	33	27s	20	33	26s	20	33	26s	20	32	26s	32	26s	32	26s	32	26s	32	32			
Peg VV	RR	23	21	19																		28	26	24	21										
Peg VW	L10	3													34																				
Peg AV	RR	3			33	28			24		19				26		21							24											
Peg AW	L10	2							36						67s				99						30s					61					
Peg BH	90	3	32		25							30		22								27							25						
Peg BK	E10S	3							24s										22s																
Peg CG	90	3					26	20						27	20							28	21					22							
Peg DF	L10	3										0															70								
Peg DH	RR	2				21	23	25	27									21	24										22						
Peg GH	E10S	3							22																									23	
Peg IP	K10	3	30	25	20+	30	25	20+	31	26	21+	31	26	21	32	27	22	33	28	23	33	28	23		29	24		29	24		30	25			
Per RW	L10	2												8														28							
Per RY	E10S	3			46s							32s																48							
Per AR	90	60	45	30	58	43	28	55	41	26+	53	38	24+	51	36	21+	49	34	62	47	32	60	45	30	58	43	28	56	41	26	53	39			
Per AY	L10	3				83												61											38						
Per IQ	E10X	3		68s	64	42s	38				65s	61	39s	36			62s	59	37s	33					60s	56	34s	31				57s	54		
Per KN	E10U	3	23s	53	40	26	56s	43s	30s	60	46	33	20	49s	36s	23s	53	39	26	56s	43s	29s		46	33		49s	36s	23s	52	39	26			
Per LX	L10	3					31					33s				35								39			41s								43
Per beta	S10	3		33		20				50s				37s		23s							53				40		27						
Psc RU	90	3	26	43	21	38	34		29	46	24	41		36		32						27	44	22	39		34		29		25		37	32	
Psc RY	90	2	30						19	25	31											20	26						26						
Psc SS	90	3	42	28	43	30	45	31	46	33	19	34	20	35	22	37	23	38	25	40	26	41	28		29	30		32		33				35	
Sge SY	E10S	3					79																												
Ser VY	RR			70						69						69						69					69								
Ser AN	90	3	67	72	76									64	68	72	77									60	64	69	73						
Ser BH	90	3	78	65		70			74	61			78	65		69						77	64				69	55		73	60			77	
Ser EG	L10	3					92						89s									87				84s			82					77	
Ser LX	K10	3	75	70	65	76	71	66	61+	72	67	62+	73	68	63	58+	69	64	60+	70	65	61+	71	67	62+	57+	68	63	58+	69	64	59+	54+		
Sex T	90	47	45	75	72	69	67	64	62	59	56	54	51	49	46	43	41	71	68	66	63	60	58	55	53	50	47	45	42	40	37	67			
Tau RW	S10	3		48			25								56							33							40						
Tau CD	S10	3			51		22s					38					53s	25							40s			55		27s					
Tau EN	E10S	3	33	57s			28	52s				24	48s				20	43s							39s			35s	59						
Tau V1094	L10	2		4				91s				3					90s					2					89s			1					
Tri X	S10	3					50	47	44	42	39	36	33	30	27	24	22																		
Tri RU	E10S	2				38s					28											45s				36			26s						
Tri UX	90	3	40	34	27	20			47	41	34	27	21		48	41	34	28	21						41	35	28	21						28	
UMa W	S10	23+	23+	23+	23+	23+	23+	23+	23+	24+	24+	24+	24+	24+	24+	24+	24+	24+	24+	24+	25+	25+	25+	25+	25+	25+	25+	25+	25+	25+	25+	26+	26+		
UMa RV	RR	69	62	56	50	43	37	77	71	64	58	52	45	39	73	67	60	54	47	41	35	75	69	62	56	49	43	37	30+	71	64				
JD 588	..	50	51	52	53	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			

2020 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 RW E10S							56s											56										55s							
UMa TU RR		74	42	53	65		76	44	55	67		78	46	57	69			47	59	70			38	49	61	72		40	51	63	74				
UMa TX S10		33		40				46		52			59				65		71				78												
UMi W S10		74		44					55	25				65	35					75	45					56		26		66					
Vir ST 90 2			65		70		75			63		68	74				61	67	72				78	60	65		71		76	58					
Vir AG E10D		63s	59	56s	52	48s	77s	73	70s	66	63s	59	55s	52	48s	77s	73	69s	66	62s	59	55s	51	48s	44+	73	69s	66	62s	58	55s	51			
Vir AH S10		69s	51+	53+	55+	57+	58+	60	62s	64	66s	47+	49+	51+	53+	55+	57+	59s	61	63s	64	46+	48+	50+	52+	53+	55+	57	59s	61	43+	44+			
Vir AT 90 2							59	64	69	74	79						58	63	68	73	78						57	62	67	72	77				
Vir AV 90				78	75		72		69			67	64	61			58	55				52					77	74		72					
Vir CG E10S		72	65						73s	67s				75			68	62					76s	70s	63s				71		65				
Vul Z S10 3																		71																	
Vul BN 90 3							21			78			75				72																		
Vul DR E10X				26													77							77											
Vul EV E10S 3																						77													
JD 588 ..		50	51	52	53	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			
2020 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		25			34	23			32			31					29								25										
And SY L10 1			77	82	87/																														
And TW S10 3																	24		30s																
And XX 90			33		22		39		28						34					40				29				35							
And CD L10 2												61\	\	68s	/		74/																		
And OV 90							37	31	25						37	31	25									31	25								
Aqr CD E10S 3																																			
Aqr LL L10 2																																			
Aql V889 L10			44				38s						56					50s							68			62s							
Aql V1353 E10S		73s											75					70s						66											
Aql V1426 E10S		4+	22+	39+	57	15+	33+	50s	9+	27+	44	3+	20+	38+	55s	14+	32+	49	8+	25+	43s	2+	19+	37+	54	13+	31+	48s	7+	24+					
Aql V1430 E10S							74s						73s									72s													
Ari X RR 2			31		26								38		33			28		24															
Ari RS L10 2									70																			31							
Ari AL E10S 3		31																			30														
Aur TZ 90		51	30+	47	26+	43	61	39	56	35	52	31	48	26+	44	61	40	57	36	53	31	49	27	45	62	41	58	36	54	32					
Aur CQ L10 2			7s				38						69s						1					32s				63							
Aur IY E10S											55			34											52			31							
Aur V432 E10S 3		32		40			48			56									27s				35s		43s			51s							
Aur epsilon L10 2																																			
JD 588 ..		81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99															
JD 589 ..																					0	1	2	3	4	5	6	7	8	9	10	11			



2020 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 GG	E10S		43														46																		
Cas GU	E10U	40			50										34							25		70											
Cas IL	E10S 3							44							34																				
Cas IT	E10X	77s						41				31					36s					25s													
Cas OX	E10X			31	48s					28	46s				26	44s	75		24	41s	73			39s	71										
Cas PV	E10X	29s				63		38	30s				63	38	30s							38	30s				63	55s	38	30s					
Cas V368	E10S 3	51s									41s		64										32s			54									
Cas V375	E10D		65	39s	60		33s	54	28s	75s	49	23s	70s	44			65s	38		59s	33			54s	28	49s		70	43s						
Cas V381	E10X 3	31s	26						30s	24						28s								26s							25s				
Cas V459	L10 3			99					16s				45				62s			91					7s					37					
Cep RZ	90	51	44+	36+	29+	52	45+	37+	30+	22+	46	39+	31+	24+	47	40+	32+	25+	48	41+	34+	26+	50	42+	35+	27+	51	43	36+	29+					
Cep VW	S10	24+	22+	33+	30+	28+	25+	22+	34+	31+	29+	26+	23+	35+	32+	30+	27+	24+	36+	33+	31+	28+	25+	37+	34+	31+	29+	26+	38+	35+					
Cep XX	S10		49							50							51							52											
Cep XY	E10S				68			45			23								55			33									65				
Cep ZZ	S10	73									30		44		58		72										29		43		57				
Cep AI	E10S 3						67										24s		35				57		69s										
Cep CW	E10X 3		30	57s			30s	76			49				49s				68			41	68s		40s					59					
Cep EI	L10 3					14s				36				58s			80						2s				24								
Cep EX	L10 2												4													48									
Cep NN	E10S	57s	60	63s	66	69s	72	75s																			27s	30	33s	36					
Cet RR	RR 2		30					27					25						23																
Cet TU	E10S 2	55			94						33				73					12			51				90								
Cet TV	L10 2	73					22s				83					32s					93			43s						4					
Cet XY	E10S 2						27																	34s											
Com S	90	67		42	60			53	70		46	64		40	57	74		50	68		44	61		37	54	72		47	65						
Com ST	90 3	66		46	66		45	65		45	65		44	64		44	63		43	63		43	62		42	62		42	61						
CrB U	S10					68							58										49												
CrB RV	90 3	67	66	66	65	65	64	64	63	63	62	62	61	60	60	59	59	58	58	57	57	56	56	55	55	54	54	54	53	53	52				
Crt W	90 2	63					58					52		58								53													
Cyg Y	S10											67				67						66			65			65							
Cyg UY	RR								70						74										71										
Cyg XZ	RR				29+	23+	62	56				29	69	62	56	49				69	62	56	49				69	62	55	49					
Cyg BO	E10S					30s					70						72							74											
Cyg DM	RR 3		74								72								69					73			67								
Cyg EM	K10 2		72		75		66		70			74		64			68		72			63		66		70				61					
Cyg V367	L10 2	/					\	\	81			/	/				\	\		11s	/	/					\	\	41						
Cyg V463	E10S									68	73s																62	68s	73						
Cyg V477	E10X			73																															
Cyg V541	L10 3					70							73s									4								7s					
JD 588	..	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99															
JD 589	..																			0	1	2	3	4	5	6	7	8	9	10	11				

2020 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	
Cyg V548 E10S 3	23s					75	65s	55			26s					68s	58								70s	60	51s						
Cyg V788 L10 3														53\	49	44\																	
Cyg V891 E10S												72																					
Cyg V909 E10S																				64s							65						
Cyg V1061 E10S		27			61						31	65								69						73							
Cyg V1918 E10D	58s	61	23+	26+	71s		74	57	60s	22+	25+	70	53+	56s	59	62s	24+	69s	52+	55	58s	62	65s	68	51+	54s	57	61s	64	67s			
Del DX 90 3																																70	
Dra RW RR	46		68	56	45			66	55	43		65	53	42	75	63	52	41	74	62	51	39	72	61	49	38	71	59	48	37			
Dra SU RR		44	76	42	74		40	72	38	70	36	68	34	66	32	64	31	63	29	61	27	59	25	57		55		53		51			
Dra SW RR	56	70	27	41	55		69	26	40	54	67	24	38	52	66	23	37	51	65	36		50	64		35	49	63		33	47			
Dra TZ E10D	54		71s	58s			74	61			64s			67	53		70s	57s		73	60				63s	49s	66	53		69s			
Dra VZ 90	52	48	45	41+	37+		66	62	58	54	51	47	43+	40+	36+	32+	61	57	53	50	46	42+	38+	35+	31+	59	56	52	48	45			
Dra WW S10 2												42																				31	
Dra XZ RR 3	34	30	25+	68	63		58	54	49	44	40	35	30	26+	68	64	59	54	50	45	40	36	31	26+	69	64	60	55	50	46			
Dra AI S10			44	64							44	64				43	63						42	62				42	62				
Dra BF L10											0						41s						21									62s	
Dra BK 90	60		38	56	75		34	52	71	30	49	67	26	45	63		41	59		37	55	73	33	51	70	29	47	66	25	43			
Dra BU E10S	46		37s																69s		60		51s		43		34s		26				
Dra DD 90	49	47	45	43+	41+		39+	37+	35+	33+	31+	30+	28+	26+	24+	54	52	50	48	47	45	43	41+	39+	37+	35+	33+	31+	29+	27+			
Dra EX K10 3	26+	31+	36+	41+	25+		30+	35+	40+	23+	28+	33+	38+	43+	27+	32+	37+	42+	26+	31+	36+	41+	25+	30+	35+	40+	45+	29+	34+	39+			
Dra GV L10 2																69																	
Eri SV 90 2		31						30					30					30															
Gem U K10	37+	26+	32+	38+	26+		33+	39+	27+	33+	39+	28+	34+	23+	29+	35+	23+	29+	36+	24+	30+	36+	25+	31+	37+	25+	32+	38+	26+	32+			
Gem RR 90	56	35	54	34	53		32	52	31	50	30	49	28	47	27	46	26	45	24	43	63	42	61	41	60	39	59	38	57	37			
Gem RY L10 2		27					93s					58					23s				88					53s							
Gem SZ 90	31	31	31	32	32		32	32	32	33	33	33	33	34	34	34	34	34	35	35	35	35	35	36	36	36	36	37	37	37	37		
Gem WW E10S 3		26s	50s		35		59		45s		30	54		40s		26	49		35s			44		30s	54s		40		25s	49s			
Gem YY S10	59s	40s	62	44	25+		47s	29s	51	32	54s	36s	58	39	61s	43s	24s	46	28	50s	31s	54	35	57s	39s	61	42	46s	27s				
Gem OW L10 2																61		49			37				25								
Gem V339 E10U 2																																	
Her TW RR 3		65		65			65	65		65			64	64			64		64		64		63		63		63		63				
Her TX S10							51	54s	57	60s	63	66s	69	72s	75																		
Her UX E10D			65s				75s				62			72				59s			69s							66					
Her VX RR 3				68	59					69	60				70	61					71	62	53			72	63	54		72			
Her VZ 90	55		76	64			72	60				68	56			64	53		73	61			69	57			65	53					
Her AK S10	70	76s		65	71s		76	60	66s	71		61s	66	72s		61	67s	72	56	62s	67	72s	57s	62	67s	73	57	63s	68	73s			
Her AR 90			72	66	60		54	48				71	65	59	53	47	41				70	63	57	51	45	39		68	62	56			
Her AW L10 3										64									44													24	
Her DI L10 3	51									64s					6						19s		61										
JD 588 ..	81	82	83	84	85		86	87	88	89	90	91	92	93	94	95	96	97	98	99													
JD 589 ..																					0	1	2	3	4	5	6	7	8	9	10	11	





2020 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			
Ser LX	K10	3	65	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	53+						
Sex T	90		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	59	57						
Tau RW	S10	3								48			25											32													
Tau CD	S10	3				42							29					45s							32s				47								
Tau EN	E10S		30s	54				26s	50					45					41						37				32								
Tau V1094	L10	2				87s		0						86s				98						85s		97											
Tri X	S10	3											39	36	33		31	28	25																		
Tri RU	E10S	2				43					34s			24															32								
Tri UX	90	3	22			42		35	29	22			36	29	23						36	30						37	30								
UMa W	S10		26+	26+	26+	26+	26+	26+	26+	26+	26+	27+	27+	27+	27+	27+	27+	27+	27+	27+	27+	27+	28+	28+	28+	28+	28+	28+	28+	28+	28+						
UMa RV	RR		58	52	45	39	32	73	66	60	54	47	41	35	28+	69	62	56	49	43	37	30	24+	64	58	51	45	39	32	26+	66						
UMa RW	E10S									54												53s															
UMa TU	RR		42	53	65	76	32	43	55	67		34	45	57	68		36	47	59	70		38	49	61	72	28	40	51	63		30						
UMa TX	S10																	28		35				41		47			54								
UMi W	S10		36			76		47					57	27				67	37						48				58								
Vir ST	90	2	64	69	74			57	62	67			73	55	60			66	71	53			59	64			70	52		57							
Vir AG	E10D		48s	44+	40+	69s	65	62s	58	54s	51	47s	44	40+	69s	65	61s	58	54s	51	47s	43	40+	36+	65	61s	57	54s	50	47s	43						
Vir AH	S10		46+	48+	50+	52+	54+	56+	58	59s	41+	43+	45+	47+	48+	50+	52+	54+	56s	38+	39+	41+	43+	45+	47+	49+	51+	53+	54	36+	38+						
Vir AT	90	2				50	56	61	66	71				49	55			60	65	70					48	53		59	64	69							
Vir AV	90		69	66		63		60	60	57			54	51	48			45	45	42	74			71	68			65	62								
Vir CG	E10S		58					73s	66s	60s				74	68	61	55					69s	63s	56s	50s			71	64								
Vul Z	S10	3												72						63																	
Vul RR	E10S	3				75																															
Vul BN	90	3	76			73		70			67		64											74				72		69							
Vul DR	E10X																												65s								
Vul EV	E10S	3						70																	63												
JD 588	..		81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																
JD 589	..																		0				1	2	3	4	5	6	7	8	9	10	11				
2020 Mrz		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 SY	L10	1								68\	73	78/																									
And XX	90							30													31																
And CD	L10	2																	5\	\	12		/	19/													
And OV	90		31								31																										
Aqr SW	RR	2																																			
Aqr CD	E10S	3																																			
Aqr LL	L10	2																																			
Aql V889	L10							80			74s							92					86s						4								
JD 589	..		10	11	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				



2020	Mrz	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	V1353	E10S	73					68s					63					59s							66s			61						
Aql	V1426	E10S	42	1+	18+	36+	53s	12+	29+	47	6+	23+	41+	58s	17+	35+	52	11+	28+	46s	5+	22+	40+	57	16+	33+	51s	10+	27+	45	4+	21+	39+	
Aql	V1430	E10S						70s				63						69s							61			67s						60
Ari	X	RR	2	31		26												28																
Ari	RS	L10	2						11							91									71									
Ari	AL	E10S	3		29														28															
Aur	TZ	90	50	28	46		41	59	37	55	33	51	29	46		42		38	56	34	51	30	47		43		39		35	52	31	48		
Aur	CQ	L10	2			94s						25					56s						87				18s						50	
Aur	IY	E10S								48			28												45									
Aur	V432	E10S	3							30			38		46																33s			
Aur	epsil	L10	2																															
Aur	zeta	L10	1																															
Boo	RS	RR		49	63	38	51	64	40	53	66	42	55	68	44	57	70	45	59	34	47	61	36	49	62	38	51	64	40	53	66	42	55	
Boo	TW	90	62	68		35		41	47	54	60	67			33	39	46	52	59	65			31	38	44	51	57	64		30	36	43		
Boo	UU	90	69	60	52	43		71	63	54	46	37			65	57	48	40	68	59	51	42	34		62	53	45	36	65	56	47	39		
Boo	UY	90		55		51		46		41	71		67		62	57		53		48			43		38	69		64		59		54		
Boo	AC	E10D	48+	36+	42+	48+	36+	41+	47+	35+	41+	47+	35+	41+	46+	34+	40+	28+	34+	40+	45+	34+	39+	45+	33+	39+	45+	33+	39+	44+	32+	38+	44+	
Boo	CM	90	57		40	61		44	66		49	70			53		58		40	62		45	67		50		54		37	59		41		
Boo	CQ	90	3	58	70	55	68	52	65	50	62	47	60	44	57	42+	54	67	52	64	49	62	46	59	44	56	41+	54	38+	51	64	48	61	46
Boo	CS	90		40	51	61		72	38	49	59		70	36	47	57		68	34	45	55		66		32	43	54	64	30	41	52	62		
Cam	SS	E10S	3	89			30s	71			13s		54		95s			36		77s			18		59s			1		42s			83	
Cam	SV	S10	33+	51s	40+	29+	48s	37+	26+	44s	33+	52	41+	30+	49	37+	56s	45	34+	53s	42	31+	49s	38+	57	46s	35+	53	42s	31+	50	39+	57s	
Cam	AK	E10S		31s	42	53s		65							33	44s	55	67s							35s	46	57s							
Cam	AN	L10	3																															
Cam	AT	E10S	3	55s	64	34s		43		53s	62		32s	41	51s			60	30s	69s	39			49s	58		67s	37	47s				56	
Cnc	S	L10			18										66										15									
Cnc	RU	L10	2						24										41									58						
Cnc	RW	90	43	53	62		26	36	45	54	64		28	37	47	56			30	39	49	58			32	41	51	60		34	43	53		
Cnc	RZ	L10	2			69\	\	31	93/							51\	\	13s	76/								33\	95	/	58/				
Cnc	TT	90		33	46			28	40	53			35	47		29		42	55			36	49			31	43			38	50			
Cnc	TU	E10S	3		99						55					11												24						80
Cnc	TW	L10	2																															
Cnc	UU	L10	2							/																								
Cnc	ZZ	L10	2						12\	14	16/																							
Cnc	AQ	90	3	55		29	39	49	58			33	42	52				36	46	55			30	39	49			33	43	53				
CVn	W	90		40	50	61	71		37	47	57	68		33	44	54	64		30	40	51	61			37	47	57	68		33	44	54	64	
CVn	Z	90		51		47	44		40	71	36	67	32	63	28	59		55		51		48		44		40		36	67	32	63		59	
CVn	RS	S10	3			54s										53																		
CVn	RZ	90	56	70		40	54	67		37	51	64		34	48	61		32	45	59		29	42	56	69		40	53	67		37	50	64	
JD	589	..	10	11	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	

2020 Mrz	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			
CMa R S10 2		32					30s				27												34s			31									
Cas RX L10 2									\	\		32	/	/										\	\		49s								
Cas RZ S10 3	71					30	49	69				27	47	66										42	62					40	59				
Cas SX L10 2																										82\	\	65	/	47/					
Cas TV S10						67					30						55	36							61										
Cas TW S10 3			62				48			33			62				48		33					62						33					
Cas TX E10S 3	63			56				49		42			34							66s			62	59s			51s		44s						
Cas AQ L10 2			9\	14			20/		95\	\	0s	6/		81\		86	92/					67\	73s	78/			53\	59	64/						
Cas BM L10 3								42																											
Cas DN E10S 3		36s	52	68s						30s	45	61s					39	54s							32	47s	63								
Cas GG E10S								26															29												
Cas GU E10U			34										62																						
Cas IL E10S 3		60								50							41							31											
Cas IT E10X						69																													
Cas OX E10X	37s	69					35s	67				33s	65				31s	63				29s	60				58								
Cas PV E10X				63	55s		38	30s				63	55s	38	30s			64	56s	39		31s			64	56s		31s							
Cas V368 E10S 3	45		67s							35			57s																		38s				
Cas V375 E10D	64	38s		59	33s		54	27s		48			69s	43	64s		38	59s	33			54s		48s			43s	64	38s						
Cas V381 E10X 3																									69s									67s	
Cas V459 L10 3				53s					82				99s				28					45s		74				91s							
Cep RZ 90	52	45	37+	30+	53		46	38+	31+	54	47	40+	32+	56	48	41	33+	57	49	42	35+	58	51	43	36+	59	52	44	37+	30+	53		46		
Cep VW S10	32+	30+	27+	39+	36+		33+	31+	28+	40+	37+	34+	32+	29+	40+	38+	35+	33+	30+	41+	39+	36+	34+	31+	42+	40+	37+	35+	32+	43+	41+		38+		
Cep XX S10	54								55							56							57							58					
Cep XY E10S			42												52			30											39						
Cep ZZ S10		71										28		42		56												41		56					
Cep AI E10S 3																59s																		49s	
Cep CW E10X 3			32	59s				32s				51				51s											43					62			
Cep EI L10 3	46s				68					90s									34s					56			43s						0		
Cep EX L10 2										91																									
Cep NN E10S	39s	42	45s	48	51s		54	56s	59	62s	65	68s	71																						
Cet TU E10S 2			29					68					7				46																		
Cet TV L10 2				53s						14				63s																					
Cet XY E10S 2			29																																
Com S 90	41	58	34	51			69	45	62			38	55	31	49		66	42	59			35	53		46	63	39	56					32		
Com ST 90 3	41	61	40	60			40	60		39		59		39	59		38	58		38	58		37	57		37	56	36	56				36		
CrB U S10																65							56						46						
CrB RV 90 3	52	51	51	50	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	
Crt W 90 2	47		53						48																										
Cyg Y S10	65	62s	64				61s	64		61s	64		60s	63	60s		63		60s	62			59s	62		59s	62		59s	61		58s		61	
JD 589 ..		10	11	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	

2020 Mrz	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 UY RR				69									66					70				63					67				60				
Cyg XZ RR					69	62	55	49	42			69	62	55	49	42			69	62	55	49	42			68	62	55	48	42					
Cyg BO E10S			65s							67s							70s							60									63		
Cyg DM RR 3			71			65					69			63					67			60					64			58					
Cyg EM K10 2	64		68		72		59		63		66		70	57	61		64		68	55		59		63		66	54		57			61			
Cyg V367 L10 2	/						\	\	71s	/	/	/		\			0	/	/				\	\			30s	/	/						
Cyg V463 E10S													56	62s			67																		
Cyg V477 E10X			60s				59			64s			63				68s					67													
Cyg V541 L10 3							37						41s									71							74s						
Cyg V548 E10S 3				63			53s						66	56s	46								68	59s	49										
Cyg V788 L10 3								46\	41	37\																									
Cyg V891 E10S			68		59							68							69s					64		55									
Cyg V909 E10S					67s																														
Cyg V1061 E10S													51										55							59					
Cyg V1918 E10D	50+	53	56s	60	63s		46+	49+	52s	56	59s	62	45+	48+	51	55s	58	61s	44+	47+	50s	54	57s	60	43+	46+	50	53s	56	59s	42+	45+			
Del DX 90 3								68									66										64								
Dra RW RR		69	58	47	35	68	57	45	34	67	55	44	32	65	54	42	31	64	53	41	30	63	51	40		61	50	38		60	48		37		
Dra SU RR			49		48		46		44		42		40		38	70	36	68	35	67	33	65	31	63	29	61		59		57			55		
Dra SW RR		61		32	46	60		31	45	59		30	44	58		29	42	56	70		41	55	69		40	54	68		39	53	67				
Dra TZ E10D		56s		72	59	45		62s	48s		65	52		68s	55s		58	44		61s		48s		64	51		67s	54s	40s		57		43		
Dra VZ 90		41+	37+	34+	30+	26+	55	51	47	44	40	36+	32+	29+	57	53	50	46	42	39	35+	31+	60	56	52	49	45	41	37	34+	30+		58		
Dra WW S10 2					57														46																
Dra XZ RR 3	41	36	31	27	70		65	60	56	51	46	41	37	32		70	66	61	56	51	47	42	37	33			66	61	57	52	47		43		
Dra AI S10				41	61						41	61					40	60					39	59						39	59				
Dra BF L10				42												63												84							
Dra BK 90	62		39	58			35	54		31	50	68	27	46	64		42	60		38	56		34	52		30	48	67		44	63				
Dra BU E10S												66s		57			48s		40		31s														
Dra DD 90		25+	56	54	52	50	48	46	44	42	40	38+	36+	34+	32+	30+	28+	59	57	55	53	51	49	47	45	43	41	39	37	35+	33+		31+		
Dra EX K10 3	44+	28+	33+	38+	43+		27+	32+	37+	42+	47+	31+	36+	40+	45+	29+	34+	39+	44+	49	33+	38+	43+	48+	32+	37+	42+	47+	31+	36+	41+		46+		
Dra GV L10 2											55																								
Equ S S10													70																						
Gem U K10		38+	27+	33+	39+	28+	34+	40	28+	35+	41	29+	35+	41	30+	36+	42	31+	37+	43	31+	38	44	32+	38	44	33+	39	45	34+	40		46		
Gem RR 90		56	35	54	34	53	33	52	31	50	30	49	28	48		46	45		44			42		41		40		38		37			35		
Gem RY L10 2	18					83s					48					13s					78				43s					8					
Gem SZ 90		37	38	38	38	38	39	39	39	39	39	40	40	40	40	41	41	41	41	41	42	42	42	42	43	43	43	43	43	44	44	44		44	
Gem WW E10S 3		35				44s		30			39s		49		34s				44		30s				39					34				44s	
Gem YY S10	49	31	53s	34s	56		38		41s		45		49s	30s	52	34	56s	37s		41		44s		48	29	51s	33s		36		40s				
Gem OW L10 2																																			
Gem V339 E10U 2												53			41				29																
JD 589 ..		10	11	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		

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Her	TW	RR	3	63	62	62		62	62			44s	47	50s	53	56s	59	62s	65	68s			61	60	60		60	60					60		
Her	TX	S10																																	
Her	UX	E10D					63s									60	70				57s			67s				54		64					
Her	VX	RR	3	64	55			64	55				65	56	47			66	57	48			67	58	49		68	59	50						
Her	VZ	90		62	50	70	58	46	66	54			62	51				59	47		67	55	43	63	51		60	48	68			56			
Her	AK	S10		58s	63	68s	53s	58	63s	69	53	58s	64	69s	54s	59	64s	70	54	59s	65	49	54s	60	65s	50s	55	60s	66	50	55s	61	45+	50s	
Her	AR	90		50	44	38		67	61	55	49	43	37		66	60		54	48	42	36			65	59	53	47	41	35	64			58		
Her	AW	L10	3					4								84									64										
Her	DI	L10	3	74s		16								29s	71									84s		26									
Her	GU	E10U						48s	65												51s			68											
Her	LV	L10	2													87																			
Her	MM	E10S																																67	
Hya	SZ	90	2	35	42	50			33	41	48				32			39	47					30	38	45					36		43		
Hya	WZ	90	2		43	51			35	42	50				34			41	49					33	40	48				32	39			47	
Hya	AI	L10	2	83		53s					12				82s					41				11s			70						40s		
Hya	ET	90	2	44					30	36			41	47									32	38	44										
Lac	RW	L10	3	75				87s					12						24s				49				61s								
Lac	SW	S10		72				69s		70			66			67s								69s	65s		66	62							
Lac	UW	E10S	3				87						16					45					74				3								
Lac	CO	E10X		30	58s			66s		55			29s	64										63s			52		60						
Lac	CZ	90		28+		30	60		62				65		67				70	56			59		61		64		66				52		
Lac	V345	E10X	2			54			19s					3	69s										18s			2		67s					
Lac	V364	E10X	3											66																					
Leo	RR	RR		39	30	65	56	46	37	27	63	54	44	34	61	51	42	32	58	49	39		30	56	46	37			54	44	35				
Leo	SS	RR		53		41		54	42				55	43	31			56	44		32		58	45	33	59	47	34							
Leo	ST	RR		35		69	65	60	56	52	47	43	38	34	30			64	60	55	51	47	42	38	33	29		63	59	55	50			46	
Leo	WY	E10S			33				32					30																					
Leo	AG	E10S					49				58s			28							37s			46			54s								
Leo	AM	S10		40+	31+	41+	32+	42+	34+	43+	35+	45+	36+	27+	37+	29+	38+	30+	40+	31+	41+	32+	42+	33+	43+	35+	44	36+	46s	37+	47	38+	30+	39+	
Leo	FM	E10U	2		55s																														
Lyn	TY	E10S	3	31			64							30						63								30							
Lyn	CD	E10S	3	66s					48						30s				58							40s									
Lyr	RR	RR	3		56	69		53	66				63												53	67		50	64						47
Lyr	RZ	90		69	71													51	54	56	58	60	63	65	67	69									
Lyr	UZ	S10				70s	65	59s	54															67	62s	56	51s								
Lyr	CN	90		66	71			59	65	71			53	59	64				70	52	58			64	69	52		57	63						
Lyr	EZ	RR		64	69					52	57		62	67										60	65					48	53				58
Lyr	IO	90			53	68		57	72		61				49	65			53	69						46	61			50	65				
Lyr	beta	S10	3					7							54s													48s							
JD	589	..		10	11	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	

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Mon	UX	E10S 2		11s		6			1s	96				92s		87			82s					77		72s		68				63s			
Mon	VV	E10S 2		12		15s			17		20s				22			25s		27			30s		32			35s				37			
Mon	AQ	E10S 2				40s								31				40			27							31s							
Mon	AR	L10 1							82\	67s	52/								43\	28	12/								3\	73/					
Mon	AV	E10S 2				46s			93					41s		88							83		30s			77							
Mon	EZ	E10U 2			34		35			36				37		38			39		40								30s				31s		
Mon	IL	E10S 2			8				10		13				15					18			21				23					26			
Mon	V448	E10S 3		30s	42s				33	45				37s		28		40									35					38s			
Mon	V530	E10U 2		44	49	28s	33s	38s	43s		27	32	37	42		31s	37s	42s			31	36	41		30s	35s	40s				34		39		
Mon	V536	E10X 2		30					44																					37s					
Mon	V634	E10U 3												29		41																		32	
Oph	U	ST			68					71						58s							61s			64s						68s		51	
Oph	RZ	L10 1																		68	58				64			59							
Oph	ST	90			72	62				67					63																				
Ori	Z	E10S 2			21					41						62											2							23	
Ori	BM	E10S 3			43					90								37							84								31		
Ori	CP	E10S 2		70						2					34						66					98							30		
Ori	DN	L10 2						74																											
Ori	EW	E10X 3													38s																				
Ori	FO	L10 2		21																				1											
Ori	FT	E10X 3		27	37s				42																	32		42s							
Ori	GG	E10X 2								34																									
Ori	V536	E10S 2									36																					34			
Ori	V1016	L10 2			97																														
Ori	V1031	E10S 2		26s																															
Peg	VV	RR																											68	66					
Peg	VW	L10 3																	55																
Peg	AV	RR 3								70										68								65							
Peg	AW	L10 2	48						79s					10					41s					72				3s							
Peg	CG	90 3		72										66						67						68									
Peg	DF	L10 3									80																50								
Per	RW	L10 2			87																7														
Per	RY	E10S 3																						39											
Per	AR	90	45	30	43			28	41				39		37			49	35		47	32		45	30	43		41						39	
Per	AY	L10 3			71														49													27			
Per	IQ	E10X 3				44s		41						42s	38													37s	33						
Per	KN	E10U 3	45	32	35s		38		42s	28s			31					35s					38						31					34s	
Per	LX	L10		58				60s					62			64s					66					68s		69						71s	
Per	beta	S10 3			41			28																							35				
JD	589	..		10	11	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	

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Psc	RU	90	3					28																												
Psc	SS	90	3	28	29																															
Sge	SY	E10S	3	65s																					65											
Ser	VY	RR		54	68				54	68				54	68				53	68				53	67			53	67							
Ser	AN	90	3	67	71						50	54		59	63	67							46	50	55	59	64	68							42	
Ser	BH	90	3	62	49			66	53	71	58	45		62	49		66		53	40	70	57	44		61	48		65	52	39		57	43			
Ser	EG	L10	3	63s					60					58s										53s					50						47s	
Ser	LX	K10	3	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+	51+	46+	41+	52+	47+	42+	
Sex	T	90		54	52	49	46	44	41	39	36	33	31	28		56	53	50	48	45	43	40	37		35	32	30			52	49	47	44	41		
Tau	RW	S10	3				40																											32		
Tau	CD	S10	3						34															36s											38	
Tau	EN	E10S					28						47s					43s						39s				34s						30s		
Tau	V1094	L10	2	84s				96						83s		95								82s		94						81s				
Tri	X	S10	3																					31												
Tri	RU	E10S	2																					29s												
Tri	UX	90	3						30						31									31												
UMa	W	S10		28+	28+	29+	29+	29+	29+	29+	29+	29+	29+	29+	29+	29+	30+		30+	30+	30+	30+	30+		30+	30+	30+	30+	30+	31+	31+	31+	31+	31+	31+	
UMa	RV	RR		60	54	47	41	34	28	68	62	56	49	43	37	30		64	58	51	45	39	32		66	60	53	47	41	34		68	62	56		
UMa	RW	E10S																																		
UMa	TU	RR		41	53	64		32	43	55	66		34	45	57	68		36	47	59	70		37	49	61		39	51	62		30	41		53		
UMa	TX	S10			60			66																												
UMi	W	S10		28			68		39					49					59	29					40				50							
Vir	ST	90	2		62		68	50		55		61		66	48		54		59	65	47				52	58		63	45	68	51		56			
Vir	AG	E10D		39+	36+	32+	61s	57	54s	50	46s	43	39s	36+	32+	60s	57	53s	50	46s	42	39s	35+		32+	60s	57	53s	49	46s	42	39s	35	31+	60s	
Vir	AH	S10		40+	42+	44+	45+	47+	49+	51+	33+	34+	36+	38+	40+	42+	44+	46+	48+	50s	31+	33+	35+		37+	39+	40+	42+	44+	46+	48	50s	31+	33+	35+	
Vir	AT	90	2				42	47	52	58	63	68					41	46	51	57	62					40	45	50	56	61						
Vir	AV	90		59		56		53		50		47		44		41		39	70	36	67		64		61		58	55		52		49				
Vir	CG	E10S		58	51				72s	65s	59s	53s	46s				67	60	54	48					68s	62s	55s	49s	43s			63	57	50		
Vul	Z	S10	3																						63											
Vul	BN	90	3			66			63			60		57											67		64		61						58	
Vul	DR	E10X								66s										66s								66s								
Vul	EV	E10S	3																										67							
JD	589	..		10	11	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		
2020	Apl		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	SY	L10	1												59\	64	69\																			
And	CD	L10	2																							50\	\	56s	/	63\						
JD	589	..		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	71		

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And	OV	90					66																60									60		
Aqr	SW	RR	2																					64						61				
Aqr	SX	90	3		67																					63								
Aqr	CD	E10S	3				47					31				14					98					82						66		
Aqr	LL	L10	2																															
Aql	AA	RR			67				65				63																					
Aql	V341	90	3								62											60												
Aql	V889	L10		98s							16			10s									28			23s								
Aql	V1353	E10S			56s						64s			59								54s				49		62s						
Aql	V1426	E10S		56s	15+	32+	50	9+	26+	44s	2+	20+	37+	55	14+	31+	49s	7+	25+	43	1+	19+	36+	54s	13+	30+	48	6+	24+	41s	59s	18+	35+	
Aql	V1430	E10S			66s				59			65s			58			64s					57		63s				56					
Ari	RS	L10	2																															
Aur	TZ	90		44		40		36			49		45		41		36		50		46		42		37				47		42			
Aur	CQ	L10	2				81s						12					43s					74					5s						
Aur	IY	E10S						42													38													
Aur	V432	E10S	3	41s															36															
Aur	epsil	L10	2																															
Aur	zeta	L10	1																															
Boo	RS	RR			43	57	32	45	59	34	47	60	36	49	62	38	51	64	40	53		42	55		43	57		45	58		47	60	36	
Boo	TW	90		49	56	62				35	41	48	54	60			33		39	46	52	59			38	44		51	57					
Boo	UU	90		67	59	50	41	33	61	53	44	35	64	55	47	38	58	49	41				61	52	43	35		63	55					
Boo	UY	90		50	45	40		36	66		61		56	52	47	42	37						63	58		53	49							
Boo	AC	E10D		32+	38+	43+	32+	37+	43+	49+	37+	43+	48+	36+	42+	47+	36+	41+	47s	35+	41+	47+	35+	40+	46+	34+	40+	46+	52	40+				
Boo	CM	90		63	46			50	33	55			38	59	42	64		47	51				34	56	38	60	43							
Boo	CQ	90	3	58	43	56	40	53	38+	50	35+	48	60	45	58	42	55	40	52	37+	50	34+	47	60	44	57	42	54	39	52	36	49	62	
Boo	CS	90			39	50	60		37	48	58		35	46	56			33	44	54				42	53	63		40	51					
Cam	SS	E10S	3		24s		65		6s		47		89s		30			71s		12			53s	94		35s	77							
Cam	SV	S10		46	35+	54s	43	32+	50s	39	58	47s	36+	55	44s	62s	51	40s	59s	48	37s	55s	44	63	52s	41	59	48s	37	56	45s	63s	52	
Cam	AK	E10S			37	48s	60						39s	50	62s								41	52s	64									
Cam	AN	L10	3				37s					2															37s							
Cam	AT	E10S	3		65s	35	45s		54		63s	33		42s	52			61s		40s			50		59s		38s	48		57s				
Cnc	S	L10		63									12										60								9			
Cnc	RU	L10	2					76										93										10						
Cnc	RW	90				36	45	55				38	47					40	49				41	51			43							
Cnc	RZ	L10	2					15/	78s	/	40/							97/	\	60	/	22/					80/	\	42s					
Cnc	TT	90		32	45				39				34	46				41				35				42			37					
Cnc	TU	E10S	3					36					92					48					4					60						
Cnc	TW	L10	2												86/	92		98/																
Cnc	UU	L10	2	\	\									49												/	/							
JD	589	..		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	71





2020	Apl	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	55	35	55		35	54		34	54		33	53		33	53		52			52		51			51							
CrB	U	S10				37																63						53							
CrB	RV	90	3				67		66	66	65	65	64	64	63	63	62	62	61	61	60	60	59	59	58	58	57	57	56	56	55	55			
Crt	W	90	2	37		43				38	44					38							39					39							
Cyg	Y	S10		58s	61		58s	60		57s	60		57s	59		57s	59		56s	59		56s	58		56s	58		55s	58		55s	57			
Cyg	UY	RR				65				57						62			54				59					51	63						
Cyg	XZ	RR		62	55	48	42	35			62	55	48	42	35			61	55	48	41	35			61	55	48					61			
Cyg	BO	E10S							65	53s							55s						58s							60s	48				
Cyg	BR	E10S							42s		42		41s		41		41s		41		41s		41		41s		41		41s		40				
Cyg	DM	RR	3		62			56		66			60			54		64			57			51		61			55					49	
Cyg	EM	K10	2	64	52		55		59		63	50	66	54		57		61	48	64	52		55	59	46	63	50		54				57		
Cyg	V367	L10	2		\	\	60	/	/					\	\	90s	/	/				\	\		20	/	/								
Cyg	V463	E10S		56s	61		67s														50s	56	61s												
Cyg	V477	E10X												50s				49				54s			53			58s					57		
Cyg	V541	L10	3					5								8s								39								42s			
Cyg	V548	E10S	3	61s	51		42s						64s	54		44s							57	47s	37								59		
Cyg	V788	L10	3	38\	34	29\																				30\		26	22\						
Cyg	V891	E10S													61			51																	
Cyg	V909	E10S					53s						54								55s						57								
Cyg	V1061	E10S					63																	40											
Cyg	V1918	E10D		49s	52	55s	38+	41+	44+	48	51s	54	37+	40+	44+	47s	50	53s	36+	39+	43+	46	49s	53	35+	39+	42+	45s		48	52s	55	38+	41+	
Del	DX	90	3		67	62								65	60								63	58									61		
Dra	RW	RR		58	47	36			57	46	34	56	44	33		54	43		64	53	42		63	52	40	62		50	39	60	49				
Dra	SU	RR		53		52			50		48	46			44		46	40			39	37		35					63		61				
Dra	SW	RR	38	52	65		36	50	64		35	49	63		34	48	62		33	47	61			45	59			44	58				43		
Dra	TZ	E10D		60s	47s		63	50	36	66s	53s	39s		56	42		59s	46s		62	49	35		52s	38s		55	42		58s	45s				
Dra	VZ	90		55	51	47	44	40	36	33+	61	57	54	50	46	43	39	35	64	60	56	52	49	45	41	38	34	62					50		
Dra	WW	S10	2		35									61																					
Dra	XZ	RR	3	38	33		67	62	57	53	48	43	38	34				63	58	53	48	44	39	34			63	58	54	49	44				
Dra	Al	S10			38	58					38	58					37	57					37	56					36	56					
Dra	BF	L10						5								47s																		47	
Dra	BK	90		40	59		36	55	33	51			47	65		43	61		39	57		35	53		50			46					42		
Dra	BU	E10S					63s	54		45s		37																60s		51					
Dra	DD	90		62	60	58	56	54	52	50	48	46	44	43	41	39	37	35	33+	63	61	60	58	56	54	52	50	48	46	44	42	40	38		
Dra	EX	K10	3	51	35+	40+	45+	50	34+	39+	44+	49	33+	38+	43+	48	53	37+	41+	46	51	35+	40+	45	50	34+	39+	44	49	54	38+	43	48		
Dra	GV	L10	2		40																								25						
Equ	S	S10												62																					
Gem	U	K10		34	41	47	35	41	47	36	42	48	37	43	37	43			38	44	33	39	45		40		34	40				35	41		36
Gem	RR	90			34		33							48					44					41		40		38		37				36	
JD	589	..		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		71



2020	Apl	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	EZ	RR	63							46	51	56	61	66						44	49	54	59	64					37	42	47	52			
Lyr	IO	90	54				58			46	62		61	50				54			43	58			47	62			51			39			
Lyr	beta	S10	3	95						42s						89							36s							83					
Mon	UX	E10S	2		58					49			44s			39				34s		29			25s										
Mon	VV	E10S	2			40s		42				45s		47			50s																		
Mon	AR	L10	1						64	48	33																								
Mon	AV	E10S	2	25s			72			19s			67				14s			62															
Mon	EZ	E10U	2			32s		33s			33s			34s																					
Mon	IL	E10S	2			29			31				34				37				39				42										
Mon	V448	E10S	3							33s																									
Mon	V530	E10U	2			34s	39s					33	38																						
Mon	V634	E10U	3																		35														
Oph	U	ST					55					58					61					64	48s						51s						
Oph	RZ	L10	1																				25\	\					49						
Oph	ST	90	64	54				60			65	55				60		50					56								57	47			
Ori	Z	E10S	2			43					63				84							4													
Ori	BM	E10S	3																																
Ori	CP	E10S	2				63				95					27												91							
Ori	DN	L10	2		67											64																			
Ori	FO	L10	2								81																								
Ori	FT	E10X	3															37																	
Ori	V1016	L10	2																																
Peg	VV	RR																				63	61												
Peg	VW	L10	3							62																				70					
Peg	AV	RR	3				63									66	61									64	59						62		
Peg	AW	L10	2		34					65s				97							28s					59				90s					
Peg	BH	90	3																											62					
Peg	CG	90	3		62						62							63	57						64	57									
Peg	DF	L10	3								20															89									
Peg	DH	RR	2																										63						
Peg	GH	E10S	3																																
Peg	IP	K10	3																											63					
Per	RW	L10	2	27											47																67				
Per	AR	90			37			35			33																								
Per	AY	L10	3								4										41		39				37		35						
Per	IQ	E10X	3		34s	31																													
Per	KN	E10U	3				38								34s																				
Per	LX	L10				73				75s				77							79s							83s							
Sge	SY	E10S	3									58s																			50				
JD	589	..	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	71		















2020 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		
Vul	EV	E10S	3																	47																58
JD	589	..		71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99			0	1
JD	590	..																																		
2020 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											60				58				56		41\	46	50\		26	27	28	29	30	31			
And	SY	L10	1																											52						
And	TW	S10	3						55																											
And	XX	90									54					60								55									50			
And	CD	L10	2																															38\		
And	OV	90		60	54	49						60	54	49					60	54	48					60	54	48	43							
Aqr	SW	RR	2		60	52					57	49			54					59	51					56	48									
Aqr	SX	90	3	60					49	56						53		60							49	56					45	53				
Aqr	CD	E10S	3		52					36					20						3		87				71									
Aqr	HH	90	2			59									14									55				57					59			
Aqr	LL	L10	2		6s																			23s												
Aql	AA	RR				54					52				50	59		48	56		46		54		44	52			42	50	59					
Aql	V341	90	3			53				58		47				51			56			45			50					54						
Aql	V889	L10				77				71s						89			83s								1				95s					
Aql	V1353	E10S		40s	52						47s			60		43		55s		38s			50				45s	57								
Aql	V1426	E10S		8+	26+	43	2+	19+	37+	54s	13+	31+	48	7+	25+	42s	1+	18+	36+	53	12+	30+	47s	6+	23+	41+	58	17+	35+	52s	11+	29+	46			
Aql	V1430	E10S		51				57s	44s		50					56s	43s		49			55s	42s		48			54s	41s		60	47				
Ari	RS	L10	2											94											75							55				
Aur	CQ	L10	2																																	
Aur	epsil	L10	2																																	
Aur	zeta	L10	1																																	
Boo	RS	RR		43	56		45	58		47	60		49		51		39		53		41	54		43	56		45	58		47			49			
Boo	TW	90						43	49	56					41	48	54							40	46	53	59				38	45				
Boo	UU	90		53	45				56	47	39			58	50	41			52	44					55	47	38		58	49	41					
Boo	UY	90								54	49			45	40										47			42								
Boo	AC	E10D		47s	53s	41+	47	52	40+	46s	52s	40+	46	51	40+	45s	51s	39+	45	51	39+	44s	50s	38+	44	50	38+	44s	49s	55s	43	49	55			
Boo	CM	90		54		58			41		46				50		55								46			51								
Boo	CQ	90	3	47	60	44	57	42	54	39	52	49		46	44	56		41	54	38	51		48	46	43			40	53	38	50					
Boo	CS	90		60			48		58		46			56		44		54					52		40			50				38				
Cam	SS	E10S	3		53	94s			35	76s				17	58s			99		41s			82		23s		64			5s						
Cam	SV	S10		55	44s	52	40s		59s	48	56s	45		52s	41	60	49s	38	56	45s		53	42s	60s	49	38s	57s	46		53s	42					
Cam	AK	E10S		49								40	51s																			44				
Cam	AN	L10	3											2																						
JD 590			P	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	32		

2020 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 AT E10S 3					47s		56					45s	54						43s	52					41s		50		59s					
Cnc S L10																																		
Cnc RU L10 2																																		
Cnc RW 90								38																										
Cnc RZ L10 2			51/																															
Cnc TU E10S 3																																		
Cnc TW L10 2																																		
Cnc UU L10 2																																		
Cnc ZZ L10 2																																		
CVn W 90		44	54				41	51					48	58				44	54				41	51				48						
CVn Z 90										57		53	49	45				42		38								53		49				
CVn RS S10 3								49s												48														
CVn RZ 90		49			46		59			43	56			40	54				51								45				42			
Cas RX L10 2		17s		/	/									\	\				34			/	/							\				
Cas RZ S10 3							53						50						48						45						43			
Cas SX L10 2								95\	\	78	/	61/																						
Cas TV S10		49										55											43											
Cas TW S10 3					46							60		46								60			46									
Cas TX E10S 3														54s				47s		39s														
Cas AQ L10 2		5s	11/			86/	91	97/				72\	77s	83/				58\	63	69/				44\	49s	55/			30\	35				
Cas BM L10 3									42s	58						51								45	60s				38	53s				
Cas DN E10S 3																																		
Cas GG E10S					46																													
Cas GU E10U													42					51		60														
Cas IL E10S 3																									51									
Cas IT E10X		57s				46s																											59	
Cas OX E10X		48s					45s						43s					41s					39s											
Cas PV E10X					58s	41							58s	41						58s	41						58s	41						
Cas V368 E10S 3																														41s				
Cas V375 E10D			47			42					57s								47s		41s					57			52			47		
Cas V381 E10X 3			53s	47						51s	46							49s	44						48s	42						46s		
Cas V459 L10 3		41				57s				86					3s					32				49s			78					95s		
Cep RZ 90		49	42		58	50	43	59	52	44			60	53	45	38			54	47	39		55	48	40		56	49	42		58	50		
Cep VW S10		44+	42+	39+	51	48s	45+	43+	40+	38+	49s	46+	44+	41+	39+	50s		47	45+	42+	40+	51s	48	46+	43+	40+	38+	49	47s	44+	41+	39+		
Cep XX S10																																	40	
Cep XY E10S								53																40										
Cep ZZ S10												38		52															51					
Cep AI E10S 3													43		54s																			
Cep CW E10X 3		39				38s					57				57s												49					49s		
JD 590 ..		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	32		

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Cep EI L10	3	29s					51					73s					95					17s					39					61s																													
Cep EX L10	2											95															39																																		
Cep NN E10S																	39					42s 45 48s 51 54s					57 60s																																		
Cet TU E10S	2																																																												
Cet TV L10	2																																																												
Com S 90	3	50					44					44					43					47					41					45					38																								
Com ST 90	3	44										44					43					47					43					42					41					41					40					40					39				
CrB U S10												51										41																																							
CrB RV 90	3	38 38																																								60 60					59 59 58 57 57														
Cyg Y S10		51s 53					51s 53					50s 52					50s					52					49s 52					49s 51					49s 51					48s 50					48s					50					48s 50				
Cyg UY RR		40 52										45 57										49					42					54					46					58					39 51					43 56									
Cyg XZ RR							54					47 41										54 47 41										54 47					41					60					54 47 40														
Cyg BO E10S							48s															51s 39										53s 41															56s 44														
Cyg BR E10S		38s 38										38s 38					38s										38					38s																													
Cyg DM RR	3	40 50 60					44					54 38					48					58 42					52					46					55 39					49					59 43					53									
Cyg EM K10	2	57 44 48					52 39 55 43 59					46 50 54					41 57 44 48					52 39 55 43					59 46 50																																		
Cyg V367 L10	2	/					\ \ 69s					/ /					\ \ 99 / /					\ \					\ \					29s / /																													
Cyg V463 E10S							38 44s					49 55s					52s					51					56s					55					60s					59																			
Cyg V477 E10X		43 48s										40					43s															74										77s																			
Cyg V541 L10	3						60s 50 41s										15\ 11 7/					50 40					47s					48					49s																								
Cyg V548 E10S	3	44s					45																				41					46s																													
Cyg V788 L10	3																																																												
Cyg V891 E10S																																																													
Cyg V909 E10S																																																													
Cyg V1061 E10S																																																													
Cyg V1918 E10D	43	46s 50 53s 56					39+ 42s 45 49s 52					55s 38+ 41 45s 48					51s 54 58s 40s 44					47s 50 54s 57 39+					43s 46 49s 53 56s																																		
Del DX 90	3	58 53					48					56 51 45					40					60 54 49 43 38					58																																		
Dra RW RR		38 59 48					58 47					57 45 55					44					54 42					53 41					51 40																													
Dra SU RR		60					58 56					54 52 50					48 47					45 43 41					39																																		
Dra SW RR		47					46 60 45					58					43 57					42 56					41 55					40 54					38																								
Dra TZ E10D		52 39					55s 42s 58 45					48s					51 38 54s 41s					57 44 60s					47s 50																																		
Dra VZ 90		54 50 47 43 39					60 56 53					49 45 42 38					59 55 52 48					44 40					58 54 50 47 43																																		
Dra WW S10	2	54															43					57 52 47 43					38					57 53 48 43																													
Dra XZ RR	3						56 51 47 42					52					51					50					50																																		
Dra AI S10		52					52																																																						
Dra BF L10		11					52s					32															53																																		
Dra BK 90		39 57 53					49					45 41 60					56					52					48					44					40																								
Dra BU E10S												54s 45																																																	
Dra DD 90		41 39					59 57 56					54 52 50 48 46					44 42 40 38					59					57 55 53 51 49																																		
JD 590 ..		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	32																													

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Dra EX K10	3	39+	44	49	54	38+	43	48	53	58	42	47	52	57	41	46	51	56	40	45	50	55	38+	43	48	53	58	42	47	52	57				
Dra GV L10	2												96																						
Equ S S10							60						47																						
Gem RY L10	2																																		
Gem OW L10	2																																		
Her TW RR	3	53		53		53		53		53		52		52		52		52		52		51		51		51		51		51		51			
Her TX S10																				40	43s	46	49s	52	55s	58									
Her UX E10D				46s			56s			43			53				40s				50s			60s			47			57					
Her VX RR	3	53	44				54	45				55	46				56	47	38				56	48	39		57	48	39						
Her VZ 90		53	41				49			57	45		53	41			50	38		58		46		54	42			51	39						
Her AK S10		47s	52	58s	42s	47	53s	58	42	48s	53	58s	43s	48	53s	38+	43	49s	54	38+	44s	49	54s	39+	44	49s	55	39+	45s	50	55s				
Her AR 90		56	50	44	38					55		49	43				60	54	48	42					59	53	47	41							
Her AW L10	3		5									85									65								45						
Her DI L10	3			69s			11							24s			66							79s			21								
Her GU E10U				51													54										40s	57							
Her LV L10	2												51s			5																			
Hya AI L10	2																																		
Lac RW L10	3		7					19s					44					56s					81				93s								
Lac SW S10		45	57s	53s	49s	46s	58	54	50	47	43+	55s	51s	47s	44+	56	52	48	45	41+	53s	49s	45s	42+	38+	50	46	43+	39+	51s	47s				
Lac UW E10S	3		80					9					38						68				97									26			
Lac CO E10X			57s				46		54								45s		53s				42			51		59							
Lac CZ 90		60	47				49		52	38		54	40		56		43		59	45			48		50		53	39							
Lac V345 E10X	2		44				10s			94			59s						43			8s			92		57s								
Lac V364 E10X	3		52										60s													58									
Leo RR RR				40																															
Leo ST RR					42		38										41																		
Leo AG E10S			40s																																
Leo AM S10		40s	41		42s									38																					
Leo FM E10U	2	39																																	
Lyr RR RR	3	39	53				49					46	60		43		56			40	53				50			47	60						
Lyr RZ 90									38	40		42	45	47	49	51	54	56	58	60															
Lyr UZ S10		59s	54	48s	43															56	50s	45	40s												
Lyr CN 90		39	45		51		57	39		44			50		56	38		44		50		55			43		49	55		60					
Lyr EZ RR		56						39	44	49		54	59							42	47	52	57						40	45					
Lyr IO 90			45	60			49					52			41	56			45	60			49		38		53		42	57					
Lyr beta S10	3				65								12s						59						6s										
Mon UX E10S	2																																		
Mon VV E10S	2																																		
Mon AR L10	1																																		
JD 590 ..		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	32			





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Aql V1426 E10S	5+	22+	40+	57s	16+	34+	51	10+	27+	45s	4+	21+	39+	56	15+	32+	50s	9+	26+	44	3+	20+	38+	55s	14+	31+	49	8+	25+	43s	1+			
Aql V1430 E10S			53s	40s		59	46			52s	39s	58	45				51s	38s		57	44			50s	37s		56	43			49s			
Ari X RR 2																				61														
Ari RS L10 2							35										16							96										
Aur CQ L10 2																										34					66s			
Aur V432 E10S 3																															60s			
Aur epsil L10 2																																		
Aur zeta L10 1																																		
Boo RS RR			51		39	52		41	54		43		45				47			49		37	50		39			41			43			
Boo TW 90	51	57						43	49	56							41	48	54					40	46	53								
Boo UU 90		60	52	43			54	46	37			57	48	40						51	42		54	45		36			48	39				
Boo UY 90									44		39												41			36								
Boo AC E10D	43+	49s	54s	42+	48	54	42+	48s	53s	42+	47	53	41+	47s	53s	41+	46	52	40+	46s	52s	40+	46	51	39+	45s	51s	39+	45	51	39+			
Boo CM 90	38		43				47								39			44											40					
Boo CQ 90 3		48	45			42	40		37		50	47		44			42		39					46		44	41		38					
Boo CS 90	48					47					45					43					41					39						37		
Cam SS E10S 3	46	87s				29	70s				11	52s	93					34s	75				17s	58			99s		40					
Cam SV S10	50s	39	58	47s		54	43s	51	40s	58s	47	55s	44				51s	40	59	48s	37	55	44s	52	41s	60s	48	37s	56s	45				
Cam AK E10S	55s								46s	58									37s	48								39	50s	62				
Cam AN L10 3		2																					2											
Cam AT E10S 3		39s	48			57s					46	55s					44		53s					42		51s	61							
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			44	55			41	51			37	48								44				41				37	48					
CVn Z 90		46		42		38											50	46			42	38												
CVn RS S10 3	48s											47																						
CVn RZ 90			40					50				47					45				42				39			36						
Cas RX L10 2			51s			/	/								\	\				68		/	/									\		
Cas RZ S10 3						41	60				38	58													53								51	
Cas SX L10 2												51\	\				34	/	17/															
Cas TV S10	49							56			37																						49	
Cas TW S10 3	60			46							60		46										60		45								60	
Cas TX E10S 3		56		49			42															59s		51s			44s					37s		
Cas AQ L10 2	41/			16\		22s	27/				2\	8	13/				88\	94s	99/				74\	80	85/			60\	66s	71/				
JD 590 ..		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		





2020 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 V541 L10 3									8							11s							42								45s			
Cyg V548 E10S 3				58	48s		39						61	51s	41								54s	44							0\	91/\		
Cyg V788 L10 3							8\	99/\																										
Cyg V891 E10S						56		46																61			52		43					
Cyg V909 E10S								51								52s							53						55s			35s		
Cyg V1061 E10S		45							49														57							61				
Cyg V1918 E10D		39+	42	45s	48	52s	55	38+	41s	44	48s	51	54s	37+	40+	43s	47	50s	53	57s	39+	42	46s	49	52s	56						55s		
Del DX 90 3		52	47	41						56	50	45	39					59	54	48	43	37					57	52	46	41				
Dra RW RR		50	38		60	48			58	47				57	46		56	44			54	43			53	42			52	40		62		
Dra SU RR											60		58	56			54	52	51				49	47			45	43	41					
Dra SW RR		52				51			50					49				47	61			46	60		45		59			44	58			
Dra TZ E10D			53s	40s		56	43		59s	46s			49		52s	39s	55	42				59s	45s		62	48			51s	38s		54		
Dra VZ 90		39			60	57	53	49	46	42	38			59	55	52	48	44	41	37				58	54	51	47	43	39	36		60	57	
Dra WW S10 2																58																		
Dra XZ RR 3		38						58	53	48	44	39					58	54	49	44		40						59	54	50	45	40		
Dra AI S10				49					49							48						48						47						
Dra BF L10						74											95						37s					16						
Dra BK 90		58				54		51			47			43	61		39	57			53			49			45			41	60			
Dra BU E10S					59	51s		42																			56		48s		39			
Dra DD 90		47	45	43	41	39						60	58	56	54	52	50	48	46	44	42	40	38	37				61	59	57	55	54		
Dra EX K10 3		41	46	51	56	40	45	50	55	39+	44	49	54	38+	43	48	53	37+	42	47	52	57	41+	46	51	56	39+	44	49	54	38+	43		
Dra GV L10 2							82																								67			
Equ S S10								52							40																		58	
Gem RY L10 2																																		
Gem OW L10 2																																		
Her TW RR 3		50		50		50		50		50		49		49		49		49		49		48		48		48		48		48		48	47	
Her TX S10																							36	39s	42	45s		48	51s	54	57s	60	63s	
Her UX E10D					44s			54s				41			51			61	38s			48s		58s					45				55	
Her VX RR 3			58	49	40				50	41				51	42										53	44				45	36			
Her VZ 90		59	47			55	43				51	39				60	48					56	44			52	40		60	48	37		53	
Her AK S10		40s	45	50s	56	40	45s	51	56s	40s	46	51s	57	41	46s	52	57s	41s	47	52s	58	42	47s	53	37	42s		48	53s	37s	43	48s	53	
Her AR 90				58	52	46	40						57	51	45	39						56	50			44	38							
Her AW L10 3										25								5										85						
Her DI L10 3							34s		76																									
Her GU E10U												43s		60																				
Her LV L10 2					49																		38s											
Hya AI L10 2																								93										
Lac RW L10 3					18						30s				55																	4s		
Lac SW S10		43+	40+	52	48	44+	41+	53s	49s	45s	42+	38+	50	46	42+	39+	51s	47s	43+	40+	52	48	44+	40+	37+	49s	45+	41+	38+	50	46+	42+		
JD 590 ..		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		

2020 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				
Lac	UW	E10S	3					55					84						13					42					71						0			
Lac	CO	E10X				41s			50s			58s	39		47				56				38s		46s			54s				44						
Lac	CZ	90		55	41		57	44	60	46				49			51	38		54	40		56		42	58	45	61	47			50		36				
Lac	V345	E10X	2			41			6s				90								40			5s						54s								
Lyr	RR	RR	3		44	57			40	54			37	51				47	61				44	58			41	54		38	51			35				
Lyr	RZ	90			38	41	43	45	47	50	52	54	56	59	61												37	39	41	44	46	48	50		53			
Lyr	UZ	S10							58	53s	47	42s														60	55s	49	44s	38								
Lyr	CN	90		43		48		54	60	42		48		53			59	41		47		53			58	41		46			58	40			46			
Lyr	EZ	RR		50	55							38	43	48	53	59								41		46	52	57	62					39	44			
Lyr	IO	90				46			50				38	54				42	58		46	61			50			39			54		43	58				
Lyr	beta	S10	3	53						0s							47							94s					41									
Mon	UX	E10S	2																																			
Mon	VV	E10S	2																																			
Mon	AR	L10	1																																			
Mon	AV	E10S	2																																			
Mon	IL	E10S	2																																			
Oph	U	ST				44					48						51						38s				41s					44s						
Oph	RZ	L10	1																																			
Oph	ST	90												52	42					48	38				43			48	38					44				
Ori	Z	E10S	2			52	42							52	42																							
Ori	BM	E10S	3																																			
Ori	CP	E10S	2																																			
Ori	DN	L10	2																																			
Ori	FO	L10	2																																			
Ori	V1016	L10	2																																			
Peg	U	S10	3	48	60	54s	48	60	54s	47	60	54s	47	60	53s	47	59	53s	47	59	53s	47	59	53s	47	59	53s	47	59	53s	46	59	52s	46	59	52s	46	
Peg	VV	RR		40																54	52	50	47	45		43	41	38	36									
Peg	VW	L10	3																																			
Peg	AV	RR	3			47		42	59		54		50	45		40	57			52		48		43		60	38	55		50		45		41	58	36		
Peg	AW	L10	2	64s					95																													
Peg	BH	90	3					57		49		42						54		47		39				59		52		44		36			57			
Peg	BK	E10S	3																																			
Peg	CG	90	3				58	51	45	38				58	52	45	39								59	53	46	39		60	53	47	40					
Peg	DF	L10	3						39																													
Peg	DH	RR	2	55	57	60				43	45	47	50	52	54	56	58	61			39	42	44	46		48	50	53	55	57	59	61	38	40	42	45		
Peg	GH	E10S	3		60				43s					54s																								
Peg	IP	K10	3	55	50	45	56	51	45	56	51	46	57	52	47	42+	52	47		42+	53	48	43+	53		48	43+	54	49	44+	39+	50	45+	39+	50	45+		
Per	RW	L10	2			66																																
Per	RY	E10S	3																																			
JD	590	..		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	



2020 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	46			56	44			54	42		63	52	40		61	50	38		59	48	36		57	46	34		55	44	32	65	53		
And TY L10	1								39	45s		51		58s	64															23\	27			
And S10	3																																	
And XX 90			47		63	36			53		42			58		48			64	37	54				43	59	32		49		65	38		
And CD L10	2		83\	\	89	/	96/																											
And OV 90					60	54	48	43	37			60	54	48	42	42	37					60	54	48	42	37		66	60	54	48	42		
Aqr SW RR	2			60	52	44	36			57	49	41			54		46	38				60	52	43	35		57	49	41	32				
Aqr SX 90	3				35	42	49	56	63				38	45	53	60					35	42	49	56				38	45	53	60			
Aqr CD E10S	3				41					25					9						93				76			60						
Aqr HH 90	2			48	63				50			52			40	55					42	57			44	59	46	61		48				
Aqr LL L10	2	59s										68											77s									86		
Aql AA RR	3	43	51	60		41	49	58		39	47	56		37	45	54		35	43	52			41	50			39	48		37	45			
Aql V341 90	3	49			38	54				43	58		47			36	52					41	56		45		34	50		39				
Aql V889 L10			31s							49					43s							61				55s							73	
Aql V1353 E10S	53				36		48s		60			43		56s			39s		51			34		46s				41		53s				
Aql V1426 E10S	19+	36+	54	13+	30+		48s	7+	24+	42	59s	18+	35+	53s	12+	29+	47	5+	23+	40+	58s	17+	34+	52	11+	28+	46s	4+	22+	39+	57	16+		
Aql V1430 E10S	36s		55	42				48s	35s	54		41			47s	34s						53	40		46s	33s	52	39		45s	32s		51	
Ari X RR	2		63		59		54														61		56			52					63			
Ari RS L10	2				76											56										37					17			
Aur TZ 90					60											61										62	58				63			
Aur CQ L10	2					97						28s					59						90s					21						
Aur IY E10S					53																									67				
Aur V432 E10S	3																55				63													
Aur epsil L10	2																																	
Aur zeta L10	1																																	
Boo RS RR				45			47		35			37			39							41				43				33		35		37
Boo TW 90		38	45	51							37	43										35	41			33		40						
Boo UU 90					50	42					44		36			47	38							41	32			44	35					
Boo AC E10D	44s	50s	38	44	50		38s	44s	49s	37	43	49	37s	43s	48s	37	42	48	36s	42s	48s	36	41	47	35s	41s	47s	35	41	46	34s		40s	
Boo CM 90											36														37		37							
Boo CQ 90	3	36					43		40		38					35								37		34		32						
Boo CS 90						35																											36	
Cam SS E10S	3	81s			22		63s			5		46s		87			28s		69			10s		51		93s			34		75s			
Cam SV S10			53s	42	60	49s	38	57	46s	35+	53	42s	61s	50	39s	57s	46	35+	54s	43	61		50s	39	58	47s	36+	55	43s	32+	51	40s	59s	
Cam AK E10S										41s	52	64s																34	45s	57				
Cam AN L10	3									36s						1																36s		
Cam AT E10S	3	40		49s		59			38		47s		57			36		45s		54			64s	34		43s	52		62s	32		41s		
Cnc S L10																																	38	
Cnc RU L10	2																												18					
JD 590 ..		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	93		

2020 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 RZ	L10	2																							83\ \	46	/	8/						
Cnc TU	E10S	3																																
Cnc TW	L10	2																							\									
Cnc UU	L10	2																																
Cnc ZZ	L10	2																																
CVn W	90			44					41				38													41							38	
CVn Z	90							42	39			35																39	35			31		
CVn RZ	90											41				38									33									
Cas RX	L10	2		85s			/	/									\	\				1		/	/									
Cas RZ	S10	3					48						46						44	63					41	61					39	58		
Cas SX	L10	2																			8\	91	/	74/										
Cas TV	S10							56	37								62	43										50	31					
Cas TW	S10	3	45						59				45												45							59		
Cas TX	E10S	3						61				54			47			39										64s					56s	
Cas AQ	L10	2	46\	52	57/				32\	38s	43/				19\	24	29/					5\	10s	15/			91\	96	/	1/				
Cas BM	L10	3											44s	60													\							
Cas DN	E10S	3		35		51s																						46	62s					
Cas GG	E10S		60					36																	40									
Cas GU	E10U																38								47		56			66				
Cas IL	E10S	3	48						38																		64							
Cas IT	E10X							56				45	60s			35	50s							40s										
Cas OX	E10X	54					52				50					48	64s							46	62s			44	60s				41	
Cas PV	E10X						59s	42	34s				60s	43	35s								60s	43	35s				60s	43	35s			
Cas V368	E10S	3					48s									38s		61									51							
Cas V375	E10D		62s	35	56s			51s				46s		41s			62	35s	56					51		46		40	61s	35				
Cas V381	E10X	3	63s	58	38s				62s	57	36s						60s	55	35s					59s	53	33s					57s	52		
Cas V459	L10	3		78s				7					24s								53				99					16s				
Cep RZ	90		60	52	45	38	61	54	46	39	62	55	48	40	64	56	49	41	34+	57	50	43	35	59	51	44	36	60	52	45	38	61	54	
Cep VW	S10		39+	37+	48+	46+	43+	40+	38+	35+	46+	44+	41+	39+	36+	34+	45+	42+	40+	37+	34+	46+	43+	41+	38+	35+	33+	44+	42+	39+	36+	34+	31+	
Cep XX	S10							48																50					51					
Cep XY	E10S							57				35												44										
Cep ZZ	S10										35		49	63													34		48	62				
Cep AI	E10S	3					36		47s	59																	38s	49	60s					
Cep CW	E10X	3			42s			61			34	61s		34s							53				53s						45			
Cep EI	L10	3			59			81s					3					25s					47			69s		91						
Cep EX	L10	2		69														13															56	
Cep NN	E10S																							32	35s	37	40s	43	46s	49	52s	55	58s	
Cet RR	RR	2			56						54	64			51	62					49	60					47	58				45	55	
Cet RV	90	2		63				61					60						59						57				56					
JD	590	..	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	93	

2020 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 TU E10S	2		99					38				77					16					55			94						33		
Cet TV L10	2	79					29s				90				39s					0				49s					10				
Cet XY E10S	2		62s								57						53s											65s					
CrB U S10																											36						
CrB RV 90	3	41	40	40	39	39	38	38	37	37	36	36	35	35	34	34	33	33															
Cyg Y S10		45	43s	45			43s	45		43s	44		42s	44		42s	44	42s	43			41s	43		41s	42			41s	42	40s	42	
Cyg YY RR		52				44	56			37	49	61		41	53		65	34	46	58				38	50	63			43	55			
Cyg XZ RR		47	40				60	53	46	40			60	53	46		40	33		60		53	46	40	33		66	60	53	46	40	33	
Cyg BO E10S		56	44s							59	47s	34			61		49s	37					64	51s	39				66	54s	42		
Cyg BR E10S		35s		35		35s		35		35s			34		34s		34			34		34s		34		34s		33		33s	67s	33	
Cyg DM RR	3		54	38		48		58	42		52	36	62	46		56	40	50	34	60		43		53	37	63	47		57	41	67	51	
Cyg EM K10	2	37	54	41	57	44	61	48	35+	52	39	55	43	59	46	34+	50	37	54	41	57	44	32+	48	35	52	39	55	43	59	46	34	
Cyg V367 L10	2		\	\	49s	/	/	/	/	79	/	/	/	/	/	/	/	/	/	/	/	/	/	9s	/	/	/	/	/	/	/	/	
Cyg V463 E10S			38s	43	49s	55	61s															43s	49	55s	61								
Cyg V477 E10X			45			50s				49			54s				53			58s					57		62s			61	31s		
Cyg V541 L10	3						75								78s									9							12s		
Cyg V548 E10S	3	56s	47	37s							59s	49	39s									62s	52					64s	54	45s		35	
Cyg V788 L10	3																						93\	88	84/								
Cyg V891 E10S															58		48		39														
Cyg V909 E10S				56				36				57s		38s					59			39			60s			40s					
Cyg V1061 E10S											35						39							43								47	
Cyg V1918 E10D		37+	41+	44s	47	51s	54	37+	40+	43+	46s	50	53s	36+	39+	42+	46	49s	52	35+	38+	41+	45+	48	51s	34+	37+	40+	44+	47s	50	33+	
Del DX 90	3			61	55	50	44	39				64	59	53	48	42	37				62	57	51	46	40	35			60	55	49		
Dra RW RR		50	39	60	49		37		59	47	36		58	46	35		56	45	33	55		43	32	65	53	42		63	52	41		62	
Dra SU RR		39		37		36					64		62		60		58		56		55		53		51		49		47		45		
Dra SW RR			42	56			41	55		40		54		39	53				38	52	65		36	50	64		35	49	63		34	48	
Dra TZ E10D		41		58s	44s		61	47	34	64s	50s	37s		53	40		57s	43s		60	46	33	63s	49s	36s		53	39		56s	42s		
Dra VZ 90		53	49	46	42	38	35	63	59	56	52	48	45	41	37		62	58	54	51	47	43	40	36	32+	61		57	53	50	46	42	38
Dra WW S10	2					36									62														51				
Dra XZ RR	3	35					60	55	50	45	41	36					60	55	51	46	41	37	32		65	61	56	51	47	42		37	
Dra AI S10			46					46							45													44					
Dra BF L10			58s						37											58												80	
Dra BK 90		37	56			52			48			44	62		40	58		36	54			50			46	65		42	61		38	57	
Dra BU E10S																								36									
Dra DD 90		52	50	48	46	44	42	40	38	36	34		63	61	59	57	55	53	51	49	47	45	43	41	39	37	35	33+	64	62	60	58	
Dra EX K10	3	48	53	37+	42+	47	52	36+	41+	46	51	35+	40+	45	50	34+	39+	44+	49	33+	38+	43+	48	32+	37+	42+	47	52	35+	40+	45+	50	
Dra GV L10	2																								53								
Equ S S10								45																								50	
Eri SV 90	2						63					63					62					62					62					61	
JD 590 ..		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	93	

2020 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 U	K10																									65		65			66		
Gem RR	90												64	63			61																
Gem RY	L10 2																				23s				88					53s			
Gem WW	E10S 3																								64			60					
Gem YY	S10																64s									60s	64	67s					
Gem OW	L10 2																																
Gem V339	E10U 2																									59							
Her TW	RR 3		47		47		47		47		46		46		46		46		46		45			45		45		45		45	44		
Her TX	S10																									32	35s	38	41s	44	47s	50	
Her UX	E10D				42s		52s					39		49				36s				46s				33		43					
Her VX	RR 3			46	37				47	38				48	39											40		40		41	32		
Her VZ	90	41		49	37		58	46	34		54	42		50		38		46	34				55	43		51	39		47		35		
Her AK	S10	38	43s	49	38s		44	49s	39	44s		49	34	39s	44	50s		34s	40	45s		35		40s	45	35s	40	46s	36	41s	46	31	
Her AR	90		60	54	48		42	36				53	47	41	35										46	40	34		51	45	39	33	
Her AW	L10 3			65									46												26						6		
Her DI	L10 3						99s		41								54s	96										9s	51				
Her GU	E10U						49s				36						35												80		38		
Her LV	L10 2																																
Hya AI	L10 2																																
Lac RW	L10 3			29					41s						66																	15s	
Lac SW	S10	38+	35+	47+	43+	39+	36+	48	44+	40+	37+	49s	45+	41+	37+	34+	46+	42+	38+	35+	47+	43+	39+	35+	32+	44+	40+	36+	33+	45+	41+	37+	
Lac UW	E10S 3						29					58					87							16				45					
Lac CO	E10X		52		60				42s			51s			59s		40		48				57		65	39s			47s				
Lac CZ	90		52	39	55		41		57	43		59	46	62	48		35	64	51	37			53	40	56	42		58	44	31	60	47	
Lac V345	E10X 2		38		3s				87			52s					36				2s				85			51s					
Lac V364	E10X 3											41s														39							
Lyn TY	E10S 3																																
Lyn CD	E10S 3				61																											63s	
Lyr RR	RR 3	48	61		45		58		42	55				38	52				35	49	62			45	59		42	56		39		52	
Lyr RZ	90	55	57	59	62											35	37	40	42	44	46		49	51	53	55	58						
Lyr UZ	S10								62	57s		51	46s	41	35s													59s	54	48s	43		37s
Lyr CN	90		51		57	39	63	45	51			56	39	44			50		56	38			44	49	32	55	37		43		49	31	
Lyr EZ	RR	50	55	60						37	42	48	53	58	63						35	40	46	51	56	61				33	38		44
Lyr IO	90		47	62	35		51		39	55				43	59				47		36		51		40	55			44			32	
Lyr beta	S10 3				89s				36							83s								30						77s			
Mon UX	E10S 2																																
Mon VV	E10S 2																																
Mon AR	L10 1																																
Mon AV	E10S 2																																
JD 590	..	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	93	





2020 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			
Ser LX	K10	3		37	48	43	38		44	39	34	45	40	35	41	36			42	37		43	38	33	39	34		40	35			36		31			
Tau RW	S10	3																	52										60								
Tau CD	S10	3									64s																		53								
Tau EN	E10S										63s								59s																		
Tau V1094	L10	2		65s				77						63s		75							62s		74					61s							
Tri X	S10	3																										64	61	58	55		53				
Tri RU	E10S	2		59s					49					39s							57				47s						37						
Tri UX	90	3				59	52		46					59	53	46	39				60	53	46	40		60		54	47	40				67			
UMa W	S10										59s	60s	60s	60s	60s	60s	60s	60s	60s	60s	60s	60s	61s	61s	61s	61s	61s	61s	61s	61s	61s	61s	61s	61s	61s		
UMa RV	RR				53	47	40							49	42	36					44	38						46	40	34							
UMa RW	E10S				42												41s																				
UMi W	S10	3	38						49					59							40				50				60								
Vir CG	E10S				36s								38								33s				34												
Vul Z	S10	3			56						47																								57		
Vul RR	E10S	3			58						63																										
Vul BN	90	3	57		35	54			51			48			45				42	61		39	58		36	55		33	52		49						
Vul DR	E10X					46s				59						47s	34								47s	34			59								
Vul EV	E10S	3			49																60																
JD 590	..		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	93		
2020 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		
And SW	RR	3	42		63	51	40		61	49	38			59	47	36	69	57		45	34	67	55	44	32	65	53	42	30	63	51	40	28	61			
And SY	L10	1	32/																																		
And TW	S10	3								31s	37			44s	50	56s				62		68s															
And XX	90			54			44			60	33	50			66	39	55			28		45	61		34		50	67	40		56	29					
And CD	L10	2							27/	\	34s	/	40/																								
And OV	90		37	31		66	60		54	48	42	37	31		66	60	54	48		42	37	31		66	60	54	48	42	37	31	72	66	60	54			
Aqr SW	RR	2	54	46	38				51	43	35					48	40	32						45	37	29		50	42	34	26		48				
Aqr SX	90	3			35	42	49		56			31		38	45	53									35	42	49		31		38	45					
Aqr CD	E10S	3		44						28					12					95						79				63							
Aqr HH	90	2		35	50				37	52			40	54							42				44		31	46		33	48		35	50			
Aqr LL	L10	2																																			
Aql AA	RR				35	43	52			33	41	50			31	39	48	29			37	46				35			33	42			31	40			
Aql V341	90	3			44				33	48			37								42					36			40			29	45				
Aql V889	L10					67s								85								79s						97			91s						
Aql V1353	E10S				36s	49				31	44s					39										46			29		41s						
Aql V1426	E10S		33+	51s	9+	27+	44		3+	21+	38+	56s	14+		32+	50	8+	26+	43s		2+	20+	37+	55	13+		31+	48s	7+	25+	42		1+	18+	36+	53s	12+
JD 590	..		94	95	96	97	98	99																													
JD 591	..								0	1	2	3		4	5	6	7	8		9	10	11	12	13		14	15	16	17	18		19	20	21	22	23	24

2020 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	
Aql V1430 E10S		38			44s	31s			37			43s	30s			36			42s	29s			35			41s	28s			34			
Ari X RR 2		59		54		49			45				66		61				56		52		47			42			68		63	59	
Ari RS L10 2									97										78							58							
Ari AL E10S 3						66					41														40								
Aur TZ 90		58		54			68		63		59		55		51	68			64		60		56		52	69	48	65		61		57	
Aur CQ L10 2		52s					83						15s						46					77s							8		
Aur IY E10S		47											64			43													61			40	
Aur V432 E10S 3				50s		58s			66s												45			53		61				69			
Aur epsil L10 2																																	
Aur zeta L10 1																																	
Boo RS RR				39								31			33				35								27				29		
Boo TW 90			32	38							30	37								29	35						27	33					
Boo UU 90		38					40	32					34							37	28				31					34			
Boo AC E10D		46s	34	40	46	34s	39s	45s	33	39	45	33s	39s	44s	32	38				32s	38s		32	37		31s	37s	31	36		30s	36s	
Boo CM 90				33											30																		
Boo CQ 90 3				34		31										30		28														27	
Boo CS 90						34					32					30																	
Cam SS E10S 3			16			57s	98			39s		81			22s				63			4s		45		86s	27			69s			
Cam SV S10		48	37+	55s	44	33+	52s	41	30+	48s	37+	56	45s	34+	52	41s			30+	49	38+	56s	45	34+	53s	42	31+	50s	38+	27+	46s	35+	54
Cam AK E10S							36s	47	59s										38	49s	61					29	40s	51	63s				
Cam AN L10 3					1																											1	
Cam AT E10S 3		50		60s	30		39s		48			58s		67	37s				46		56s	65	35s		44	54s		63	33s	72s	42		
Cnc S L10									87														35								84		
Cnc RU L10 2								35												52									70				
Cnc RW 90						67						69															63					65	
Cnc RZ L10 2				65\	\		28s	90\							48\			\	10	72\							30\	92s	/	54\			
Cnc TT 90																																63	
Cnc TU E10S 3									8						64																		
Cnc TW L10 2				38\	44	50\																											
Cnc UU L10 2						49s													/	/													
Cnc ZZ L10 2																																	
Cnc AQ 90 3																											70						
CVn W 90					34					31																							27
CVn Z 90																			32		28												70
CVn RZ 90													32								29						27						
CMi AM E10S							18s		/	/																			62	64	66		
Cas RX L10 2			\	\			56													\	\			35		/							
Cas RZ S10 3						37						34	54							32	51					29	49	68			27	47	
Cas SX L10 2																										64\	\	47	/	30\			
JD 590 ..		94	95	96	97	98	99																										
JD 591 ..								0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	

2020 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 TV S10							56		37							62		43							68		50		31					
Cas TW S10 3			45			30						45			30					59			44		30					59				
Cas TX E10S 3				49s			42s			34s							66			59			51		44				37					
Cas AQ L10 2	77	82s	88/					63\	68	74/				49\	54s	60/				35\	40	46/			21\		26s	32/						
Cas BM L10 3																																		
Cas DN E10S 3				40	55s							33	48s	64						42s	57						35s	51	66s					
Cas GG E10S			67						43														47											
Cas GU E10U																	31				40			50				59		68				
Cas IL E10S 3	54									45						35										70								
Cas IT E10X												63					52	67s		42			57s	32			47s				36s			
Cas OX E10X	58s				39		56s			37		54s			35		52s				33	49s			31		47s				29			
Cas PV E10X			60s	43	35s				68	60s		43	35s				69	61s	44	36s			69	61s	44		36s			69				
Cas V368 E10S 3				41			64s							32	54s										45s		67							
Cas V375 E10D		56s		51s					45s	66		40s	61	35s			56	29s		50		71s	45		66s	40		61s	34		56s			
Cas V381 E10X 3	32s						55s	50	30s					54s	48	28s					52s	47	27s				71	50s	45					
Cas V459 L10 3		45					61s			91						7s					36				53s			82						
Cep RZ 90		46	39	31+	55	47	40	33+	56	49	41	34+	57	50	42	35+	28+	51	44	36+	29+	52	45	37+	30+	53	46	39+	31+	55	47			
Cep VW S10		43+	40+	37+	35+	32+	30+	41+	38+	36+	33+	31+	42+	39+	37+	34+	31+	29+	40+	38+	35+	32+	30+	27+	39+	36+	33+	31+	28+	26+	37+			
Cep XX S10					52							54									55													
Cep XY E10S		54			32									64			41												51		29			
Cep ZZ S10									33			47		62											33		47		61					
Cep AI E10S 3														39		50s		61														29		
Cep CW E10X 3			44s				64			36		63s			36s			55				28	55s		28s					47				
Cep EI L10 3			13s				35					57s				79					1s				22				44s					
Cep EX L10 2														99														43						
Cep NN E10S	61	64s	67																							28s	31	34s	37	39s	42			
Cet RR RR 2	66			42	53		64			40	51	61		48			59	70			46	57	67		44		54	65		42				
Cet RV 90 2		55			67		54				65		52		64			51			63			50				62		49		60		
Cet TU E10S 2			72						12				51				90					29			68						7			
Cet TV L10 2		60s					21					70s					31				80s				41						90s			
Cet XY E10S 2				60								55s							50				68s		46s					63				
Cyg Y S10		40s	41		40s		41		39s	41		39s	40		38s	40		38s	39		38s	39		37s	39		37s	38		37s	38			
Cyg UY RR	35	48	60				40	52			33	45	57			37	49				30	42	54		34	46	59		27	39	51			
Cyg XZ RR		66	59	53	46		39	33		66	59	53	46	39	33		66	59	53	46	39	33		66	59	52	46	39	32	26	66			
Cyg BO E10S							56s	44	32s					59s	47	35s						61s	49	37s				64s	52	40s	27			
Cyg BR E10S	66	33s	66s	33	66		33s		33	33s			33		32s		32		32s		32			32s		32	32s		32		32s			
Cyg DM RR 3	35	61	45		55		39	65	49	33	59	43		53	37	63	47	31	57	41			50	34	60	44	28	54	38		48	32		
Cyg EM K10 2	50	37	54	41	57		44	32	48	35	52	39	55	43	30	46	34	50	37	54	41			28	44	32	48	35	52	39	26	43	30	
Cyg V367 L10 2	38	/	/						\	\	68s		/	/				\	\	98			/	/				\	\		28s			
JD 590 ..		94	95	96	97	98	99																											
JD 591 ..								0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		

2020 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 V463 E10S							32	37s	43	49s	55													31s	37	43s	49									
Cyg V477 E10X					30			35s				35			40s			39				44s			43			48s								
Cyg V541 L10 3								43							46s								77					80s								
Cyg V548 E10S 3							67s	57	47s	38						69s	60	50s	40	30s					62	53s	43	33s								
Cyg V788 L10 3															85s		81	76s																		
Cyg V891 E10S					54		45		35																50		41	32								
Cyg V909 E10S					42							43s						45							46s			26s								
Cyg V1061 E10S								51							55								59				28	63								
Cyg V1918 E10D		36+	40+	43+	46+	49s	32+	35+	39+	42+	45+	49	31+	34+	38+	41+	44+	48s	30+	34+	37+	40+	43+	47	29+	33+	36+	39+	43	46s	28+					
Del DX 90 3		44	38	33					53	47	42	36	31				51	45	40	34		29					49	43	38	32	27					
Dra RW RR		51	39		61	49	38		59	48	37		58	47	35		57	45	34		55	44	32		54	42	31	52	41	30						
Dra SU RR		43		41	40			38		36	68	34	66	32	64	30	62	28	60		58		57		55		53	51	49							
Dra SW RR		62		33	47	61		31	45	59		30	44	58	29		43	57		28	42	56	70	27	40	54	68	39	53	67						
Dra TZ E10D		59	45	32	48s		35s		52	38		55s	41s		58	44	31		48s	34s		51	37		54s	40s	27s		43	30						
Dra VZ 90		35	31+	59	56	52	48	45	41	37	34	30	58	55	51	47	43	40	36	32	29	57	53	50	46	42	39+	35	31	28	56					
Dra WW S10 2												40													66		29									
Dra XZ RR 3		33			66	61	57	52	47	43	38	33			67	62	57	53	48	43	38	34	29		67	63	58	53	48	44	39					
Dra AI S10		43						43						42													41									
Dra BF L10												1						42s						22				63s								
Dra BK 90			35	53		31	49	67		45	63		41	59	37		55	33	52	70		29	48	66	44	62		40	58							
Dra BU E10S											50		42s	33																						
Dra DD 90		56	54	52	50	48	46	44	42	40	38	36+	35+	33+	31+	29+	59	57	55	53	51	50	48	46	44	42	40	38+	36+	34+	32+					
Dra EX K10 3		34+	39+	44+	49	33+	38+	43+	48	32+	37+	42+	47+	31+	36+	41+	46+	30+	35+	40+	45+	29+	34+	39+	44+	28+	33+	38+	43+	27+	32+					
Dra GV L10 2																																				
Equ S S10								37																												
Eri SV 90 2						61					61					61										60		60								
Gem U K10				67		61	67		62	68		63	69		64	70	58	64	70	59	65	71	60	66		60	67	55	61	67	56					
Gem RR 90					68		67		66	64			63	61			60		59	57				56		55	53	52	71	51						
Gem RY L10 2				18				84s					49						14s				79				44s									
Gem WW E10S 3		55			64s					59s		69		54s			64		50s			59		68s		54		64s								
Gem YY S10						59	63s		66					55			59s		62	66s		69		54s		58		61s								
Gem OW L10 2																																				
Gem V339 E10U 2																	63																			
Her TW RR 3		44		44		44	44		44	43		43	43		43		43		42			42		42		42		42	41							
Her TX S10																											27	30s	33	36s	39					
Her UX E10D					40s							37							34s						31			40								
Her VX RR 3				42	33					34					35										36		37	28					29			
Her VZ 90				44	32		40			48		36			44	32						41	29			37		33		41	30					
Her AK S10		36s	41		31s	36	42s		31	37s	42		32s	37			32	38s			33s	38		28s	33	39s		28	34s							
JD 590 ..		94	95	96	97	98	99																													
JD 591 ..							0	1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				

2020 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		
Her AR 90						50	44	38	32					49	43	37	31						42	36	30						41			
Her AW L10 3								86									66							46										
Her DI L10 3								64s		6								19s		61								74s						
Her GU E10U												41											27s											
Her LV L10 2																	23																	
Hya AI L10 2									49					20s			78								7			77s						
Lac RW L10 3					40					52s					77										14					25s				
Lac SW S10	33+	46+	42+	38+	34+		31+	43+	39+	35+	31+	44+	40+	36+	32+	29+	41+	37+	33+	30+	42+	38+	34+	30+	27+	39+	35+	31+	28+	40+	36+			
Lac UW E10S 3	74							3														61			90						19			
Lac CO E10X	56s	36			64s	45			53			62	35s			44s						52s	33		61s	41	69s	50			58	32s		
Lac CZ 90	33	63	49	36	65		52	38	68	54	41		57	43	29	59	45	32	61	48	34				64	50	37	66	53	39	26+	55	42	28+
Lac V345 E10X 2	35		00s						84			49s					33															48s		
Lac V364 E10X 3			46s											44																				
Leo RR RR																										69				67				
Lyn TY E10S 3			57														56															56		
Lyn CD E10S 3															56										66									
Lyr RR RR 3			36	49	63			33	46	59		29	43	56			40	53			36	50							30	43				
Lyr RZ 90					31		34	36	38	40	43	45	47	49	51														27	30	32	34	36	
Lyr UZ S10	32														56	50s	45	39s	34	29s														
Lyr CN 90	54	37	42				48	30	54	36		42		47	30		35		41	47		29		35		40		46	28		34			
Lyr EZ RR	49	54						31	36	42		47	52						29	34	40	45	50						27	32	38			
Lyr IO 90	48			36	52			40				29	44			33	48								41			29	45			33		
Lyr beta S10 3			24							71s															65s							12		
Mon UX E10S 2														91				18							86s		81		72			67s		
Mon VV E10S 2				68				71s		73							78								84			86s				89		
Mon AQ E10S 2																	68															68s		
Mon AR L10 1														69	54s	39/										30	99/							
Mon AV E10S 2				56					4s			51				98s					46		93s								88s			
Mon EZ E10U 2					67				68			69																				62s		
Mon IL E10S 2												34			36															44				
Mon V448 E10S 3				64						68s																66				57s	69s			
Mon V530 E10U 2							68					62s	67s				62	67						61s	66s	71s		60	65	70				
Mon V634 E10U 3																									68									
Oph U ST				35s						38s																								
Oph RZ L10 1																																		
Oph ST 90	31					37					32																						33	
Ori Z E10S 2			33					53						73								94										34		
Ori BM E10S 3	60								7						54																	49		
Ori CP E10S 2						92						24					56															20		
JD 590 ..	94	95	96	97	98	99																												
JD 591 ..							0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			

2020 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	
Ori DN L10 2						27													24														
Ori EW E10X 3																	67s						61s								55s		
Ori FO L10 2									21																		1						
Ori FT E10X 3														54s	59																		
Ori GG E10X 2																			65														
Ori V536 E10S 2							67																		65								
Ori V1016 L10 2																			27														
Ori V1031 E10S 2											67																		70				
Peg U S10 3		32+	44+	38+	31+	44+	38+	31+	44+	37+	31+	43+	37+	31+	43+	37+	31+	43+	37+	31+	43+	37+	30+	43+	36+	30+	43+	36+	30+	42+	36+		
Peg VV RR 3		43	41	38	36	34	31					64	62	59			57	55	52	50	48	45	43	41	38	36	34	31	29	27			
Peg VW L10 3			13																														
Peg AV RR 3		37	54	32	49		44	62	40	57	35	52	30	47		42	59	38	55	33	50	28	45		40	57	35	53	31	48	26		
Peg AW L10 2				37s					68					99s						31				62s								93	
Peg BH 90 3			54		46		39	67	31	59		51		44		36	64	28	56		49		41		33	62		54				46	
Peg BK E10S 3								54		29s												27s										50	
Peg CG 90 3		44	37	31		64	58	51	44	38	31			58	52	45	39	32			59	52	46	39	33			60	53	46	40		
Peg DF L10 3				18															88														
Peg DH RR 2		39	41	43	45	47	50	52	54	31+	33+	35+	37	39	42	44	46	48	51	53	29+	32+	34	36	38	40	43	45	47	49	26+		
Peg GH E10S 3					50				33s	61				45s					28	56s				39					51				
Peg IP K10 3		41+	36+	31+	41+	36+	31+	42+	37+	32+	43+	38+	32+	43+	38+	33+	28+	39+	34+	29+	39+	34+	29+	40+	35+	30+	41+	35+	30+	41+	36+		
Per RW L10 2							66														86												
Per RY E10S 3							54s							41s																		57	
Per AG E10X 3																					39	42	37s	45	40s	48	43s	50	46s	53	49s		
Per AR 90 3		44		57	42		54	40	67	52	37	65	50	35	63	48	33	61	46		59	44		57	42	69	55	40	67	52	38		
Per AY L10 3										14											91												
Per IQ E10X 3					52s	48						49s	46				69	47s	43					70s	66	44s	41				67s		
Per KN E10U 3		58s	45s		61	48	64s	51s	38s	68		54	41		58s	44s	61	48	34	64s	51s	37s	67	54	41	71s	57s	44s	31s	61			
Per LX L10 3					46				48s								52s							55s					57				
Per beta S10 3					49s		36s				66				52		39							56s			43s			29s			
Psc RU 90 3		64	42	59	38	55	33	50	67	45	62	40	57	35	53	31+	48	65	43	60	38	55	33	50	28+	46	63	41	58	36	53		
Psc RY 90 2		52	57	63					40	46	52	58	64				35	41	47	53	59							35	41	47	53	59	
Psc SS 90 3		46	61	48	34+	49	36+	51	37+	52	38+	54	40+	55	41	56	43	58	44	31+	46	32+	47	33+	49	35+	50	36+	52	38+	53		
Sge SY E10S 3				46							54			30s														46s					
Ser AN 90 3											31	35										27	32										
Ser BH 90 3				31			35							31										30									
Ser EG L10 3		66					63s					60					58s										52s						
Ser LX K10 3			37	32		38	33			34	29			35	30		31				32						30			31	26		
Tau RW S10 3									67					44																			
Tau CD S10 3										55s																58							
JD 590 ..		94	95	96	97	98	99																										
JD 591 ..								0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	

2020 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	
Tau EN E10S				65					61					57					52					48							67s		
Tau V1094 L10 2	73								60s		72						59s		71					58s						70			
Tri X S10 3	50	47	44	41	38				35																					70	67	64	
Tri RU E10S 2	64								54s			45					35s		62s					52							43s		
Tri UX 90 3	61	54	47	41	34				68	61	54	48	41	34		68	61	55	48	41	35	28	68	62	55	48	42	35	29	69	62	55	
UMa W S10	62s	62s	62s	62s	62s		62s	62s	62s	62s	29+	29+	29+	29+	63s		63s	63s	63s	63s	63s	63s	63s	63s	47+	47+	47+	47+	48+				
UMa RV RR			42	36							44					38	32			40	34			68				36	29	70	63		
UMa TX S10														65																			
UMi W S10				41							51						31							42						52			
Vir CG E10S											31																						
Vul Z S10 3					48						39																						
Vul BN 90 3	46			43					40		37			34	53		31	50		29	47			44			42			39			
Vul DR E10X	47s	35	60								48s	35								48s	35								48s	36			
Vul EV E10S 3			53						36															29									
JD 590 ..	94	95	96	97	98		99																										
JD 591 ..							0	1	2	3		4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	19	20	21	22	23	24
2020 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	49	38	26+	59	47		36	68	57	45	34	66	55	43	32	64	53	41	30	62	51	39	28	60	49	37	26	58	47	35	24	57	
And SY L10 1			13	18			23/																										
And TW S10 3											29s			36	42s		48	54s	60														
And XX 90	46		62	35			51		68	41		57	30	74	46		63	36		52	25	69	42		58	31		47		64	37		
And CD L10 2											71\			78	/	85/																	
And OV 90	48	42	37	31	25+		66	60	54	48	42	37	31	25+	66	60	54	48	42	36	31	25	66	60	54	48	42	36	31	25	66	60	
Aqr SW RR 2	39	31					45	36	28					42	34	25			39	31	23				36	28				41	33	25	
Aqr SX 90 3		27	35	42	49						31	38	45						27	35	42				24	31	38						
Aqr CD E10S 3	47						30					14			98										66						49		
Aqr HH 90 2			37				25	39		27		42		29	44				31	46				33			35		22	37			
Aqr LL L10 2	13s											21											30s										
Aql AA RR		29	38				27	36		25		34			32		40		30	38					28	36		26	34		24	24	
Aql V341 90 3		34					38			27	43				32			37							30				35				
Aql V889 L10				9						3s						21												33			28s		
Aql V1353 E10S	37						32s	44				27	39s						34						30s				25	37s			
Aql V1426 E10S	30+	47	6+	24+	41+		59s	17+	35+	52	11+	29+	46s	5+	22+	40+	57	16+	34+	51s	10+	28+	45	4+	21+	39+	56s	15+	33+	50	9+	26+	
Aql V1430 E10S		40s	27s				33			39s	26s			32			38s	25s			31				37s	24s		30			23s		
Ari X RR 2	54		49		45		40	70	36	66		61		56			52		47		42			38	68	33	63	59		54	49		
Ari RS L10 2				38										19									99								79		
Ari AL E10S 3					64						39																						
JD 591 ..		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	



2020 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		
Aur TZ	90		53	70	49	66	44	62		58		54	71	49	67	45	63	41	59		54	72	50	68	46	64	42	59	38	55	73	51		
Aur CQ	L10 2		39s						70						1s						32				64s						95			
Aur IY	E10S									57				37								75			54			33						
Aur V432	E10S 3						40s			48s				56s		64s				73s				35			43			51				
Aur epsil	L10 2																																	
Boo zeta	L10 1																																	
Boo RS	RR	31											26		27												22	73		24	74			
Boo TW	90				25	32							24	30							75	29							74	27				
Boo UU	90				28						30					24										75							24	
Boo UY	90																												74					
Boo AC	E10D		30	36		29s	35s		29	35		29s	34s		28	34	75	28s	34+	75s	27	33+	74	27s	33+	74s	27	32+	73	26s	67s	73s		
Boo CM	90																													76				
Boo CQ	90 3												24																					
Cam SS	E10S 3	10		51s		92				33s	74			15s	57		98s			39			80s		21		62s			3				
Cam SV	S10	43+	32+	50	39+	28+	47	36+	25+	43+	32+	51s	40+	29+	47s	36+	25+	44+	33+	51	40+	29+	48	37+	26+	45+	34+	22+	41+	30+	49s	38+		
Cam AK	E10S					31s	42	53s	65						33		44s	56	67s					24	35s		46	58s	69					
Cam AN	L10 3											36s					1																	
Cam AT	E10S 3		52s		61	31s	70s	40		50s		59	29s	68s	38		47s		57	27s	66s	36		45s		55	25s	64s	34	74	43s			
Cnc S	L10									32											81								29					
Cnc RU	L10 2							87													4									21				
Cnc RW	90		58	67						59	69		61				71				54	63	73				56	65	75					
Cnc RZ	L10 2						12\	74	/	37\							94\	\	56s	/		19\						76\	\	39				
Cnc TT	90				70				64				59	71			66					60	73			55	67			62	74			
Cnc TU	E10S 3	33					89						45						1					57					13					
Cnc TW	L10 2											\	\	\										82										
Cnc UU	L10 2																																	
Cnc ZZ	L10 2																																	
Cnc AQ	90 3			67						70						64	73					67					61	70					64	
CVn W	90															72	28				69	24					76						72	
CVn Z	90		67			28												71		67		63												
CVn RZ	90																23							74				72						
CMa R	S10 2				72s				70					67s			65									74				71s				
CMi AM	E10S	68	70	72																														
Cas RX	L10 2				\	\				52s		/	/									\	\			69		/	/					
Cas RZ	S10 3	66				25	44	64					42	61								39	59				37	57	76			35	54	
Cas SX	L10 2																																	
Cas TV	S10					56		37							62		44		25															
Cas TW	S10 3		44			30	73			58			44		30												44		30	72			58	
Cas TX	E10S 3	30				69s			61s			54s			47s						39s						25s	71					56	
JD 591	..	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		

2020 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 AQ	L10	2	7	12	18/		93\	96s	/	4/		79\	85	90/			65\	71s	76/			51\	57		62/					37\	43s		
Cas BM	L10	3													/																		
Cas DN	E10S	3			28s	44	59s					37	53s	68			30	46s	62				24			39s	55	70s					
Cas GG	E10S							50				26										54				29							
Cas GU	E10U																24					34		43			52			62			
Cas IL	E10S	3	61							51							41						32								22		
Cas IT	E10X				26s												70					59			49		64s	39			54s		
Cas OX	E10X		45s			27	43s			24	41s	73					39s	71				37s	69			35s	67				32s		
Cas PV	E10X		61s	44	36s		69	61s	44	36s			69	61s			44	36s				69	61s	44	37s			70	62s	45	37s		
Cas V368	E10S	3			35s	58						25s		68	61s		70s					38	61s										
Cas V375	E10D		29	50s	71		45s	66	40s		61	34s	55	29s			50	24s	71s	45		66s	39	60s	34		55s	29	76		50s		
Cas V381	E10X	3		69	49s	44			73s	67		47s	42				71s	66	46s	40			69s	64	44s	39				68s	63		
Cas V459	L10	3	99s				28			45s				74					91s				20				36s				66		
Cep RZ	90		40+	32+	25+	48	41+	34+	26+	50	42+	35+	27+	51	43+	36+	29+	52	45	37+	30+	53	46	39+	31+	24+	47	40+	32+	25+	48	41+	34+
Cep VW	S10		34+	32+	29+	27+	38+	35+	33+	30+	28+	25+	36+	34+	31+	28+	26+	23+	35+	32+	29+	27+	24+	36+	33+	30+	28+	25+	23+	34+	31+	29+	26+
Cep XX	S10		57				25	59				38			26		60					27	61					28		62			
Cep XY	E10S							61										71				48			26								
Cep ZZ	S10								32			46		60	74									31			45	59		74			
Cep AI	E10S	3	40s		52		63s												30s			42		53s	64								
Cep CW	E10X	3		46s			66			39	65s			38s			57					30	57s		30s	76		49	75s				
Cep EI	L10	3	66				88s					10			32s			54					76s				98						
Cep EX	L10	2									86													30									
Cep NN	E10S		45s	48	51s	54	57s	60	63s	66	69s	72	74s																24	27s	30		
Cet RR	RR	2	52	63		39	50	61		37	48	58		35			45	56		33		43	54		30	41	51		28	39			
Cet RV	90	2	47		59		46		58			45		56			43		55			42		54		41		53					
Cet TU	E10S	2			46			85				25					64					3			42				81				
Cet TV	L10	2			52				1s			62						11s				72				21s						83	
Cet XY	E10S	2	41				58s					53												65		43					61s		
Com S	90								73										70							74		67					
CrB U	S10			34							24																						
CrB RV	90	3																				32	32	31	31	30	30	29	29	28		28	
Cyg Y	S10		36s	38		36s	37	36s	37		35s	36	35s	36			35s	36		34s		35		34s	35		34s	35		33s	34		
Cyg UY	RR			31	44	56		36	48			29	41	53			33	45				26	38	50		30	43		23		35		
Cyg XZ	RR		59	52	46	39	32	26	59	52	46	39	32	26	59	52	45	39	32	25			59	52	45	39	32	25		52	45		
Cyg BO	E10S				54		42s	30				57	45s	32								35	23s				50s	37	25s				
Cyg BR	E10S		31		31s		31	31s	31			31s	31				31s	30		30s		30		30s		30	30s	30					
Cyg DM	RR	3	58	42	26	52	36	46	30	56	40	24	50	34	44		28	54	38	48		32		41	25	51	35	45	29		39		
Cyg EM	K10	2	46	34	50	37		41	28	44	32	48	35	39	26	43		30	46	34	37		24	41	28	44	32		35	23	39	26	43
Cyg V367	L10	2	/				\	\	58	/	/						\	\	88s	/	/				\	\		18	/	/			
JD 591	..		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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Cyg V463 E10S												25s	31	37s	43	49s														25	31s	37	
Cyg V477 E10X			47			52s				51							25s					24			29s			29			34s		
Cyg V541 L10 3									10						14s									44							47s		
Cyg V548 E10S 3				65	55s		45	36s	26						58s	48	38s	29							51	41s	31						
Cyg V788 L10 3									78	73		69																					
Cyg V891 E10S										49s			29s				47		37	28													
Cyg V909 E10S			47			28																						32s					
Cyg V1061 E10S				32		67					36						40								44							48	
Cyg V1918 E10D		32+	35+	38+	42s	45	28+	31+	34+	37+	41	44s	27+	30+	33+	37+	40s	43	26+	29+	32+	36+	39	42s	25+	28+	31+	35	38s	41	24+	27+	
Del DX 90 3						47	41	36	30	25					45	39	34	28	23					43	37	32						26	
Dra RW RR			51	40	28+		50	38	27+	48		37	26+	47	36		24+		46	34	23+		44	33	66		43	31+	64	42	30+		
Dra SU RR			47		45		44		42	40		72	38	70	36	68	34	66	32	64	30		62	29	61	27	59	25	57	23	55	53	
Dra SW RR			38	52	66		37	51	65	36		49	63	34	48		62		33	47	61		75	32	46	60	74	31	45	58	72	29	43
Dra TZ E10D		47s	33s		50	36			39s	26s		42	29		46s	32s		49	35				38s	25s		42	28		45s	31s		34	
Dra VZ 90		52	49	45	41+	37+	34	30	26	51		47	44	40+	36+	33+	29	25		50	46		42+	39+	35+	31+	28	24		45	41+	38+	
Dra WW S10 2					54													43										69					
Dra XZ RR 3		34	30	25+	68	63	58	54	49	44	40	35	30	25+	68	64	59	54	50	45	40		35	31	26+	69	64	60	55	50	45	41	36
Dra Al S10			40						40						39														38				37
Dra BF L10					43										64														85				27s
Dra BK 90		36	54	73	32	50	69	28	46	65	24	42	61		38	57	75	34	53	71	30	49	67	26	45	63	22	41	59	37		55	
Dra BU E10S						39s			30																					36s	27		
Dra DD 90		30+	28+	26+	57	55	53	51	49	47	45	43	41+	39+	37+	35+	33+	31+	29+	27+	25+	23+	54	52	50	48	46	44	42+	40+	38+	36+	
Dra EX K10 3		36+	41+	25+	30+	35+	40+	45+	29+	34+	39+	44+	28+	33+	38+	43+	27+	32+	37+	42+	26+	31+	36+	41+	25+	30+	35+	40+	24+	29+	34+	39+	
Dra GV L10 2																																	
Equ S S10		43								30																							
Eri SV 90 2						59			45	59				45	59				44	59					44	58			44	58			
Gem U K10		62	68	56	63	69	57	63	52+	58	64	53+	59	65	53+	59	66	54+	60	66	55+		61	49+	55+	62	50+	56+	62	51+	57+	63	52+
Gem RR 90		70	49	68	48	67		66	64			63	62	60			59		58				56	75	55	74	54	73	52	71	51	70	49
Gem RY L10 2		9				74s					39				4s											34s			99				
Gem WW E10S 3		49	73		59s		44	68		54s				63	49s		73s		58	44s		68s		54			63s	49	73			58s	
Gem YY S10		65		69s	50s	72	54		57s	61			64s	46s	68	49	71s	53s	75	56		60s		64	45	67s	49s	71	52	74s	56s		
Gem OW L10 2											68				56																		
Gem V339 E10U 2																																	
Her TW RR 3		41		41		41		41		40		40		40		40						40		39			39						
Her TX S10		42s	45																											23	26s	29	
Her UX E10D			28s			37s				25				34														28					
Her VX RR 3						30				31							23						23				24						25
Her VZ 90				38	26			34				30			39	27			35	23			31				27			36	24		
Her AK S10		29s	34			29	35s		30s	35		25s	30				25	31s			26s	31			26			27s					22s
JD 591 ..		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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Her AR 90		35	29						40	34	28						39	33	27+						32	26+										
Her AW L10 3					26								6									86									66					
Her DI L10 3		16								29s		71									84s		26								39s					
Her GU E10U							30s																													
Her LV L10 2					67																				11											
Hya SZ 90 2													67				74						65	73					64	71						
Hya WZ 90 2																					72						71									
Hya AI L10 2				36				6s				65				35s				94				64s					23		93s					
Hya ET 90 2			70										67		72									64			69	75								
Lac RW L10 3						50					62s					87						99s					24				36s					
Lac SW S10		32+	28+	25+	37+	33+	29+	26+	38+	34+	30+	26+	39+	35+	31+	27+	24+	36+	32+	28+	24+	37+	33+	29+	25+	22+	34+	30+	26+	23+	35+	31+				
Lac UW E10S 3				48					77						6									64						93						
Lac CO E10X		67	40s		49s		29		57s	38		65s	46		74s	55			28s		63	37s				72	45s	26		53s	34	62s	43	70s		
Lac CZ 90		58	44	30	60	46	33	62	49	35	65	51	38	24+	54	40			27	56	43	29	59			45	31	61	47	34	63	50	36	23	52	39
Lac V345 E10X 2		31		97s					81			46s							30		95s				79		44s							28		
Lac V364 E10X 3							50										57s													55						
Leo RR RR				64				71	62				69	59					67				74	64			71	62					69			
Leo ST RR																			73	69									73	68						
Leo WY E10S				72					71				69											67				65								
Leo AG E10S														71s																67s						
Leo AM S10							69s	71		72s		73	74s				75	67s	68				69s	70		72s		73	64s	74s	65		75			
Lyn TY E10S 3													55																	55						
Lyn CD E10S 3		48s									58s									40		68s					50									
Lyr RR RR 3			27	40	54			37	50			34	47			31	44												34	48						
Lyr RZ 90		39	41	43	45	48												23	26	28	30					32	35	37	39	41						
Lyr UZ S10			52s	47	42s	36	31s	25															44s	38	33s	27	22s									
Lyr CN 90			40		45	28		33		39		45	27		33		38												31		37					
Lyr EZ RR		43	48						25	30	36	41	46							23	29	34				39	44									
Lyr IO 90					37			26	41			30				34												26	42				30	34		
Lyr beta S10 3							59s							6																				0		
Mon UX E10S 2			62			57s			52			48s		43			38s										29s		24			19s				
Mon VV E10S 2		91s			94				96s		99				1s			4									9		11s			14				
Mon AQ E10S 2										59					68												59s				68s					
Mon AR L10 1					90	75s	60/									51/	35	20/										11/	81/							
Mon AT E10S 2						65		67	70			73																								
Mon AV E10S 2			35			82s				30			77s				25								19			67s				14				
Mon EZ E10U 2		63s			64s			65s		66s				67s			68s		56	69s						57	69s		58	70s		59	71s	59	72s	
Mon IL E10S 2		47				50				52				55						58							60				63		65			
Mon V448 E10S 3			61	72				64s				55	67				59s	71s									62	74			53s	65s		57	69	
JD 591 ..		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				

2020 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			
Mon V530	E10U 2	59s	64s	69s			59	64	69			58s	63s	68s	73s		57	62	67	72	51s	56s	61s	66s	72s	50	56	61	66	71	50+	55s			
Mon V536	E10X 2										66s																								
Mon V634	E10U 3						59		70																										
Oph U	ST											25s					28s																		
Oph RZ	L10 1																																		
Oph ST	90			29								30					25										26								
Ori Z	E10S 2			55				75					95							16				36								56			
Ori BM	E10S 3			96							43						90							37								84			
Ori CP	E10S 2			52				84					16						48					80								12			
Ori DN	L10 2	20											17														14								
Ori EW	E10X 3						48s		74								68							61										55	
Ori FO	L10 2												81																						
Ori FT	E10X 3			50		59s	65																	49s	55		64s	70							
Ori GG	E10X 2						54																	65s											
Ori V536	E10S 2														63																			45	
Ori V1016	L10 2																																		
Ori V1031	E10S 2								62s					73									54				65s								
Peg U	S10 3	30+	42+	36+	30+	42+	36+	29+	42+	36+	29+	42+	35+	29+	42+	35+	29+	23+	35+	29+	41+	35+	29+	41+	35+	28+	22+	34+	28+	22+	34+	28+	28+		
Peg VV	RR						57	55	52	50		48	45	43	41	38	36	34	32	29	27		25												50
Peg VW	L10 3													27																					
Peg AV	RR 3	43		38	55	33	50	28	46		41	36	53	31	48		26	43		39			34	51	29	46	24	41		37		32		49	
Peg AW	L10 2					24s										86s								17			48s								80
Peg BH	90 3	38		31	59		51		44		36	28	56		49		41		33				25	54		46	38		31		23			51	
Peg BK	E10S 3										48													46											
Peg CG	90 3	33	27			54	47	41	34	27		54	48	41	35		28				49		42	35	29	22		49	43	36	30			23	
Peg DF	L10 3		58														28																		98
Peg DH	RR 2	28+	30	32	35	37	39	41	43	46	48	25+	27+	29	31	33	36	38	40	42	44		47	23+	25	28	30	32	34	36	39	41		43	
Peg GH	E10S 3						45s			29						40										35s									46s
Peg IP	K10 3	31+	26+	37+	32+	26+	37+	32+	27+	38+	33+	28+	38+	33+	28+	39+	34+	29+	24+	34+	29+		24+	35+	30+	25+	36+	31+	26+	36+	31+	26+		37+	
Per RW	L10 2			6													25																		45
Per RY	E10S 3							43						29											59s										45s
Per AG	E10X 3	56	52s	59	55s	62	57s	65	60s	68	63s	71	66s	73	69s		72s		75s																
Per AR	90	65	50	35	63	48	33	61	46	31	59	44	29+	57	42	27+	55	40	25+	53	38		65	50	36	63	48	33+	61	46	31+	59		44	
Per AY	L10 3			69												47																			
Per IQ	E10X 3	64	41s	38			64s	61	39s	35				62s	59		36s	33						59s	56	34s	30								28
Per KN	E10U 3	47	34	64s	51s	37s	67	54	40	27+	57s	44s	30+	60	47	34	64s	50s	37s	24+	54		40	27+	57s	43s	30+	60	47	33	63s	50s		37s	
Per LX	L10		59s				61				63s				65									69				71s						73	
Per beta	S10 3			60			46			33					63s		50s							23s	67									40	
Psc RU	90 3	31+	48	26+	43	61	39	56	34	51	29+	46	24+	41	58	37	54	32	49	27+	44		61	39	56	34	52	30	47	25+	42	59		37	
JD 591	..	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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Psc RY	90	2		30	36	42	48	54				31	37	42	48	54					25	31	37	43	49					26	32	38		
Psc SS	90	3	39+	54	41+	27+	42+	29+	44	30+	45	31+	47	33+	48	34+	49	36+	51	37+	24+	39+	25+	40	26+	42	28+	43	29+	45	31+	46	32+	
Sge SY	E10S	3				31							39									24s								32s				
Ser AN	90	3		28											24																			
Ser BH	90	3		30							25										24													
Ser EG	L10	3	50				47s					44					42s					39					37s					34		
Ser LX	K10	3		32	27		28			29	24			25			26			27				23			24							
Sex T	90						71	69										75	73	70	68	65								74		72		
Tau RW	S10	3			59		36						67				44								74					51		28		
Tau CD	S10	3			60s						47s				62								49				74		65s	36				
Tau EN	E10S				63s				59s						54s					50s	74			45s	69				41s	65				
Tau V1094	L10	2			57s		69							55s			67						54s		66							53s		
Tri X	S10	3	61	59	56	53	50	47	44	42	39	36	33	30	27	24																		
Tri RU	E10S	2		70s	33		60							50s				40			67		31s		58s						48			
Tri UX	90	3	49	42	36	29	69	62	56	49	43	36	29	69	63	56	50	43	36	30	23+	63	57	50	43	37	30	24+	64	57	50	44	37	
UMa W	S10		48+	48+	48+	48+	48+	48+	48+	48+	48+	49+	49+	49+	49+	49+	49+	49+	49+	49+	49+	49+	50+	50+	50+	50+	50+	50+	50+	50+	50+	50+	50+	
UMa RV	RR			38	31	25+	65					34	27+	68	61						29	23+	63	57					31	25+	65	59		
UMa RW	E10S				71s										70														69s					
UMa TU	RR		67				69						71					73					63	75				65					67	
UMa TX	S10																											53			60			
UMi W	S10		63	33			73	43						53				64		34			74	44							54			
Vir AG	E10D										72								75s	71								75s	71	67s				
Vir AH	S10										73	74s										71s	73	75s					68s	69		71s		
Vul Z	S10	3	48				39							30																				
Vul RR	E10S	3													29																44			
Vul BN	90	3	36			33		30				27	46		24	43					40		37		34			31			28			
Vul DR	E10X							49s	36						24s			49s	36					24s			37							
Vul EV	E10S	3					40																											
JD 591	..		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	
2020 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	45	33	22	55	43	31		53	41	29		51	39	28		49	37	26	58	47	35	24	56	45	33	22	54	43	31	20		
And SY	L10	1								4	9	14																						
And TW	S10	3									22			28s	34			40s	46		52s													
And XX	90		53	26		42		59	32		48	21		65	38		54	27			43		60	33			49	22		38		55	28	44
And CD	L10	2													16	\					22s	/	29											
And OV	90		54	48	42	36	31	25		60	54	48	42	36	31	25		60	54	48	42	36	31	25	19	60	54	48	42	36	31	25		
JD 591	..		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	85	

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Aqr SW RR 2					38	30	22				35	27					32	24				30	21				27						
Aqr SX 90 3		27	35	42					24	31	38					20	27	35					24	31							20		
Aqr CD E10S 3					33					17					1			85					68				52						
Aqr HH 90 2			24	39			26	41			29				31			33				20	35		22			24					
Aqr LL L10 2											48s																				66s		
Aql AA RR 32				21	30					28						26		24				22	30		20	28					26		
Aql V341 90 3				29					33			22			27				31				20			25					30		
Aql V889 L10							46				40s							58				52s					70						
Aql V1353 E10S					32						27s					23						30				25s							
Aql V1426 E10S		44s	3+	20+	38+	55	14+	32+	49s	8+	25+	43	2+	19+	37+	54s	13+	30+	48	7+	24+	42s	59s	18+	35+	53	12+	29+	47s	6+	23+		
Aql V1430 E10S			29					22s		28					21s		27					20s		26				19s					
Ari X RR 2		45	40				36	66	31	61		56		52	47		43	38			33	29	59	24		54	49		45				
Ari RS L10 2									60								40									20							
Ari AL E10S 3			62						37										61				36										
Aur TZ 90		69	47	64	43	60	39	56	34+	52	69	48	65	44	61	39	57	35+	53	31+	49	66	44	62	40+	58	36+	54	32+	49	28+		
Aur CQ L10 2					26s					57					88s					19					50s						82		
Aur IY E10S					71			51		30								68				47		27									
Aur V432 E10S 3		59		68				76		30s				38s		46s			54s			62s		71s		25	79s		33				
Aur epsil L10 2																																	
Aur zeta L10 1																																	
Boo RS RR		76								69		20	71				72		74			76	65	78		67			69				
Boo TW 90					72		25					64	71	24+						63	69	75					61	67	74				
Boo UU 90					26+					75	20				77	23+					71			78	73	74	20+						
Boo UY 90										76			71														69						
Boo AC E10D		26	67	72	25s	66s	72s	25	66	72	24+	65s	71s	24+	65	71	24+	65s	70s	23+	64	70	23+	64s	69s	22+	63	69	22+	63s	69s		
Boo CM 90								72				77							69			73		78								65	
Boo CQ 90 3					76										78		75	73						77		75		72					
Boo CS 90					76					74					72											69						67	
Cam SS E10S 3		45s	86				27s		68			9s	50	91s				33	74s				15	56s		97		38s					
Cam SV S10		27+	45+	34+	23+	42+	31+	49	38+	27+	46+	35+	24+	42+	31+	20+	39+	28+	46+	35+	24+	43+	32+	21+	40+	29+	47+	36+	25+	44+	33+		
Cam AK E10S			26s	37	48s		60	71s						28	39s	50	62s	73					35s		30s	41	52s	64	75s				
Cam AN L10 3		36s					1																				1						
Cam AT E10S 3		53	23s	62s	32	71	41s	51		60s		30	69	39s	49			58s	28	67	37s	77s	47	56s	26	65	35s	75s	45				
Cnc S L10					78																				75								
Cnc RU L10 2							39											56										73					
Cnc RW 90		58	67	77			50	60	69			52	62	71			45	54	64	73				47	56	65	75		48	58			
Cnc RZ L10 2		1/							58\	\	21s	83/								41\	\	3	65/								23\		
Cnc TT 90			56	69			51	63	76			58	70				52	65	77	46					54	66	79	48	61				
Cnc TU E10S 3			69							26																94							
JD 591 ..		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	85	

2020 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			
Cnc TW	L10	2												14	20	26																			
Cnc UU	L10	2			/																														
Cnc ZZ	L10	2																	6	9	11														
Cnc AQ	90	3	74			58	67	77			51	61	71				55	64	74							48	58	68	78		52	61	71		
CVn W	90					69					66	21+				62	73									69	79			66	76				
CVn Z	90		75		71	67		63		60		56							75		71					68		64		60		56	52		
CVn RS	S10	3				62												61s													61				
CVn RZ	90		69			66					77				74				71						68				65	79		63			
CMa R	S10	2			69			66s			64				61s				59						57s				54				52s		
CMi AM	E10S													48	50	52	54	56	58	60	62	64	66	68	70	72			73	75	77				
Cas RX	L10	2				\	\			86s		/	/													\	\			3		/	/		
Cas RZ	S10	3	74			32	52	71				30	49	69					28	47	67					25	45	64			23	42			
Cas SX	L10	2	21\	\	4	87/																													
Cas TV	S10				56	37							62	44			25								69	50		31							
Cas TW	S10	3	44		29	72		58				44		29	72				58						43		29	72		58					
Cas TX	E10S	3		49		42			34			27	73s	20	66s				59s						52s		44s			37s		30s			
Cas AQ	L10	2	48/			23\	29	34/				9\	15s	20/			95\	\	1	6/					82\	87s	92/			68\	73	78/			
Cas BM	L10	3																																	
Cas DN	E10S	3		33s	48	64s				26s	41	57s	73					35	50s	66							28	44s	59	75s					
Cas GG	E10S						57			33															60				36						
Cas GU	E10U			71																						27		36		46		55			
Cas IL	E10S	3		67					58								48										38						29		
Cas IT	E10X			28		43s			33s					23s																		56			
Cas OX	E10X	65				30s	63			28s		61	77s		26s		59	75s		24s					56	73s		22s	54	71s		20s			
Cas PV	E10X				70	62s	45	37s				70	62s	45	37s	20			70	62s	45				37s	20		70	62s	45	37s	20			
Cas V368	E10S	3	29		51s	74								41s	64										32s	54		77s					22s		
Cas V375	E10D		23	71	44s	65	39s	60	34s			55	28s	76s	49	23s	71s	44		65s	39					60s	34	55s	28	76	49s	23	70		
Cas V381	E10X	3	42s	37			66s	61	41s	36				64s	59	39s	34									58	37s	32			63s				
Cas V459	L10	3				82s				11				28s					57							74s			3				20s		
Cep RZ	90		26+	50	42+	35+	27+	51	43+	36+	29+	21+	45+	37+	30+	22+	46+	38+	31+	24+	47+	40+			32+	25+	48+	41+	33+	26+	19+	42+	35+	27+	
Cep VW	S10		24+	21+	32+	30+	27+	25+	22+	33+	31+	28+	25+	23+	20+	32+	29+	26+	24+	21+	33+	30+			27+	25+	22+	20+	31+	28+	26+	23+	21+	32+	
Cep XX	S10					30	63					31		65						32		66							33		67				
Cep XY	E10S			58		36								68			45			23								78		55		33			
Cep ZZ	S10							30	45			59	73													30	44		58		72				
Cep AI	E10S	3				21s	32		43s			54																22		33s	45	56s			
Cep CW	E10X	3	22	48s		21s	68		41	67s				40s				59		32				59s		32s	78			51	77s				
Cep EI	L10	3	20s			42			64s					86					8s						30				52s			74			
Cep EX	L10	2					73																												
Cep NN	E10S		33s	36	39s	42	44s	47	50s	53	56s	59	62s	65	68s	71	74s	76																	
JD	591	..	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	85		



2020 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				
Cet RR	RR 2	49			26	36	47				23	34	45	55		32	42	53			29	40	51			27	38	48			25					
Cet RV	90 2	40			51		38				50		37			49	36				48	35			46	33				45						
Cet TU	E10S 2				20					59				98				38				77				52s	16				55					
Cet TV	L10 2					32s					93					42s						3				52s				14						
Cet XY	E10S 2				39s					56		34				51s		29s								46					41s					
Com S	90					71				64				75		68					61				72		65			59	76					
Com ST	90 3				77		76			76				75		75					74				73		73			72		72				
CrB U	S10															76					21															
CrB RV	90 3	27	27	26	26	25	25	24	24	23	23		22	22	21	21	20	20														79				
Crt W	90 2																				75											75				
Cyg Y	S10	33s	34		32s	33		32s	33		32s		33		31s	32		31s	32		31s	32			30s	31		30s	31		30s	30				
Cyg UY	RR	47			28	40					32	44				25	37				29	41			22	34				26	39					
Cyg XZ	RR	39	32	25			52	45	39	32	25				52	45	38	32+	25			52			45	38	32+	25+		45	38	32+				
Cyg BO	E10S				52s	40	28s						42	30s							45	33s	20				47	35s	23							
Cyg BR	E10S	30s	30		29s			29		29s			29		29s	29		29s		29		29s	29		29s	28	28s	28		28s		28s				
Cyg DM	RR 3	23	49	33	43		27		37	21	47		31		41	25		35	45	29				39	23		32		42	26		36	20			
Cyg EM	K10 2	30		34	21	37		24	41	28	32			35	23	39	26				30	34	21			37	24		28		32	19	35	23		
Cyg V367	L10 2			\	\	48s	/	/						\	\	78		/	/					\	\	7s	/	/								
Cyg V463	E10S	43s																25s	31	37s																
Cyg V477	E10X				33					38s			37			42s					41															
Cyg V541	L10 3							78								81s									12							15s				
Cyg V548	E10S 3		53	44s	34	24s								46s	36	27s					78			49s	39	29s	20									
Cyg V788	L10 3		70\	66	61/																							62\	58	54/						
Cyg V891	E10S									34	24																					30				
Cyg V909	E10S		33								34s							36																		
Cyg V1061	E10S							52						22	56							26									30					
Cyg V1918	E10D	31+	34s	37	40s	23+	26+	30+	33	36s	40		22+	26+	29+	32s	35+	39s	21+	25+	28s	31		35+	38+	20+	24+	27		30s	34+	37+	20+	23+		
Del DX	90 3	40	35	30	24						38		33	28	22						36	31		25	20					34	29	23				
Dra RW	RR	63	40	29+	62		39	27+	60				37	26+	59	36		25+			35	23+				33+	22+		32+	21+						
Dra SU	RR		51	49			48	46	44				76	42	74	40	72	38	70	36	68	34		66	33	65	31	63	29	61	27	59	25			
Dra SW	RR	57	71	28	42	56	70	27	41	55	69		26	40	54	67	24	38	52	66	23	37		51	65	22+	36	50	64	21+	35	49	63			
Dra TZ	E10D	21			37s	24s	41	27			30s					33+	20		36s	23s		40	26			29+		32+	19		36+	22s				
Dra VZ	90	34+	30+	27	23			44+	40+	36+	33+		29+	25+	22		78	43+	39+	35+	32+	28+		24+	20		77	74	38+	34+	30+	27+	23+			
Dra WW	S10 2	32									58					21										47										
Dra XZ	RR 3	31	27+	22+	65	60	55	51	46	41	37		32	27+	23+	65	61	56	51	47	42	37		33	28+	23+	66	61	57	52	47	43	38			
Dra AI	S10		77				37		77					36	76						36	75				35	75					35				
Dra BF	L10						6							48s							27				69s					48						
Dra BK	90	74	33	51	70	29	47	66	25	43	62		21	39	58	76	36	54	72	32	50	68		28	46	64	24	42	60	20+	38	57	75			
Dra BU	E10S										76					67s	59									24										
JD 591	..	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	85

2020 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	
Dra DD	90	34+	32+	31+	29+	27+	25+	23+	21+	51	49	48	46+	44+	42+	40+	38+	36+	34+	32+	30+	28+	26+	24+	22+	20+	51	49	47	45+	43+		
Dra EX	K10 3	23+	28+	33+	37+	21+	26+	31+	36+	41+	25+	30+	35+	40+	24+	29+	34+	39+	23+	28+	33+	38+	22+	27+	32+	37+	21+	26+	31+	36+	20+		
Dra GV	L10 2			9																							94						
Equ S	S10	35							22																								
Eri SV	90 2		43		58			43		57			43					43					42					42					
Gem U	K10	58+	46+	52+	58+	47+	53+	59+	48+	54+	60+	48+	55+	43+	49+	55+	44+	50+	56+	44+	51+	57+	45+	51+	40+	46+	52+	41+	47+	53+	41+		
Gem RR	90	69	48	67	47	66	45	65	44	63	43	62	41	61	40	59	39+	58	37+	56	36+	55	35+	54	73	52	72	51	70	50	69		
Gem RY	L10 2		64s					29				94s					59					24s			89					54s			
Gem SV	E10S 1		37				37				38				38			39				40				40		40		41			
Gem SZ	90								44	45	45	45	45	46	46	46	46	46	47	47	47	47	48	48	48	48	48	49	49	49	49	49	
Gem WW	E10S 3		44	68		53s	77s	39	63		48s	72s		58		44s	67s		53	77	39s	63s		48	72	34s	58s		43	67			
Gem YY	S10	59	41	63s	44s	66	48	70s	51s	74	55	77s	59s	40s	62	44	66s	47s	69	51	73s	54s	36+	58	39	61s	43s	65	46	69s	50s		
Gem OW	L10 2																																
Gem V339	E10U 2		72		60			48																	76			64					
Her TX	S10	32s	35	38s										74s	77																		
Her UX	E10D		25s						22																								
Her VX	RR 3									22												20									76		
Her VZ	90		32				28			25			77	21			29					25			78	22		74					
Her AK	S10	27			22	27s		22s					23				23s						19					19s					
Her AR	90		31	25+						30+	24+							29+	23+								28+	22+	63				
Her AW	L10 3							46									26											6					
Her DI	L10 3	81							94s			37										49s	92										
Her GU	E10U										54																						
Her LV	L10 2																												98				
Hya SZ	90 2					62	70	77				61	68	75						59	66	74					57	65	72				
Hya WZ	90 2		70							69	77						68	76						67	75								
Hya AI	L10 2				52				22s				81				51s					10			80s						39		
Hya ET	90 2			60			66	72	77						57		63	69				74					54	60	65				
Lac RW	L10 3				61					73s					98							10s					35						
Lac SW	S10	27+	23+	36+	32+	28+	24+	21+	33+	29+	25+	21+	34+	30+	26+	22+	35+	31+	27+	23+	36+	32+	28+	24+	20+	33+	29+	25+	21+	34+	30+		
Lac UW	E10S 3			22					51					80						9					38					67			
Lac CO	E10X	51	25s	60	33s		68	41s	22			50s	31	58s	39		67s	48	21s			56	29s	64	38s	19	46s	27					
Lac CZ	90	25	55	41	28	57	44	30	60	46	32		48	35	21	51	37	24	53	40	26	56	42	29	58	45	31	47	33	20			
Lac V345	E10X 2		93s				77			43s					26		92s					76			41s					25			
Lac V364	E10X 3	28s										26												33s									
Leo RR	RR	60		76	67		57		74	64		55		72	62		52		69	60		50		76	67	57	48	74	64	55			
Leo SS	RR		68					69				70					71					72						74		61			
Leo ST	RR							77	72	68	63							76	71	67		63							75	71			
Leo WY	E10S	64					62					61					60					58					57						
JD 591	..	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	85	

2020 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				
Leo AG E10S					76							54					63s					72						51								
Leo AM S10		67s	76s	68		69s		70	62s	71s	63	73	64s	74s	65	75	66s	58+	68	59+	69s	60+	70	61s	71s	63	72	64s	55+	65	56+					
Leo FM E10U 2																																				
Lyn TY E10S 3								54														54														
Lyn CD E10S 3					60							42s	70															35		62s						
Lyr RR RR 3	31	45			28		41			25	38				22	35					32					29		25	39			22+				
Lyr RZ 90									22	24	26	29	31	33	35																	20				
Lyr UZ S10								40	35s	30		24s															37s	32	26s	21						
Lyr CN 90		25		31			37			25		30		36			24							23	29							23				
Lyr EZ RR	42							25	30	35																			21	26+	31					
Lyr IO 90		23	38				27				31						35		23						27		31					20+				
Lyr beta S10 3	47s							94									41s											35s								
Mon UX E10S 2	14			9s			5		00s			95				90s		86				81s		76				71s			66					
Mon VV E10S 2	16s			19			21s			24							26s		29		31s		34		36s			39								
Mon AQ E10S 2							59					68				50s									59s		69s			50						
Mon AR L10 1					71		56	41/									32\	17s	1/								92\	77	62/							
Mon AV E10S 2		61s					9		56s				4				51s		98					46s				93			40s					
Mon EZ E10U 2		60	73s		61		74s	62	75s	50s	63	51s	64				52s	65		53s	66		54s	67	55s		68	56s	69	44						
Mon IL E10S 2		68					71			73			76						79				81				84				86					
Mon V448 E10S 3			48s	60s	72s			52	63	75			55s	67s				46	58	70				50s	61s	73s	41	53	65							
Mon V530 E10U 2	60s	65s	70s	49+	54		59	64	69	48+	53s	58s	64s	69s	47+	53	58	63	68	47+	52s	57s	62s	67s	46+	51	56	61	66	45+	50s					
Mon V536 E10X 2	66																46s							60s						73s						
Mon V634 E10U 3												53	64				76													44						
Oph U ST	21																																			
Oph RZ L10 1																																				
Oph ST 90										22																										
Ori Z E10S 2			77					97						17							37										78					
Ori BM E10S 3					31							78									25															
Ori CP E10S 2			44					76						9							41											5				
Ori DN L10 2										10														7												
Ori EW E10X 3							49							42												36										
Ori FO L10 2		61																							41											
Ori FT E10X 3													40s	45		55s	60				70s	75									59					
Ori GG E10X 2								70																												
Ori V536 E10S 2		61																																		
Ori V1016 L10 2																										71										
Ori V1031 E10S 2							57																													
Peg U S10 3	22+	34+	28+	22+	34+		28+	21+	34+	27+	21+	34+	27+	21+	33+	27+	21+	33+	27+	21+	33+	27+	21+	33+	27+	21+	33+	27+	20+	33s	26+	20+	33s	26+		
Peg VV RR	48	46	43	41	39		36	34	32	29	27	25	22	20														43	41			39	36	34	32	29
JD 591 ..		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	85				

2020 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				
Peg VW	L10	3			34																					41										
Peg AV	RR	3	27	44	22	39	34		30	47	25	42	20	37		32		27	45	23	40			35		30	25	42	21	38						
Peg AW	L10	2					11s					42					73s							4				35s								
Peg BH	90	3		43		36				48		41		33		25			46		38			30		23		43		36						
Peg BK	E10S	3	44									42												40												
Peg CG	90	3			43	37	30	24				44	38	31	24				45	38	32		25	19			39	32	26	19						
Peg DF	L10	3														68																38				
Peg DH	RR	2	45	22	24	26	29	31	33	35	37	40	42		21	23	25	27	29	32	34	36	38	40		19	22	24	26	28	30	33				
Peg GH	E10S	3			29			40				24s						35s									30									
Peg IP	K10	3	32+	27+	22+	32+	27+	22+	33+	28+	23+	34+	28+	23+	34+	29+	24+	35+	30+	25+	20+	30+	25+	20+	31+	26+	21+	31+	26+	21+	32	27+				
Per RW	L10	2										65														85										
Per RY	E10S	3					32s			75								61								48										
Per AG	E10X	3																22		25	21s		28	23s	31	26s	34	29s	37	32s	40	35s				
Per AR	90	3	29+	57	42	27+	55	40	25+	53	38	23+	50	36+	21+	48	33+	61	46	31+	59	44	29+	57	42	27+	55	40	25+	53	38	23+				
Per AY	L10	3						2											80															57		
Per IQ	E10X	3			76	54s	51	28s	25		77s	74	52s	48	26s	23		75s	71	49s	46	23s	20		72s	69	46s	43	21s				69s			
Per KN	E10U	3	23+	53	40	27+	57s	43s	30+	60	46	33+	20+	50s	36s	23+	53	40	26+	56s	43s	30+	60	46	33	19+	49s	36s	23+	53	39	26+				
Per LX	L10	3			74s			76					78s			80					82s					84			86s							
Per beta	S10	3	27	70s		57s				44s			30s	74		61				47			34			21	64s			51s						
Psc RU	90	3	54	32	49	28	45	23+	40	57	35	52	30	47	25	43	21+	38	55	33	50	28	45	23	40	58	36	53	31	48	26	43				
Psc RY	90	2	44	50				26	32	38	44		21					27	33	39	45					21	27	33	39							
Psc SS	90	3	47	34+	49	35	22+	37	23+	38	24+	40	26+	41	27+	42	29+	44	30+	45	32	47	33	19+	35	21+	36	22+	38	24+	39	25+				
Sge SY	E10S	3				39s											24																			
Ser AN	90	3																																75		
Ser BH	90	3				76										75										75			79							
Ser EG	L10	3				31s				29						26s						23				21s								18		
Ser LX	K10	3		21		22				77				78								75				76		77	72	78	73					
Sex T	90	3	69	66	64	61				78		76	73	70	68	65	63	60	57						77	74	72	69	67	64	61	59				
Tau RW	S10	3						59				36									66			43												
Tau CD	S10	3			52s				67	39s						54						69s		41				56s		28						
Tau EN	E10S	3			37s	61				56					52	76s					47	71s				43	67s				39	63s				
Tau V1094	L10	2			65					52s			64								51s		63					50s			62					
Tri X	S10	3	67	65	62	59	56	53	50	48	45	42	39	36	33	30	28	25	22																	
Tri RU	E10S	2			38s			65s		29			56								46s				36		63	27s		53s						
Tri UX	90	3	31	24	64	57	51	44	38	31	24	64	58	51	45	38	31	25	65	58	52	45	38	32	25	19	59	52	45	39	32	26				
UMa W	S10	3	50+	50+	51+	51+	51+	51+	51+	34+	34+	35+	35+	35+	35+	35+	35+	35+	35+	35+	35+	35+	36+	36+	36+	36+	36+	36+	36+	36+	36+	36+	36+	36+	36+	36+
UMa RV	RR	3			27+	21+	61	55			76	23+	63	57							78	25+	65	59	53		74	21+	61	55	48					
UMa RW	E10S	3						68													68s														67	
UMa TU	RR	3			57	69				59	71					61	73								53	65	76		55	67	78					
JD 591	..		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			85	

2020 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
UMa	TX	S10		66				72																										
UMi	W	S10	25			65			35			75		45					56		26			66		36			76		46			
Vir	ST	90	2																					78							76			
Vir	AG	E10D						74s	71	67s	63					78	74s	70	67s	63						77	74s	70	66s	63	59s			
Vir	AH	S10	73	75s	77						66	68s	70	72s	74	75s	77			63	64s	66	68s	70	72s	74	76s	78		61s	63	65s	67	
Vir	AT	90	2									74											73	78								72		
Vir	AV	90															76		73		70		67											
Vir	CG	E10S															78														74			
Vul	Z	S10	3			40						31					22																	
Vul	BN	90	3		25			22					38		35			32				29		26			23			20				
Vul	DR	E10X	25s				37						25s				37					25s			37					26s				
Vul	EV	E10S	3										27																	20				
JD	591	..	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	85
2020 Dez																																		
And	SW	RR	3	52	41	29		50	39	27		48	37	25		46	35	23	44	33	21			43	31	19		41	29		39	27		31
And	SY	L10	1												95\	0	/	5\																
And	TW	S10	3															26s			32		38s	44										
And	XX	90		61	34		50		23		39		56	29		45			34		51	24		40			30		46	19		35		52
And	CD	L10	2																	60\	\	67		/	73\									
And	OV	90		19		54	48	42	36	31	25	19		54	48	42	36	30	25	19		54	48	42	36	30	25	19			48	42	36	30
Aqr	SW	RR	2			24						29	21					26						23						20				
Aqr	SX	90	3	27								24	31					20	27								24						20	
Aqr	CD	E10S	3			36						20					3				87				71					55				
Aqr	HH	90	2			26					28			31							20				22				24				26	
Aqr	LL	L10	2										75										84s										93	
Aql	AA	RR				24						22					20															21		
Aql	V341	90	3			19					23										22											20		
Aql	V889	L10		64s								82					76s						94				88s							
Aql	V1353	E10S	20									28					23s																21s	
Aql	V1426	E10S	41+	58	17+	34+	52s		11+	28+	46	4+	22+	39+	57s	16+	33+	51	10+	27+	45s	3+	21+	38+	56	15+								
Aql	V1430	E10S	25									24																						
Ari	X	RR	2		40		36		31		26	56	22	52		47		43		38		33		29		24		19	50		45		40	
Ari	RS	L10	2					1									81								61								42	
Ari	AL	E10S	3									35													34									
Aur	TZ	90	45	63	41	59	37+		54	33+	50	29+	46	24+	42	59	38+	55	34+	51	30+	47	25+	43	60	39+	56	35+	52	30+	48	26+	44	22+
Aur	CQ	L10	2						13s					44					75s						6					37s				
JD	591	..	85	86	87	88	89		90	91	92	93	94	95	96	97	98	99																
JD	592	..																	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

2020 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	
Aur IY E10S			65			44					23						61			41			20								58		
Aur V432 E10S 3			41			49					57		66		20s 74		28s			36s			44s			52s			61s			69s	
Aur epsil L10 2																																	
Aur zeta L10 1																																	
Boo RS RR				71			72		61	74		63	76		65	78		67		69		57	70		59		72	61	74		63		
Boo TW 90							59	66	72	79					58	64	71	77				56	63	69	76					55	61		
Boo UU 90	76	68					79	70	62				73	64			76	67	59			78	70	61				72	64				
Boo UY 90									75	70			66									77	72		67		63		58				
Boo AC E10D	22+	63	68	21+	62s		68s	21+	62+	67	56+	61+	67s	55+	61+	67	55+	60+	66s	54+	60+	66	54+	60+	65s	53+	59+	65	53+	59+	64s	53+	
Boo CM 90			69				74		79			61			66		70			75							59+		67			71	
Boo CQ 90 3	69		79				77		74	71			69		66	79		76		73		71		68		65	78	63	75		73		
Boo CS 90	77			65			75			63		73			61		71			59		69		57			67	78		55	66		
Cam SS E10S 3		79			21s				62		3s		44		85s		26		67s			9		50s			91			32s		73	
Cam SV S10	22+	40+	29+	48+	37+		26+	44+	33+	22+	41+	30+	19+	37+	26+	45+	34+	23+	41+	30+	19+	38+	27+	46+	35+	24+	42+	31+	20+	39+	28+	46+	
Cam AK E10S		21s	32	43s	55		66s	77					23	34s	45	57s	68	79s				25s	36	47s	59		70s						
Cam AN L10 3													35s					1															
Cam AT E10S 3	54s	24	63	33s	73s		42		52s	22	61	31s	71s	40	50s		20	59	29s	69s	38	78	48s		57	27s	67s	36	76	46s		55	
Cnc S L10 3				23										71									20										
Cnc RU L10 2							91											8										25					
Cnc RW 90	67	77		41	50		60	69	79		43	52	62	71			45	54	64	73		37	47	56	66	75		39	49	58	68	77	
Cnc RZ L10 2	85s	/	47/									5/	67	/	29/							87/	\	49s	/	12/							
Cnc TT 90	73		42	55	68				50	62	75		44	57	69		38	51	64	76		45	58	71	40		53	65		47	60		
Cnc TU E10S 3	50						6						62						19				75					31					
Cnc TW L10 2																																	
Cnc UU L10 2												16s										/	/										
Cnc ZZ L10 2																																	
Cnc AQ 90 3		45	55	65	75				49	59	68		78		42	52	62	72		46	56	65	75		40	49	59	69	78		43	53	
CVn W 90	62	73					59	69				55	66	76				62	73			59	69				55	66	76				
CVn Z 90			79		75		72		68			64		60	56		53		49			45	76		72		68		64		61		
CVn RS S10 3												60s										59									79s		
CVn RZ 90	76			60	73				57	71					68			65	78			62	76		59		73			57	70		
CMa R S10 2					63						61s				58							53			51s					48			
CMi AM E10S																															37	39	
Cas RX L10 2									\	\			20s		/	/								\	\				37				
Cas RZ S10 3	62				20		40	59	79				38	57	77						35	55	74			33	52	72			30	50	
Cas SX L10 2							78/	\	60	/		43/																					
Cas TV S10		56		38			19					63		44	25								50		31							56	
Cas TW S10 3	43				29	72			57			43			29	72				57		43			39	71			57			43	
Cas TX E10S 3	76		22s	69			61			54					47		39			32	78s		25	71s			64s			56s			
JD 591 ..	85	86	87	88	89		90	91	92	93	94	95	96	97	98	99																	
JD 592 ..																	0	1	2	3	4		5	6	7	8	9	10	11	12	13	14	15

2020 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		
Cas AQ	L10	2			54\	59s	64/				40\	45	51/				26\	31s	37/			12\	17	23/		96\	\	3s	9/					
Cas BM	L10	3																																
Cas DN	E10S	3	21	37s	52	68s					30s	46	61s	77			23s	39	54s	70				32	48s	63	79s					26		
Cas GG	E10S						64				40											67			43				19					
Cas GU	E10U			64																			20		30			39				48		
Cas IL	E10S	3		74				19			64						55							45									35	
Cas IT	E10X			46		61s		35		50s		25		40s			30s					19s												
Cas OX	E10X		52	69s			50	66s				48	64s				46	62s				44	60s				42	58s					39	
Cas PV	E10X				63s	46	38s	21			63s		46	38s	21			63s	46	38s	21				46		38s	21		71				
Cas V368	E10S	3		45		67s						35	58s									25		48s	71							38s		
Cas V375	E10D		44s	65	39s		60	33s	54	28s		75s	49	23s	70s	44		65s	38	59s		33	54s	28	75		49s	22	70	43s		64		
Cas V381	E10X	3			60s	54	34s	29				58s	53	32s	27			56s	51	31s		26		55s		50	29s	24						
Cas V459	L10	3			49			66s				95						11s				40			57s				86					
Cep RZ	90		20+	43+	36+	28+	21+	44+	37+	30+	22+	46+	38+	31+	23+	47+	39+	32+	25+	48+	41+	33+	26+	49	42+	35+	27+	20+	43+	36+	28+	21+	44+	
Cep VW	S10		29+	27+	24+	22+	19+	30+	28+	25+	22+	20+	31+	29+	26+	23+	21+	32+	30+	27+	24+	22+	19+	31+	28+	25+	23+	20+	31+	29+	26+	24+	21+	
Cep XX	S10		34	68				36				69					37	71				38	72									39		
Cep XY	E10S							65				42		20						75		52			30									
Cep ZZ	S10							29		43			57		71								28		42			56		71				
Cep AI	E10S	3			78s												23s	35			46s													
Cep CW	E10X	3	24	50s		23s	70			43	69s						42s				61		34	61s		34s			53	79s			26	
Cep EI	L10	3			96s			18						40s				62				84s					6				28s			
Cep EX	L10	2		60													4															47		
Cep NN	E10S			20s	23	26s	29	32s	35	38s	41	44s	46	49s	52	55s	58	61s	64	67s	70	73s	76	79s										
Cet RR	RR	2	36	46		23	33	44		20		31	42				29	39									24	35					22	
Cet RV	90	2	32		44		31			42		30			41		28			40		27			39		26		37				24	
Cet TU	E10S	2			94				33					72					11			51					90						29	
Cet TV	L10	2		63s				24				73s					34				83s				45				94s					
Cet XY	E10S	2				36				54s			32s				49			27				44s		22s				39				
Com S	90			69		62			56	73			66		60		77		53	70			64		57		74		50	67				
Com ST	90	3		71			71			70			70		69				69			68		68			67			66				
CrB U	S10																					74								64				
CrB RV	90	3	79	78	78	77	77	76	76	75	74	74	73	73	72	72	71	71	70	70	69	69	68	68	67	67	66	66	65	65	64	64		63
Crt W	90	2	70		76				70	76													71					66		72				
Cyg Y	S10		29s	30		29s	30		29s	29		28s		29		28s	29	27s	28		27s	28			26s		27		26s	27				26s
Cyg UY	RR		19	31			24	36				28			21		33				25				30					22				
Cyg XZ	RR		25+			45	38	31+	25+			45	38	31+	25+	65				38		31+	25+	65				38	31+	24+	64			
Cyg BO	E10S				38s	25					40s	28						43s	30						33	21s								
Cyg BR	E10S		28		28s	28		28s	27			27s		27		27s		27		27s		27		27s		27		26s		26			26s	
Cyg DM	RR	3		30		40	24		34		28		38	22	32			26		36		20		30			23		33				27	
JD 591	..		85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																	
JD 592	..																	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

2020 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		
Cyg EM K10	2	26		30		34	21		24		28		32	19		23	16		26		30		21+		24		28		19+		23			
Cyg V367 L10	2	\	\	37	/	/			\		\	67s	/	/					\	\		97	/	/				\	\		27s			
Cyg V463 E10S				19s	25	31s																19	25s								78			
Cyg V477 E10X				19s							23s			23				27s				27		32s										
Cyg V541 L10	3							46						49s										79						83s				
Cyg V548 E10S	3	42	32s	22				73s			44	35s	25				76s				37s	27			79s	69		40s	30	20s				
Cyg V788 L10	3																				55l	50	46l											
Cyg V891 E10S		21																			26							79						
Cyg V909 E10S				19							20s						22							23s							24			
Cyg V1061 E10S				34							38						42		76					46										
Cyg V1918 E10D		26s	29	33+	36+	19+	22+	25	29+	32+	35+	38	21+	24s	28+	31+	34+	38+	20s	23	27+	30+	33+	37+	19	23s	26+	29+	32+	36+	22			
Del DX 90	3						32	27	21								30	25	19								23							
Dra RW RR		31+	19+			29+	62			28+	61		26+	59			25+	58		79		24+	57		78	22+	55		77	21+	54			
Dra SU RR		57	23	55	21	53	19	52		50		48	46	78	44		76	42	74	40	72	38	70	37	69	35	67	33	65	31	63	29		
Dra SW RR		20+	33	47	61	75	32	46	60	74	31	45	59	73	30	44	58	72	29	42	56	70	27	41	55	69	26	40	54	68	25	39		
Dra TZ E10D			25				28+			31+		35+	21s				24+			27+		31+			77	20+			23+					
Dra VZ 90		19	76	72	37+		33+	29+	25+	22+	50	79	75	71	35+	32+	28+	24+	21+	49	77	74	70	66	31+	27+	23+	19+	48	76	73	69		
Dra WW S10	2			73						36							62							25								51		
Dra XZ RR	3	33	28+	24+	19+	62	57	53	48	43	38	34	29+	24+	20+	63	58	53	48	44	39	34	30+	25+	20+	63	58	54	49	44	40	35		
Dra AI S10			74					74								73																72		
Dra BF L10										69																						91		
Dra BK 90		34	53	71	30	49	67	26	45	63	22	41	59	77	37	55	74	33	51	70	29	47	66	25	43	62	21	39	58	76	35	54		
Dra BU E10S				73		64s		56		47s						21									78s		70		61s		53			
Dra DD 90		41+	39+	37+	35+	33+	31+	29+	27+	25+	23+	21+	19+	50	48	46+	44+	42+	40+	38+	36+	34+	32+	30+	28+	27+	25+	23+	21+	19+	49	47		
Dra EX K10	3	25+	30+	35+	19+	24+	29+	33+	38+	22+	27+	32+	37+	21+	26+	31+	36+	20+	25+	30+	35+	19+	24+	29+	34+	39+	23+	28+	33+	38+	22+	27+		
Dra GV L10	2																				80													
Equ S S10			28																															
Eri SV 90	2		42				41					41			27		41			26		41			26		40			26				
Gem U K10		47+	54+	42+	48+	37+	43+	49+	37+	43+	50+	38+	44+	50+	39+	45+	33+	40+	46+	34+	40+	46+	35+	41+	47+	36+	42+	30+	36+	43+	31+	37+		
Gem RR 90		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+	50	29+	49	28+		
Gem RY L10	2				19					84s					49						14s				79							44s		
Gem SV E10S	1			41					42				43				43			44				44				45						
Gem SZ 90		50	50	50	50	51	51	51	51	51	52	52	52	52	53	53	53	53	53	54	54	54	54	55	55	55	55	55	56	56	56	56	56	
Gem WW E10S	3	53s	77s	38	62		48s	72s	34	57		43s	67s	29	53		38s	62s		48	71		33s	57s		43	67	28s	52s		38	62	24s	
Gem YY S10		72	54	35+	57s	39+	61	42	64s	46s	68	49	31+	53s	34+	56		38+	60s	41s	64	45		67s	49s	30+	52	34+	56s	37+	59	41	63s	44s
Gem OW L10	2																																	
Gem V339 E10U	2	52			40																	68			57			45			33			
Her TW RR	3						75		74		74		74		74		74		73		73		73		73		73		72		72			
Her TX S10		19	22s	25	28s																	67	70s	73	76s	79								
JD 591 ..		85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																		
JD 592 ..																	0	1	2	3	4		5	6	7	8	9	10	11	12	13	14	15	





2020 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	
Mon AR L10 1							53\	37s	22/								13\	82/									73\	58s	43/				
Mon AT E10S 2	46		49		52		54		57		60		63		66				77			25s			72			19s			67		
Mon AV E10S 2			88				35s		82				30s																				
Mon EZ E10U 2	57s	70	45	58s			46	59s	47	60s		48	61s	49			62s	50	62s			51	63s	39s	52		40s	52	41s	53			
Mon IL E10S 2				89					92					94			97								2				5				
Mon V448 E10S 3	44s	56s	68s				48	60		39s		51s	63s		43		54	66		46s		58s		37	49		61		41s	52s			
Mon V530 E10U 2	55s	61s	39+	44+	50		55	60	39+	44+	49s	54s	59s	38+	43+	48	53	58	37+	42+	47s	52s	58s	36+	41	47	52	57	36+	41s	46s	51s	
Mon V536 E10X 2									47					60															40s				
Mon V634 E10U 3	56		67																47		58												
Oph U ST																																76s	
Oph RZ L10 1																																	
Ori Z E10S 2				98						19					39						59				80								0
Ori BM E10S 3	19						66						13								60						7						
Ori CP E10S 2					37					69							1					33					65						97
Ori DN L10 2				4														0														97	
Ori FO L10 2											21																			1			
Ori FT E10X 3		35		45s	50		60s	65														26		35s	41		50s	56		65s			
Ori GG E10X 2				44s															49					33s									
Ori V536 E10S 2							40			57																	38			55			
Ori V1016 L10 2																																	
Ori V1031 E10S 2	41						51s												43					54s							35s		
Peg U S10 3	20+	32s	26+	20+	32s		26+	20+	32s	26+	19+	32s	26+	19+	32s	25+	19+	31s	25+	19+	31s	25	19+	31s	25	37	31s	25	37	31s	24	37	
Peg VV RR	27	25	22	20													49				36	34	32	29	27	25	22	20					
Peg VV L10 3																								20s									
Peg AV RR 3	33		28		23		40		36		31		26		21	38					33		29		24		19		31		27		22
Peg AW L10 2		66						97s					29												91					22s			
Peg BH 90 3	28		20				41		33		25						30		23					35		28		20					
Peg BK E10S 3				38																							34						
Peg CG 90 3			40	33	27		20					34	27	21							35	28	21				35		29	22			
Peg DF L10 3																8															77		
Peg DH RR 2	35	37					20	22	25	27	29	31	33				19	21	23	26		28	30	32					20	22		24	
Peg GH E10S 3				24s						36s			19															25s					
Peg IP K10 3	22+	33	28+	22+	33		28+	23+	34	29+	24+	19+	29	24+	19+	30	25+	20+	30	25+	20+	31	26	21+	32	27	22+	32	27	22+	33	28	
Per RW L10 2									5																		25						
Per RY E10S 3	34								20			63s																	36s				
Per AG E10X 3	42	38s	45	41s	48		44s	51	46s	54	49s	57	52s	60	55s	63	58s	65	61s		64s												
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	19+	46	32	59	44	29
Per AY L10 3															35															13			
Per IQ E10X 3	66	44s	40				67s	64	41s	38					64s	61	39s	35						62s	58	36s	33		59s	56	34s	30	
JD 591 ..	85	86	87	88	89		90	91	92	93	94	95	96	97	98	99																	
JD 592 ..																	0	1	2	3	4		5	6	7	8	9	10	11	12	13	14	15

2020 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			
Per KN E10U	3	56s	43s	29s	59	46	33	19+	49s	36s	22+	52	39	26	56s	42s	29s	59	46	32	19+	49s	36s	22+	52	39	25	55s	42s	29s	59	45			
Per LX L10		88				90s					92				94s			95				97s			99						1s				
Per beta S10	3	38s			24s	68			54			41			28							45s			31s				62			48			
Psc RU	90	3	21	38	55	33	51	29	46	24	41	19	36	53	31	48	27	44	22	39		34	51	29	46	24	42	20	37		32	27			
Psc RY	90	2		22	28	34	40							23	29	35							23	29	35						24	30			
Psc SS	90	3	40	27+	42	28	43	30	45	31	46	33	19+	34	20+	35	22+	37	23+	38	25	40	26	41	28	43	29	44	30	46	32	47	33		
Sge SY E10S	3						25s																												
Ser VY RR							75					75					75					75					74					74			
Ser AN	90	3										72	76										68	72	77										
Ser BH	90	3	70			74			78						74				78	65			69			73			77	64					
Ser EG L10	3																																		
Ser LX K10	3		79	74			75	70		76	71		77	72	67	78	73	68	79	74	69		75	70	65	76	71	66	77	72	67		62+		
Sex T	90		56	54		78	76	73	71	68	65	63	60	58	55	52	50		77	75	72	69	67	64	62	59	56	54	51	49	46		76		
Tau RW S10	3			51			27										35																42	19	
Tau CD S10	3		72		43s					59		30s					46					61s		33					48s		20				
Tau EN E10S					34	58s				30	54s				25	49s					45s	69			41s		65				36s	60			
Tau V1094 L10	2						48s			61							59							46s			58								
Tri X S10	3									56		54	51	48	45	42	39	37	34	31	28	25	22	19											
Tri RU E10S	2					44				34s						24					51			42s					32						
Tri UX	90	3	19	59	52	46	39	33	26	19	53	46	40	33	26	20		53	47	40	33	27	20		54	47	40	34	27	20					
UMa W S10		36+	37+	37+	37+	37+	37+	37+	37+	37+	37+	37+	37+	38+	38+	38+	38+	38+	38+	38+	38+	38+	38+	38+	38+	22+	22+	22+	22+	22+	22+	22+	22+	22+	
UMa RV RR		76	70	63	57		50			78	72	65	59	52	46		74	67	61	55		48	42		76	69	63	57	50	44			78		
UMa RW E10S										66s																65								65s	
UMa TU RR			57	69				59	71			49	61	72			51	63	74				53	65	76		44	55	67	78			45		
UMa TX S10										42		48				55					61		67		74										
UMi W S10			57		27			67		37			77		48						58		28			68		38		79					
Vir ST	90	2				74						73			78					71		77					70		75						
Vir AG E10D		77	73s	70	66s	63	59s	55			77	73s	69	66s	62	59s	55			76	73s	69	66s	62	58s	55	51s		76	72s	69		65s		
Vir AH S10		69s	70	72s	74	76s	58+	59	61s	63	65s	67	69s	71	73s	75	56+	58+	60	62s	64		65s	67	69s	71	53+	55+	56+	58+	60	62s		64	
Vir AT	90	2	77							66	71	76										65	70	75								63	69	74	
Vir AV	90				78		75		72			69		66	63		60												77		74				
Vir CG E10S						75s						77	70															73	67						
Vul Z S10	3				31						22																								
Vul BN	90	3						31			28			25			22				19														
Vul DR E10X								26s									27s								27s										
Vul EV E10S	3											31																	24						
JD 591	..	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																			
JD 592	..																0	1	2	3	4		5	6	7	8	9	10	11	12	13	14		15	









## 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, glanzfolienl **22,00 €**

### BAV-Umgebungskarten

#### Gedruckt auf Karton DIN A5

Bedeckungsveränç	- 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	
Bedeckungsveränç	- Beobachtung erw 87 Karten
Bedeckungsveränç	- 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.	<b>2,00 €</b>
2 Tabellen - JD und Tagesbruchteile	DIN A5 4. Aufl., 2007	8 S.	<b>1,00 €</b>
3 Lichtkurvenblätter - Dokumentation von Maxima und Minima	DIN A5 6. Aufl., 2013 <b>neu</b>	16 S.	<b>2,00 €</b>
5 Der Sternhimmel - Mit griechischen Buchstaben aller Sterne	DIN A5 2. Aufl., 2008	4 S.	<b>0,50 €</b>
7 Feldstechersterne - Veränderliche bis zur Grenzgröße 8,5 <sup>m</sup>	DIN A5 3. Aufl., 2006	4 S.	<b>0,50 €</b>
8 Die Übung der Argelandermethode (mit CD-ROM)	DIN A5 3. Aufl., 2010	12 S.	<b>4,00 €</b>
<b>16 Beobachtungsmeldungen an die BAV</b>	<b>DIN A4</b> 2. Aufl., 2012	5 S.	<b>1,00 €</b>

### 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

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## BAV-Veröffentlichungen

### 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

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

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