

# The Herschel 500 Double Stars

## The 1782/1784 Catalogues of Class I to Class V double stars

This is a selection from the five William Herschel (1738-1822) catalogs available at the index page linked below: his Class I ("most difficult"), Class II ("close but measurable"), Class III ("5 to 15 arcsecond separation"), Class IV ("15 to 30 arcsecond separation") and Class V ("30 to 60 arcsecond separation") lists entire, all published in 1782 and 1784. It excludes all unidentified and duplicate entries, and most stars whose separation is outside the "class" limits of each catalog. The file is sorted by Right Ascension and makes a useful target list for seasonal observing and GoTo computerized telescope mounts. — I created these lists to commemorate Herschel's extraordinary achievement in double star exploration, which has been overshadowed by his equally remarkable achievements in deep sky astronomy (the "Herschel 500" list) and telescope construction. These 500 double stars sample the complete range of Herschel's double star targets, from stars that can be separated with binoculars to stars requiring 10 inch or greater aperture. Many are tests of observing skill. This file excludes Herschel's notes and my comments and includes only the most recent double star separation ( $\rho$ ) and position angle ( $\theta$ ) data, with the change in value since Herschel's time. The file also includes the commonly used catalog designation for each system in the Washington Double Star database. Note that, unlike the Messier deep sky objects (which have retained Messier's catalog numbering up to the present day, despite the fact that they have been incorporated into more recent catalogs and in many cases were not discovered by Messier), about 85% of the systems discovered or independently discovered by Herschel have been assigned to more recent catalogs by Friedrich Wilhelm Struve, John Herschel, James South and others. — I hope this summary provides an interesting introduction to double star astronomy, restores Herschel's claims to priority, and creates wider awareness of the double star achievements of one of the greatest visual astronomers.

[Herschel 500 Double Star lists](#)

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Designation			Observation		Discovery		Position		Separation		Magnitude		Right Ascension			Declination		
Herschel	Bayer	Const.	Catalog	Components	Date	Time	Date	Angle	Separation	Primary	Secondary	H	M	S	Sign	D	M	
H III 5*	gamma	And	STF 205	A-BC	12/1/2001	22:12	8/25/1779	63	9.5	2.31	5.02	2	3	53.92	+	42	19	
H IV 69		And	STF 3064		11/9/2023	22:09	9/4/1782	10	27.2	6.84	10.50	0	7	37.92	+	40	8	
H V 32	alpha	And	H V 32	AB	11/9/2023	22:11	7/21/1781	284	89.6	2.22	11.11	0	8	23.17	+	29	5	
H II 83		And	STF 3		11/9/2023	22:12	2/26/1783	83	4.9	7.84	9.08	0	10	3.18	+	46	23	
H V 85	rho	And	S 384	AB	11/9/2023	22:17	8/29/1782	22	100.7	7.04	10.30	0	20	0.51	+	38	13	
H V 17	pi	And	H V 17	AB	11/9/2023	22:23	8/25/1780	175	36.7	4.36	7.08	0	36	52.84	+	33	43	
H V 123*		And	STFA 1		11/9/2023	22:26	1/8/1782	47	47.0	7.25	7.43	0	46	24.34	+	30	56	
H I 89		And	STF 179		11/9/2023	22:50	7/28/1783	160	3.5	7.59	8.14	1	53	10.72	+	37	19	
H IV 104		And	S 404	AB	11/9/2023	22:52	11/13/1782	83	28.8	7.64	9.74	1	58	4.61	+	41	23	
H IV 129		And	STF 222		11/9/2023	22:55	7/28/1783	36	16.6	6.05	6.71	2	10	52.83	+	39	2	
H II 94	iota	And	STF 3024		11/9/2023	22:01	8/19/1783	309	4.9	8.63	9.35	23	32	1.31	+	43	49	
H IV 40		And	STF 279	AB	11/12/2023	19:56	10/8/1781	71	18.1	5.90	10.90	2	35	38.74	+	37	18	
H II 93	epsilon	Aql	STF 2428	AB	11/12/2023	18:58	5/25/1783	289	6.6	8.22	10.31	18	59	56.53	+	14	54	
H III 108		Aql	STF 2446	AB	11/12/2023	19:17	7/7/1783	153	9.4	6.97	8.88	19	5	47.70	+	6	32	
H III 109		Aql	STF 2449		11/12/2023	19:03	7/7/1783	290	7.9	7.20	7.72	19	6	23.04	+	7	9	
H I 14		Aql	STF 2492	AB	11/12/2023	17:48	7/30/1781	4	3.0	5.28	8.29	19	18	32.49	+	1	5	
H V 31	delta	Aql	STF 2532	AB	11/12/2023	19:38	7/19/1781	3	32.9	6.09	10.60	19	30	10.53	+	2	54	
H I 13		Aql	STF 2545	AB	11/12/2023	19:42	7/25/1781	326	4.0	6.79	8.54	19	38	43.36	-	10	9	

H IV 132		Aql	STF 2567	AB	11/12/2023	19:28	8/6/1783	312	17.8	7.93	9.96	19	44	6.10	+	12	22
H I 91	gamma	Aql	STF 2570	AB-C	11/12/2023	19:35	8/7/1783	283	4.6	7.62	9.81	19	44	56.78	+	10	46
H I 92	pi	Aql	STF 2583	AB	11/12/2023	17:55	8/27/1783	105	1.4	6.34	6.75	19	48	42.05	+	11	48
H II 28	[omicron]	Aql	STF 2590	AB	11/12/2023	19:02	7/23/1781	309	13.5	6.50	10.31	19	52	15.58	+	10	21
H II 95	[eta]	Aql	STF 2589		11/12/2023	18:17	9/12/1783	294	4.9	8.58	8.87	19	52	32.57	+	0	38
H I 93		Aql	H I 93	AB	11/12/2023	19:12	9/12/1783	298	1.8	7.67	8.39	20	1	39.17	-	0	11
H II 29	[tau]	Aql	STF 2628		11/12/2023	18:44	7/31/1781	340	3.0	6.60	8.66	20	7	50.37	+	9	23
H V 136	theta	Aql	S 735		11/12/2023	19:18	9/12/1783	210	55.8	7.16	7.98	20	11	18.86	-	0	7
H II 96	theta	Aql	STF 2644		11/12/2023	19:09	9/12/1783	206	2.6	6.92	7.06	20	12	35.09	+	0	52
H V 35	theta	Aql	S 749	AC	11/12/2023	19:22	7/25/1781	327	44.6	6.76	10.80	20	27	27.56	-	2	6
H III 33		Aql	STF 2379	AB	12/5/2023	17:55	7/30/1781	121	12.6	5.88	7.02	18	46	28.58	-	0	57
H V 33	h	Aql	SHJ 286		12/5/2023	17:53	7/25/1781	209	40.5	5.52	6.98	19	4	57.67	-	4	1
H IV 14		Aql	STF 2594		12/5/2023	17:56	8/2/1780	169	37.4	5.65	6.35	19	54	37.65	-	8	13
H IV 38		Aqr	STF 2809		12/11/2014	18:10	8/14/1781	162	30.6	6.22	9.36	21	37	33.76	-	0	23
H II 57	kappa	Aqr	STF 2944	AB	11/5/2019	17:47	9/27/1782	300	1.9	7.30	7.68	22	47	50.19	-	4	13
H I 44		Aqr	STF 2729	AB	11/9/2023	18:16	9/3/1782	25	0.9	6.40	7.43	20	51	25.69	-	5	37
H I 90	beta	Aqr	STF 2781		11/9/2023	18:38	7/31/1783	172	2.7	8.69	8.87	21	16	43.31	-	7	39
H V 76	beta	Aqr	H V 76	AB	11/9/2023	18:48	7/20/1782	319	37.0	2.91	11.00	21	31	33.52	-	5	34
H V 95		Aqr	BU 172	AB-C	11/9/2023	21:35	10/2/1782	343	53.1	5.77	10.10	22	24	6.87	-	4	50
H II 7*	zeta	Aqr	STF 2909		11/9/2023	21:36	9/12/1779	169	2.1	4.34	4.49	22	28	49.81	-	0	1
H II 59	rho	Aqr	STF 2913		11/9/2023	21:39	9/30/1782	329	8.6	7.78	8.60	22	30	32.80	-	8	6
H V 96	upsilon	Aqr	H V 96		11/9/2023	21:42	10/2/1782	248	51.5	7.71	10.07	22	35	53.95	-	20	56
H I 50	lambda	Aqr	STF 2935	AB	11/9/2023	21:47	9/30/1782	307	2.4	6.79	7.88	22	43	3.40	-	8	18
H III 69		Aqr	STF 2939		11/9/2023	21:48	9/27/1782	62	10.4	7.44	9.30	22	45	20.80	-	9	38
H V 80	tau[1]	Aqr	STF 2943	AB	11/9/2023	21:52	8/28/1782	126	21.0	5.68	9.57	22	47	42.77	-	14	3
H III 34		Aqr	STF 2998	AB	11/9/2023	22:00	8/20/1781	356	12.2	5.27	6.97	23	19	6.51	-	13	27
H II 24	i	Aqr	H II 24		11/9/2023	22:02	8/23/1780	136	6.9	5.65	6.46	23	46	0.85	-	18	40
H III 9+	gamma	Ari	STF 180	AB	12/3/2001	22:00	9/27/1779	1	7.4	4.52	4.58	1	53	31.76	+	19	17
H V 12*	lambda	Ari	H V 12	AB	12/3/2001	22:05	10/30/1779	44	40.4	4.80	6.65	1	57	55.71	+	23	35
H IV 5		Ari	STF 289		8/24/2011	0:42	9/27/1779	356	23.6	5.30	9.56	2	40	41.03	+	27	3
H V 92		Ari	BU 510	AC	11/9/2023	22:47	9/10/1782	328	53.3	8.69	8.55	1	48	33.31	+	16	18
H I 73	beta	Ari	STF 174		11/9/2023	22:48	11/22/1782	164	2.8	6.33	7.21	1	50	8.60	+	22	16
H III 68	eta	Ari	STF 221	AB	11/9/2023	23:09	9/10/1782	146	8.4	8.13	9.45	2	9	42.76	+	20	20
H V 49*		Ari	STFA 5		11/12/2023	19:57	10/15/1781	275	37.9	6.50	7.02	2	37	0.52	+	24	38
H I 74		Ari	STF 300		11/12/2023	20:14	12/22/1782	315	3.2	7.89	8.08	2	44	36.85	+	29	27
H I 64	pi	Ari	STF 311	AB	11/12/2023	20:16	10/29/1782	121	3.3	5.32	7.95	2	49	17.55	+	17	27
H V 116		Ari	H V 116	AC	11/12/2023	20:17	12/23/1782	230	27.2	3.63	10.66	2	49	58.99	+	27	15

H V 117	zeta	Ari	H V 117	AB	11/12/2023	20:26	12/23/1782	321	33.1	8.58	10.59	3	11	13.84	+	22	24
H II 76	tau	Ari	STF 376		11/12/2023	20:27	12/23/1782	251	7.1	8.33	8.44	3	20	20.64	+	19	43
H III 91		Ari	STF 379		11/12/2023	20:28	12/23/1782	101	10.4	8.59	8.80	3	22	51.83	+	29	49
H III 77		Ari	STF 394	AB	11/12/2023	20:30	10/9/1782	164	6.9	7.05	8.16	3	28	1.40	+	20	27
H IV 89	tau	Ari	STF 399	AB			10/9/1782	145	19.9	8.33	10.75	3	30	30.43	+	20	6
H I 56		Ari	STF 178		12/5/2023	18:58	10/12/1782	204	3.0	8.22	8.20	1	52	2.54	+	10	48
H I 67	M37	Aur	STF 796	AB	2/13/2020	18:45	11/4/1782	62	3.7	7.24	8.23	5	49	55.53	+	31	47
H II 14	omega	Aur	STF 616	AB	11/12/2023	21:03	10/30/1779	3	4.8	5.00	8.21	4	59	15.41	+	37	53
H I 45	mu	Aur	STF 644	AB	11/12/2023	21:05	9/5/1782	222	1.6	6.78	6.96	5	10	18.81	+	37	18
H II 48		Aur	STF 666				8/28/1782	74	3.0	7.85	7.89	5	17	5.80	+	33	19
H III 64		Aur	STF 753	AB-C			9/5/1782	268	12.2	5.46	8.41	5	38	38.10	+	30	29
H V 21	tau	Aur	H V 21	AC			9/26/1780	36	52.3	4.52	11.60	5	49	10.46	+	39	10
H V 90	nu	Aur	H V 90				9/5/1782	206	55.9	3.97	11.40	5	51	29.39	+	39	8
H V 89	theta	Aur	STT 545	AC	12/5/2023	21:08	9/5/1782	300	55.2	2.60	10.70	5	59	43.24	+	37	12
H V 91	beta	Aur	H V 91	AC			9/5/1782	345	35.6	6.35	10.28	6	0	18.92	+	44	35
H III 82		Aur	STF 845				11/6/1782	0	8.2	6.16	6.86	6	11	36.59	+	48	42
H I 84	[psi2]	Aur	STF 941	AB			3/18/1783	83	1.9	7.25	8.17	6	38	40.76	+	41	34
H IV 102		Aur	STF 947				11/6/1782	175	18.6	8.77	10.76	6	40	23.39	+	19	25
H V 107	[phi5]	Aur	SHJ 75	AB	12/5/2023	21:14	11/6/1782	45	28.4	5.31	8.65	6	46	44.34	+	43	34
H IV 110	beta	Aur	STF 719	AC			12/24/1782	353	14.8	7.50	9.39	5	30	6.14	+	29	32
H III 11	kappa	Boo	STF 1821		6/23/2001	23:34	9/27/1779	235	13.3	4.53	6.62	14	13	29.01	+	51	47
H III 8*	pi	Boo	STF 1864	AB	6/23/2001	23:55	9/20/1779	112	5.5	4.88	5.79	14	40	43.56	+	16	25
H I 1	epsilon	Boo	STF 1877	AB	6/23/2001	23:59	9/9/1779	343	3.0	2.58	4.81	14	44	59.25	+	27	4
H II 18	xi	Boo	STF 1888	AB	6/23/2001	0:06	4/9/1780	310	5.9	4.76	6.95	14	51	23.28	+	19	6
H V 70		Boo	H V 70	AC			4/5/1782	257	75.1	7.67	8.28	13	30	52.21	+	24	14
H V 9	iota	Boo	STFA 26	AB			9/27/1779	34	38.7	4.76	7.39	14	16	10.07	+	51	22
H II 38		Boo	STF 1835	A-BC			12/24/1781	192	5.9	5.03	6.78	14	23	22.74	+	8	26
H III 20		Boo	STF 1838				6/25/1780	335	9.4	7.47	7.73	14	24	5.76	+	11	14
H II 82		Boo	STF 1873				2/3/1783	94	6.9	7.96	8.35	14	44	48.13	+	7	42
H II 79		Boo	STF 1890				1/8/1783	46	2.6	6.31	6.67	14	49	41.37	+	48	43
H V 122		Boo	STT 291				1/8/1782	156	35.4	6.33	9.62	15	0	38.72	+	47	16
H I 15		Boo	STF 1909				8/17/1781	61	1.7	5.20	6.10	15	3	47.30	+	47	39
H V 125		Boo	H V 125				2/3/1782	228	32.1	8.43	9.46	15	12	47.74	+	27	55
H I 17	[mu]	Boo	STF 1938	Ba,Bb			7/30/1780	6	2.2	7.09	7.63	15	24	30.97	+	37	20
H IV 73		Cam	STF 587				9/7/1782	186	20.9	7.59	9.15	4	48	1.72	+	53	7
H II 53		Cam	STF 625	A-BC			9/7/1782	114	4.2	8.29	10.44	5	4	32.96	+	58	51
H II 92		Cam	STF 638				4/30/1783	219	5.0	7.52	9.06	5	14	19.85	+	69	49

H IV 125		Cam	H IV 125	AB	12/5/2023	19:01	4/2/1783	128	26.5	6.54	10.43	5	50	33.87	+	56	55
H IV 15		Cam	STF 1694	AB			8/2/1780	326	21.0	5.29	5.74	12	49	13.80	+	83	24
H II 51	rho	Cap	SHJ 323	AB	8/23/2011	21:57	9/5/1782	215	1.4	4.97	6.88	20	28	51.62	-	17	48
H IV 71*	omicron	Cap	SHJ 324		8/23/2011	21:57	9/5/1782	239	21.7	5.91	6.68	20	29	53.91	-	18	34
H V 87	sigma	Cap	H V 87		11/9/2023	17:24	8/29/1782	175	59.2	5.43	9.43	20	19	23.60	-	19	7
H I 47		Cap	H I 47		11/9/2023	18:40	9/27/1782	309	4.2	8.25	8.31	21	12	22.56	-	15	0
H V 18	alpha	Cas	H V 18	AD	8/23/2011	23:40	8/31/1780	282	70.4	2.35	8.98	0	40	30.39	+	56	32
H III 23	[phi]	Cas	H III 23	AB	8/23/2011	23:42	8/8/1780	209	48.4	5.07	12.30	1	20	4.91	+	58	13
H V 83	psi	Cas	H V 83	AC	8/23/2011	23:42	8/28/1782	128	20.3	4.68	9.18	1	25	55.90	+	68	7
H V 81		Cas	S 397		12/11/2014	19:55	8/28/1782	342	57.0	6.34	8.63	1	21	5.27	+	64	39
H I 34	iota	Cas	STF 262	AB	12/30/2019	18:10	6/11/1782	230	2.8	4.63	6.92	2	29	3.96	+	67	24
H III 4	iota	Cas	STF 262	AC	12/30/2019	18:10	8/17/1779	116	7.2	4.63	9.05	2	29	3.96	+	67	24
H III 3	eta	Cas	STF 60	AB	9/26/2022	1:26	8/17/1779	322	13.1	3.52	7.36	0	49	5.10	+	57	48
H V 79		Cas	H V 79	AB	11/9/2023	22:07	8/25/1782	331	82.4	5.92	11.00	0	4	13.66	+	62	17
H I 39	beta	Cas	STF 3057		11/9/2023	22:06	8/25/1782	298	3.9	6.70	9.30	0	4	54.98	+	58	31
H V 82	nu	Cas	H V 82	AB	11/9/2023	22:29	8/28/1782	75	56.3	7.97	8.35	0	47	24.62	+	51	5
H I 40	[nu]	Cas	STF 59	AB	11/9/2023	22:28	8/28/1782	148	2.3	7.24	8.06	0	47	59.03	+	51	26
H IV 66	theta	Cas	H IV 66	AB	11/9/2023	22:36	8/28/1782	74	19.8	6.50	10.10	1	7	9.45	+	53	29
H V 84		Cas	S 405	AB	11/9/2023	22:59	8/29/1782	277	55.1	6.47	7.15	2	12	49.98	+	79	41
H I 5	sigma	Cas	STF 3049	AB	12/5/2023	19:08	8/31/1780	327	3.2	4.99	7.24	23	59	0.53	+	55	45
H I 4		Cas	STF 278/ STF A 30		11/12/2023	20:06	8/8/1780	29	0.5	8.68	8.98	2	38	51.06	+	69	18
H III 101	k	Cen	H III 101				1/31/1783	105	8.4	4.50	5.97	13	51	49.58	-	32	59
H III 6	beta	Cep	STF 2806	AB	12/3/2001	21:09	8/31/1779	250	14.1	3.17	8.63	21	28	39.58	+	70	33
H III 71	[mu]	Cep	STF 2816	AC	12/3/2001	21:13	9/27/1782	120	11.9	5.73	7.48	21	38	57.61	+	57	29
H III 72	[mu]	Cep	STF 2819		12/3/2001	21:13	9/27/1782	59	12.7	7.44	8.64	21	40	21.45	+	57	34
H II 16	xi	Cep	STF 2863	AB	12/3/2001	21:38	11/5/1779	275	7.9	4.45	6.40	22	3	47.16	+	64	37
H V 4	delta	Cep	STFA 58	AC	12/4/2005	21:31	8/31/1779	187	40.8	4.21	6.11	22	29	10.25	+	58	24
H IV 79	mu	Cep	STF 2840	AB	12/11/2014	19:29	9/27/1782	197	17.8	5.64	6.42	21	52	1.02	+	55	47
H IV 78	eta	Cep	H IV 78		11/9/2023	18:10	9/27/1782	127	28.5	8.10	12.00	20	36	36.96	+	62	25
H I 48		Cep	H I 48		11/9/2023	18:50	9/27/1782	244	0.3	7.21	7.33	21	13	42.46	+	64	24
H IV 126	lambda	Cep	STF 2872	A-BC	11/9/2023	21:22	4/20/1783	316	21.7	7.14	7.98	22	8	36.04	+	59	17
H IV 82		Cep	STF 2893		11/9/2023	21:23	9/30/1782	346	28.8	6.19	7.91	22	12	52.76	+	73	18
H IV 31	delta	Cep	H IV 31	AB	11/9/2023	21:38	5/27/1781	4	25.3	8.54	10.52	22	28	25.95	+	58	25
H I 51	iota	Cep	STF 2947	AB	11/9/2023	21:55	9/30/1782	56	4.6	6.91	7.02	22	49	0.68	+	68	34
H IV 103		Cep	STF 2796		11/9/2023	18:43	11/13/1782	42	26.4	7.43	9.56	21	15	35.69	+	78	35
H III 70	kappa	Cep	STF 2675	AB	12/5/2023	18:45	9/27/1782	120	7.2	4.39	8.34	20	8	53.32	+	77	42
H IV 76		Cet	STF 39	AB-C	12/11/2014	18:32	9/9/1782	44	19.3	7.10	8.65	0	34	29.75	-	4	32

H IV 83		Cet	STF 84	AB	11/9/2023	22:32	10/2/1782	255	15.8	6.11	9.52	1	3	49.02	+	1	22
H III 73		Cet	STF 86	AB	11/9/2023	22:33	10/2/1782	138	16.6	8.80	9.20	1	4	47.39	-	5	28
H V 24		Cet	STFA 3	AB	11/9/2023	22:38	10/12/1780	330	49.6	5.19	7.85	1	14	24.04	-	7	55
H II 58		Cet	H II 58		11/9/2023	22:53	9/27/1782	303	8.5	7.28	7.56	1	59	0.72	-	22	55
H V 102		Cet	H V 102	AB	11/9/2023	22:59	10/12/1782	194	43.0	5.96	10.77	2	3	48.12	-	0	20
H III 80	sigma	Cet	H III 80	AB	11/9/2023	22:57	10/13/1782	296	11.9	5.88	9.10	2	26	0.38	-	15	20
H III 79	epsilon	Cet	STF 288		11/12/2023	19:59	10/13/1782	216	11.8	8.27	10.70	2	38	10.12	-	11	23
H IV 81	nu[1]	CMa	SHJ 73		9/26/2011	5:48	9/30/1782	264	17.5	5.79	7.38	6	36	22.85	-	18	39
H IV 80	beta	CMa	S 518				9/30/1782	88	16.5	6.98	8.40	6	24	21.15	-	16	13
H II 60	xi	CMa	H II 60	AB			9/30/1782	336	9.2	6.39	9.31	6	36	41.07	-	22	36
H V 108	kappa	CMa	H V 108	A-BC			11/6/1782	66	42.7	5.76	7.71	6	50	23.34	-	31	42
H V 65	pi	CMa	H V 65	AB			3/3/1782	148	43.5	5.80	8.66	6	55	2.74	-	20	24
H I 23		CMi	STF 1126	AB			11/21/1781	172	1.1	6.55	6.96	7	40	6.99	+	5	13
H II 39	[alpha]	CMi	STF 1137				2/2/1782	130	2.5	7.96	9.12	7	46	35.35	+	4	7
H I 24	zeta	Cnc	STF 1196	AB	2/13/2020	20:42	11/21/1781	38	1.0	5.30	6.25	8	12	12.71	+	17	38
H III 19+	zeta	Cnc	STF 1196	AB-C	2/13/2020	20:42	4/5/1780	68	5.9	5.30	6.20	8	12	12.71	+	17	38
H II 41*	upsilon	Cnc	STF 1224	A-BC			2/2/1782	51	5.6	6.92	7.53	8	26	39.82	+	24	32
H II 40*	phi[2]	Cnc	STF 1223				2/2/1782	218	5.2	6.16	6.21	8	26	47.08	+	26	56
H V 109	beta	Cnc	H V 109				11/6/1782	345	29.6	5.22	10.23	8	25	54.77	+	7	33
H V 59	theta	Cnc	HJ 2452	AB			2/6/1782	63	72.2	5.35	10.00	8	31	35.72	+	18	5
H IV 118	iota	Cnc	STF 1266				2/5/1783	64	23.7	8.75	9.99	8	44	27.20	+	28	27
H IV 52*	iota	Cnc	STF 1268				2/8/1782	310	30.6	4.13	5.99	8	46	41.82	+	28	45
H IV 111		Cnc	STF 1283				12/28/1782	123	16.7	7.66	8.45	8	49	55.86	+	14	50
H I 30		Cnc	STF 1291	AB			3/5/1782	312	1.5	6.09	6.37	8	54	14.70	+	30	34
H III 92	xi	Cnc	STF 1311	AB			12/28/1782	199	7.5	6.92	7.13	9	7	27.01	+	22	58
H IV 27		Com	STF 1657		6/23/2001	21:55	2/28/1781	271	19.9	5.11	6.33	12	35	7.76	+	18	22
H IV 58		Com	STF 1685	AB	5/4/2020	21:29	4/18/1782	202	16.0	7.31	7.78	12	51	54.80	+	19	10
H II 47	[eta]	Com	STF 1596				4/18/1782	236	3.7	6.18	7.48	12	4	16.60	+	21	27
H V 121		Com	SHJ 143	AC			1/1/1783	168	63.6	4.86	8.90	12	22	30.32	+	25	50
H V 130		Com	STF 1687	AC			1/8/1783	126	26.6	5.15	9.76	12	53	17.77	+	21	14
H II 46	[alpha]	Com	BU 800	AB			4/15/1782	107	7.5	6.66	9.50	13	16	50.67	+	17	1
H IV 57	[alpha]	Com	STF 1737				4/15/1782	220	14.8	7.85	10.31	13	21	48.68	+	17	45
H I 3	sigma	CrB	STF 2032	AB	6/24/2001	0:48	8/7/1780	237	7.1	5.62	6.49	16	14	40.85	+	33	51
H IV 61	zeta	CrB	STF 1964	AC	10/6/2019	19:33	7/18/1782	85	15.1	7.85	8.06	15	38	12.96	+	36	14
H V 37	upsilon	CrB	SHJ 223	AB	10/6/2019	20:08	9/21/1781	24	53.7	5.78	11.70	16	16	44.77	+	29	9
H V 38	[xi]	CrB	H V 38				9/21/1781	17	31.1	6.41	9.79	16	22	56.50	+	32	19
H I 16	eta	CrB	STF 1937	AB			9/9/1781	163	0.6	5.64	5.95	15	23	12.23	+	30	17

H I 18		CrB	STF 1963	AB			9/10/1781	298	5.2	8.54	8.85	15	37	53.73	+	30	6
H II 8	zeta	CrB	STF 1965				10/1/1779	306	6.3	4.96	5.91	15	39	22.68	+	36	38
H V 75	epsilon	CrB	H V 75				7/18/1782	113	56.5	7.94	11.48	16	1	3.91	+	26	10
H II 74	nu	Crt	STF 1474	BC			11/20/1782	22	7.0	7.80	7.50	10	47	40.02	-	15	14
H I 77	alpha	Crt	H I 77				1/31/1783	25	2.9	8.57	8.90	11	2	5.78	-	15	41
H IV 112	gamma	Crt	H IV 112	A-BC			1/1/1783	332	28.6	7.85	8.45	11	29	14.74	-	17	21
H III 96		Crt	H III 96				1/10/1783	210	9.4	5.64	5.73	11	32	16.40	-	29	15
H IV 105	delta	Crv	SHJ 145	AB	6/23/2001	21:46	11/17/1782	215	23.4	2.95	8.47	12	29	51.86	-	16	30
H III 85		CVn	STF 1622				11/13/1782	259	11.4	5.86	8.71	12	16	7.55	+	40	39
H IV 17*		CVn	STF 1692				8/7/1780	229	19.1	2.85	5.52	12	56	1.67	+	38	19
H IV 18*		Cyg	STF 2758	AB	12/3/2001	18:20	9/20/1780	154	31.1	5.20	6.05	21	6	53.94	+	38	44
H V 5†	beta	Cyg	STFA 43	AB	8/23/2011	22:21	9/12/1779	55	34.6	3.19	4.68	19	30	43.29	+	27	57
H V 46		Cyg	STFA 46	AB	8/23/2011	23:38	10/5/1781	133	39.9	6.00	6.23	19	41	49.09	+	50	31
H I 94	delta	Cyg	STF 2579	AB	10/6/2019	20:57	9/20/1783	220	2.8	2.89	6.27	19	44	58.44	+	45	7
H II 69		Cyg	STF 2534		9/6/2023	21:28	10/24/1782	63	6.9	8.21	8.39	19	27	40.63	+	36	31
H V 137	chi	Cyg	H V 137	AB	9/6/2023	22:28	9/22/1783	26	39.1	6.22	8.18	19	45	51.35	+	35	0
H IV 11	chi	Cyg	STF 2580	AB	9/6/2023	22:28	11/20/1779	69	26.2	5.06	9.25	19	46	25.60	+	33	43
H III 112	delta	Cyg	STF 2588	A-BC	9/6/2023	22:30	9/22/1783	159	9.6	7.74	8.12	19	49	0.90	+	44	22
H I 96	eta	Cyg	STF 2624	AB	9/21/2023	19:23	9/23/1783	172	1.9	7.09	7.73	20	3	29.40	+	36	1
H III 113a		Cyg	SHJ 314	AD	9/21/2023	19:31	9/23/1783	301	11.4	6.78	9.49	20	5	57.33	+	35	47
H III 15*	mu	Cyg	STF 2822	AB	10/4/2023	22:15	10/19/1779	313	1.7	4.75	6.18	21	44	8.57	+	28	44
H II 99	beta	Cyg	STF 2539	AC	11/9/2023	17:57	9/15/1783	2	5.3	7.67	9.78	19	32	5.91	+	28	16
H II 15	psi	Cyg	STF 2605	AB	11/9/2023	17:30	11/2/1779	178	3.0	5.03	7.52	19	55	37.82	+	52	26
H V 47	c	Cyg	H V 47	AB	11/9/2023	17:33	10/8/1781	146	39.9	5.17	8.94	20	1	21.55	+	50	6
H I 95		Cyg	STF 2671	AB	11/9/2023	18:53	9/22/1783	338	3.6	6.01	7.51	20	18	24.76	+	55	23
H IV 23		Cyg	S 755	AB	11/9/2023	17:52	10/27/1780	278	59.3	6.64	9.72	20	30	52.72	+	49	12
H IV 24	[omega2]	Cyg	ES 89		11/9/2023	17:55	10/27/1780	210	21.4	6.58	11.50	20	38	16.91	+	48	4
H II 98		Cyg	STF 2716	AB	11/9/2023	17:38	9/15/1783	46	2.8	5.75	8.10	20	41	2.54	+	32	18
H II 25	k	Cyg	STF 2726		11/9/2023	17:35	9/8/1780	70	6.0	4.20	8.70	20	45	39.76	+	30	43
H II 100		Cyg	STF 2732		11/9/2023	18:18	9/24/1783	72	4.2	6.38	8.63	20	48	42.74	+	51	54
H I 97		Cyg	STF 2741	AB	11/9/2023	18:12	9/24/1783	26	1.9	5.94	6.79	20	58	30.03	+	50	27
H IV 22	f	Cyg	STF 2743	AB	11/9/2023	18:03	10/27/1780	353	20.4	4.59	9.43	20	59	49.55	+	47	31
H IV 113		Cyg	H IV 113	AB	11/9/2023	18:08	1/6/1783	299	19.2	6.62	9.49	21	2	20.96	+	39	30
H II 97	zeta	Cyg	STF 2762	AB	11/9/2023	18:15	9/15/1783	304	3.4	5.70	8.10	21	8	38.87	+	30	12
H IV 39	sigma	Cyg	STT 434	AB	11/9/2023	18:55	10/1/1781	122	23.9	6.67	9.93	21	19	0.03	+	39	44
H V 44		Cyg	S 790	AC	11/9/2023	18:42	10/1/1781	99	53.3	5.89	10.22	21	25	47.02	+	36	40
H II 66	gamma	Del	STF 2725	AB	12/3/2001	18:25	10/19/1782	11	6.1	7.54	8.20	20	46	13.31	+	15	54

H III 10*	gamma	Del	STF 2727		12/3/2001	18:25	9/27/1779	266	9.0	4.36	5.03	20	46	39.50	+	16	7
H III 16*	epsilon	Del	STF 2690	A,BC	12/11/2014	17:49	11/15/1779	255	17.3	7.12	7.39	20	31	11.94	+	11	15
H IV 92	beta	Del	STF 2703	AB	11/9/2023	18:05	10/17/1782	290	25.0	8.35	8.42	20	36	49.41	+	14	43
H IV 35	beta	Del	STF 2704	AB-D	11/9/2023	17:59	8/1/1781	319	46.7	3.68	11.40	20	37	32.87	+	14	35
H I 61		Del	STF 2735		11/9/2023	18:01	10/26/1782	282	2.0	6.45	7.54	20	55	40.64	+	4	31
H I 7		Dra	STF 2323	AB	8/23/2011	23:25	10/3/1780	350	4.0	5.06	8.07	18	23	54.65	+	58	48
H III 61		Dra	STF 1882	AB			8/29/1782	358	11.6	6.92	9.23	14	44	3.55	+	61	5
H I 19		Dra	STF 2118	AB	12/5/2023	18:19	9/10/1781	67	1.0	7.07	7.30	16	56	25.32	+	65	2
H II 13	mu	Dra	STF 2130	AB	12/5/2023	18:01	10/19/1779	8	2.4	5.66	5.69	17	5	20.12	+	54	28
H I 66	beta	Dra	STF 2180				11/4/1782	261	3.0	7.79	8.06	17	28	58.17	+	50	52
H I 41	[psi]	Dra	H I 41				8/29/1782	336	1.0	8.10	8.52	17	39	43.81	+	72	55
H IV 67†		Dra	STF 2308	AB	12/5/2023	18:17	8/29/1782	232	18.6	5.70	6.00	18	0	9.07	+	80	0
H II 31		Dra	STF 2368	AB	12/5/2023	18:21	9/6/1781	320	1.9	7.63	7.77	18	38	51.27	+	52	20
H IV 20	omicron	Dra	STF 2420	AB	12/5/2023	18:05	10/3/1780	318	37.0	4.77	8.26	18	51	12.01	+	59	23
H I 43		Dra	STF 2438		12/5/2023	18:33	9/3/1782	359	0.9	7.01	7.44	18	57	28.47	+	58	13
H I 8	epsilon	Dra	STF 2603		12/5/2023	18:07	10/3/1780	19	3.2	4.01	6.87	19	48	10.35	+	70	16
H III 21	epsilon	Equ	STF 2737	BC	11/9/2023	18:30	8/2/1780	67	10.5	6.31	7.05	20	59	4.46	+	4	17
H I 62		Equ	BU 269		11/9/2023	18:20	10/29/1782	240	1.1	8.34	10.07	21	4	32.53	+	7	45
H I 63	gamma	Equ	STF 2765	AB	11/9/2023	18:35	10/29/1782	80	2.8	8.47	8.50	21	10	59.31	+	9	32
H IV 37	delta	Equ	STF 2777	AB-C	11/9/2023	18:37	8/13/1781	6	74.1	4.54	10.17	21	14	28.81	+	10	0
H III 99		Eri	STF 590		12/3/2001	22:47	1/31/1783	318	9.2	6.74	6.78	4	43	35.17	-	8	47
H II 36		Eri	STF 470	AB			10/22/1781	353	7.2	4.80	5.89	3	54	17.49	-	2	57
H II 80	[omicron2]	Eri	STF 527				1/31/1783	195	6.2	8.16	10.38	4	19	2.70	-	7	25
H IV 117		Eri	HJ 342	AB	12/5/2023	21:36	1/31/1783	235	17.3	7.76	9.58	4	23	15.01	-	5	0
H III 100		Eri	STF 570				1/31/1783	260	12.7	6.71	7.64	4	35	14.12	-	9	44
H III 95	nu	Eri	STF 571	AB			1/2/1783	259	17.7	6.33	10.72	4	36	1.67	-	3	36
H IV 43		Eri	STF 649	AB			10/22/1781	69	21.6	5.80	8.97	5	8	20.18	-	8	39
H II 1†	alpha	Gem	STF 1110	AB	1/10/2002	22:16	4/8/1778	60	4.9	1.93	2.97	7	34	36.00	+	31	53
H IV 28	bar gamma	Gem	STF 924	AB	9/27/2011	3:17	3/13/1781	211	19.9	6.31	6.88	6	32	18.52	+	17	47
H V 52		Gem	SHJ 70	AB	12/15/2014	21:32	12/27/1781	203	25.5	6.65	8.18	6	27	46.58	+	20	47
H III 47	e	Gem	STF 982	AB	2/13/2020	20:14	12/27/1781	146	7.4	4.75	7.80	6	54	38.59	+	13	10
H V 112*	mu	Gem	S 524	AB	12/5/2023	12:12	12/1/1782	244	53.3	7.17	7.41	6	34	7.10	+	22	7
H III 48	r	Gem	STF 1083				12/27/1781	47	6.8	7.32	8.13	7	25	35.30	+	20	29
H V 66	p	Gem	S 548	AC	12/5/2023	21:25	3/3/1782	277	35.5	6.98	8.89	7	27	40.54	+	22	8
H V 53		Gem	SHJ 368	AB	12/5/2023	21:28	12/27/1781	324	43.0	5.28	10.92	7	27	44.39	+	21	26
H IV 53	pi	Gem	STF 1135	AB			2/9/1782	215	19.3	5.14	11.40	7	47	30.34	+	33	24
H II 64	g	Gem	STF 1140				10/13/1782	274	6.4	7.01	8.65	7	48	22.61	+	18	20

H II 65	beta	Gem	STF 1144	AB			10/13/1782	358	8.1	7.94	10.33	7	49	0.84	+	28	34
H III 26*		Her	STF 2264		6/24/2001	1:18	9/8/1780	256	6.3	4.85	5.20	18	1	30.41	+	21	35
H V 1	delta	Her	STF 3127	AB	6/24/2013	1:01	8/9/1779	285	10.9	3.12	8.30	17	15	1.92	+	24	50
H II 2†	alpha	Her	STF 2140	AB	6/25/2013	0:58	8/29/1779	104	4.8	3.48	5.40	17	14	38.86	+	14	23
H II 3*	rho	Her	STF 2161	AB	6/25/2013	1:09	8/29/1779	320	4.5	4.50	5.40	17	23	40.97	+	37	8
H IV 41	mu	Her	STF 2220	A,BC	9/23/2022	21:24	10/10/1781	249	35.1	3.49	9.78	17	46	27.51	+	27	43
H V 8	kappa	Her	STF 2010	AB	11/12/2023	18:32	9/20/1779	15	27.7	5.10	6.21	16	8	4.55	+	17	2
H I 37	phi	Her	STF 2015	AB	11/12/2023	19:46	7/18/1782	159	3.0	8.24	9.52	16	8	54.75	+	45	21
H IV 115	phi	Her	STF 2024		11/12/2023	19:14	1/10/1783	44	23.7	5.86	10.73	16	11	47.60	+	42	22
H V 19	gamma	Her	SHJ 227	AB	11/12/2023	17:36	9/4/1780	227	42.5	3.76	10.05	16	21	55.24	+	19	9
H III 102	h	Her	STF 2051		11/12/2023	17:43	2/3/1783	19	13.9	7.68	9.42	16	29	25.06	+	10	35
H IV 62	tau	Her	STF 2063		11/12/2023	18:01	8/11/1782	196	16.3	5.69	8.70	16	31	47.23	+	45	35
H IV 63		Her	STF 2082		11/12/2023	17:29	8/11/1782	92	27.2	4.90	11.80	16	38	44.89	+	48	55
H I 36	zeta	Her	STF 2084		11/12/2023	17:38	7/18/1782	185	1.2	2.95	5.40	16	41	17.46	+	31	36
H V 127		Her	H V 127		11/12/2023	17:34	2/5/1782	294	53.3	7.81	9.04	16	43	38.81	+	6	37
H I 79		Her	STF 2095		11/12/2023	17:39	2/5/1783	160	5.3	7.36	9.16	16	45	5.23	+	28	21
H III 89		Her	STF 2120	AB	11/12/2023	19:00	11/26/1782	231	23.5	7.37	9.25	17	4	45.80	+	28	5
H V 133		Her	H V 133		11/12/2023	17:27	2/26/1783	307	60.2	4.91	10.90	17	5	22.66	+	12	44
H III 104		Her	STF 2194	AB	11/12/2023	19:06	3/26/1783	7	16.3	6.51	9.28	17	41	5.50	+	24	30
H III 40		Her	STF 2232		11/12/2023	19:05	10/10/1781	140	6.0	6.71	8.85	17	50	15.00	+	25	17
H IV 42		Her	STF 2259		11/12/2023	19:10	10/10/1781	277	19.8	7.27	8.44	17	59	3.63	+	30	2
H II 90		Her	STF 2263		11/12/2023	18:09	3/27/1783	160	7.4	8.73	9.93	18	0	55.43	+	26	32
H V 93		Her	H V 93		11/12/2023	18:05	9/19/1782	136	54.8	8.16	8.28	18	12	59.40	+	28	15
H I 82		Her	STF 2021	AB			3/7/1783	356	4.1	7.43	7.48	16	13	18.45	+	13	31
H III 49	delta	Hya	STF 1245	AB			1/20/1782	25	10.0	5.98	7.16	8	35	51.05	+	6	37
H IV 54	delta	Hya	STF 1255	AB			2/11/1782	30	25.9	7.33	8.56	8	39	43.70	+	5	45
H V 120		Hya	H V 120	AB-C			12/28/1782	5	45.7	5.54	9.70	8	51	34.44	-	7	10
H II 77*		Hya	STF 1295				12/28/1782	4	4.0	6.73	6.93	8	55	29.60	-	7	58
H V 54	theta	Hya	HJ 2489	AB			1/20/1782	241	20.3	3.85	9.90	9	14	21.86	+	2	18
H III 97		Hya	H III 97				1/10/1783	121	8.3	5.12	7.25	14	46	0.08	-	25	26
H III 17		Lac	STF 2894	AB	11/9/2023	21:26	11/20/1779	194	15.6	6.21	8.85	22	18	56.17	+	37	46
H IV 86		Lac	STF 2922	AB	11/9/2023	21:41	10/4/1782	187	22.8	5.66	6.29	22	35	52.28	+	39	38
H V 97		Lac	S 813	AB	11/9/2023	21:43	10/4/1782	49	62.2	4.84	10.30	22	39	15.68	+	39	3
H IV 85		Lac	STF 2960	AB	11/9/2023	21:57	10/4/1782	345	27.6	5.56	11.32	22	56	23.63	+	41	36
H III 30*		Leo	STF 1487		6/23/2001	21:42	2/21/1781	112	6.5	4.48	6.30	10	55	36.80	+	24	44
H I 26	omega	Leo	STF 1356				2/8/1782	105	0.7	5.69	7.28	9	28	27.41	+	9	3
H IV 47		Leo	H IV 47				2/9/1782	79	25.2	5.76	11.12	9	28	29.19	+	8	11



H V 26	h	Leo	SHJ 107				2/21/1781	75	37.7	5.22	9.30	9	31	57.58	+	9	42
H V 58		Leo	H V 58				2/4/1782	90	41.0	6.31	9.39	9	35	52.88	+	14	22
H V 63		Leo	H V 63	AB			2/17/1782	349	49.5	7.47	9.50	9	58	39.35	+	10	57
H I 28	gamma	Leo	STF 1424	AB			2/9/1782	120	4.0	2.37	3.64	10	19	58.16	+	19	50
H II 43		Leo	STF 1426	AB-C			2/17/1782	9	7.8	7.30	9.43	10	20	32.32	+	6	25
H I 29		Leo	STF 1431				2/17/1782	70	3.6	7.76	9.07	10	25	35.12	+	8	46
H V 62		Leo	S 617				2/11/1782	178	35.0	6.22	8.71	10	53	24.96	-	2	15
H II 78	chi	Leo	STF 1507				1/1/1783	164	8.4	8.80	10.23	11	6	7.42	+	7	2
H V 61		Leo	HJ 4433				2/9/1782	4	54.8	5.62	10.84	11	25	36.37	+	16	27
H IV 13		Leo	STF 1540	AB			4/6/1780	143	29.6	6.55	7.50	11	26	45.75	+	3	0
H III 51		Leo	STF 1547	AB			2/9/1782	331	15.3	6.33	9.14	11	31	44.94	+	14	21
H I 27		Leo	STF 1552	AB			2/9/1782	209	3.5	6.26	7.31	11	34	42.50	+	16	47
H V 60	o	Leo	SHJ 132	AB			2/9/1782	14	39.0	6.86	10.17	11	52	46.22	+	15	26
H V 50	gamma	Lep	H V 50	BC	6/26/2011	3:20	10/22/1781	8	112.5	6.28	11.37	5	44	26.53	-	22	25
H III 67	iota	Lep	STF 655	AB			9/7/1782	337	12.0	4.47	9.92	5	12	17.89	-	11	52
H IV 56		Lib	STF 1894	AB			4/3/1782	39	19.7	5.87	9.90	14	58	53.64	-	11	8
H V 131		Lib	SHJ 195				3/1/1783	141	46.2	6.79	8.32	15	14	28.13	-	18	25
H V 132		Lib	BU 1448				3/1/1783	270	33.6	8.11	10.51	15	21	48.99	-	15	9
H V 27	[epsilon]	Lib	SHJ 202	AB			5/24/1781	133	52.3	6.95	7.61	15	28	9.57	-	9	20
H V 69		LMi	HJ 1166	AB			3/12/1782	128	63.2	5.97	9.66	9	30	43.22	+	33	39
H I 9		Lyn	STF 1334	AB	6/23/2001	20:59	11/24/1780	225	2.6	3.92	6.09	9	18	50.67	+	36	48
H III 83		Lyn	STF1062	AB	1/10/2002	22:14	11/13/1782	315	14.8	5.76	6.71	7	22	52.06	+	55	16
H I 6		Lyn	STF 948	AB	1/10/2022	22:00	8/7/1780	71	1.9	5.44	6.00	6	46	14.15	+	59	26
H III 22		Lyn	STF 948	AC	1/10/2022	22:00	8/7/1780	308	8.9	5.44	7.05	6	46	14.15	+	59	26
H IV 30		Lyn	STF 1369	AB			5/26/1781	149	25.2	6.98	7.98	9	35	22.50	+	39	57
H II 72		Lyn	STF 958	AB			11/13/1782	256	4.4	6.28	6.34	6	48	12.23	+	55	42
H I 69		Lyn	STF 1009	AB	12/5/2023	21:30	11/13/1782	148	4.4	6.87	7.01	7	5	39.83	+	52	45
H I 76		Lyn	STF 1033	AB			1/23/1783	276	1.6	7.81	8.44	7	14	48.05	+	52	32
H I 85		Lyn	STF 1289				3/24/1783	7	3.6	8.21	8.91	8	54	44.33	+	43	35
H IV 55		Lyn	STF 1342	BC			3/5/1782	314	16.6	8.80	11.10	9	21	15.23	+	34	26
H V 39	alpha	Lyr	H V 39	AB	6/23/2022	21:00	9/24/1781	185	81.0	0.09	9.50	18	36	56.33	+	38	47
H IV 94	beta	Lyr	STF 2372	AB	11/12/2023	19:16	10/19/1782	82	25.2	6.45	7.73	18	42	8.09	+	34	44
H II 5*	epsilon1	Lyr	STF 2382	AB	11/12/2023	18:49	8/29/1779	349	2.3	5.15	6.10	18	44	20.34	+	39	40
H II 6*	epsilon2	Lyr	STF 2383	CD	11/12/2023	18:19	8/29/1779	79	2.4	5.25	5.38	18	44	22.78	+	39	36
H V 2*	zeta	Lyr	STFA 38	AD	11/12/2023	17:46	8/29/1779	150	43.5	4.34	5.62	18	44	46.34	+	37	36
H III 81	zeta	Lyr	STF 2393	AB	11/12/2023	19:25	10/19/1782	22	17.4	7.80	10.40	18	45	10.84	+	38	18
H II 67	beta	Lyr	STF 2390		11/12/2023	18:07	10/19/1782	156	4.4	7.37	8.56	18	45	49.83	+	34	31

H V 40	nu	Lyr	H V 40	AC	11/12/2023	17:51	9/24/1781	120	57.5	5.93	10.30	18	49	45.91	+	32	48
H V 3*	beta	Lyr	STFA 39	AB	11/12/2023	17:58	8/29/1779	148	45.4	3.63	6.69	18	50	4.79	+	33	21
H I 58	delta2	Lyr	STF 2429		11/12/2023	19:27	10/24/1782	285	5.4	8.36	9.99	18	58	26.49	+	36	25
H IV 93	epsilon	Lyr	STF 2431		11/12/2023	18:46	10/19/1782	236	19.3	6.17	9.61	18	58	46.59	+	40	40
H I 60	lambda	Lyr	STF 2441	AB	11/12/2023	18:28	10/24/1782	264	5.9	7.85	9.78	19	2	41.26	+	31	23
H I 59	iota	Lyr	STF 2448		11/12/2023	18:14	10/24/1782	191	2.4	8.75	8.80	19	3	39.66	+	35	44
H V 103	iota	Lyr	H V 103		11/12/2023	19:24	10/24/1782	55	56.3	8.06	10.41	19	5	59.37	+	35	52
H II 68	rho	Lyr	STF 2461	AB	11/12/2023	18:25	10/24/1782	290	3.7	5.26	9.10	19	7	25.58	+	32	30
H IV 2*	eta	Lyr	STF 2487	AB	11/12/2023	19:44	8/29/1779	80	28.6	4.38	8.58	19	13	45.49	+	39	8
H II 17*	[beta]	Mon	STF 919	AB	1/10/2002	21:58	12/5/1779	127	6.6	4.62	5.00	6	28	49.07	-	7	1
H I 10	[beta]	Mon	STF 919	BC	1/10/2002	21:58	12/5/1779	100	2.9	5.00	5.32	6	28	49.42	-	7	2
H II 89		Mon	STF 915	AB			3/26/1783	42	6.0	7.60	8.52	6	28	13.96	+	5	16
H III 98		Mon	STF 920	AB			1/13/1783	212	9.4	7.35	10.24	6	30	29.22	+	4	19
H III 75		Mon	STF 926	AB			10/4/1782	288	10.8	7.23	8.62	6	31	40.54	+	5	46
H III 46		Mon	STF 950	AC			10/22/1781	16	17.0	4.66	9.90	6	40	58.66	+	9	53
H III 114		Mon	STF 953				1/23/1784	330	7.2	7.10	7.66	6	41	9.41	+	8	59
H IV 96		Mon	STF 1132				10/19/1782	235	20.2	8.13	8.49	7	42	12.50	-	3	31
H IV 97	[zeta]	Mon	STF 1190	AB			10/19/1782	108	33.4	4.46	10.20	8	8	35.65	-	2	59
H IV 26		Mon	STF 1112				2/15/1781	113	23.8	6.03	8.73	7	32	5.82	-	8	52
H III 25*	[omicron]	Oph	H III 25		6/25/2013	1:05	8/29/1780	353	10.3	5.23	6.64	17	18	0.71	-	24	17
H IV 122		Oph	H IV 122		11/12/2023	17:32	3/7/1783	237	18.7	6.28	10.27	17	1	33.05	+	14	56
H V 30		Oph	STFA 34	AB			7/19/1781	190	41.0	5.80	7.50	17	34	36.69	+	9	35
H IV 32*		Oph	STF 2202	AB	12/5/2023	17:48	7/15/1781	93	20.7	6.13	6.47	17	44	34.09	+	2	34
H II 4*	p	Oph	STF 2272	AB			8/29/1779	131	5.9	4.22	6.17	18	5	27.37	+	2	29
H III 56		Oph	STF 2276	AB	12/5/2023	17:51	6/16/1782	257	6.9	7.09	7.44	18	5	43.30	+	12	0
H II 19	rho	Oph	H II 19	AB			5/2/1780	334	3.3	5.07	5.74	16	25	35.12	-	23	26
H I 83	lambda	Oph	STF 2055	AB			3/9/1783	37	1.4	4.15	5.15	16	30	54.84	+	1	59
H IV 123		Oph	STF 2096	AB			3/9/1783	87	24.0	6.09	9.68	16	47	9.76	+	2	3
H I 88	tau	Oph	STF 2262	AB			4/28/1783	286	1.6	5.27	5.86	18	3	4.91	-	8	10
H I 87		Oph	STF 2281	AB			4/27/1783	288	0.6	5.97	7.52	18	9	33.86	+	3	59
H II 33	beta	Ori	STF 668	A-BC	12/1/2001	22:52	10/1/1781	204	9.3	0.30	6.80	5	14	32.27	-	8	12
H II 11	sigma2	Ori	STF 762	AB-C	12/3/2001	21:34	10/7/1779	239	10.9	3.73	8.79	5	38	44.77	-	2	36
H II 9	lambda	Ori	STF 738	AB	1/10/2002	21:24	10/7/1779	50	4.9	3.51	5.45	5	35	8.28	+	9	56
H III 1+	theta	Ori	STF 748	AB	1/10/2002	21:21	11/11/1776	30	7.8	6.55	7.49	5	35	15.82	-	5	23
H III 12	iota	Ori	STF 752	AB	1/10/2002	21:28	10/7/1779	138	10.8	2.90	7.00	5	35	25.98	-	5	54
H III 76	delta	Ori	STF 741		9/22/2011	2:34	10/4/1782	286	10.1	7.14	10.03	5	34	56.49	-	0	7
H III 52	[pi6]	Ori	STF 630	A-BC	12/11/2014	21:51	2/17/1782	49	14.3	6.50	7.71	5	2	0.03	+	1	36

H V 57	[omicron2]	Ori	SHJ 49	AB	12/15/2014	21:23	2/4/1782	305	39.2	6.06	7.43	4	58	59.41	+	14	32
H V 10*	delta	Ori	STFA 14	AC	9/26/2015	2:34	10/26/1779	359	52.8	2.41	6.83	5	32	0.40	-	0	17
H II 10	sigma1	Ori	STF 761	BC	12/30/2019	19:55	10/7/1779	270	8.7	8.39	8.55	5	38	34.79	-	2	34
H II 61	omega	Ori	STF 788	AB	2/13/2020	19:02	10/2/1782	89	7.5	7.61	10.05	5	44	43.46	+	3	49
H III 94	nu	Ori	STF 688				12/31/1782	95	10.6	7.52	7.55	5	19	20.88	-	10	44
H I 68		Ori	STF 622	A-BC			11/5/1782	163	2.5	8.48	8.61	4	58	6.20	+	1	40
H I 54	tau	Ori	STF 667				10/4/1782	316	4.2	7.15	8.78	5	14	41.31	-	7	4
H V 25	tau	Ori	H V 25	AB			10/23/1780	251	33.7	3.60	10.97	5	17	36.40	-	6	50
H IV 87	e	Ori	STF 692	AB-C			10/4/1782	5	34.6	7.64	8.57	5	20	24.16	-	8	1
H I 75		Ori	STF 700				1/9/1783	5	4.9	7.69	7.89	5	23	5.54	+	1	3
H II 102	e	Ori	STF 701				9/27/1783	139	6.0	6.13	8.09	5	23	18.50	-	8	24
H I 52		Ori	STF 708				10/2/1782	322	2.7	7.74	8.90	5	25	11.38	+	1	55
H I 53	[psi2]	Ori	STF 712	AB			10/2/1782	66	3.2	6.70	8.59	5	26	31.22	+	2	56
H V 101	upsilon	Ori	H V 101				10/4/1782	116	49.3	6.71	10.60	5	29	25.41	-	7	15
H IV 45	psi	Ori	STF 721	A-BC			12/27/1781	148	25.1	7.09	9.14	5	29	33.52	+	3	8
H I 25		Ori	STF 728				1/20/1782	46	1.2	4.44	5.75	5	30	47.06	+	5	56
H I 22	n	Ori	STF 729	AB			10/22/1781	29	1.9	5.71	6.74	5	31	14.53	+	3	17
H V 119	epsilon	Ori	STF 734	AC			12/28/1782	245	29.5	6.67	8.35	5	33	7.35	-	1	43
H II 9	lambda	Ori	STT 111		1/10/2002	21:24	10/7/1779	351	2.8	5.65	9.68	5	35	13.24	+	10	14
H II 26		Ori	STF 750				10/23/1780	60	4.2	6.43	8.39	5	35	31.07	-	4	21
H III 13	iota	Ori	STF 754				10/7/1779	288	5.3	5.71	9.24	5	36	35.69	-	6	3
H III 111	epsilon	Ori	STF 758	CD			9/20/1783	298	11.2	8.69	8.52	5	38	9.90	-	0	11
H I 20		Ori	STF 795				10/1/1781	219	1.1	5.99	6.03	5	48	0.21	+	6	27
H IV 98	alpha	Ori	STF 817				10/29/1782	73	18.8	8.68	8.93	5	54	51.96	+	7	1
H V 100		Ori	H V 100	AB			10/4/1782	206	36.5	5.91	10.44	5	58	24.44	+	1	50
H I 57	[xi/nu]	Ori	STF 848	AB			10/12/1782	110	2.6	7.28	8.15	6	8	30.36	+	13	58
H V 23	f	Ori	H V 23	AB			10/10/1780	230	43.9	7.27	10.59	6	17	6.29	+	15	51
H V 20	e	Peg	STFB 11	AB	11/9/2023	18:32	9/8/1780	308	40.3	4.20	7.56	21	22	5.13	+	19	48
H V 98		Peg	STFA 56	AB	11/9/2023	18:56	10/4/1782	348	39.0	6.18	7.50	21	37	43.64	+	6	37
H V 99		Peg	STF 2900	AC	11/9/2023	21:28	10/4/1782	308	89.9	6.28	8.54	22	23	39.36	+	20	50
H III 36	gamma	Per	STF 331		12/3/2001	22:35	9/14/1781	84	12.3	5.21	6.17	3	0	52.18	+	52	21
H IV 64	q	Per	STF 292		11/12/2023	20:07	8/20/1782	212	23.1	7.56	8.23	2	42	29.48	+	40	15
H IV 4	eta	Per	STF 307	AB	11/12/2023	20:20	9/20/1779	295	31.2	3.76	8.50	2	50	41.79	+	55	53
H I 38	[tau]	Per	STF 314	AB-C	11/12/2023	20:22	8/20/1782	314	1.5	6.95	7.26	2	52	52.03	+	52	59
H III 60		Per	STF 318	AB-C	11/12/2023	20:23	8/20/1782	237	13.9	5.00	9.68	2	53	42.58	+	38	20
H II 52	omicron	Per	STF 425		11/12/2023	20:46	9/7/1782	62	1.9	7.52	7.60	3	40	7.24	+	34	6
H III 65	e	Per	STF 563		11/12/2023	20:58	9/7/1782	32	11.8	7.98	10.49	4	36	39.13	+	41	4

H III 58	theta	Per	STF 296	AB			8/20/1782	305	20.6	4.16	10.25	2	44	11.70	+	49	13
H II 22	epsilon	Per	STF 471	AB			8/2/1780	10	8.7	2.85	8.88	3	57	51.22	+	40	0
H IV 8*	zeta	Psc	STF 100	AB	12/1/2001	21:58	10/19/1779	63	25.5	5.22	6.15	1	13	43.80	+	7	34
H II 12	alpha	Psc	STF 202	AB	12/1/2001	22:08	10/19/1779	269	1.8	4.10	5.17	2	2	2.80	+	2	45
H II 84		Psc	STF 61		12/3/2001	21:54	2/27/1783	115	4.3	6.33	6.34	0	49	52.88	+	27	42
H IV 9*	psi[1]	Psc	STF 88	AB	12/4/2005	21:34	10/30/1779	158	29.6	5.27	5.45	1	5	40.93	+	21	28
H IV 131		Psc	STF 136	AB	12/15/2014	18:44	8/2/1783	77	15.5	7.33	8.33	1	34	51.61	+	12	33
H III 62		Psc	STF 12		11/9/2023	22:13	9/4/1782	148	11.3	6.06	7.51	0	14	58.84	+	8	49
H II 50		Psc	STF 22	AB-C	11/9/2023	22:15	9/4/1782	235	4.0	7.13	7.66	0	17	24.50	+	8	52
H IV 70		Psc	STF 36	AB	11/9/2023	22:20	9/4/1782	83	28.4	5.68	9.52	0	32	23.75	+	6	57
H V 16		Psc	S 393	AB	11/9/2023	22:35	8/3/1780	298	60.0	6.42	10.61	1	6	11.20	+	32	10
H IV 120		Psc	STF 98	AB	11/9/2023	22:37	2/27/1783	249	19.6	7.02	8.14	1	12	52.98	+	32	4
H IV 130	eta	Psc	STF 132	AB	11/9/2023	22:42	8/2/1783	342	62.0	6.88	10.61	1	32	3.12	+	16	56
H II 49	omicron	Psc	STF 155	AB	11/9/2023	22:46	9/3/1782	326	4.9	7.87	8.01	1	44	15.19	+	9	29
H II 55		Psc	STF 8				9/9/1782	291	7.9	7.84	9.26	0	11	35.21	-	3	4
H IV 77		Psc	STF 27				9/27/1782	315	29.9	6.40	10.30	0	22	25.48	+	13	28
H III 27		Pup	H III 27	AB	1/10/2002	22:20	2/15/1781	317	10.2	4.40	4.62	7	38	49.88	-	26	48
H II 63		Pup	STF 1121	AB			10/12/1782	305	7.3	6.92	7.30	7	36	35.71	-	14	29
H IV 91		Pup	STF 1138	AB			10/12/1782	339	16.7	6.00	6.73	7	45	29.14	-	14	41
H I 33	xi	Sco	STF 1998	AB	6/24/2001	0:33	5/12/1782	356	0.9	5.16	4.87	16	4	21.63	-	11	22
H II 20	[xi]	Sco	STF 1998	AC	6/24/2001	0:33	5/23/1780	42	7.9	4.90	7.30	16	4	21.63	-	11	22
H III 7*	beta	Sco	H III 7	AC	6/24/2001	0:38	9/19/1779	21	14.2	2.59	4.52	16	5	26.23	-	19	48
H V 6*	nu	Sco	H V 6	AC	6/24/2001	0:44	9/19/1779	336	39.4	4.21	6.60	16	11	59.74	-	19	27
H II 21		Sco	STF 1999	AB	6/24/2001	00:33	5/23/1780	101	13.3	7.52	8.05	16	4	25.96	-	11	26
H V 134	psi	Sco	SHJ 225				3/24/1783	333	46.9	7.39	8.08	16	20	5.49	-	20	3
H IV 121	sigma	Sco	H IV 121	AB			3/1/1783	273	20.0	2.89	8.42	16	21	11.32	-	25	35
H IV 124	psi	Sco	H II 19	SHJ 226	AB-C		3/24/1783	20	12.8	7.62	8.33	16	20	30.58	-	20	6
H V 36	omicron	Sct	H V 36	AC			7/30/1781	131	51.1	4.73	10.56	18	42	16.42	-	9	3
H IV 6+	theta	Ser	STF 2417	AB	6/24/2001	1:40	10/17/1779	103	23.0	4.59	4.93	18	56	13.18	+	4	12
H I 42	delta	Ser	STF 1954	AB	6/25/2001	0:27	9/3/1782	173	4.1	4.17	5.16	15	34	48.14	+	10	32
H II 86		Ser	STF 2016		11/12/2023	17:40	3/7/1783	148	7.5	8.49	9.60	16	12	7.05	+	11	54
H II 88		Ser	STF 2040		11/12/2023	17:52	3/8/1783	313	7.0	8.11	10.14	16	23	5.73	+	13	50
H V 126	r	Ser	STF 1993	AB			2/3/1782	43	20.7	8.59	8.88	15	59	46.92	+	17	22
H III 106		Ser	STF 1930	AB			5/21/1783	34	12.0	5.06	10.11	15	19	18.79	+	1	45
H IV 36	beta	Ser	STF 1970	AB			8/13/1781	264	31.1	3.66	9.96	15	46	11.21	+	15	25
H II 85	b	Ser	STF 1985				3/4/1783	354	6.1	7.03	8.65	15	55	54.63	-	2	9
H III 103	epsilon	Ser	STF 1987				3/4/1783	321	10.6	7.31	8.71	15	57	14.92	+	3	24

H I 35	[rho]	Ser	H I 35				6/11/1782	336	5.8	6.94	9.09	17	17	39.53	-	26	37
H V 29	nu	Ser	SHJ 247		12/5/2023	17:58	7/16/1781	25	44.5	4.33	9.44	17	20	49.66	-	12	50
H V 74	S	Ser	H V 74				6/16/1782	139	41.7	6.60	10.39	18	7	48.35	+	13	4
H I 12		Ser	STF 2316	AB	12/5/2023	17:45	7/17/1781	320	3.8	5.38	7.62	18	27	12.51	+	0	11
H V 104	epsilon	Sge	H V 104		8/23/2011	22:23	11/6/1782	138	39.0	7.24	9.70	19	36	22.98	+	15	53
H II 70	z	Sge	STF 2629		11/9/2023	19:01	11/6/1782	187	8.9	7.63	10.61	20	7	20.78	+	16	4
H I 65	beta	Sge	STF 2563	AB	11/12/2023	18:53	11/4/1782	285	5.9	8.66	9.52	19	42	28.87	+	17	25
H II 32		Sge	STF 2569		11/12/2023	18:36	8/23/1781	357	2.1	8.44	9.07	19	44	47.81	+	16	48
H IV 99	delta	Sge	H IV 99	AB	11/12/2023	18:12	11/6/1782	85	25.6	7.99	10.00	19	49	59.91	+	17	57
H II 91	z	Sge	STF 2622	AB	11/12/2023	19:31	4/5/1783	194	5.8	8.74	9.46	20	4	8.99	+	17	0
H V 105	y	Sge	STT 397		11/12/2023	19:33	11/6/1782	178	44.9	7.40	9.60	20	4	46.86	+	15	54
H III 24	theta	Sge	STF 2637	AB	11/12/2023	19:20	8/19/1780	332	11.5	6.56	8.85	20	9	56.61	+	20	54
H V 106	gamma	Sge	STFA 48	AB			11/6/1782	148	42.9	7.14	7.34	19	53	22.65	+	20	20
H II 30	zeta	Sge	STF 2585	AB-C	12/5/2023	18:13	8/23/1781	311	7.9	5.04	9.01	19	48	58.65	+	19	8
H V 7	mu	Sgr	HJ 2822	AE			9/19/1779	112	49.4	3.85	9.22	18	13	45.81	-	21	3
H V 77	d	Sgr	H V 77				8/4/1782	160	37.3	6.97	10.37	19	18	10.94	-	18	51
H IV 3		Sgr	H IV 3				8/26/1780	10	25.0	6.34	.	20	5	5.42	-	11	35
H III 63		Sgr	STF 2625		12/5/2023	18:08	9/5/1782	5	12.2	7.78	10.24	20	6	45.79	-	12	55
H IV 10	chi	Tau	STF 528		12/1/2001	22:41	10/30/1779	20	20.2	5.37	8.54	4	22	34.94	+	25	37
H II 75		Tau	STF 716	AB	12/3/2001	22:55	12/7/1782	208	4.4	5.83	6.68	5	29	16.49	+	25	9
H IV 109		Tau	STF 534	AB	9/25/2011	2:16	11/25/1782	290	29.1	6.36	7.94	4	23	59.76	+	24	18
H II 81		Tau	STF 583	AB	11/12/2023	21:01	1/31/1783	328	5.7	7.88	9.28	4	40	56.21	+	0	57
H I 55		Tau	STF 403	AB	11/12/2023	20:32	10/9/1782	173	2.3	8.71	8.92	3	31	13.43	+	19	47
H IV 44	s	Tau	AG 68		11/12/2023	20:40	12/22/1781	249	17.5	6.79	9.87	3	32	11.94	+	11	32
H IV 88		Tau	STF 412	AB-C	11/12/2023	20:41	10/9/1782	54	22.4	5.94	9.92	3	34	26.62	+	24	27
H III 78		Tau	STF 414		11/12/2023	20:43	10/9/1782	186	7.5	8.15	8.28	3	34	27.73	+	19	47
H III 45		Tau	STF 422		11/12/2023	20:45	10/22/1781	272	6.7	6.00	8.90	3	36	47.30	+	0	35
H III 88		Tau	STF 435		11/12/2023	20:48	11/25/1782	3	12.8	7.20	8.87	3	43	6.52	+	25	40
H III 66	e	Tau	STF 452		11/12/2023	20:49	9/7/1782	59	9.2	5.06	9.77	3	48	16.27	+	11	8
H V 13	phi	Tau	SHJ 40	AB	11/12/2023	20:50	10/30/1779	261	49.1	5.08	7.51	4	20	21.23	+	27	21
H II 54	epsilon	Tau	STF 546		11/12/2023	20:53	9/7/1782	182	6.8	7.94	9.21	4	27	0.62	+	19	7
H IV 74	delta[3]	Tau	STF 545	AB	11/12/2023	20:54	9/7/1782	58	18.4	6.92	8.78	4	27	4.85	+	18	12
H IV 75	v	Tau	STF 549	AB	11/12/2023	20:57	9/7/1782	157	25.7	8.24	10.02	4	27	50.89	+	10	1
H V 114		Tau	H V 114	AC	11/12/2023	21:04	12/7/1782	198	36.0	5.51	11.03	5	8	6.62	+	24	15
H III 90		Tau	STF 645	A-BC	11/12/2023	21:07	11/29/1782	29	11.4	6.04	9.11	5	9	45.06	+	28	1
H V 110		Tau	S 478	AB	11/12/2023	21:09	11/13/1782	271	102.7	5.06	8.79	5	24	25.31	+	17	23
H V 115	omicron	Tau	HJ 365	AC	11/12/2023	21:10	12/7/1782	194	58.7	4.88	10.40	5	27	38.08	+	21	56

H III 93		Tau	STF 730				1/21/1800	142	9.4	6.06	6.44	5	32	14.14	+	17	3
H I 70	zeta	Tau	STF 742				11/13/1782	274	4.1	7.09	7.47	5	36	26.12	+	21	59
H II 34	iota	Tri	STF 227		12/3/2001	22:16	10/8/1781	67	3.8	5.26	6.67	2	12	22.28	+	30	18
H II 35		Tri	STF 232		11/9/2023	23:00	10/8/1781	67	6.5	7.82	7.90	2	14	42.16	+	30	23
H III 42	delta	Tri	STF 246		11/9/2023	23:02	10/12/1781	123	9.8	7.82	9.26	2	18	39.75	+	34	29
H I 21		Tri	STF 285		11/12/2023	20:04	10/8/1781	162	1.7	7.48	8.14	2	38	45.91	+	33	25
H III 2	zeta	UMa	STF 1744	AB	6/23/2001	22:54	8/17/1779	153	14.3	2.23	3.88	13	23	55.42	+	54	55
H I 32		UMa	A 1346				4/3/1782	182	0.5	8.84	9.66	9	59	5.55	+	53	15
H III 54	sigma	UMa	STF 1306	AB			6/2/1782	351	4.2	4.87	8.85	9	10	23.53	+	67	8
H V 73	tau	UMa	H V 73	AB			6/11/1782	38	52.1	4.68	10.40	9	10	55.05	+	63	30
H II 73		UMa	STF 1346	AB			11/17/1782	314	5.7	7.69	8.59	9	25	37.88	+	54	0
H IV 29	h	UMa	STF 1351	AB			4/25/1781	269	23.2	3.65	9.19	9	31	31.57	+	63	3
H I 71		UMa	STF 1428				11/19/1782	87	2.9	8.02	8.44	10	25	59.00	+	52	37
H V 111		UMa	STF 1495				11/20/1782	36	34.1	7.25	8.84	10	59	49.47	+	58	54
H IV 106	alpha	UMa	H IV 106	AB			11/20/1782	134	20.2	7.97	11.50	11	9	45.09	+	63	20
H I 2	xi	UMa	STF 1523	AB			5/2/1780	215	1.6	4.33	4.80	11	18	10.92	+	31	31
H III 86		UMa	STF 1543	AB			11/20/1782	355	5.4	5.35	10.67	11	29	4.12	+	39	20
H III 87		UMa	STF 1561	AB			11/20/1782	249	8.9	6.53	8.23	11	38	44.90	+	45	6
H I 72		UMa	STF 1579	AB-C			11/20/1782	42	3.9	6.68	8.32	11	55	5.74	+	46	28
H IV 108	[delta]	UMa	STF 1603				11/25/1782	84	21.7	7.82	8.26	12	8	7.07	+	55	27
H IV 1	alpha	UMi	STF 93	AB	12/1/2001	22:21	8/17/1779	232	18.2	2.10	9.10	2	31	47.08	+	89	15
H V 86		UMi	H V 86	AB			9/4/1782	130	51.4	7.30	11.00	15	17	16.82	+	71	12
H III 18 <sup>+</sup>	gamma	Vir	STF 1670	AB	6/23/2001	22:33	1/21/1780	26	1.3	3.48	3.53	12	41	39.60	-	1	26
H I 78		Vir	STF 1885				1/31/1783	145	4.0	8.78	9.11	14	50	33.12	-	0	1
H IV 49	xi	Vir	STF 1575				2/6/1782	210	30.6	7.43	7.89	11	51	57.57	+	8	49
H IV 114	t	Vir	STF 1616	AB			1/8/1783	295	23.2	7.55	9.74	12	14	27.29	+	8	46
H IV 50		Vir	STF 1636				2/6/1782	340	21.4	6.53	9.31	12	22	32.14	+	5	18
H V 129	f	Vir	S 639	AB			2/7/1782	110	56.0	6.82	9.99	12	38	43.36	-	4	22
H III 53	gamma	Vir	STF 1677				2/17/1782	348	16.1	7.30	8.12	12	45	17.35	-	3	53
H II 42	k	Vir	STF 1690				2/6/1782	149	5.9	7.18	8.95	12	56	15.01	-	4	51
H IV 51	k	Vir	STF 1704	AB			2/6/1782	53	20.8	5.80	10.15	12	59	39.55	-	3	48
H III 50	theta	Vir	STF 1724	AB			2/6/1782	342	6.9	4.40	9.39	13	9	57.01	-	5	32
H II 45		Vir	SHJ 161				4/3/1782	33	5.3	6.78	7.19	13	13	26.83	-	18	49
H IV 119	iota	Vir	H IV 119				2/7/1783	312	19.3	7.81	10.81	13	22	45.65	-	13	11
H V 128		Vir	SHJ 165				2/7/1782	78	48.4	7.60	8.58	13	32	24.72	-	12	39
H I 80		Vir	STF 1763	AB			2/7/1783	40	2.7	7.79	8.08	13	37	35.20	-	7	52
H II 44	omicron	Vir	STF 1777				2/17/1782	227	2.7	5.55	8.31	13	43	3.71	+	3	32

H III 57		Vul	STF 2523	AB	11/9/2023	17:40	8/11/1782	148	6.3	7.95	8.05	19	26	48.38	+	21	9
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311	500	Seen
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