



## Venus 2022

Datum	$\alpha$	$\delta$	b	$\Delta$ (AE)	E	mv	$\varphi$	$\emptyset$	k	q (")	$\Delta\alpha$ (h:m)	$\Delta\delta$ (°)	l	r
1.01.	19:38	-18.6	2.9	0.274	13 O	-4.3	162.0	60.93	0.025	59.43	0:53	4.4	95.7	0.719
4.01.	19:31	-18.1	3.7	0.269	9 O	-4.2	167.8	62.09	0.011	61.38	0:32	4.7	100.6	0.719
7.01.	19:23	-17.6	4.4	0.266	6 O	-4.1	172.5	62.69	0.004	62.42	0:12	4.8	105.4	0.719
10.01.	19:15	-17.2	5.1	0.266	5 W	-4.1	172.7	62.66	0.004	62.41	-0:10	4.8	110.3	0.719
13.01.	19:08	-16.8	5.6	0.269	9 W	-4.1	168.3	62.01	0.010	61.36	-0:30	4.7	115.2	0.719
16.01.	19:01	-16.6	6.1	0.274	13 W	-4.3	162.5	60.80	0.023	59.40	-0:50	4.4	120.0	0.719
19.01.	18:55	-16.4	6.4	0.282	17 W	-4.4	156.7	59.12	0.041	56.70	-1:09	4.0	124.9	0.718
22.01.	18:50	-16.2	6.7	0.292	21 W	-4.4	150.9	57.08	0.063	53.49	-1:26	3.5	129.8	0.718
25.01.	18:47	-16.2	6.8	0.304	24 W	-4.5	145.5	54.82	0.088	50.00	-1:42	2.9	134.7	0.718
28.01.	18:46	-16.2	6.8	0.318	28 W	-4.6	140.4	52.43	0.115	46.42	-1:56	2.1	139.5	0.718
31.01.	18:46	-16.2	6.8	0.334	31 W	-4.6	135.7	50.01	0.142	42.90	-2:08	1.2	144.4	0.719
3.02.	18:47	-16.3	6.7	0.350	33 W	-4.6	131.3	47.62	0.170	39.52	-2:19	0.3	149.3	0.719
6.02.	18:50	-16.4	6.5	0.368	35 W	-4.6	127.2	45.31	0.198	36.36	-2:28	-0.7	154.2	0.719
9.02.	18:54	-16.6	6.3	0.387	37 W	-4.6	123.4	43.10	0.224	33.42	-2:36	-1.8	159.0	0.719
12.02.	19:00	-16.7	6.0	0.407	39 W	-4.6	119.9	41.02	0.251	30.74	-2:42	-2.9	163.9	0.719
15.02.	19:06	-16.8	5.7	0.427	41 W	-4.6	116.6	39.06	0.276	28.29	-2:47	-4.0	168.8	0.719
18.02.	19:13	-16.9	5.4	0.448	42 W	-4.6	113.6	37.23	0.300	26.06	-2:52	-5.2	173.6	0.720
21.02.	19:22	-16.9	5.1	0.469	43 W	-4.6	110.7	35.53	0.323	24.05	-2:55	-6.3	178.5	0.720
24.02.	19:30	-17.0	4.8	0.491	44 W	-4.6	108.0	33.95	0.345	22.23	-2:58	-7.4	183.4	0.720
27.02.	19:40	-16.9	4.4	0.514	45 W	-4.6	105.5	32.48	0.367	20.58	-2:60	-8.5	188.2	0.721
2.03.	19:50	-16.8	4.1	0.536	45 W	-4.5	103.1	31.11	0.387	19.07	-3:01	-9.6	193.1	0.721
5.03.	20:00	-16.7	3.8	0.559	46 W	-4.5	100.8	29.85	0.406	17.72	-3:02	-10.6	197.9	0.721
8.03.	20:11	-16.5	3.4	0.582	46 W	-4.5	98.6	28.67	0.425	16.48	-3:02	-11.5	202.7	0.722
11.03.	20:23	-16.2	3.1	0.605	46 W	-4.5	96.5	27.57	0.443	15.35	-3:01	-12.4	207.6	0.722
14.03.	20:34	-15.9	2.7	0.628	46 W	-4.4	94.5	26.55	0.461	14.32	-3:01	-13.2	212.4	0.722
17.03.	20:46	-15.4	2.4	0.652	47 W	-4.4	92.6	25.60	0.477	13.38	-3:00	-14.0	217.2	0.723
20.03.	20:58	-15.0	2.1	0.675	47 W	-4.4	90.7	24.71	0.493	12.52	-2:59	-14.7	222.0	0.723
23.03.	21:10	-14.4	1.8	0.698	47 W	-4.4	89.0	23.88	0.509	11.72	-2:58	-15.3	226.8	0.724
26.03.	21:23	-13.8	1.5	0.722	46 W	-4.3	87.2	23.11	0.524	11.00	-2:56	-15.9	231.6	0.724
29.03.	21:35	-13.1	1.2	0.745	46 W	-4.3	85.5	22.38	0.539	10.32	-2:55	-16.4	236.4	0.725
1.04.	21:48	-12.3	0.9	0.769	46 W	-4.3	83.9	21.70	0.553	9.70	-2:53	-16.8	241.2	0.725
4.04.	22:00	-11.5	0.6	0.792	46 W	-4.3	82.3	21.06	0.567	9.12	-2:51	-17.1	245.9	0.725
7.04.	22:13	-10.6	0.3	0.816	46 W	-4.2	80.8	20.45	0.580	8.58	-2:50	-17.4	250.7	0.726
10.04.	22:26	-9.7	0.1	0.839	45 W	-4.2	79.2	19.88	0.593	8.08	-2:48	-17.6	255.5	0.726
13.04.	22:38	-8.7	-0.2	0.862	45 W	-4.2	77.8	19.35	0.606	7.62	-2:46	-17.7	260.2	0.726
16.04.	22:51	-7.7	-0.4	0.885	45 W	-4.2	76.3	18.84	0.618	7.19	-2:45	-17.7	265.0	0.727
19.04.	23:04	-6.6	-0.6	0.908	44 W	-4.2	74.9	18.37	0.631	6.79	-2:43	-17.7	269.7	0.727
22.04.	23:16	-5.5	-0.8	0.931	44 W	-4.1	73.5	17.91	0.642	6.40	-2:42	-17.6	274.5	0.727
25.04.	23:29	-4.3	-1.0	0.954	43 W	-4.1	72.1	17.49	0.654	6.05	-2:40	-17.5	279.2	0.727
28.04.	23:42	-3.2	-1.2	0.977	43 W	-4.1	70.7	17.08	0.665	5.72	-2:39	-17.2	284.0	0.728



Datum	$\alpha$	$\delta$	b	$\Delta$ (AE)	E	mv	$\varphi$	$\varnothing$	k	q (")	$\Delta\alpha$ (h:m)	$\Delta\delta$ (°)	l	r
1.05.	23:55	-2.0	-1.3	0.999	43 W	-4.1	69.3	16.70	0.676	5.40	-2:38	-17.0	288.7	0.728
4.05.	0:07	-0.7	-1.4	1.021	42 W	-4.1	68.0	16.33	0.687	5.11	-2:36	-16.6	293.5	0.728
7.05.	0:20	0.5	-1.6	1.044	42 W	-4.1	66.7	15.98	0.698	4.83	-2:35	-16.2	298.2	0.728
10.05.	0:33	1.8	-1.7	1.065	41 W	-4.1	65.4	15.66	0.708	4.57	-2:34	-15.8	303.0	0.728
13.05.	0:46	3.1	-1.8	1.087	40 W	-4.0	64.1	15.34	0.718	4.32	-2:33	-15.3	307.7	0.728
16.05.	0:59	4.3	-1.8	1.109	40 W	-4.0	62.8	15.04	0.728	4.09	-2:32	-14.7	312.4	0.728
19.05.	1:12	5.6	-1.9	1.130	39 W	-4.0	61.6	14.76	0.738	3.86	-2:31	-14.1	317.2	0.728
22.05.	1:25	6.9	-1.9	1.151	39 W	-4.0	60.3	14.49	0.748	3.65	-2:30	-13.5	321.9	0.728
25.05.	1:38	8.1	-2.0	1.172	38 W	-4.0	59.0	14.23	0.757	3.45	-2:29	-12.8	326.7	0.728
28.05.	1:51	9.4	-2.0	1.193	37 W	-4.0	57.8	13.99	0.766	3.27	-2:28	-12.1	331.4	0.728
31.05.	2:05	10.6	-2.0	1.213	37 W	-4.0	56.6	13.75	0.776	3.09	-2:26	-11.3	336.2	0.728
3.06.	2:18	11.7	-2.0	1.233	36 W	-4.0	55.3	13.53	0.784	2.92	-2:25	-10.5	340.9	0.728
6.06.	2:32	12.9	-2.0	1.253	35 W	-4.0	54.1	13.32	0.793	2.75	-2:24	-9.7	345.7	0.727
9.06.	2:46	14.0	-1.9	1.272	35 W	-3.9	52.9	13.11	0.802	2.60	-2:22	-8.9	350.5	0.727
12.06.	3:00	15.1	-1.9	1.291	34 W	-3.9	51.7	12.92	0.810	2.45	-2:21	-8.1	355.2	0.727
15.06.	3:14	16.1	-1.8	1.310	33 W	-3.9	50.4	12.73	0.818	2.31	-2:19	-7.2	0.0	0.727
18.06.	3:28	17.1	-1.8	1.328	33 W	-3.9	49.2	12.56	0.827	2.18	-2:17	-6.3	4.8	0.726
21.06.	3:42	18.0	-1.7	1.347	32 W	-3.9	48.0	12.39	0.834	2.05	-2:15	-5.5	9.6	0.726
24.06.	3:57	18.8	-1.6	1.364	31 W	-3.9	46.8	12.23	0.842	1.93	-2:13	-4.6	14.3	0.726
27.06.	4:12	19.6	-1.5	1.382	31 W	-3.9	45.6	12.07	0.850	1.81	-2:11	-3.7	19.1	0.725
30.06.	4:27	20.3	-1.4	1.399	30 W	-3.9	44.4	11.92	0.857	1.70	-2:09	-2.9	23.9	0.725
3.07.	4:42	20.9	-1.3	1.416	29 W	-3.9	43.2	11.78	0.864	1.60	-2:06	-2.0	28.7	0.724
6.07.	4:57	21.5	-1.2	1.432	28 W	-3.9	42.0	11.65	0.872	1.50	-2:03	-1.2	33.5	0.724
9.07.	5:12	21.9	-1.1	1.448	28 W	-3.9	40.8	11.52	0.878	1.40	-1:60	-0.5	38.3	0.724
12.07.	5:28	22.3	-0.9	1.463	27 W	-3.9	39.6	11.40	0.885	1.31	-1:57	0.3	43.1	0.723
15.07.	5:44	22.6	-0.8	1.478	26 W	-3.9	38.4	11.28	0.892	1.22	-1:53	1.0	47.9	0.723
18.07.	5:59	22.8	-0.7	1.493	25 W	-3.9	37.2	11.17	0.898	1.14	-1:50	1.7	52.7	0.722
21.07.	6:15	22.9	-0.5	1.507	25 W	-3.9	36.0	11.07	0.904	1.06	-1:46	2.3	57.5	0.722
24.07.	6:31	22.8	-0.4	1.521	24 W	-3.9	34.8	10.97	0.910	0.98	-1:42	2.9	62.3	0.722
27.07.	6:46	22.7	-0.3	1.534	23 W	-3.9	33.6	10.87	0.916	0.91	-1:38	3.5	67.2	0.721
30.07.	7:02	22.5	-0.1	1.547	22 W	-3.9	32.5	10.78	0.922	0.84	-1:34	4.0	72.0	0.721
2.08.	7:18	22.2	0.0	1.559	22 W	-3.9	31.3	10.70	0.927	0.78	-1:30	4.4	76.8	0.720
5.08.	7:34	21.8	0.1	1.571	21 W	-3.9	30.1	10.62	0.933	0.71	-1:26	4.8	81.7	0.720
8.08.	7:49	21.3	0.3	1.583	20 W	-3.9	28.9	10.54	0.938	0.66	-1:22	5.1	86.5	0.720
11.08.	8:05	20.7	0.4	1.594	19 W	-3.9	27.7	10.47	0.943	0.60	-1:18	5.4	91.4	0.720
14.08.	8:20	20.0	0.5	1.604	18 W	-3.9	26.5	10.40	0.947	0.55	-1:14	5.6	96.2	0.719
17.08.	8:35	19.3	0.6	1.614	18 W	-3.9	25.3	10.33	0.952	0.50	-1:10	5.8	101.1	0.719
20.08.	8:50	18.4	0.7	1.624	17 W	-3.9	24.2	10.27	0.956	0.45	-1:06	5.9	105.9	0.719
23.08.	9:05	17.5	0.8	1.633	16 W	-3.9	23.0	10.21	0.960	0.41	-1:02	6.0	110.8	0.719
26.08.	9:20	16.5	0.9	1.642	15 W	-3.9	21.8	10.16	0.964	0.36	-0:58	6.0	115.7	0.719
29.08.	9:35	15.4	1.0	1.650	15 W	-3.9	20.7	10.11	0.968	0.33	-0:54	6.0	120.5	0.719



Datum	$\alpha$	$\delta$	b	$\Delta$ (AE)	E	mv	$\varphi$	$\emptyset$	k	q (")	$\Delta\alpha$ (h:m)	$\Delta\delta$ (°)	l	r
1.09.	9:50	14.3	1.1	1.658	14 W	-3.9	19.5	10.06	0.971	0.29	-0:51	5.9	125.4	0.718
4.09.	10:04	13.1	1.2	1.665	13 W	-3.9	18.3	10.02	0.975	0.25	-0:47	5.8	130.3	0.718
7.09.	10:18	11.8	1.2	1.672	12 W	-3.9	17.2	9.98	0.978	0.22	-0:44	5.7	135.1	0.718
10.09.	10:33	10.5	1.3	1.678	11 W	-3.9	16.0	9.94	0.981	0.19	-0:40	5.5	140.0	0.718
13.09.	10:47	9.2	1.3	1.684	11 W	-3.9	14.9	9.91	0.983	0.17	-0:37	5.3	144.9	0.719
16.09.	11:01	7.8	1.4	1.689	10 W	-3.9	13.8	9.88	0.986	0.14	-0:34	5.1	149.8	0.719
19.09.	11:14	6.4	1.4	1.694	9 W	-3.9	12.6	9.85	0.988	0.12	-0:31	4.8	154.7	0.719
22.09.	11:28	4.9	1.4	1.698	8 W	-3.9	11.5	9.82	0.990	0.10	-0:28	4.5	159.5	0.719
25.09.	11:42	3.5	1.4	1.702	7 W	-3.9	10.4	9.80	0.992	0.08	-0:25	4.2	164.4	0.719
28.09.	11:56	2.0	1.4	1.705	7 W	-3.9	9.3	9.78	0.993	0.06	-0:22	3.9	169.3	0.719
1.10.	12:09	0.5	1.4	1.708	6 W	-3.9	8.2	9.76	0.995	0.05	-0:19	3.6	174.1	0.720
4.10.	12:23	-1.0	1.4	1.711	5 W	-3.9	7.1	9.75	0.996	0.04	-0:16	3.2	179.0	0.720
7.10.	12:37	-2.5	1.4	1.713	4 W	-3.9	6.0	9.74	0.997	0.03	-0:13	2.9	183.8	0.720
10.10.	12:51	-4.0	1.3	1.715	4 W	-3.9	5.0	9.73	0.998	0.02	-0:10	2.5	188.7	0.721
13.10.	13:04	-5.5	1.3	1.716	3 W	-3.9	4.0	9.72	0.999	0.01	-0:08	2.1	193.5	0.721
16.10.	13:18	-7.0	1.2	1.717	2 W	-3.9	3.0	9.72	0.999	0.01	-0:05	1.8	198.4	0.721
19.10.	13:32	-8.5	1.1	1.717	2 W	-3.9	2.1	9.71	1.000	0.00	-0:02	1.4	203.2	0.722
22.10.	13:46	-9.9	1.1	1.717	1 W	-3.9	1.5	9.71	1.000	0.00	0:01	1.1	208.0	0.722
25.10.	14:01	-11.3	1.0	1.717	1 O	-3.9	1.6	9.72	1.000	0.00	0:04	0.7	212.9	0.723
28.10.	14:15	-12.6	0.9	1.716	2 O	-3.9	2.2	9.72	1.000	0.00	0:06	0.4	217.7	0.723
31.10.	14:29	-13.9	0.8	1.714	2 O	-3.9	3.1	9.73	0.999	0.01	0:09	0.1	222.5	0.723
3.11.	14:44	-15.2	0.7	1.713	3 O	-3.9	4.0	9.74	0.999	0.01	0:12	-0.2	227.3	0.724
6.11.	14:59	-16.4	0.6	1.711	4 O	-3.9	5.0	9.75	0.998	0.02	0:15	-0.5	232.1	0.724
9.11.	15:14	-17.5	0.5	1.708	4 O	-3.9	6.0	9.76	0.997	0.03	0:18	-0.7	236.9	0.725
12.11.	15:29	-18.6	0.4	1.706	5 O	-3.9	7.0	9.78	0.996	0.04	0:21	-0.9	241.6	0.725
15.11.	15:45	-19.6	0.3	1.702	6 O	-3.9	8.0	9.80	0.995	0.05	0:24	-1.1	246.4	0.725
18.11.	16:00	-20.5	0.1	1.699	7 O	-3.9	9.0	9.82	0.994	0.06	0:27	-1.3	251.2	0.726
21.11.	16:16	-21.3	0.0	1.695	7 O	-3.9	10.0	9.84	0.992	0.07	0:31	-1.4	256.0	0.726
24.11.	16:32	-22.0	-0.1	1.691	8 O	-3.9	11.0	9.87	0.991	0.09	0:34	-1.5	260.7	0.726
27.11.	16:48	-22.6	-0.2	1.686	9 O	-3.9	12.0	9.89	0.989	0.11	0:37	-1.6	265.5	0.727
30.11.	17:04	-23.2	-0.3	1.681	10 O	-3.9	13.0	9.92	0.987	0.13	0:41	-1.6	270.2	0.727
3.12.	17:20	-23.6	-0.5	1.676	10 O	-3.9	14.0	9.95	0.985	0.15	0:44	-1.5	275.0	0.727
6.12.	17:37	-23.9	-0.6	1.670	11 O	-3.9	14.9	9.99	0.983	0.17	0:47	-1.4	279.7	0.727
9.12.	17:53	-24.1	-0.7	1.664	12 O	-3.9	15.9	10.02	0.981	0.19	0:51	-1.3	284.5	0.728
12.12.	18:10	-24.2	-0.8	1.658	12 O	-3.9	16.9	10.06	0.978	0.22	0:54	-1.2	289.2	0.728
15.12.	18:26	-24.2	-0.9	1.651	13 O	-3.9	17.9	10.10	0.976	0.24	0:57	-0.9	294.0	0.728
18.12.	18:43	-24.1	-1.0	1.644	14 O	-3.9	18.9	10.14	0.973	0.27	1:00	-0.7	298.7	0.728
21.12.	18:59	-23.8	-1.1	1.637	15 O	-3.9	19.9	10.19	0.970	0.30	1:04	-0.4	303.4	0.728
24.12.	19:15	-23.5	-1.2	1.629	15 O	-3.9	20.8	10.24	0.967	0.34	1:07	-0.1	308.2	0.728
27.12.	19:32	-23.0	-1.3	1.621	16 O	-3.9	21.8	10.29	0.964	0.37	1:10	0.3	312.9	0.728
30.12.	19:48	-22.5	-1.3	1.613	17 O	-3.9	22.8	10.34	0.961	0.40	1:12	0.7	317.7	0.728

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)

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.

14.09.2015