



Ephemeriden für Sternfreunde
von Karl-Heinz Bücke

www.buecke-info.de

Merkur 2019

Datum	α	δ	b	Δ (AE)	E	mv	φ	\varnothing	k	q (")	$\Delta\alpha$ (h:m)	$\Delta\delta$ (°)	l	r
1.01.	17:33	-23.2	0.1	1.296	16 W	-0.4	38.2	5.19	0.893	0.56	-1:11	-0.1	225.6	0.449
4.01.	17:52	-23.7	-0.2	1.329	15 W	-0.5	33.9	5.06	0.915	0.43	-1:05	-0.9	234.4	0.457
7.01.	18:12	-24.0	-0.6	1.357	14 W	-0.5	29.9	4.95	0.933	0.33	-0:59	-1.6	242.9	0.463
10.01.	18:32	-24.1	-0.9	1.379	12 W	-0.5	26.3	4.87	0.948	0.25	-0:52	-2.1	251.2	0.466
13.01.	18:52	-24.1	-1.2	1.397	11 W	-0.6	22.8	4.81	0.961	0.19	-0:45	-2.5	259.3	0.467
16.01.	19:13	-23.8	-1.5	1.410	9 W	-0.7	19.3	4.77	0.972	0.13	-0:37	-2.8	267.6	0.465
19.01.	19:33	-23.4	-1.7	1.419	7 W	-0.8	15.9	4.74	0.981	0.09	-0:29	-2.9	276.0	0.460
22.01.	19:54	-22.7	-1.9	1.422	6 W	-0.9	12.3	4.72	0.988	0.05	-0:21	-2.9	284.6	0.454
25.01.	20:15	-21.8	-2.0	1.421	4 W	-1.1	8.8	4.73	0.994	0.03	-0:12	-2.7	293.7	0.445
28.01.	20:37	-20.7	-2.1	1.415	3 W	-1.3	5.7	4.75	0.998	0.01	-0:04	-2.4	303.1	0.433
31.01.	20:58	-19.3	-2.1	1.403	2 O	-1.4	5.1	4.79	0.998	0.01	0:05	-1.8	313.1	0.420
3.02.	21:19	-17.8	-2.0	1.385	3 O	-1.4	8.5	4.85	0.994	0.03	0:14	-1.1	323.6	0.405
6.02.	21:39	-16.0	-1.9	1.359	5 O	-1.3	13.9	4.94	0.985	0.07	0:23	-0.2	335.1	0.389
9.02.	22:00	-14.0	-1.7	1.325	8 O	-1.3	20.6	5.07	0.968	0.16	0:31	0.8	347.5	0.371
12.02.	22:21	-11.8	-1.4	1.283	10 O	-1.2	28.7	5.24	0.939	0.32	0:40	2.0	1.3	0.354
15.02.	22:40	-9.4	-1.0	1.230	12 O	-1.2	38.3	5.46	0.892	0.59	0:48	3.4	16.4	0.337
18.02.	22:59	-7.0	-0.5	1.167	14 O	-1.1	49.5	5.76	0.825	1.01	0:55	4.8	33.0	0.323
21.02.	23:17	-4.5	0.1	1.095	16 O	-1.0	62.3	6.14	0.732	1.64	1:01	6.2	50.7	0.313
24.02.	23:31	-2.2	0.8	1.015	18 O	-0.7	76.5	6.62	0.617	2.54	1:04	7.4	69.2	0.308
27.02.	23:43	-0.2	1.5	0.932	18 O	-0.4	91.7	7.21	0.485	3.71	1:05	8.4	88.0	0.308
2.03.	23:51	1.4	2.2	0.849	18 O	0.1	107.7	7.92	0.348	5.17	1:01	8.8	106.6	0.314
5.03.	23:53	2.5	2.9	0.772	16 O	0.9	124.1	8.70	0.220	6.79	0:52	8.7	124.4	0.325
8.03.	23:51	2.8	3.3	0.707	13 O	2.0	140.5	9.50	0.114	8.41	0:39	7.8	141.0	0.339
11.03.	23:45	2.4	3.6	0.657	8 O	3.3	156.2	10.22	0.042	9.79	0:22	6.3	156.1	0.356
14.03.	23:36	1.3	3.6	0.625	4 O	4.7	169.0	10.75	0.009	10.65	0:02	4.1	169.8	0.373
17.03.	23:26	-0.1	3.3	0.610	5 W	4.5	167.2	11.01	0.013	10.87	-0:19	1.5	182.1	0.391
20.03.	23:17	-1.6	2.7	0.611	10 W	3.4	155.5	11.00	0.045	10.50	-0:39	-1.2	193.3	0.407
23.03.	23:11	-3.0	2.0	0.625	15 W	2.4	143.7	10.75	0.097	9.71	-0:56	-3.9	203.7	0.422
26.03.	23:08	-4.2	1.2	0.649	19 W	1.8	132.9	10.35	0.159	8.70	-1:10	-6.2	213.5	0.435
29.03.	23:08	-5.0	0.5	0.681	22 W	1.3	123.4	9.87	0.225	7.65	-1:21	-8.2	222.7	0.446
1.04.	23:11	-5.5	-0.2	0.718	24 W	1.0	115.0	9.36	0.288	6.66	-1:29	-9.8	231.6	0.454
4.04.	23:16	-5.6	-0.9	0.758	26 W	0.7	107.7	8.86	0.348	5.78	-1:34	-11.1	240.2	0.461
7.04.	23:24	-5.3	-1.4	0.800	27 W	0.6	101.2	8.40	0.403	5.02	-1:38	-12.0	248.5	0.465
10.04.	23:34	-4.8	-1.8	0.843	28 W	0.4	95.4	7.97	0.453	4.36	-1:39	-12.5	256.7	0.467
13.04.	23:45	-3.9	-2.2	0.887	28 W	0.3	90.1	7.58	0.499	3.80	-1:39	-12.8	264.9	0.466
16.04.	23:58	-2.8	-2.4	0.931	27 W	0.2	85.1	7.22	0.543	3.30	-1:37	-12.8	273.2	0.462
19.04.	0:12	-1.5	-2.6	0.976	27 W	0.1	80.2	6.89	0.585	2.86	-1:34	-12.5	281.8	0.456
22.04.	0:27	0.0	-2.7	1.021	26 W	0.0	75.3	6.58	0.627	2.46	-1:31	-12.1	290.7	0.448
25.04.	0:42	1.7	-2.7	1.065	24 W	-0.1	70.3	6.31	0.668	2.09	-1:26	-11.4	300.0	0.437
28.04.	0:59	3.5	-2.6	1.108	23 W	-0.2	65.2	6.06	0.710	1.76	-1:21	-10.5	309.8	0.425



Datum	α	δ	b	Δ (AE)	E	mv	φ	\varnothing	k	q (")	$\Delta\alpha$ (h:m)	$\Delta\delta$ (°)	l	r
1.05.	1:17	5.5	-2.5	1.150	21 W	-0.3	59.7	5.84	0.752	1.45	-1:14	-9.4	320.1	0.410
4.05.	1:36	7.6	-2.3	1.190	18 W	-0.5	53.7	5.65	0.796	1.15	-1:07	-8.2	331.3	0.394
7.05.	1:55	9.8	-2.0	1.227	16 W	-0.7	47.1	5.48	0.840	0.87	-0:59	-6.9	343.4	0.377
10.05.	2:17	12.1	-1.6	1.261	13 W	-0.9	39.5	5.33	0.886	0.61	-0:49	-5.4	356.7	0.359
13.05.	2:39	14.4	-1.1	1.289	10 W	-1.2	30.8	5.21	0.930	0.37	-0:38	-3.9	11.4	0.342
16.05.	3:03	16.7	-0.6	1.310	7 W	-1.6	20.9	5.13	0.967	0.17	-0:26	-2.3	27.5	0.328
19.05.	3:29	18.8	-0.1	1.321	3 W	-2.0	9.9	5.09	0.993	0.04	-0:13	-0.8	44.8	0.316
22.05.	3:56	20.8	0.4	1.321	1 O	-2.3	2.3	5.09	1.000	0.00	0:02	0.5	63.1	0.309
25.05.	4:23	22.5	0.9	1.308	4 O	-1.9	14.5	5.14	0.984	0.08	0:17	1.6	81.9	0.308
28.05.	4:50	23.8	1.3	1.282	8 O	-1.6	26.7	5.24	0.947	0.28	0:33	2.5	100.7	0.312
31.05.	5:18	24.8	1.7	1.245	11 O	-1.2	38.5	5.40	0.891	0.59	0:48	3.0	118.8	0.321
3.06.	5:44	25.3	1.9	1.199	14 O	-1.0	49.4	5.60	0.825	0.98	1:02	3.1	135.8	0.334
6.06.	6:09	25.5	2.1	1.148	17 O	-0.7	59.2	5.85	0.756	1.43	1:15	2.9	151.4	0.350
9.06.	6:32	25.3	2.1	1.094	20 O	-0.4	68.0	6.14	0.687	1.92	1:25	2.4	165.5	0.368
12.06.	6:54	24.9	2.0	1.038	22 O	-0.2	75.8	6.47	0.622	2.44	1:34	1.8	178.2	0.385
15.06.	7:13	24.2	1.8	0.983	23 O	0.0	83.0	6.83	0.561	3.00	1:41	0.9	189.8	0.402
18.06.	7:30	23.3	1.5	0.929	24 O	0.2	89.6	7.23	0.503	3.59	1:46	-0.1	200.4	0.417
21.06.	7:45	22.3	1.1	0.876	25 O	0.4	96.0	7.67	0.448	4.24	1:48	-1.1	210.4	0.431
24.06.	7:58	21.2	0.6	0.825	25 O	0.6	102.4	8.14	0.393	4.94	1:49	-2.2	219.8	0.442
27.06.	8:08	20.1	0.0	0.777	25 O	0.8	108.8	8.65	0.339	5.72	1:46	-3.2	228.8	0.452
30.06.	8:16	19.0	-0.7	0.731	24 O	1.0	115.4	9.19	0.286	6.57	1:42	-4.2	237.4	0.459
3.07.	8:21	18.0	-1.4	0.690	23 O	1.3	122.3	9.74	0.233	7.47	1:35	-5.0	245.8	0.464
6.07.	8:24	17.1	-2.2	0.654	21 O	1.7	129.5	10.27	0.182	8.40	1:25	-5.7	254.1	0.466
9.07.	8:24	16.3	-2.9	0.624	18 O	2.1	137.3	10.78	0.133	9.35	1:12	-6.1	262.2	0.466
12.07.	8:21	15.8	-3.6	0.600	15 O	2.7	145.7	11.21	0.087	10.23	0:57	-6.3	270.5	0.464
15.07.	8:15	15.4	-4.2	0.584	11 O	3.4	154.5	11.52	0.049	10.96	0:39	-6.2	279.0	0.458
18.07.	8:07	15.4	-4.7	0.577	7 O	4.3	163.1	11.65	0.022	11.40	0:20	-5.7	287.8	0.451
21.07.	7:59	15.6	-4.9	0.580	5 O	4.8	168.4	11.58	0.010	11.46	-0:01	-5.0	297.0	0.441
24.07.	7:51	16.0	-4.9	0.596	6 W	4.4	164.7	11.28	0.018	11.08	-0:21	-4.0	306.6	0.429
27.07.	7:44	16.5	-4.7	0.623	10 W	3.5	155.5	10.78	0.045	10.29	-0:39	-2.8	316.7	0.415
30.07.	7:41	17.2	-4.2	0.662	13 W	2.5	144.8	10.15	0.091	9.22	-0:55	-1.4	327.6	0.400
2.08.	7:40	17.8	-3.5	0.712	16 W	1.7	133.6	9.43	0.155	7.97	-1:07	-0.0	339.3	0.383
5.08.	7:44	18.5	-2.8	0.773	18 W	1.0	121.9	8.69	0.235	6.64	-1:14	1.4	352.2	0.365
8.08.	7:52	19.0	-1.9	0.842	19 W	0.4	109.7	7.98	0.331	5.34	-1:18	2.7	6.5	0.348
11.08.	8:04	19.2	-1.1	0.919	19 W	-0.1	96.9	7.32	0.440	4.10	-1:18	3.8	22.1	0.332
14.08.	8:19	19.2	-0.4	0.998	18 W	-0.5	83.6	6.73	0.556	2.99	-1:14	4.7	39.1	0.319
17.08.	8:38	18.8	0.3	1.076	17 W	-0.8	69.9	6.24	0.672	2.05	-1:06	5.2	57.2	0.311
20.08.	8:59	18.0	0.9	1.150	15 W	-1.0	56.3	5.84	0.778	1.30	-0:56	5.4	75.9	0.308
23.08.	9:21	16.8	1.3	1.216	12 W	-1.3	43.0	5.53	0.866	0.74	-0:45	5.2	94.7	0.310
26.08.	9:45	15.2	1.6	1.271	9 W	-1.4	30.6	5.29	0.930	0.37	-0:33	4.6	113.1	0.317
29.08.	10:08	13.3	1.7	1.315	6 W	-1.6	19.5	5.11	0.971	0.15	-0:20	3.8	130.5	0.329



Datum	α	δ	b	Δ (AE)	E	mv	φ	\emptyset	k	q (")	$\Delta\alpha$ (h:m)	$\Delta\delta$ (°)	l	r
1.09.	10:31	11.2	1.8	1.347	3 W	-1.7	10.2	4.99	0.992	0.04	-0:09	2.8	146.6	0.345
4.09.	10:53	9.0	1.7	1.369	2 W	-1.8	4.8	4.91	0.998	0.01	0:03	1.6	161.1	0.362
7.09.	11:14	6.6	1.6	1.382	3 O	-1.5	8.5	4.86	0.995	0.03	0:13	0.4	174.3	0.379
10.09.	11:34	4.3	1.4	1.387	6 O	-1.2	14.2	4.84	0.985	0.07	0:22	-0.9	186.2	0.397
13.09.	11:53	1.9	1.1	1.386	8 O	-1.0	19.5	4.85	0.971	0.14	0:30	-2.1	197.1	0.412
16.09.	12:11	-0.4	0.8	1.379	10 O	-0.8	24.4	4.87	0.955	0.22	0:38	-3.3	207.2	0.427
19.09.	12:29	-2.7	0.5	1.367	12 O	-0.6	28.9	4.92	0.938	0.31	0:45	-4.4	216.8	0.439
22.09.	12:47	-5.0	0.1	1.350	14 O	-0.5	33.1	4.98	0.919	0.40	0:52	-5.5	225.9	0.449
25.09.	13:04	-7.1	-0.3	1.329	16 O	-0.4	37.1	5.06	0.899	0.51	0:58	-6.5	234.7	0.457
28.09.	13:21	-9.2	-0.6	1.305	18 O	-0.3	41.0	5.15	0.878	0.63	1:04	-7.4	243.2	0.463
1.10.	13:37	-11.2	-1.0	1.277	19 O	-0.2	44.8	5.26	0.855	0.76	1:10	-8.2	251.4	0.466
4.10.	13:53	-13.1	-1.4	1.245	20 O	-0.2	48.7	5.40	0.830	0.92	1:15	-8.9	259.6	0.467
7.10.	14:08	-14.8	-1.7	1.210	22 O	-0.1	52.7	5.55	0.803	1.09	1:19	-9.5	267.8	0.465
10.10.	14:24	-16.5	-2.0	1.171	23 O	-0.1	57.1	5.74	0.772	1.31	1:24	-10.0	276.2	0.460
13.10.	14:38	-17.9	-2.3	1.128	24 O	-0.1	61.9	5.96	0.735	1.58	1:27	-10.4	284.9	0.453
16.10.	14:52	-19.3	-2.6	1.080	24 O	-0.1	67.3	6.22	0.693	1.91	1:30	-10.6	294.0	0.444
19.10.	15:06	-20.4	-2.8	1.029	25 O	-0.1	73.4	6.53	0.643	2.33	1:32	-10.6	303.4	0.433
22.10.	15:17	-21.3	-3.0	0.975	25 O	0.0	80.4	6.89	0.583	2.87	1:33	-10.5	313.4	0.420
25.10.	15:27	-22.0	-3.1	0.919	24 O	0.0	88.5	7.31	0.513	3.56	1:31	-10.1	324.0	0.405
28.10.	15:35	-22.4	-3.0	0.861	23 O	0.2	98.2	7.80	0.429	4.45	1:27	-9.4	335.4	0.388
31.10.	15:38	-22.4	-2.8	0.804	21 O	0.5	109.8	8.36	0.330	5.60	1:19	-8.4	347.9	0.371
3.11.	15:37	-21.9	-2.4	0.750	17 O	1.0	124.0	8.95	0.220	6.98	1:06	-7.0	1.7	0.353
6.11.	15:30	-20.8	-1.8	0.707	12 O	2.0	141.1	9.51	0.111	8.45	0:47	-5.0	16.9	0.337
9.11.	15:18	-19.2	-0.9	0.680	6 O	3.7	161.0	9.89	0.027	9.62	0:23	-2.5	33.5	0.323
12.11.	15:04	-17.2	0.2	0.677	1 W	5.5	177.1	9.92	0.001	9.91	-0:03	0.4	51.2	0.313
15.11.	14:50	-15.2	1.1	0.702	8 W	3.0	154.7	9.57	0.048	9.11	-0:29	3.1	69.8	0.308
18.11.	14:42	-13.8	1.9	0.751	13 W	1.4	133.3	8.95	0.157	7.55	-0:50	5.3	88.6	0.308
21.11.	14:39	-13.1	2.3	0.818	17 W	0.4	114.0	8.22	0.297	5.78	-1:05	6.7	107.2	0.314
24.11.	14:43	-13.2	2.5	0.893	19 W	-0.2	97.1	7.53	0.438	4.23	-1:14	7.2	125.0	0.325
27.11.	14:51	-13.9	2.4	0.970	20 W	-0.4	82.9	6.93	0.562	3.03	-1:18	7.1	141.5	0.340
30.11.	15:03	-14.9	2.3	1.044	20 W	-0.5	70.9	6.44	0.663	2.17	-1:19	6.6	156.6	0.356
3.12.	15:17	-16.1	2.0	1.111	19 W	-0.6	61.0	6.05	0.742	1.56	-1:18	5.9	170.2	0.374
6.12.	15:33	-17.4	1.7	1.172	18 W	-0.6	52.8	5.74	0.803	1.13	-1:16	5.0	182.4	0.391
9.12.	15:50	-18.7	1.3	1.225	17 W	-0.6	45.8	5.49	0.849	0.83	-1:12	4.0	193.6	0.407
12.12.	16:07	-19.9	1.0	1.271	16 W	-0.6	39.8	5.29	0.884	0.61	-1:07	3.1	204.0	0.422
15.12.	16:26	-21.1	0.6	1.312	14 W	-0.6	34.5	5.12	0.912	0.45	-1:02	2.1	213.8	0.435
18.12.	16:45	-22.1	0.2	1.346	13 W	-0.6	29.7	4.99	0.934	0.33	-0:56	1.3	223.0	0.446
21.12.	17:04	-23.0	-0.1	1.375	11 W	-0.6	25.5	4.89	0.951	0.24	-0:50	0.5	231.9	0.455
24.12.	17:24	-23.7	-0.5	1.398	10 W	-0.7	21.5	4.81	0.965	0.17	-0:43	-0.3	240.5	0.461
27.12.	17:45	-24.2	-0.8	1.416	8 W	-0.7	17.9	4.75	0.976	0.11	-0:36	-0.8	248.8	0.465
30.12.	18:05	-24.5	-1.1	1.428	7 W	-0.8	14.5	4.70	0.984	0.07	-0:29	-1.3	257.0	0.467

Die Ephemeriden gelten für 0 Uhr Weltzeit.

Geozentrische Koordinaten:

α und δ : Rektaszension und Deklination zum Äquinoktium des Datums. b: ekliptikale Breite; Δ : Abstand von der Erde.

E: Elongation (Winkel zwischen Planet und Sonnenmitte); mv: visuelle Helligkeit; φ : Phasenwinkel

Physische Ephemeriden (für Beobachtungen am Teleskop):

\emptyset : scheinbarer Durchmesser;

k: beleuchteter Teil; q: Phasendefekt (Beleuchtungsdefekt)

Koordinaten für Tagesbeobachtungen:

$\Delta\alpha$ und $\Delta\delta$: Rektaszensions- und Deklinationsdifferenzen (Venus minus Sonne)

Heliozentrische Koordinaten:

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