



Ephemeriden für Sternfreunde  
von Karl-Heinz Bücke

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## Mars 2020

Datum	$\alpha$	$\delta$	b	$\Delta$ (AE)	E	mv	$\varphi$	$\varnothing$	k	q (")	l	r
1.01.	15:44	-19.4	0.4	2.185	42 W	1.6	24.3	4.28	0.956	0.19	214.1	1.590
4.01.	15:53	-19.9	0.3	2.163	43 W	1.6	24.8	4.33	0.954	0.20	215.6	1.586
7.01.	16:01	-20.4	0.3	2.141	44 W	1.5	25.4	4.37	0.952	0.21	217.0	1.583
10.01.	16:10	-20.8	0.3	2.119	45 W	1.5	26.0	4.42	0.949	0.22	218.5	1.580
13.01.	16:18	-21.2	0.2	2.096	46 W	1.5	26.6	4.47	0.947	0.24	219.9	1.576
16.01.	16:27	-21.5	0.2	2.073	47 W	1.5	27.1	4.51	0.945	0.25	221.4	1.573
19.01.	16:35	-21.9	0.2	2.050	48 W	1.5	27.7	4.56	0.943	0.26	222.9	1.569
22.01.	16:44	-22.2	0.1	2.027	49 W	1.4	28.2	4.62	0.941	0.27	224.4	1.565
25.01.	16:53	-22.5	0.1	2.004	50 W	1.4	28.8	4.67	0.938	0.29	225.8	1.562
28.01.	17:02	-22.7	0.1	1.980	51 W	1.4	29.3	4.73	0.936	0.30	227.3	1.558
31.01.	17:10	-22.9	0.0	1.956	52 W	1.4	29.9	4.78	0.934	0.32	228.8	1.554
3.02.	17:19	-23.1	0.0	1.932	53 W	1.3	30.4	4.84	0.931	0.33	230.3	1.551
6.02.	17:28	-23.3	-0.1	1.908	54 W	1.3	31.0	4.90	0.929	0.35	231.9	1.547
9.02.	17:37	-23.4	-0.1	1.884	55 W	1.3	31.5	4.97	0.926	0.37	233.4	1.543
12.02.	17:46	-23.5	-0.1	1.860	56 W	1.3	32.0	5.03	0.924	0.38	234.9	1.539
15.02.	17:55	-23.6	-0.2	1.835	57 W	1.3	32.5	5.10	0.921	0.40	236.4	1.535
18.02.	18:04	-23.7	-0.2	1.811	58 W	1.2	33.1	5.17	0.919	0.42	238.0	1.531
21.02.	18:13	-23.7	-0.3	1.786	59 W	1.2	33.6	5.24	0.917	0.44	239.5	1.528
24.02.	18:22	-23.7	-0.3	1.762	60 W	1.2	34.1	5.31	0.914	0.46	241.1	1.524
27.02.	18:31	-23.6	-0.4	1.737	61 W	1.1	34.6	5.39	0.912	0.48	242.7	1.520
1.03.	18:40	-23.5	-0.4	1.713	62 W	1.1	35.1	5.47	0.909	0.50	244.2	1.516
4.03.	18:49	-23.4	-0.5	1.688	62 W	1.1	35.6	5.54	0.907	0.52	245.8	1.512
7.03.	18:58	-23.3	-0.5	1.663	63 W	1.1	36.0	5.63	0.904	0.54	247.4	1.508
10.03.	19:07	-23.1	-0.6	1.639	64 W	1.0	36.5	5.71	0.902	0.56	249.0	1.504
13.03.	19:16	-22.9	-0.6	1.614	65 W	1.0	37.0	5.80	0.899	0.58	250.6	1.500
16.03.	19:25	-22.6	-0.7	1.590	66 W	1.0	37.5	5.89	0.897	0.61	252.3	1.496
19.03.	19:34	-22.4	-0.7	1.565	67 W	0.9	37.9	5.98	0.895	0.63	253.9	1.492
22.03.	19:43	-22.1	-0.8	1.541	68 W	0.9	38.4	6.07	0.892	0.65	255.5	1.488
25.03.	19:52	-21.8	-0.8	1.517	69 W	0.9	38.8	6.17	0.890	0.68	257.2	1.485
28.03.	20:01	-21.4	-0.9	1.493	70 W	0.8	39.2	6.27	0.887	0.71	258.8	1.481
31.03.	20:10	-21.1	-1.0	1.469	71 W	0.8	39.6	6.37	0.885	0.73	260.5	1.477
3.04.	20:18	-20.6	-1.0	1.445	71 W	0.8	40.1	6.48	0.883	0.76	262.1	1.473
6.04.	20:27	-20.2	-1.1	1.421	72 W	0.7	40.5	6.59	0.880	0.79	263.8	1.469
9.04.	20:36	-19.8	-1.1	1.397	73 W	0.7	40.9	6.70	0.878	0.82	265.5	1.466
12.04.	20:44	-19.3	-1.2	1.374	74 W	0.7	41.3	6.81	0.876	0.85	267.2	1.462
15.04.	20:53	-18.8	-1.3	1.351	75 W	0.6	41.6	6.93	0.874	0.88	268.9	1.458
18.04.	21:01	-18.3	-1.3	1.327	76 W	0.6	42.0	7.05	0.872	0.91	270.6	1.455
21.04.	21:10	-17.7	-1.4	1.304	77 W	0.5	42.4	7.18	0.869	0.94	272.3	1.451
24.04.	21:18	-17.2	-1.5	1.282	77 W	0.5	42.7	7.30	0.867	0.97	274.1	1.448
27.04.	21:27	-16.6	-1.5	1.259	78 W	0.5	43.0	7.43	0.865	1.00	275.8	1.444
30.04.	21:35	-16.0	-1.6	1.236	79 W	0.4	43.4	7.57	0.863	1.03	277.6	1.441



Datum	$\alpha$	$\delta$	b	$\Delta$ (AE)	E	mv	$\varphi$	$\emptyset$	k	q (")	l	r
3.05.	21:43	-15.4	-1.7	1.214	80 W	0.4	43.7	7.71	0.862	1.07	279.3	1.437
6.05.	21:51	-14.8	-1.7	1.192	81 W	0.3	44.0	7.85	0.860	1.10	281.1	1.434
9.05.	21:59	-14.2	-1.8	1.170	82 W	0.3	44.3	8.00	0.858	1.14	282.9	1.431
12.05.	22:08	-13.5	-1.9	1.149	83 W	0.3	44.6	8.15	0.856	1.17	284.6	1.428
15.05.	22:15	-12.9	-2.0	1.127	83 W	0.2	44.8	8.30	0.855	1.21	286.4	1.425
18.05.	22:23	-12.2	-2.0	1.106	84 W	0.2	45.1	8.46	0.853	1.24	288.2	1.422
21.05.	22:31	-11.5	-2.1	1.085	85 W	0.1	45.3	8.63	0.852	1.28	290.0	1.419
24.05.	22:39	-10.8	-2.2	1.064	86 W	0.1	45.5	8.80	0.850	1.32	291.8	1.416
27.05.	22:47	-10.1	-2.3	1.043	87 W	0.1	45.7	8.97	0.849	1.35	293.6	1.413
30.05.	22:54	-9.4	-2.3	1.023	88 W	0.0	45.9	9.15	0.848	1.39	295.5	1.411
2.06.	23:02	-8.8	-2.4	1.003	89 W	0.0	46.0	9.33	0.847	1.43	297.3	1.408
5.06.	23:09	-8.1	-2.5	0.983	89 W	-0.1	46.2	9.52	0.846	1.46	299.1	1.406
8.06.	23:17	-7.4	-2.6	0.963	90 W	-0.1	46.3	9.72	0.845	1.50	301.0	1.404
11.06.	23:24	-6.7	-2.6	0.943	91 W	-0.2	46.4	9.92	0.845	1.54	302.8	1.401
14.06.	23:31	-6.0	-2.7	0.924	92 W	-0.2	46.5	10.13	0.844	1.58	304.7	1.399
17.06.	23:39	-5.3	-2.8	0.905	93 W	-0.3	46.6	10.34	0.844	1.61	306.5	1.397
20.06.	23:46	-4.6	-2.9	0.886	94 W	-0.3	46.6	10.56	0.844	1.65	308.4	1.395
23.06.	23:53	-3.9	-2.9	0.867	95 W	-0.4	46.6	10.79	0.844	1.69	310.3	1.394
26.06.	0:00	-3.3	-3.0	0.849	96 W	-0.4	46.6	11.03	0.844	1.72	312.1	1.392
29.06.	0:07	-2.6	-3.1	0.830	97 W	-0.5	46.5	11.27	0.844	1.76	314.0	1.390
2.07.	0:13	-2.0	-3.2	0.812	98 W	-0.5	46.4	11.53	0.845	1.79	315.9	1.389
5.07.	0:20	-1.3	-3.2	0.794	99 W	-0.6	46.3	11.79	0.845	1.82	317.8	1.388
8.07.	0:26	-0.7	-3.3	0.776	100 W	-0.6	46.2	12.06	0.846	1.85	319.7	1.386
11.07.	0:33	-0.1	-3.4	0.759	102 W	-0.7	46.0	12.33	0.848	1.88	321.6	1.385
14.07.	0:39	0.5	-3.4	0.742	103 W	-0.7	45.7	12.62	0.849	1.91	323.5	1.384
17.07.	0:45	1.1	-3.5	0.724	104 W	-0.8	45.5	12.92	0.851	1.93	325.4	1.384
20.07.	0:51	1.6	-3.6	0.707	105 W	-0.8	45.1	13.23	0.853	1.95	327.3	1.383
23.07.	0:57	2.1	-3.7	0.691	107 W	-0.9	44.8	13.55	0.855	1.96	329.2	1.382
26.07.	1:02	2.6	-3.7	0.674	108 W	-1.0	44.3	13.88	0.858	1.98	331.1	1.382
29.07.	1:07	3.1	-3.8	0.658	109 W	-1.0	43.9	14.22	0.860	1.98	333.0	1.382
1.08.	1:13	3.6	-3.8	0.642	111 W	-1.1	43.3	14.58	0.864	1.99	334.9	1.381
4.08.	1:17	4.0	-3.9	0.626	113 W	-1.2	42.7	14.95	0.867	1.98	336.8	1.381
7.08.	1:22	4.4	-4.0	0.611	114 W	-1.2	42.1	15.33	0.871	1.97	338.7	1.381
10.08.	1:27	4.8	-4.0	0.596	116 W	-1.3	41.3	15.72	0.876	1.96	340.6	1.382
13.08.	1:31	5.2	-4.1	0.581	118 W	-1.3	40.5	16.12	0.880	1.93	342.5	1.382
16.08.	1:34	5.5	-4.1	0.566	120 W	-1.4	39.6	16.53	0.885	1.90	344.4	1.382
19.08.	1:38	5.8	-4.1	0.552	122 W	-1.5	38.6	16.96	0.891	1.85	346.3	1.383
22.08.	1:41	6.0	-4.2	0.538	124 W	-1.6	37.5	17.39	0.897	1.80	348.2	1.384
25.08.	1:43	6.2	-4.2	0.525	126 W	-1.6	36.3	17.84	0.903	1.73	350.1	1.385
28.08.	1:46	6.4	-4.2	0.512	128 W	-1.7	35.0	18.29	0.909	1.66	352.0	1.386
31.08.	1:48	6.6	-4.3	0.499	130 W	-1.8	33.6	18.74	0.916	1.57	353.9	1.387



Datum	$\alpha$	$\delta$	b	$\Delta$ (AE)	E	mv	$\varphi$	$\emptyset$	k	q (")	l	r
3.09.	1:49	6.7	-4.3	0.488	133 W	-1.9	32.1	19.19	0.924	1.47	355.8	1.388
6.09.	1:50	6.8	-4.3	0.476	136 W	-1.9	30.5	19.64	0.931	1.36	357.7	1.389
9.09.	1:50	6.8	-4.2	0.466	138 W	-2.0	28.7	20.09	0.939	1.23	359.5	1.391
12.09.	1:50	6.9	-4.2	0.456	141 W	-2.1	26.8	20.51	0.946	1.10	1.4	1.392
15.09.	1:49	6.8	-4.2	0.447	144 W	-2.1	24.8	20.92	0.954	0.96	3.3	1.394
18.09.	1:48	6.8	-4.1	0.439	148 W	-2.2	22.7	21.30	0.961	0.82	5.2	1.396
21.09.	1:47	6.7	-4.1	0.432	151 W	-2.3	20.4	21.65	0.969	0.68	7.0	1.398
24.09.	1:44	6.6	-4.0	0.426	154 W	-2.4	18.0	21.95	0.975	0.54	8.9	1.400
27.09.	1:42	6.5	-3.9	0.422	158 W	-2.4	15.6	22.20	0.982	0.41	10.7	1.402
30.09.	1:39	6.3	-3.8	0.418	162 W	-2.5	13.0	22.39	0.987	0.29	12.6	1.404
3.10.	1:36	6.1	-3.6	0.416	165 W	-2.5	10.4	22.51	0.992	0.18	14.4	1.407
6.10.	1:32	5.9	-3.5	0.415	169 W	-2.6	7.8	22.57	0.995	0.10	16.2	1.409
9.10.	1:28	5.8	-3.3	0.415	173 W	-2.6	5.2	22.54	0.998	0.05	18.1	1.412
12.10.	1:24	5.6	-3.1	0.417	176 W	-2.6	2.9	22.44	0.999	0.01	19.9	1.414
15.10.	1:21	5.4	-2.9	0.420	177 O	-2.6	2.3	22.26	1.000	0.01	21.7	1.417
18.10.	1:17	5.2	-2.7	0.425	174 O	-2.5	4.1	22.01	0.999	0.03	23.5	1.420
21.10.	1:13	5.1	-2.5	0.431	171 O	-2.5	6.6	21.69	0.997	0.07	25.3	1.423
24.10.	1:10	5.0	-2.3	0.439	167 O	-2.4	9.1	21.31	0.994	0.13	27.1	1.426
27.10.	1:07	4.9	-2.1	0.448	163 O	-2.3	11.6	20.88	0.990	0.21	28.9	1.429
30.10.	1:04	4.8	-1.9	0.459	160 O	-2.2	14.0	20.40	0.985	0.30	30.7	1.432
2.11.	1:02	4.8	-1.7	0.471	156 O	-2.1	16.2	19.89	0.980	0.40	32.4	1.435
5.11.	1:00	4.9	-1.5	0.484	153 O	-2.0	18.4	19.35	0.974	0.50	34.2	1.439
8.11.	0:59	4.9	-1.3	0.498	149 O	-1.9	20.5	18.80	0.968	0.59	35.9	1.442
11.11.	0:58	5.0	-1.1	0.513	146 O	-1.8	22.4	18.23	0.962	0.69	37.7	1.445
14.11.	0:57	5.2	-0.9	0.530	143 O	-1.7	24.2	17.66	0.956	0.77	39.4	1.449
17.11.	0:57	5.4	-0.7	0.548	140 O	-1.6	25.8	17.09	0.950	0.85	41.1	1.452
20.11.	0:57	5.6	-0.6	0.566	137 O	-1.5	27.4	16.53	0.944	0.92	42.9	1.456
23.11.	0:58	5.8	-0.4	0.586	135 O	-1.4	28.8	15.99	0.938	0.99	44.6	1.460
26.11.	1:00	6.1	-0.3	0.606	132 O	-1.3	30.1	15.45	0.933	1.04	46.3	1.463
29.11.	1:01	6.4	-0.1	0.627	129 O	-1.2	31.3	14.93	0.927	1.08	48.0	1.467
2.12.	1:03	6.8	0.0	0.649	127 O	-1.1	32.4	14.43	0.922	1.12	49.7	1.471
5.12.	1:06	7.2	0.1	0.671	125 O	-1.0	33.3	13.94	0.918	1.15	51.3	1.474
8.12.	1:08	7.6	0.2	0.694	122 O	-0.9	34.2	13.48	0.913	1.17	53.0	1.478
11.12.	1:11	8.0	0.3	0.718	120 O	-0.8	35.0	13.03	0.909	1.18	54.6	1.482
14.12.	1:15	8.4	0.4	0.742	118 O	-0.7	35.8	12.61	0.906	1.19	56.3	1.486
17.12.	1:18	8.9	0.5	0.767	116 O	-0.6	36.4	12.20	0.902	1.19	57.9	1.490
20.12.	1:22	9.3	0.6	0.793	114 O	-0.6	37.0	11.81	0.899	1.19	59.6	1.494
23.12.	1:26	9.8	0.7	0.819	112 O	-0.5	37.5	11.44	0.897	1.18	61.2	1.498
26.12.	1:31	10.3	0.7	0.845	110 O	-0.4	37.9	11.08	0.894	1.17	62.8	1.502
29.12.	1:35	10.8	0.8	0.871	108 O	-0.3	38.3	10.74	0.892	1.16	64.4	1.505

Die Ephemeriden gelten für 0 Uhr Weltzeit.

Geozentrische Koordinaten:

$\alpha$  und  $\delta$ : Rektaszension und Deklination zum Äquinoktium des Datums. b: ekliptikale Breite;  $\Delta$ : Abstand von der Erde.  
E: Elongation (Winkel zwischen Planet und Sonnenmitte); mv: visuelle Helligkeit;  $\varphi$ : Phasenwinkel

Physische Ephemeriden (für Beobachtungen am Teleskop):

$\emptyset$ : scheinbarer Durchmesser;  
k: beleuchteter Teil; q: Phasendefekt (Beleuchtungsdefekt)

Heliozentrische Koordinaten:

l: Länge zum Äquinoktium des Datums; r: Abstand von der Sonne.