

TABLE 1—LONG-PERIOD VARIABLE STARS NORTH OF -20°

Variable	Max. m_v	Min. m_v	Per. d	Epoch 2025	Variable	Max. m_v	Min. m_v	Per. d	Epoch 2025		
0017+55	T Cas	7.9	11.9	445	Sep. 26	1425+39	V Boo	7.0	11.3	260	Sep. 7
0018+38	R And	6.9	14.3	409	Apr. 12	1432+27	R Boo	7.2	12.3	223	Jul. 2
0211+43	W And	7.4	13.7	396	Nov. 13	1517+31	S CrB	7.3	12.9	361	Jul. 16:
0214-03A	o Cet	3.4	9.3	332	Mar. 18	1546+39	V CrB	7.5	11.0	358	Sep. 15
0228-13	U Cet	7.5	12.6	235	Aug. 14	1546+15	R Ser	6.9	13.4	356	Apr. 23
0231+33	R Tri	6.2	11.7	267	Aug. 26	1606+25	RU Her	8.0	13.7	485	Aug. 4
0430+65	T Cam	8.0	13.8	373	Feb. 1	1621+19	U Her	7.5	12.5	406	Apr. 2
0455-14	R Lep	6.8	9.6	437	Sep. 8	1621-12	V Oph	7.5	10.2	297	Jun. 14
0509+53	R Aur	7.7	13.3	458	Oct. 11:	1632+66	R Dra	7.6	12.4	246	May 13
0549+20A	U Ori	6.3	12.0	368	Jun. 3	1647+15	S Her	7.6	12.6	307	Feb. 6
0617-02	V Mon	7.0	13.1	334	Sep. 20	1702-15	R Oph	7.6	13.3	306	Jan. 3
0653+55	R Lyn	7.9	13.8	366	Nov. 3	1717+23	RS Her	7.9	12.5	218	Apr. 1
0701+22A	R Gem	7.1	13.5	370	Apr. 21	1805+31	T Her	8.0	12.8	165	Mar. 27
0703+10	R Cmi	8.0	11.0	338	Aug. 11	1811+36	W Lyr	7.9	12.2	198	May 2
0727+08	S Cmi	7.5	12.6	333	Jul. 25	1833+08	X Oph	6.8	8.8	332	Jun. 2
0811+12	R Cnc	6.8	11.2	362	Jul. 26	1901+08	R Aql	6.1	11.5	267	Mar. 12:
0816+17	V Cnc	7.9	12.8	272	Aug. 27	1910-17	T Sgr	8.0	12.6	395	Oct. 31
0848+03	S Hya	7.8	12.7	257	Jan. 27	1910-19	R Sgr	7.3	12.5	270	Jun. 15
0850-08	T Hya	7.8	12.6	289	Oct. 12	1934+49	R Cyg	7.5	13.9	426	Jun. 1
0939+34	R Lmi	7.1	12.6	372	Jul. 10	1940+48	RT Cyg	7.3	11.8	190	Mar. 18
0942+11	R Leo	5.8	10.0	310	Jan. 18	1946+32	χ Cyg	5.2	13.4	408	Aug. 26
1037+69	R UMa	7.5	13.0	302	Sep. 18	2016+47	U Cyg	7.2	10.7	463	Jul. 8
1214-18	R Crv	7.5	13.8	317	Aug. 19	2044-05	T Aqr	7.7	13.1	202	Mar. 1:
1220+01	SS Vir	6.8	8.9	364	Nov. 22	2108+68	T Cep	6.0	10.3	388	Jul. 3
1231+60	T UMa	7.7	12.9	257	Nov. 20	2137+53	RU Cyg	8.0	9.4	233	Jun. 23
1233+07	R Vir	6.9	11.5	146	Feb. 17	2301+10	R Peg	7.8	13.2	378	Aug. 2:
1239+61	S UMa	7.8	11.7	226	Sep. 15	2307+59	V Cas	7.9	12.2	229	Jun. 20
1315+46	V CVn	6.8	8.8	192	May 30	2315+08	S Peg	8.0	13.0	319	Aug. 6
1327+06	S Vir	7.0	12.7	375	Aug. 10:	2338-15	R Aqr	6.5	10.3	387	Oct. 24
1344+40	R CVn	7.7	11.9	329	Jan. 7	2353+50	R Cas	7.0	12.6	430	Jul. 6
1425+84	R Cam	8.3	13.2	270	Sep. 23	2357-15	W Cet	7.6	14.4	351	Feb. 6

Table 2 (overleaf) lists stars that are representative of some other types of variables. Elements for preparation of predicted maxima of Cepheids and RR Lyr and minima of eclipsing binaries are from the International Variable Star Index (VSX, aavso.org/vsx). Data for the predicted maximum of RR Lyr are from the GEOS RR Lyr Database (rr-lyr.irap.omp.eu/dbrr/index.php).

DESCRIPTION OF VARIABLE-STAR TYPES

Variable stars can be divided into two main classes: intrinsic variables, in which the variation is due to changes of a single star, and extrinsic variables, in which the variation is due to interaction of multiple stars or objects within a stellar system. There are many cases of overlapping variability types, such as a Mira pulsating variable as part of an eclipsing binary system. Intrinsic variables fall into three main classes: (1) pulsating stars, in which periodic expansion and contraction of the stellar surface occur; (2) eruptive variables, in which solarlike flares occur; and (3) rotating stars, in which shape distortion or star spots cause variation. Extrinsic variables consist of two main classes: (4) binary systems, in which variability is caused by orbital motion or mass transfer; and (5) cataclysmic variables, in which accretion onto a compact object can cause it to go into outburst. With modern detectors, about 1% of all stars are found to be variable. Brief and general descriptions of the major types in each class are given below.

(1) Pulsating Variables

δ *Scuti* stars are variables that have both radial and nonradial pulsation modes with periods of 0.01–0.2 day and amplitudes from barely measurable to nearly a full magnitude. They are of A–F spectral types. Typical representative: AI Canum Venaticorum.

