

# Sonnenephemeride für den Zeitraum 1. 1.2012 - 31.12.2012

## Berechnet für den Standort Boden (50.5° N, 7.9° O)

Datum	RA (2000.0)	D (2000.0)	ekl. Länge	ekl. Breite	Entfg.	Azim	Höhe	Aufg.	Kulm.	KHöh	Untg.	Stb.
So 01.01.2012	00:00	18h43' 8.8"	-23° 4' 2.2"	279°54'38.6"	+ 0° 0' 0.9"	0.98333	164° -62°	08:37	12:32	+17°	16:27	SGR
Mo 02.01.2012	00:00	18h47'33.8"	-22°59'15.4"	280°55'47.8"	+ 0° 0' 0.8"	0.98331	164° -62°	08:37	12:33	+17°	16:28	SGR
Di 03.01.2012	00:00	18h51'58.4"	-22°54' 1.0"	281°56'56.8"	+ 0° 0' 0.8"	0.98330	164° -62°	08:37	12:33	+17°	16:29	SGR
Mi 04.01.2012	00:00	18h56'22.7"	-22°48'19.3"	282°58' 5.6"	+ 0° 0' 0.6"	0.98329	164° -62°	08:36	12:34	+17°	16:30	SGR
Do 05.01.2012	00:00	19h 0'46.5"	-22°42'10.5"	283°59'14.2"	+ 0° 0' 0.5"	0.98328	164° -61°	08:36	12:34	+17°	16:31	SGR
Fr 06.01.2012	00:00	19h 5'10.0"	-22°35'34.8"	285° 0'22.5"	+ 0° 0' 0.4"	0.98329	163° -61°	08:36	12:35	+17°	16:32	SGR
Sa 07.01.2012	00:00	19h 9'33.0"	-22°28'32.2"	286° 1'30.7"	+ 0° 0' 0.3"	0.98329	163° -61°	08:36	12:35	+17°	16:34	SGR
So 08.01.2012	00:00	19h13'55.5"	-22°21' 3.1"	287° 2'38.5"	+ 0° 0' 0.1"	0.98331	163° -61°	08:35	12:35	+17°	16:35	SGR
Mo 09.01.2012	00:00	19h18'17.5"	-22°13' 7.7"	288° 3'46.2"	+ 0° 0' 0.0"	0.98333	163° -61°	08:35	12:36	+17°	16:36	SGR
Di 10.01.2012	00:00	19h22'39.0"	-22° 4'46.1"	289° 4'53.6"	- 0° 0' 0.1"	0.98336	163° -61°	08:34	12:36	+18°	16:38	SGR
Mi 11.01.2012	00:00	19h26'60.0"	-21°55'58.6"	290° 6' 0.8"	- 0° 0' 0.2"	0.98339	163° -61°	08:34	12:37	+18°	16:39	SGR
Do 12.01.2012	00:00	19h31'20.4"	-21°46'45.5"	291° 7' 7.9"	- 0° 0' 0.2"	0.98343	163° -60°	08:33	12:37	+18°	16:40	SGR
Fr 13.01.2012	00:00	19h35'40.2"	-21°37' 6.9"	292° 8'14.8"	- 0° 0' 0.2"	0.98348	163° -60°	08:32	12:37	+18°	16:42	SGR
Sa 14.01.2012	00:00	19h39'59.4"	-21°27' 3.1"	293° 9'21.6"	- 0° 0' 0.2"	0.98353	162° -60°	08:32	12:38	+18°	16:43	SGR
So 15.01.2012	00:00	19h44'18.0"	-21°16'34.4"	294°10'28.3"	- 0° 0' 0.2"	0.98359	162° -60°	08:31	12:38	+18°	16:45	SGR
Mo 16.01.2012	00:00	19h48'35.9"	-21° 5'41.1"	295°11'34.9"	- 0° 0' 0.1"	0.98366	162° -60°	08:30	12:39	+19°	16:46	SGR
Di 17.01.2012	00:00	19h52'53.2"	-20°54'23.4"	296°12'41.4"	- 0° 0' 0.0"	0.98372	162° -59°	08:29	12:39	+19°	16:48	SGR
Mi 18.01.2012	00:00	19h57' 9.9"	-20°42'41.8"	297°13'47.8"	+ 0° 0' 0.1"	0.98380	162° -59°	08:28	12:39	+19°	16:50	CAP
Do 19.01.2012	00:00	20h 1'25.8"	-20°30'36.4"	298°14'53.9"	+ 0° 0' 0.2"	0.98388	162° -59°	08:27	12:40	+19°	16:51	CAP
Fr 20.01.2012	00:00	20h 5'41.1"	-20°18' 7.7"	299°15'59.7"	+ 0° 0' 0.4"	0.98396	162° -59°	08:26	12:40	+19°	16:53	CAP
Sa 21.01.2012	00:00	20h 9'55.7"	-20° 5'16.1"	300°17' 5.1"	+ 0° 0' 0.5"	0.98405	162° -59°	08:25	12:40	+20°	16:54	CAP
So 22.01.2012	00:00	20h14' 9.5"	-19°52' 1.8"	301°18'10.1"	+ 0° 0' 0.6"	0.98414	162° -58°	08:24	12:40	+20°	16:56	CAP
Mo 23.01.2012	00:00	20h18'22.5"	-19°38'25.4"	302°19'14.5"	+ 0° 0' 0.7"	0.98423	162° -58°	08:23	12:41	+20°	16:58	CAP
Di 24.01.2012	00:00	20h22'34.8"	-19°24'27.0"	303°20'18.2"	+ 0° 0' 0.8"	0.98433	162° -58°	08:22	12:41	+20°	17:00	CAP
Mi 25.01.2012	00:00	20h26'46.3"	-19°10' 7.2"	304°21'21.1"	+ 0° 0' 0.9"	0.98443	162° -58°	08:21	12:41	+20°	17:01	CAP
Do 26.01.2012	00:00	20h30'56.9"	-18°55'26.4"	305°22'23.1"	+ 0° 0' 0.9"	0.98453	162° -57°	08:19	12:41	+21°	17:03	CAP
Fr 27.01.2012	00:00	20h35' 6.8"	-18°40'24.8"	306°23'24.2"	+ 0° 0' 0.9"	0.98464	162° -57°	08:18	12:42	+21°	17:05	CAP
Sa 28.01.2012	00:00	20h39'15.9"	-18°25' 2.9"	307°24'24.2"	+ 0° 0' 0.9"	0.98475	162° -57°	08:17	12:42	+21°	17:06	CAP
So 29.01.2012	00:00	20h43'24.1"	-18° 9'21.1"	308°25'23.1"	+ 0° 0' 0.8"	0.98486	162° -57°	08:15	12:42	+22°	17:08	CAP
Mo 30.01.2012	00:00	20h47'31.5"	-17°53'19.8"	309°26'20.9"	+ 0° 0' 0.7"	0.98498	162° -56°	08:14	12:42	+22°	17:10	CAP
Di 31.01.2012	00:00	20h51'38.1"	-17°36'59.3"	310°27'17.5"	+ 0° 0' 0.6"	0.98511	162° -56°	08:13	12:42	+22°	17:12	CAP
Mi 01.02.2012	00:00	20h55'43.9"	-17°20'20.1"	311°28'12.9"	+ 0° 0' 0.5"	0.98523	162° -56°	08:11	12:43	+22°	17:14	CAP
Do 02.02.2012	00:00	20h59'48.8"	-17° 3'22.6"	312°29' 6.9"	+ 0° 0' 0.4"	0.98537	162° -56°	08:10	12:43	+23°	17:15	CAP
Fr 03.02.2012	00:00	21h 3'52.9"	-16°46' 7.2"	313°29'59.7"	+ 0° 0' 0.2"	0.98550	162° -55°	08:08	12:43	+23°	17:17	CAP
Sa 04.02.2012	00:00	21h 7'56.1"	-16°28'34.2"	314°30'51.2"	+ 0° 0' 0.1"	0.98565	162° -55°	08:07	12:43	+23°	17:19	CAP
So 05.02.2012	00:00	21h11'58.6"	-16°10'44.2"	315°31'41.4"	- 0° 0' 0.0"	0.98579	162° -55°	08:05	12:43	+24°	17:21	CAP
Mo 06.02.2012	00:00	21h16' 0.2"	-15°52'37.4"	316°32'30.2"	- 0° 0' 0.1"	0.98595	162° -54°	08:04	12:43	+24°	17:23	CAP
Di 07.02.2012	00:00	21h20' 1.0"	-15°34'14.3"	317°33'17.8"	- 0° 0' 0.2"	0.98610	162° -54°	08:02	12:43	+24°	17:24	CAP
Mi 08.02.2012	00:00	21h24' 1.0"	-15°15'35.3"	318°34' 4.1"	- 0° 0' 0.2"	0.98627	162° -54°	08:00	12:43	+24°	17:26	CAP
Do 09.02.2012	00:00	21h28' 0.2"	-14°56'40.8"	319°34'49.1"	- 0° 0' 0.3"	0.98644	162° -53°	07:59	12:43	+25°	17:28	CAP
Fr 10.02.2012	00:00	21h31'58.6"	-14°37'31.1"	320°35'33.0"	- 0° 0' 0.3"	0.98661	163° -53°	07:57	12:43	+25°	17:30	CAP
Sa 11.02.2012	00:00	21h35'56.2"	-14°18' 6.7"	321°36'15.7"	- 0° 0' 0.2"	0.98679	163° -53°	07:55	12:43	+25°	17:32	CAP

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Datum	RA (2000.0)	D (2000.0)	ekl. Länge	ekl. Breite	Entfg.	Azim	Höhe	Aufg.	Kulm.	KHöh	Untg.	Stb.	
So 12.02.2012	00:00	21h39'53.1"	-13°58'27.9"	322°36'57.3"	- 0° 0' 0.2"	0.98698	163°	-52°	07:53	12:43	+26°	17:33	CAP
Mo 13.02.2012	00:00	21h43'49.2"	-13°38'35.1"	323°37'37.8"	- 0° 0' 0.1"	0.98717	163°	-52°	07:52	12:43	+26°	17:35	CAP
Di 14.02.2012	00:00	21h47'44.6"	-13°18'28.7"	324°38'17.2"	+ 0° 0' 0.0"	0.98736	163°	-52°	07:50	12:43	+26°	17:37	AQR
Mi 15.02.2012	00:00	21h51'39.2"	-12°58' 9.1"	325°38'55.5"	+ 0° 0' 0.1"	0.98756	163°	-51°	07:48	12:43	+27°	17:39	AQR
Do 16.02.2012	00:00	21h55'33.2"	-12°37'36.8"	326°39'32.8"	+ 0° 0' 0.3"	0.98777	163°	-51°	07:46	12:43	+27°	17:40	AQR
Fr 17.02.2012	00:00	21h59'26.4"	-12°16'52.3"	327°40' 8.9"	+ 0° 0' 0.4"	0.98797	163°	-51°	07:44	12:43	+27°	17:42	AQR
Sa 18.02.2012	00:00	22h 3'19.0"	-11°55'55.8"	328°40'43.8"	+ 0° 0' 0.5"	0.98818	163°	-50°	07:42	12:43	+28°	17:44	AQR
So 19.02.2012	00:00	22h 7'10.9"	-11°34'47.9"	329°41'17.4"	+ 0° 0' 0.6"	0.98839	164°	-50°	07:41	12:43	+28°	17:46	AQR
Mo 20.02.2012	00:00	22h11' 2.1"	-11°13'29.0"	330°41'49.7"	+ 0° 0' 0.7"	0.98861	164°	-50°	07:39	12:43	+29°	17:47	AQR
Di 21.02.2012	00:00	22h14'52.6"	-10°51'59.6"	331°42'20.5"	+ 0° 0' 0.8"	0.98882	164°	-49°	07:37	12:43	+29°	17:49	AQR
Mi 22.02.2012	00:00	22h18'42.5"	-10°30'20.0"	332°42'49.8"	+ 0° 0' 0.8"	0.98904	164°	-49°	07:35	12:43	+29°	17:51	AQR
Do 23.02.2012	00:00	22h22'31.8"	-10° 8'30.8"	333°43'17.4"	+ 0° 0' 0.8"	0.98926	164°	-49°	07:33	12:43	+30°	17:53	AQR
Fr 24.02.2012	00:00	22h26'20.4"	- 9°46'32.3"	334°43'43.4"	+ 0° 0' 0.8"	0.98948	164°	-48°	07:31	12:42	+30°	17:54	AQR
Sa 25.02.2012	00:00	22h30' 8.4"	- 9°24'25.0"	335°44' 7.6"	+ 0° 0' 0.8"	0.98970	164°	-48°	07:29	12:42	+30°	17:56	AQR
So 26.02.2012	00:00	22h33'55.8"	- 9° 2' 9.2"	336°44'30.0"	+ 0° 0' 0.7"	0.98993	165°	-48°	07:27	12:42	+31°	17:58	AQR
Mo 27.02.2012	00:00	22h37'42.6"	- 8°39'45.4"	337°44'50.6"	+ 0° 0' 0.6"	0.99016	165°	-47°	07:25	12:42	+31°	17:59	AQR
Di 28.02.2012	00:00	22h41'28.9"	- 8°17'14.0"	338°45' 9.2"	+ 0° 0' 0.5"	0.99039	165°	-47°	07:22	12:42	+31°	18:01	AQR
Mi 29.02.2012	00:00	22h45'14.6"	- 7°54'35.3"	339°45'25.8"	+ 0° 0' 0.3"	0.99062	165°	-47°	07:20	12:42	+32°	18:03	AQR
Do 01.03.2012	00:00	22h48'59.7"	- 7°31'49.9"	340°45'40.4"	+ 0° 0' 0.2"	0.99085	165°	-46°	07:18	12:41	+32°	18:04	AQR
Fr 02.03.2012	00:00	22h52'44.4"	- 7° 8'58.0"	341°45'53.0"	+ 0° 0' 0.1"	0.99109	165°	-46°	07:16	12:41	+33°	18:06	AQR
Sa 03.03.2012	00:00	22h56'28.5"	- 6°46' 0.2"	342°46' 3.6"	- 0° 0' 0.1"	0.99133	166°	-45°	07:14	12:41	+33°	18:08	AQR
So 04.03.2012	00:00	23h 0'12.2"	- 6°22'56.7"	343°46'12.0"	- 0° 0' 0.2"	0.99158	166°	-45°	07:12	12:41	+33°	18:09	AQR
Mo 05.03.2012	00:00	23h 3'55.4"	- 5°59'48.1"	344°46'18.4"	- 0° 0' 0.3"	0.99182	166°	-45°	07:10	12:40	+34°	18:11	AQR
Di 06.03.2012	00:00	23h 7'38.1"	- 5°36'34.5"	345°46'22.8"	- 0° 0' 0.3"	0.99207	166°	-44°	07:08	12:40	+34°	18:13	AQR
Mi 07.03.2012	00:00	23h11'20.4"	- 5°13'16.5"	346°46'25.2"	- 0° 0' 0.4"	0.99233	166°	-44°	07:05	12:40	+35°	18:14	AQR
Do 08.03.2012	00:00	23h15' 2.4"	- 4°49'54.4"	347°46'25.5"	- 0° 0' 0.4"	0.99258	166°	-44°	07:03	12:40	+35°	18:16	AQR
Fr 09.03.2012	00:00	23h18'43.9"	- 4°26'28.4"	348°46'24.0"	- 0° 0' 0.3"	0.99284	167°	-43°	07:01	12:39	+35°	18:18	PSC
Sa 10.03.2012	00:00	23h22'25.1"	- 4° 2'59.1"	349°46'20.6"	- 0° 0' 0.3"	0.99311	167°	-43°	06:59	12:39	+36°	18:19	PSC
So 11.03.2012	00:00	23h26' 6.0"	- 3°39'26.7"	350°46'15.4"	- 0° 0' 0.2"	0.99338	167°	-42°	06:57	12:39	+36°	18:21	PSC
Mo 12.03.2012	00:00	23h29'46.5"	- 3°15'51.5"	351°46' 8.5"	- 0° 0' 0.1"	0.99365	167°	-42°	06:54	12:39	+36°	18:23	PSC
Di 13.03.2012	00:00	23h33'26.8"	- 2°52'14.0"	352°45'59.9"	+ 0° 0' 0.0"	0.99392	167°	-42°	06:52	12:38	+37°	18:24	PSC
Mi 14.03.2012	00:00	23h37' 6.9"	- 2°28'34.4"	353°45'49.6"	+ 0° 0' 0.1"	0.99420	167°	-41°	06:50	12:38	+37°	18:26	PSC
Do 15.03.2012	00:00	23h40'46.7"	- 2° 4'53.3"	354°45'37.7"	+ 0° 0' 0.3"	0.99448	168°	-41°	06:48	12:38	+38°	18:28	PSC
Fr 16.03.2012	00:00	23h44'26.3"	- 1°41'10.8"	355°45'24.1"	+ 0° 0' 0.4"	0.99476	168°	-41°	06:46	12:38	+38°	18:29	PSC
Sa 17.03.2012	00:00	23h48' 5.7"	- 1°17'27.5"	356°45' 8.9"	+ 0° 0' 0.5"	0.99504	168°	-40°	06:43	12:37	+38°	18:31	PSC
So 18.03.2012	00:00	23h51'45.0"	- 0°53'43.7"	357°44'51.9"	+ 0° 0' 0.6"	0.99532	168°	-40°	06:41	12:37	+39°	18:33	PSC
Mo 19.03.2012	00:00	23h55'24.1"	- 0°29'59.8"	358°44'33.3"	+ 0° 0' 0.7"	0.99560	168°	-39°	06:39	12:37	+39°	18:34	PSC
Di 20.03.2012	00:00	23h59' 3.0"	- 0° 6'16.3"	359°44'12.8"	+ 0° 0' 0.7"	0.99589	168°	-39°	06:37	12:36	+40°	18:36	PSC
Mi 21.03.2012	00:00	0h 2'41.8"	+ 0°17'26.6"	0°43'50.4"	+ 0° 0' 0.7"	0.99617	169°	-39°	06:34	12:36	+40°	18:37	PSC
Do 22.03.2012	00:00	0h 6'20.5"	+ 0°41' 8.4"	1°43'26.1"	+ 0° 0' 0.7"	0.99645	169°	-38°	06:32	12:36	+40°	18:39	PSC
Fr 23.03.2012	00:00	0h 9'59.2"	+ 1° 4'48.8"	2°42'59.8"	+ 0° 0' 0.6"	0.99673	169°	-38°	06:30	12:36	+41°	18:41	PSC
Sa 24.03.2012	00:00	0h13'37.8"	+ 1°28'27.3"	3°42'31.5"	+ 0° 0' 0.6"	0.99701	169°	-38°	06:28	12:35	+41°	18:42	PSC

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Datum	RA (2000.0)	D (2000.0)	ekl. Länge	ekl. Breite	Entfg.	Azim	Höhe	Aufg.	Kulm.	KHöh	Untg.	Stb.
So 25.03.2012 00:00	0h17' 7.1"	+ 1°51' 4.7"	4°39'32.3"	+ 0° 0' 0.5"	0.99728	151°	-34°	07:26	13:35	+42°	19:44	PSC
Mo 26.03.2012 00:00	0h20'45.6"	+ 2°14'38.6"	5°38'59.8"	+ 0° 0' 0.4"	0.99757	151°	-34°	07:24	13:35	+42°	19:46	PSC
Di 27.03.2012 00:00	0h24'24.0"	+ 2°38' 9.6"	6°38'25.2"	+ 0° 0' 0.2"	0.99785	152°	-33°	07:22	13:34	+42°	19:48	PSC
Mi 28.03.2012 00:00	0h28' 2.5"	+ 3° 1'37.3"	7°37'48.3"	+ 0° 0' 0.1"	0.99813	152°	-33°	07:19	13:34	+43°	19:49	PSC
Do 29.03.2012 00:00	0h31'41.0"	+ 3°25' 1.4"	8°37' 9.1"	- 0° 0' 0.0"	0.99841	152°	-32°	07:17	13:34	+43°	19:51	PSC
Fr 30.03.2012 00:00	0h35'19.6"	+ 3°48'21.6"	9°36'27.6"	- 0° 0' 0.2"	0.99869	152°	-32°	07:15	13:34	+44°	19:52	PSC
Sa 31.03.2012 00:00	0h38'58.2"	+ 4°11'37.3"	10°35'43.8"	- 0° 0' 0.3"	0.99897	152°	-32°	07:13	13:33	+44°	19:54	PSC
So 01.04.2012 00:00	0h42'36.8"	+ 4°34'48.4"	11°34'57.7"	- 0° 0' 0.4"	0.99925	153°	-31°	07:11	13:33	+44°	19:55	PSC
Mo 02.04.2012 00:00	0h46'15.6"	+ 4°57'54.4"	12°34' 9.3"	- 0° 0' 0.5"	0.99953	153°	-31°	07:08	13:33	+45°	19:57	PSC
Di 03.04.2012 00:00	0h49'54.4"	+ 5°20'55.0"	13°33'18.6"	- 0° 0' 0.5"	0.99981	153°	-31°	07:06	13:32	+45°	19:59	PSC
Mi 04.04.2012 00:00	0h53'33.4"	+ 5°43'49.9"	14°32'25.6"	- 0° 0' 0.5"	1.00010	153°	-30°	07:04	13:32	+46°	20:00	PSC
Do 05.04.2012 00:00	0h57'12.6"	+ 6° 6'38.8"	15°31'30.4"	- 0° 0' 0.5"	1.00038	154°	-30°	07:02	13:32	+46°	20:02	PSC
Fr 06.04.2012 00:00	1h 0'51.9"	+ 6°29'21.3"	16°30'33.0"	- 0° 0' 0.4"	1.00066	154°	-30°	07:00	13:31	+46°	20:03	PSC
Sa 07.04.2012 00:00	1h 4'31.4"	+ 6°51'57.1"	17°29'33.5"	- 0° 0' 0.4"	1.00095	154°	-29°	06:57	13:31	+47°	20:05	PSC
So 08.04.2012 00:00	1h 8'11.2"	+ 7°14'25.9"	18°28'32.0"	- 0° 0' 0.3"	1.00124	154°	-29°	06:55	13:31	+47°	20:06	PSC
Mo 09.04.2012 00:00	1h11'51.2"	+ 7°36'47.4"	19°27'28.5"	- 0° 0' 0.2"	1.00153	154°	-29°	06:53	13:31	+47°	20:08	PSC
Di 10.04.2012 00:00	1h15'31.4"	+ 7°59' 1.2"	20°26'23.2"	- 0° 0' 0.0"	1.00182	155°	-28°	06:51	13:30	+48°	20:09	PSC
Mi 11.04.2012 00:00	1h19'12.0"	+ 8°21' 7.2"	21°25'16.1"	+ 0° 0' 0.1"	1.00211	155°	-28°	06:49	13:30	+48°	20:11	PSC
Do 12.04.2012 00:00	1h22'52.8"	+ 8°43' 4.8"	22°24' 7.2"	+ 0° 0' 0.2"	1.00240	155°	-28°	06:47	13:30	+48°	20:13	PSC
Fr 13.04.2012 00:00	1h26'34.0"	+ 9° 4'53.9"	23°22'56.6"	+ 0° 0' 0.3"	1.00268	155°	-27°	06:45	13:30	+49°	20:14	PSC
Sa 14.04.2012 00:00	1h30'15.5"	+ 9°26'33.9"	24°21'44.4"	+ 0° 0' 0.4"	1.00297	155°	-27°	06:43	13:29	+49°	20:16	PSC
So 15.04.2012 00:00	1h33'57.4"	+ 9°48' 4.7"	25°20'30.5"	+ 0° 0' 0.5"	1.00326	155°	-27°	06:40	13:29	+50°	20:17	PSC
Mo 16.04.2012 00:00	1h37'39.7"	+10° 9'25.7"	26°19'14.9"	+ 0° 0' 0.6"	1.00355	156°	-26°	06:38	13:29	+50°	20:19	ARI
Di 17.04.2012 00:00	1h41'22.3"	+10°30'36.8"	27°17'57.5"	+ 0° 0' 0.6"	1.00383	156°	-26°	06:36	13:29	+50°	20:20	ARI
Mi 18.04.2012 00:00	1h45' 5.3"	+10°51'37.4"	28°16'38.4"	+ 0° 0' 0.6"	1.00412	156°	-26°	06:34	13:28	+51°	20:22	ARI
Do 19.04.2012 00:00	1h48'48.8"	+11°12'27.3"	29°15'17.6"	+ 0° 0' 0.5"	1.00440	156°	-25°	06:32	13:28	+51°	20:24	ARI
Fr 20.04.2012 00:00	1h52'32.6"	+11°33' 6.1"	30°13'54.9"	+ 0° 0' 0.5"	1.00467	156°	-25°	06:30	13:28	+51°	20:25	ARI
Sa 21.04.2012 00:00	1h56'16.9"	+11°53'33.5"	31°12'30.4"	+ 0° 0' 0.4"	1.00495	156°	-25°	06:28	13:28	+52°	20:27	ARI
So 22.04.2012 00:00	2h 0' 1.6"	+12°13'49.2"	32°11' 3.9"	+ 0° 0' 0.2"	1.00522	157°	-24°	06:26	13:28	+52°	20:28	ARI
Mo 23.04.2012 00:00	2h 3'46.8"	+12°33'52.7"	33° 9'35.6"	+ 0° 0' 0.1"	1.00549	157°	-24°	06:24	13:27	+52°	20:30	ARI
Di 24.04.2012 00:00	2h 7'32.5"	+12°53'43.8"	34° 8' 5.3"	- 0° 0' 0.0"	1.00576	157°	-24°	06:22	13:27	+53°	20:31	ARI
Mi 25.04.2012 00:00	2h11'18.6"	+13°13'22.2"	35° 6'32.9"	- 0° 0' 0.2"	1.00602	157°	-24°	06:21	13:27	+53°	20:33	ARI
Do 26.04.2012 00:00	2h15' 5.2"	+13°32'47.4"	36° 4'58.6"	- 0° 0' 0.3"	1.00628	157°	-23°	06:19	13:27	+53°	20:35	ARI
Fr 27.04.2012 00:00	2h18'52.2"	+13°51'59.2"	37° 3'22.2"	- 0° 0' 0.4"	1.00654	157°	-23°	06:17	13:27	+54°	20:36	ARI
Sa 28.04.2012 00:00	2h22'39.8"	+14°10'57.3"	38° 1'43.8"	- 0° 0' 0.5"	1.00680	157°	-23°	06:15	13:27	+54°	20:38	ARI
So 29.04.2012 00:00	2h26'27.8"	+14°29'41.2"	39° 0' 3.2"	- 0° 0' 0.6"	1.00705	157°	-22°	06:13	13:26	+54°	20:39	ARI
Mo 30.04.2012 00:00	2h30'16.4"	+14°48'10.7"	39°58'20.6"	- 0° 0' 0.6"	1.00730	158°	-22°	06:11	13:26	+55°	20:41	ARI
Di 01.05.2012 00:00	2h34' 5.4"	+15° 6'25.4"	40°56'35.9"	- 0° 0' 0.7"	1.00755	158°	-22°	06:10	13:26	+55°	20:42	ARI
Mi 02.05.2012 00:00	2h37'55.0"	+15°24'25.1"	41°54'49.1"	- 0° 0' 0.6"	1.00780	158°	-21°	06:08	13:26	+55°	20:44	ARI
Do 03.05.2012 00:00	2h41'45.1"	+15°42' 9.5"	42°53' 0.4"	- 0° 0' 0.6"	1.00804	158°	-21°	06:06	13:26	+55°	20:45	ARI
Fr 04.05.2012 00:00	2h45'35.7"	+15°59'38.1"	43°51' 9.7"	- 0° 0' 0.5"	1.00829	158°	-21°	06:04	13:26	+56°	20:47	ARI
Sa 05.05.2012 00:00	2h49'26.9"	+16°16'50.8"	44°49'17.1"	- 0° 0' 0.4"	1.00853	158°	-21°	06:03	13:26	+56°	20:49	ARI

# Sonnenephemeride für den Zeitraum 1. 1.2012 - 31.12.2012

## Berechnet für den Standort Boden (50.5° N, 7.9° O)

Datum	RA (2000.0)	D (2000.0)	ekl. Länge	ekl. Breite	Entfg.	Azim	Höhe	Aufg.	Kulm.	KHöh	Untg.	Stb.
So 06.05.2012 00:00	2h53'18.6"	+16°33'47.3"	45°47'22.7"	- 0° 0' 0.3"	1.00877	158°	-20°	06:01	13:26	+56°	20:50	ARI
Mo 07.05.2012 00:00	2h57'10.9"	+16°50'27.3"	46°45'26.7"	- 0° 0' 0.2"	1.00902	158°	-20°	06:00	13:26	+57°	20:52	ARI
Di 08.05.2012 00:00	3h 1' 3.8"	+17° 6'50.5"	47°43'29.0"	- 0° 0' 0.1"	1.00926	158°	-20°	05:58	13:26	+57°	20:53	ARI
Mi 09.05.2012 00:00	3h 4'57.2"	+17°22'56.6"	48°41'29.9"	+ 0° 0' 0.0"	1.00949	158°	-20°	05:56	13:25	+57°	20:55	ARI
Do 10.05.2012 00:00	3h 8'51.2"	+17°38'45.3"	49°39'29.3"	+ 0° 0' 0.2"	1.00973	159°	-19°	05:55	13:25	+57°	20:56	ARI
Fr 11.05.2012 00:00	3h12'45.9"	+17°54'16.4"	50°37'27.4"	+ 0° 0' 0.3"	1.00997	159°	-19°	05:53	13:25	+58°	20:58	TAU
Sa 12.05.2012 00:00	3h16'41.1"	+18° 9'29.5"	51°35'24.1"	+ 0° 0' 0.3"	1.01020	159°	-19°	05:52	13:25	+58°	20:59	TAU
So 13.05.2012 00:00	3h20'36.9"	+18°24'24.3"	52°33'19.7"	+ 0° 0' 0.4"	1.01043	159°	-19°	05:51	13:25	+58°	21:00	TAU
Mo 14.05.2012 00:00	3h24'33.2"	+18°39' 0.5"	53°31'13.9"	+ 0° 0' 0.4"	1.01066	159°	-18°	05:49	13:25	+58°	21:02	TAU
Di 15.05.2012 00:00	3h28'30.2"	+18°53'17.9"	54°29' 7.0"	+ 0° 0' 0.4"	1.01088	159°	-18°	05:48	13:25	+59°	21:03	TAU
Mi 16.05.2012 00:00	3h32'27.8"	+19° 7'16.1"	55°26'58.8"	+ 0° 0' 0.4"	1.01110	159°	-18°	05:46	13:25	+59°	21:05	TAU
Do 17.05.2012 00:00	3h36'25.9"	+19°20'54.9"	56°24'49.4"	+ 0° 0' 0.3"	1.01132	159°	-18°	05:45	13:25	+59°	21:06	TAU
Fr 18.05.2012 00:00	3h40'24.6"	+19°34'14.0"	57°22'38.7"	+ 0° 0' 0.2"	1.01153	159°	-17°	05:44	13:25	+59°	21:07	TAU
Sa 19.05.2012 00:00	3h44'23.9"	+19°47'13.0"	58°20'26.8"	+ 0° 0' 0.1"	1.01174	159°	-17°	05:43	13:26	+59°	21:09	TAU
So 20.05.2012 00:00	3h48'23.7"	+19°59'51.9"	59°18'13.5"	+ 0° 0' 0.0"	1.01194	159°	-17°	05:41	13:26	+60°	21:10	TAU
Mo 21.05.2012 00:00	3h52'24.1"	+20°12'10.2"	60°15'59.0"	- 0° 0' 0.1"	1.01214	159°	-17°	05:40	13:26	+60°	21:11	TAU
Di 22.05.2012 00:00	3h56'25.0"	+20°24' 7.8"	61°13'43.1"	- 0° 0' 0.3"	1.01233	159°	-17°	05:39	13:26	+60°	21:13	TAU
Mi 23.05.2012 00:00	4h 0'26.4"	+20°35'44.5"	62°11'25.8"	- 0° 0' 0.4"	1.01252	159°	-16°	05:38	13:26	+60°	21:14	TAU
Do 24.05.2012 00:00	4h 4'28.3"	+20°46'59.9"	63° 9' 7.2"	- 0° 0' 0.5"	1.01270	159°	-16°	05:37	13:26	+60°	21:15	TAU
Fr 25.05.2012 00:00	4h 8'30.8"	+20°57'53.8"	64° 6'47.2"	- 0° 0' 0.6"	1.01288	159°	-16°	05:36	13:26	+61°	21:16	TAU
Sa 26.05.2012 00:00	4h12'33.7"	+21° 8'26.0"	65° 4'25.7"	- 0° 0' 0.7"	1.01306	159°	-16°	05:35	13:26	+61°	21:18	TAU
So 27.05.2012 00:00	4h16'37.1"	+21°18'36.3"	66° 2' 2.8"	- 0° 0' 0.8"	1.01323	159°	-16°	05:34	13:26	+61°	21:19	TAU
Mo 28.05.2012 00:00	4h20'40.9"	+21°28'24.5"	66°59'38.5"	- 0° 0' 0.8"	1.01339	159°	-16°	05:33	13:26	+61°	21:20	TAU
Di 29.05.2012 00:00	4h24'45.1"	+21°37'50.3"	67°57'12.7"	- 0° 0' 0.8"	1.01355	159°	-15°	05:32	13:26	+61°	21:21	TAU
Mi 30.05.2012 00:00	4h28'49.8"	+21°46'53.5"	68°54'45.5"	- 0° 0' 0.7"	1.01371	159°	-15°	05:31	13:27	+61°	21:22	TAU
Do 31.05.2012 00:00	4h32'54.8"	+21°55'34.0"	69°52'16.8"	- 0° 0' 0.7"	1.01386	159°	-15°	05:31	13:27	+62°	21:23	TAU
Fr 01.06.2012 00:00	4h37' 0.3"	+22° 3'51.6"	70°49'46.8"	- 0° 0' 0.6"	1.01401	159°	-15°	05:30	13:27	+62°	21:24	TAU
Sa 02.06.2012 00:00	4h41' 6.2"	+22°11'46.1"	71°47'15.6"	- 0° 0' 0.5"	1.01416	159°	-15°	05:29	13:27	+62°	21:25	TAU
So 03.06.2012 00:00	4h45'12.4"	+22°19'17.3"	72°44'43.1"	- 0° 0' 0.4"	1.01430	159°	-15°	05:28	13:27	+62°	21:26	TAU
Mo 04.06.2012 00:00	4h49'18.9"	+22°26'25.1"	73°42' 9.5"	- 0° 0' 0.2"	1.01445	159°	-15°	05:28	13:27	+62°	21:27	TAU
Di 05.06.2012 00:00	4h53'25.8"	+22°33' 9.5"	74°39'34.9"	- 0° 0' 0.1"	1.01459	159°	-14°	05:27	13:28	+62°	21:28	TAU
Mi 06.06.2012 00:00	4h57'33.1"	+22°39'30.1"	75°36'59.5"	+ 0° 0' 0.0"	1.01472	159°	-14°	05:27	13:28	+62°	21:29	TAU
Do 07.06.2012 00:00	5h 1'40.6"	+22°45'26.9"	76°34'23.2"	+ 0° 0' 0.1"	1.01486	159°	-14°	05:26	13:28	+62°	21:30	TAU
Fr 08.06.2012 00:00	5h 5'48.5"	+22°50'59.8"	77°31'46.2"	+ 0° 0' 0.2"	1.01499	159°	-14°	05:26	13:28	+62°	21:30	TAU
Sa 09.06.2012 00:00	5h 9'56.6"	+22°56' 8.6"	78°29' 8.6"	+ 0° 0' 0.3"	1.01511	159°	-14°	05:26	13:28	+63°	21:31	TAU
So 10.06.2012 00:00	5h14' 5.0"	+23° 0'53.2"	79°26'30.5"	+ 0° 0' 0.3"	1.01524	159°	-14°	05:25	13:29	+63°	21:32	TAU
Mo 11.06.2012 00:00	5h18'13.6"	+23° 5'13.4"	80°23'51.8"	+ 0° 0' 0.3"	1.01536	159°	-14°	05:25	13:29	+63°	21:32	TAU
Di 12.06.2012 00:00	5h22'22.4"	+23° 9' 9.3"	81°21'12.6"	+ 0° 0' 0.3"	1.01547	159°	-14°	05:25	13:29	+63°	21:33	TAU
Mi 13.06.2012 00:00	5h26'31.4"	+23°12'40.6"	82°18'33.0"	+ 0° 0' 0.2"	1.01558	159°	-14°	05:25	13:29	+63°	21:34	TAU
Do 14.06.2012 00:00	5h30'40.7"	+23°15'47.3"	83°15'53.0"	+ 0° 0' 0.2"	1.01569	159°	-14°	05:24	13:29	+63°	21:34	TAU
Fr 15.06.2012 00:00	5h34'50.0"	+23°18'29.4"	84°13'12.5"	+ 0° 0' 0.1"	1.01579	159°	-14°	05:24	13:30	+63°	21:35	TAU
Sa 16.06.2012 00:00	5h38'59.5"	+23°20'46.8"	85°10'31.6"	- 0° 0' 0.1"	1.01589	159°	-14°	05:24	13:30	+63°	21:35	TAU

# Sonnenephemeride für den Zeitraum 1. 1.2012 - 31.12.2012

## Berechnet für den Standort Boden (50.5° N, 7.9° O)

Datum	RA (2000.0)	D (2000.0)	ekl. Länge	ekl. Breite	Entfg.	Azim	Höhe	Aufg.	Kulm.	KHöh	Untg.	Stb.
So 17.06.2012 00:00	5h43' 9.1"	+23°22'39.4"	86° 7'50.3"	- 0° 0' 0.2"	1.01598	159°	-14°	05:24	13:30	+63°	21:35	TAU
Mo 18.06.2012 00:00	5h47'18.8"	+23°24' 7.3"	87° 5' 8.5"	- 0° 0' 0.3"	1.01606	159°	-14°	05:24	13:30	+63°	21:36	GEM
Di 19.06.2012 00:00	5h51'28.5"	+23°25'10.3"	88° 2'26.2"	- 0° 0' 0.5"	1.01614	159°	-13°	05:25	13:30	+63°	21:36	GEM
Mi 20.06.2012 00:00	5h55'38.2"	+23°25'48.6"	88°59'43.5"	- 0° 0' 0.6"	1.01621	159°	-13°	05:25	13:31	+63°	21:36	GEM
Do 21.06.2012 00:00	5h59'47.9"	+23°26' 2.1"	89°57' 0.4"	- 0° 0' 0.7"	1.01628	159°	-13°	05:25	13:31	+63°	21:37	GEM
Fr 22.06.2012 00:00	6h 3'57.6"	+23°25'50.8"	90°54'16.7"	- 0° 0' 0.8"	1.01634	159°	-13°	05:25	13:31	+63°	21:37	GEM
Sa 23.06.2012 00:00	6h 8' 7.2"	+23°25'14.8"	91°51'32.5"	- 0° 0' 0.8"	1.01639	159°	-13°	05:25	13:31	+63°	21:37	GEM
So 24.06.2012 00:00	6h12'16.8"	+23°24'14.0"	92°48'47.7"	- 0° 0' 0.9"	1.01644	159°	-13°	05:26	13:31	+63°	21:37	GEM
Mo 25.06.2012 00:00	6h16'26.2"	+23°22'48.5"	93°46' 2.4"	- 0° 0' 0.9"	1.01649	159°	-13°	05:26	13:32	+63°	21:37	GEM
Di 26.06.2012 00:00	6h20'35.4"	+23°20'58.3"	94°43'16.4"	- 0° 0' 0.8"	1.01653	158°	-13°	05:27	13:32	+63°	21:37	GEM
Mi 27.06.2012 00:00	6h24'44.5"	+23°18'43.5"	95°40'29.9"	- 0° 0' 0.8"	1.01656	158°	-13°	05:27	13:32	+63°	21:37	GEM
Do 28.06.2012 00:00	6h28'53.4"	+23°16' 4.2"	96°37'42.8"	- 0° 0' 0.7"	1.01659	158°	-14°	05:28	13:32	+63°	21:37	GEM
Fr 29.06.2012 00:00	6h33' 2.1"	+23°13' 0.3"	97°34'55.2"	- 0° 0' 0.6"	1.01661	158°	-14°	05:28	13:32	+63°	21:36	GEM
Sa 30.06.2012 00:00	6h37'10.6"	+23° 9'32.1"	98°32' 7.2"	- 0° 0' 0.5"	1.01663	158°	-14°	05:29	13:33	+63°	21:36	GEM
So 01.07.2012 00:00	6h41'18.8"	+23° 5'39.6"	99°29'18.7"	- 0° 0' 0.3"	1.01665	158°	-14°	05:29	13:33	+63°	21:36	GEM
Mo 02.07.2012 00:00	6h45'26.7"	+23° 1'23.0"	100°26'29.8"	- 0° 0' 0.2"	1.01666	158°	-14°	05:30	13:33	+63°	21:36	GEM
Di 03.07.2012 00:00	6h49'34.3"	+22°56'42.2"	101°23'40.8"	- 0° 0' 0.1"	1.01667	158°	-14°	05:31	13:33	+62°	21:35	GEM
Mi 04.07.2012 00:00	6h53'41.6"	+22°51'37.5"	102°20'51.7"	+ 0° 0' 0.0"	1.01667	158°	-14°	05:32	13:33	+62°	21:35	GEM
Do 05.07.2012 00:00	6h57'48.7"	+22°46' 8.9"	103°18' 2.5"	+ 0° 0' 0.1"	1.01668	158°	-14°	05:32	13:34	+62°	21:34	GEM
Fr 06.07.2012 00:00	7h 1'55.3"	+22°40'16.5"	104°15'13.4"	+ 0° 0' 0.2"	1.01668	158°	-14°	05:33	13:34	+62°	21:34	GEM
Sa 07.07.2012 00:00	7h 6' 1.6"	+22°34' 0.6"	105°12'24.5"	+ 0° 0' 0.3"	1.01667	158°	-14°	05:34	13:34	+62°	21:33	GEM
So 08.07.2012 00:00	7h10' 7.6"	+22°27'21.2"	106° 9'35.9"	+ 0° 0' 0.3"	1.01666	158°	-14°	05:35	13:34	+62°	21:33	GEM
Mo 09.07.2012 00:00	7h14'13.1"	+22°20'18.5"	107° 6'47.6"	+ 0° 0' 0.2"	1.01665	158°	-14°	05:36	13:34	+62°	21:32	GEM
Di 10.07.2012 00:00	7h18'18.3"	+22°12'52.5"	108° 3'59.6"	+ 0° 0' 0.2"	1.01663	158°	-14°	05:37	13:34	+62°	21:31	GEM
Mi 11.07.2012 00:00	7h22'23.1"	+22° 5' 3.6"	109° 1'12.1"	+ 0° 0' 0.1"	1.01661	158°	-15°	05:38	13:34	+62°	21:31	GEM
Do 12.07.2012 00:00	7h26'27.4"	+21°56'51.8"	109°58'25.1"	+ 0° 0' 0.0"	1.01659	157°	-15°	05:39	13:35	+61°	21:30	GEM
Fr 13.07.2012 00:00	7h30'31.3"	+21°48'17.4"	110°55'38.6"	- 0° 0' 0.1"	1.01656	157°	-15°	05:40	13:35	+61°	21:29	GEM
Sa 14.07.2012 00:00	7h34'34.7"	+21°39'20.6"	111°52'52.5"	- 0° 0' 0.2"	1.01652	157°	-15°	05:41	13:35	+61°	21:28	GEM
So 15.07.2012 00:00	7h38'37.6"	+21°30' 1.5"	112°50' 7.0"	- 0° 0' 0.3"	1.01648	157°	-15°	05:42	13:35	+61°	21:27	GEM
Mo 16.07.2012 00:00	7h42'40.1"	+21°20'20.5"	113°47'22.0"	- 0° 0' 0.5"	1.01643	157°	-15°	05:43	13:35	+61°	21:26	GEM
Di 17.07.2012 00:00	7h46'42.0"	+21°10'17.7"	114°44'37.5"	- 0° 0' 0.6"	1.01638	157°	-15°	05:44	13:35	+61°	21:25	GEM
Mi 18.07.2012 00:00	7h50'43.5"	+20°59'53.4"	115°41'53.5"	- 0° 0' 0.7"	1.01632	157°	-16°	05:45	13:35	+60°	21:24	CNC
Do 19.07.2012 00:00	7h54'44.4"	+20°49' 7.8"	116°39'10.0"	- 0° 0' 0.8"	1.01626	157°	-16°	05:47	13:35	+60°	21:23	CNC
Fr 20.07.2012 00:00	7h58'44.7"	+20°38' 1.1"	117°36'27.0"	- 0° 0' 0.9"	1.01619	157°	-16°	05:48	13:35	+60°	21:22	CNC
Sa 21.07.2012 00:00	8h 2'44.5"	+20°26'33.7"	118°33'44.4"	- 0° 0' 0.9"	1.01611	157°	-16°	05:49	13:35	+60°	21:21	CNC
So 22.07.2012 00:00	8h 6'43.7"	+20°14'45.8"	119°31' 2.3"	- 0° 0' 0.9"	1.01603	157°	-16°	05:50	13:35	+60°	21:19	CNC
Mo 23.07.2012 00:00	8h10'42.3"	+20° 2'37.6"	120°28'20.6"	- 0° 0' 0.9"	1.01594	157°	-16°	05:52	13:35	+59°	21:18	CNC
Di 24.07.2012 00:00	8h14'40.3"	+19°50' 9.3"	121°25'39.2"	- 0° 0' 0.8"	1.01585	157°	-17°	05:53	13:35	+59°	21:17	CNC
Mi 25.07.2012 00:00	8h18'37.7"	+19°37'21.3"	122°22'58.2"	- 0° 0' 0.7"	1.01575	157°	-17°	05:54	13:35	+59°	21:16	CNC
Do 26.07.2012 00:00	8h22'34.5"	+19°24'13.9"	123°20'17.5"	- 0° 0' 0.6"	1.01565	157°	-17°	05:55	13:35	+59°	21:14	CNC
Fr 27.07.2012 00:00	8h26'30.7"	+19°10'47.2"	124°17'37.2"	- 0° 0' 0.5"	1.01554	156°	-17°	05:57	13:35	+59°	21:13	CNC
Sa 28.07.2012 00:00	8h30'26.3"	+18°57' 1.7"	125°14'57.2"	- 0° 0' 0.4"	1.01543	156°	-17°	05:58	13:35	+58°	21:11	CNC

# Sonnenephemeride für den Zeitraum 1. 1.2012 - 31.12.2012

## Berechnet für den Standort Boden (50.5° N, 7.9° O)

Datum	RA (2000.0)	D (2000.0)	ekl. Länge	ekl. Breite	Entfg.	Azim	Höhe	Aufg.	Kulm.	KHöh	Untg.	Stb.
So 29.07.2012 00:00	8h34'21.2"	+18°42'57.4"	126°12'17.7"	- 0° 0' 0.2"	1.01531	156°	-18°	05:59	13:35	+58°	21:10	CNC
Mo 30.07.2012 00:00	8h38'15.5"	+18°28'34.8"	127° 9'38.7"	- 0° 0' 0.1"	1.01519	156°	-18°	06:01	13:35	+58°	21:08	CNC
Di 31.07.2012 00:00	8h42' 9.2"	+18°13'54.1"	128° 7' 0.2"	+ 0° 0' 0.0"	1.01507	156°	-18°	06:02	13:35	+58°	21:07	CNC
Mi 01.08.2012 00:00	8h46' 2.3"	+17°58'55.6"	129° 4'22.5"	+ 0° 0' 0.1"	1.01494	156°	-18°	06:04	13:35	+57°	21:05	CNC
Do 02.08.2012 00:00	8h49'54.8"	+17°43'39.5"	130° 1'45.5"	+ 0° 0' 0.2"	1.01481	156°	-19°	06:05	13:35	+57°	21:04	CNC
Fr 03.08.2012 00:00	8h53'46.6"	+17°28' 6.1"	130°59' 9.4"	+ 0° 0' 0.2"	1.01468	156°	-19°	06:06	13:35	+57°	21:02	CNC
Sa 04.08.2012 00:00	8h57'37.9"	+17°12'15.7"	131°56'34.3"	+ 0° 0' 0.3"	1.01455	156°	-19°	06:08	13:35	+57°	21:01	CNC
So 05.08.2012 00:00	9h 1'28.5"	+16°56' 8.5"	132°54' 0.2"	+ 0° 0' 0.3"	1.01441	156°	-19°	06:09	13:35	+56°	20:59	CNC
Mo 06.08.2012 00:00	9h 5'18.6"	+16°39'44.9"	133°51'27.2"	+ 0° 0' 0.2"	1.01427	156°	-20°	06:11	13:35	+56°	20:57	CNC
Di 07.08.2012 00:00	9h 9' 8.0"	+16°23' 5.0"	134°48'55.5"	+ 0° 0' 0.2"	1.01412	156°	-20°	06:12	13:34	+56°	20:55	CNC
Mi 08.08.2012 00:00	9h12'57.0"	+16° 6' 9.2"	135°46'25.0"	+ 0° 0' 0.1"	1.01398	156°	-20°	06:13	13:34	+55°	20:54	LEO
Do 09.08.2012 00:00	9h16'45.3"	+15°48'57.8"	136°43'55.8"	- 0° 0' 0.0"	1.01382	156°	-21°	06:15	13:34	+55°	20:52	LEO
Fr 10.08.2012 00:00	9h20'33.1"	+15°31'31.1"	137°41'27.9"	- 0° 0' 0.2"	1.01367	156°	-21°	06:16	13:34	+55°	20:50	LEO
Sa 11.08.2012 00:00	9h24'20.3"	+15°13'49.4"	138°39' 1.4"	- 0° 0' 0.3"	1.01351	156°	-21°	06:18	13:34	+55°	20:48	LEO
So 12.08.2012 00:00	9h28' 7.0"	+14°55'53.0"	139°36'36.3"	- 0° 0' 0.4"	1.01335	156°	-21°	06:19	13:34	+54°	20:46	LEO
Mo 13.08.2012 00:00	9h31'53.1"	+14°37'42.3"	140°34'12.6"	- 0° 0' 0.6"	1.01318	156°	-22°	06:21	13:34	+54°	20:45	LEO
Di 14.08.2012 00:00	9h35'38.7"	+14°19'17.5"	141°31'50.3"	- 0° 0' 0.7"	1.01301	156°	-22°	06:22	13:33	+54°	20:43	LEO
Mi 15.08.2012 00:00	9h39'23.8"	+14° 0'39.0"	142°29'29.4"	- 0° 0' 0.8"	1.01283	156°	-22°	06:24	13:33	+53°	20:41	LEO
Do 16.08.2012 00:00	9h43' 8.3"	+13°41'47.2"	143°27'10.0"	- 0° 0' 0.8"	1.01265	155°	-23°	06:25	13:33	+53°	20:39	LEO
Fr 17.08.2012 00:00	9h46'52.4"	+13°22'42.4"	144°24'51.8"	- 0° 0' 0.9"	1.01246	155°	-23°	06:27	13:33	+53°	20:37	LEO
Sa 18.08.2012 00:00	9h50'35.9"	+13° 3'24.8"	145°22'35.1"	- 0° 0' 0.9"	1.01227	155°	-23°	06:28	13:32	+52°	20:35	LEO
So 19.08.2012 00:00	9h54'18.9"	+12°43'54.9"	146°20'19.6"	- 0° 0' 0.8"	1.01208	155°	-24°	06:30	13:32	+52°	20:33	LEO
Mo 20.08.2012 00:00	9h58' 1.4"	+12°24'12.9"	147°18' 5.5"	- 0° 0' 0.8"	1.01188	155°	-24°	06:31	13:32	+52°	20:31	LEO
Di 21.08.2012 00:00	10h 1'43.5"	+12° 4'19.2"	148°15'52.5"	- 0° 0' 0.7"	1.01167	155°	-24°	06:33	13:32	+51°	20:29	LEO
Mi 22.08.2012 00:00	10h 5'25.0"	+11°44'14.1"	149°13'40.8"	- 0° 0' 0.6"	1.01146	155°	-25°	06:34	13:31	+51°	20:27	LEO
Do 23.08.2012 00:00	10h 9' 6.1"	+11°23'58.0"	150°11'30.2"	- 0° 0' 0.5"	1.01124	155°	-25°	06:36	13:31	+51°	20:25	LEO
Fr 24.08.2012 00:00	10h12'46.8"	+11° 3'31.1"	151° 9'20.8"	- 0° 0' 0.4"	1.01102	155°	-25°	06:37	13:31	+50°	20:23	LEO
Sa 25.08.2012 00:00	10h16'27.0"	+10°42'53.9"	152° 7'12.5"	- 0° 0' 0.2"	1.01080	155°	-26°	06:39	13:31	+50°	20:21	LEO
So 26.08.2012 00:00	10h20' 6.8"	+10°22' 6.5"	153° 5' 5.4"	- 0° 0' 0.1"	1.01058	155°	-26°	06:40	13:30	+50°	20:19	LEO
Mo 27.08.2012 00:00	10h23'46.2"	+10° 1' 9.5"	154° 2'59.5"	+ 0° 0' 0.0"	1.01035	155°	-26°	06:42	13:30	+49°	20:17	LEO
Di 28.08.2012 00:00	10h27'25.2"	+ 9°40' 2.9"	155° 0'54.8"	+ 0° 0' 0.1"	1.01012	155°	-27°	06:43	13:30	+49°	20:15	LEO
Mi 29.08.2012 00:00	10h31' 3.8"	+ 9°18'47.3"	155°58'51.5"	+ 0° 0' 0.2"	1.00989	155°	-27°	06:45	13:29	+49°	20:13	LEO
Do 30.08.2012 00:00	10h34'42.0"	+ 8°57'22.8"	156°56'49.6"	+ 0° 0' 0.3"	1.00965	155°	-27°	06:46	13:29	+48°	20:11	LEO
Fr 31.08.2012 00:00	10h38'20.0"	+ 8°35'49.7"	157°54'49.2"	+ 0° 0' 0.3"	1.00942	155°	-28°	06:48	13:29	+48°	20:08	LEO
Sa 01.09.2012 00:00	10h41'57.5"	+ 8°14' 8.4"	158°52'50.4"	+ 0° 0' 0.3"	1.00918	155°	-28°	06:49	13:29	+48°	20:06	LEO
So 02.09.2012 00:00	10h45'34.8"	+ 7°52'19.2"	159°50'53.2"	+ 0° 0' 0.3"	1.00894	155°	-29°	06:51	13:28	+47°	20:04	LEO
Mo 03.09.2012 00:00	10h49'11.9"	+ 7°30'22.2"	160°48'57.8"	+ 0° 0' 0.2"	1.00870	155°	-29°	06:52	13:28	+47°	20:02	LEO
Di 04.09.2012 00:00	10h52'48.6"	+ 7° 8'17.9"	161°47' 4.3"	+ 0° 0' 0.1"	1.00846	155°	-29°	06:54	13:28	+46°	20:00	LEO
Mi 05.09.2012 00:00	10h56'25.2"	+ 6°46' 6.6"	162°45'12.5"	+ 0° 0' 0.0"	1.00822	155°	-30°	06:56	13:27	+46°	19:58	LEO
Do 06.09.2012 00:00	11h 0' 1.5"	+ 6°23'48.5"	163°43'22.7"	- 0° 0' 0.1"	1.00798	155°	-30°	06:57	13:27	+46°	19:56	LEO
Fr 07.09.2012 00:00	11h 3'37.6"	+ 6° 1'24.0"	164°41'34.9"	- 0° 0' 0.2"	1.00773	155°	-30°	06:59	13:27	+45°	19:54	LEO
Sa 08.09.2012 00:00	11h 7'13.6"	+ 5°38'53.4"	165°39'49.1"	- 0° 0' 0.4"	1.00748	155°	-31°	07:00	13:26	+45°	19:51	LEO

# Sonnenephemeride für den Zeitraum 1. 1.2012 - 31.12.2012

## Berechnet für den Standort Boden (50.5° N, 7.9° O)

Datum	RA (2000.0)	D (2000.0)	ekl. Länge	ekl. Breite	Entfg.	Azim	Höhe	Aufg.	Kulm.	KHöh	Untg.	Stb.
So 09.09.2012	00:00	11h10'49.4"	+ 5°16'17.0"	166°38' 5.3"	- 0° 0' 0.5"	1.00723	155° -31°	07:02	13:26	+45°	19:49	LEO
Mo 10.09.2012	00:00	11h14'25.1"	+ 4°53'35.1"	167°36'23.5"	- 0° 0' 0.6"	1.00698	155° -32°	07:03	13:25	+44°	19:47	LEO
Di 11.09.2012	00:00	11h18' 0.6"	+ 4°30'48.2"	168°34'43.8"	- 0° 0' 0.7"	1.00672	155° -32°	07:05	13:25	+44°	19:45	LEO
Mi 12.09.2012	00:00	11h21'36.1"	+ 4° 7'56.6"	169°33' 6.1"	- 0° 0' 0.8"	1.00647	155° -32°	07:06	13:25	+43°	19:43	LEO
Do 13.09.2012	00:00	11h25'11.4"	+ 3°45' 0.5"	170°31'30.5"	- 0° 0' 0.8"	1.00621	155° -33°	07:08	13:24	+43°	19:40	LEO
Fr 14.09.2012	00:00	11h28'46.7"	+ 3°22' 0.4"	171°29'57.0"	- 0° 0' 0.8"	1.00594	155° -33°	07:09	13:24	+43°	19:38	VIR
Sa 15.09.2012	00:00	11h32'22.0"	+ 2°58'56.6"	172°28'25.4"	- 0° 0' 0.8"	1.00568	155° -34°	07:11	13:24	+42°	19:36	VIR
So 16.09.2012	00:00	11h35'57.2"	+ 2°35'49.4"	173°26'55.8"	- 0° 0' 0.7"	1.00541	155° -34°	07:12	13:23	+42°	19:34	VIR
Mo 17.09.2012	00:00	11h39'32.4"	+ 2°12'39.2"	174°25'28.1"	- 0° 0' 0.7"	1.00514	155° -34°	07:14	13:23	+41°	19:31	VIR
Di 18.09.2012	00:00	11h43' 7.6"	+ 1°49'26.3"	175°24' 2.3"	- 0° 0' 0.6"	1.00486	155° -35°	07:15	13:23	+41°	19:29	VIR
Mi 19.09.2012	00:00	11h46'42.9"	+ 1°26'11.1"	176°22'38.3"	- 0° 0' 0.5"	1.00458	154° -35°	07:17	13:22	+41°	19:27	VIR
Do 20.09.2012	00:00	11h50'18.1"	+ 1° 2'54.0"	177°21'16.0"	- 0° 0' 0.3"	1.00430	154° -36°	07:19	13:22	+40°	19:25	VIR
Fr 21.09.2012	00:00	11h53'53.5"	+ 0°39'35.2"	178°19'55.4"	- 0° 0' 0.2"	1.00402	154° -36°	07:20	13:22	+40°	19:23	VIR
Sa 22.09.2012	00:00	11h57'28.9"	+ 0°16'15.2"	179°18'36.5"	- 0° 0' 0.1"	1.00373	154° -36°	07:22	13:21	+40°	19:20	VIR
So 23.09.2012	00:00	12h 1' 4.3"	- 0° 7' 5.8"	180°17'19.2"	+ 0° 0' 0.1"	1.00345	154° -37°	07:23	13:21	+39°	19:18	VIR
Mo 24.09.2012	00:00	12h 4'39.9"	- 0°30'27.3"	181°16' 3.5"	+ 0° 0' 0.2"	1.00316	154° -37°	07:25	13:20	+39°	19:16	VIR
Di 25.09.2012	00:00	12h 8'15.6"	- 0°53'49.0"	182°14'49.5"	+ 0° 0' 0.3"	1.00287	154° -38°	07:26	13:20	+38°	19:14	VIR
Mi 26.09.2012	00:00	12h11'51.5"	- 1°17'10.7"	183°13'37.3"	+ 0° 0' 0.3"	1.00258	154° -38°	07:28	13:20	+38°	19:11	VIR
Do 27.09.2012	00:00	12h15'27.5"	- 1°40'31.9"	184°12'26.8"	+ 0° 0' 0.4"	1.00229	154° -38°	07:29	13:19	+38°	19:09	VIR
Fr 28.09.2012	00:00	12h19' 3.7"	- 2° 3'52.3"	185°11'18.1"	+ 0° 0' 0.4"	1.00201	154° -39°	07:31	13:19	+37°	19:07	VIR
Sa 29.09.2012	00:00	12h22'40.2"	- 2°27'11.7"	186°10'11.3"	+ 0° 0' 0.4"	1.00172	154° -39°	07:32	13:19	+37°	19:05	VIR
So 30.09.2012	00:00	12h26'16.9"	- 2°50'29.6"	187° 9' 6.4"	+ 0° 0' 0.3"	1.00143	154° -40°	07:34	13:18	+36°	19:02	VIR
Mo 01.10.2012	00:00	12h29'53.8"	- 3°13'45.9"	188° 8' 3.6"	+ 0° 0' 0.2"	1.00114	154° -40°	07:36	13:18	+36°	19:00	VIR
Di 02.10.2012	00:00	12h33'31.1"	- 3°37' 0.1"	189° 7' 2.8"	+ 0° 0' 0.1"	1.00086	154° -40°	07:37	13:18	+36°	18:58	VIR
Mi 03.10.2012	00:00	12h37' 8.6"	- 4° 0'11.9"	190° 6' 4.2"	+ 0° 0' 0.0"	1.00058	154° -41°	07:39	13:17	+35°	18:56	VIR
Do 04.10.2012	00:00	12h40'46.6"	- 4°23'21.0"	191° 5' 7.7"	- 0° 0' 0.1"	1.00029	154° -41°	07:40	13:17	+35°	18:53	VIR
Fr 05.10.2012	00:00	12h44'24.8"	- 4°46'27.0"	192° 4'13.5"	- 0° 0' 0.2"	1.00001	154° -42°	07:42	13:17	+35°	18:51	VIR
Sa 06.10.2012	00:00	12h48' 3.5"	- 5° 9'29.6"	193° 3'21.5"	- 0° 0' 0.4"	0.99973	154° -42°	07:44	13:17	+34°	18:49	VIR
So 07.10.2012	00:00	12h51'42.5"	- 5°32'28.4"	194° 2'31.8"	- 0° 0' 0.5"	0.99944	154° -42°	07:45	13:16	+34°	18:47	VIR
Mo 08.10.2012	00:00	12h55'22.0"	- 5°55'23.1"	195° 1'44.3"	- 0° 0' 0.6"	0.99916	154° -43°	07:47	13:16	+33°	18:45	VIR
Di 09.10.2012	00:00	12h59' 2.0"	- 6°18'13.2"	196° 0'59.2"	- 0° 0' 0.6"	0.99888	154° -43°	07:48	13:16	+33°	18:42	VIR
Mi 10.10.2012	00:00	13h 2'42.4"	- 6°40'58.4"	197° 0'16.4"	- 0° 0' 0.7"	0.99860	154° -43°	07:50	13:15	+33°	18:40	VIR
Do 11.10.2012	00:00	13h 6'23.3"	- 7° 3'38.3"	197°59'35.9"	- 0° 0' 0.7"	0.99832	154° -44°	07:51	13:15	+32°	18:38	VIR
Fr 12.10.2012	00:00	13h10' 4.6"	- 7°26'12.5"	198°58'57.7"	- 0° 0' 0.7"	0.99804	154° -44°	07:53	13:15	+32°	18:36	VIR
Sa 13.10.2012	00:00	13h13'46.5"	- 7°48'40.6"	199°58'21.8"	- 0° 0' 0.7"	0.99776	153° -45°	07:55	13:15	+31°	18:34	VIR
So 14.10.2012	00:00	13h17'29.0"	- 8°11' 2.3"	200°57'48.1"	- 0° 0' 0.6"	0.99747	153° -45°	07:56	13:15	+31°	18:32	VIR
Mo 15.10.2012	00:00	13h21'12.0"	- 8°33'17.2"	201°57'16.5"	- 0° 0' 0.5"	0.99719	153° -45°	07:58	13:14	+31°	18:30	VIR
Di 16.10.2012	00:00	13h24'55.5"	- 8°55'24.8"	202°56'47.0"	- 0° 0' 0.4"	0.99691	153° -46°	08:00	13:14	+30°	18:28	VIR
Mi 17.10.2012	00:00	13h28'39.6"	- 9°17'24.8"	203°56'19.6"	- 0° 0' 0.3"	0.99662	153° -46°	08:01	13:14	+30°	18:26	VIR
Do 18.10.2012	00:00	13h32'24.4"	- 9°39'16.8"	204°55'54.0"	- 0° 0' 0.1"	0.99634	153° -46°	08:03	13:14	+30°	18:24	VIR
Fr 19.10.2012	00:00	13h36' 9.7"	-10° 1' 0.3"	205°55'30.3"	+ 0° 0' 0.0"	0.99605	153° -47°	08:04	13:14	+29°	18:21	VIR
Sa 20.10.2012	00:00	13h39'55.7"	-10°22'35.0"	206°55' 8.4"	+ 0° 0' 0.1"	0.99577	153° -47°	08:06	13:13	+29°	18:19	VIR

# Sonnenephemeride für den Zeitraum 1. 1.2012 - 31.12.2012

## Berechnet für den Standort Boden (50.5° N, 7.9° O)

Datum	RA (2000.0)	D (2000.0)	ekl. Länge	ekl. Breite	Entfg.	Azim	Höhe	Aufg.	Kulm.	KHöh	Untg.	Stb.
So 21.10.2012	00:00	13h43'42.2"	-10°44' 0.5"	207°54'48.2"	+ 0° 0' 0.3"	0.99548	153° -47°	08:08	13:13	+29°	18:18	VIR
Mo 22.10.2012	00:00	13h47'29.4"	-11° 5'16.3"	208°54'29.7"	+ 0° 0' 0.4"	0.99520	153° -48°	08:09	13:13	+28°	18:16	VIR
Di 23.10.2012	00:00	13h51'17.3"	-11°26'22.0"	209°54'12.9"	+ 0° 0' 0.4"	0.99492	153° -48°	08:11	13:13	+28°	18:14	VIR
Mi 24.10.2012	00:00	13h55' 5.8"	-11°47'17.3"	210°53'57.8"	+ 0° 0' 0.5"	0.99463	152° -49°	08:13	13:13	+28°	18:12	VIR
Do 25.10.2012	00:00	13h58'55.1"	-12° 8' 1.8"	211°53'44.4"	+ 0° 0' 0.5"	0.99436	152° -49°	08:14	13:13	+27°	18:10	VIR
Fr 26.10.2012	00:00	14h 2'45.0"	-12°28'35.1"	212°53'32.6"	+ 0° 0' 0.5"	0.99408	152° -49°	08:16	13:13	+27°	18:08	VIR
Sa 27.10.2012	00:00	14h 6'35.6"	-12°48'56.8"	213°53'22.7"	+ 0° 0' 0.4"	0.99380	152° -50°	08:18	13:12	+26°	18:06	VIR
So 28.10.2012	00:00	14h10'36.7"	-13° 9'56.6"	214°55'44.2"	+ 0° 0' 0.4"	0.99352	175° -53°	07:20	12:12	+26°	17:04	LIB
Mo 29.10.2012	00:00	14h14'28.9"	-13°29'53.5"	215°55'37.9"	+ 0° 0' 0.3"	0.99325	175° -53°	07:22	12:12	+26°	17:03	LIB
Di 30.10.2012	00:00	14h18'21.8"	-13°49'37.6"	216°55'33.6"	+ 0° 0' 0.1"	0.99299	175° -53°	07:23	12:12	+26°	17:01	LIB
Mi 31.10.2012	00:00	14h22'15.5"	-14° 9' 8.6"	217°55'31.1"	+ 0° 0' 0.0"	0.99273	175° -54°	07:25	12:12	+25°	16:59	LIB
Do 01.11.2012	00:00	14h26'10.0"	-14°28'26.0"	218°55'30.6"	- 0° 0' 0.1"	0.99247	175° -54°	07:27	12:12	+25°	16:57	LIB
Fr 02.11.2012	00:00	14h30' 5.3"	-14°47'29.6"	219°55'32.1"	- 0° 0' 0.2"	0.99222	175° -54°	07:29	12:12	+25°	16:55	LIB
Sa 03.11.2012	00:00	14h34' 1.5"	-15° 6'18.8"	220°55'35.6"	- 0° 0' 0.3"	0.99196	175° -55°	07:30	12:12	+24°	16:54	LIB
So 04.11.2012	00:00	14h37'58.4"	-15°24'53.3"	221°55'41.1"	- 0° 0' 0.4"	0.99172	175° -55°	07:32	12:12	+24°	16:52	LIB
Mo 05.11.2012	00:00	14h41'56.2"	-15°43'12.7"	222°55'48.7"	- 0° 0' 0.5"	0.99147	175° -55°	07:34	12:12	+24°	16:50	LIB
Di 06.11.2012	00:00	14h45'54.8"	-16° 1'16.5"	223°55'58.3"	- 0° 0' 0.6"	0.99123	175° -55°	07:35	12:12	+23°	16:49	LIB
Mi 07.11.2012	00:00	14h49'54.3"	-16°19' 4.4"	224°56'10.0"	- 0° 0' 0.6"	0.99099	175° -56°	07:37	12:12	+23°	16:47	LIB
Do 08.11.2012	00:00	14h53'54.7"	-16°36'35.9"	225°56'23.8"	- 0° 0' 0.6"	0.99075	175° -56°	07:39	12:12	+23°	16:45	LIB
Fr 09.11.2012	00:00	14h57'55.9"	-16°53'50.6"	226°56'39.6"	- 0° 0' 0.6"	0.99052	175° -56°	07:41	12:12	+22°	16:44	LIB
Sa 10.11.2012	00:00	15h 1'58.0"	-17°10'48.1"	227°56'57.4"	- 0° 0' 0.5"	0.99029	175° -57°	07:42	12:12	+22°	16:42	LIB
So 11.11.2012	00:00	15h 6' 0.9"	-17°27'28.1"	228°57'17.3"	- 0° 0' 0.4"	0.99006	174° -57°	07:44	12:13	+22°	16:41	LIB
Mo 12.11.2012	00:00	15h10' 4.7"	-17°43'50.1"	229°57'39.0"	- 0° 0' 0.3"	0.98983	174° -57°	07:46	12:13	+22°	16:39	LIB
Di 13.11.2012	00:00	15h14' 9.4"	-17°59'53.6"	230°58' 2.5"	- 0° 0' 0.2"	0.98960	174° -57°	07:47	12:13	+21°	16:38	LIB
Mi 14.11.2012	00:00	15h18'14.9"	-18°15'38.4"	231°58'27.8"	- 0° 0' 0.0"	0.98938	174° -58°	07:49	12:13	+21°	16:37	LIB
Do 15.11.2012	00:00	15h22'21.2"	-18°31' 4.0"	232°58'54.7"	+ 0° 0' 0.1"	0.98916	174° -58°	07:51	12:13	+21°	16:35	LIB
Fr 16.11.2012	00:00	15h26'28.5"	-18°46'10.0"	233°59'23.2"	+ 0° 0' 0.2"	0.98893	174° -58°	07:52	12:13	+21°	16:34	LIB
Sa 17.11.2012	00:00	15h30'36.5"	-19° 0'56.0"	234°59'53.1"	+ 0° 0' 0.4"	0.98871	174° -58°	07:54	12:14	+20°	16:33	LIB
So 18.11.2012	00:00	15h34'45.4"	-19°15'21.6"	236° 0'24.4"	+ 0° 0' 0.5"	0.98850	174° -59°	07:56	12:14	+20°	16:31	LIB
Mo 19.11.2012	00:00	15h38'55.0"	-19°29'26.4"	237° 0'57.0"	+ 0° 0' 0.5"	0.98828	174° -59°	07:57	12:14	+20°	16:30	LIB
Di 20.11.2012	00:00	15h43' 5.5"	-19°43'10.1"	238° 1'30.8"	+ 0° 0' 0.6"	0.98807	173° -59°	07:59	12:14	+20°	16:29	SCO
Mi 21.11.2012	00:00	15h47'16.8"	-19°56'32.3"	239° 2' 5.7"	+ 0° 0' 0.6"	0.98786	173° -59°	08:00	12:15	+19°	16:28	SCO
Do 22.11.2012	00:00	15h51'28.8"	-20° 9'32.6"	240° 2'41.9"	+ 0° 0' 0.6"	0.98766	173° -60°	08:02	12:15	+19°	16:27	SCO
Fr 23.11.2012	00:00	15h55'41.6"	-20°22'10.7"	241° 3'19.2"	+ 0° 0' 0.6"	0.98746	173° -60°	08:03	12:15	+19°	16:26	SCO
Sa 24.11.2012	00:00	15h59'55.2"	-20°34'26.2"	242° 3'57.7"	+ 0° 0' 0.5"	0.98726	173° -60°	08:05	12:15	+19°	16:25	SCO
So 25.11.2012	00:00	16h 4' 9.5"	-20°46'18.8"	243° 4'37.4"	+ 0° 0' 0.4"	0.98707	173° -60°	08:06	12:16	+19°	16:24	SCO
Mo 26.11.2012	00:00	16h 8'24.5"	-20°57'48.2"	244° 5'18.2"	+ 0° 0' 0.3"	0.98688	173° -60°	08:08	12:16	+18°	16:23	SCO
Di 27.11.2012	00:00	16h12'40.3"	-21° 8'54.1"	245° 6' 0.2"	+ 0° 0' 0.2"	0.98670	172° -61°	08:09	12:16	+18°	16:23	OPH
Mi 28.11.2012	00:00	16h16'56.8"	-21°19'36.1"	246° 6'43.5"	+ 0° 0' 0.1"	0.98653	172° -61°	08:11	12:17	+18°	16:22	OPH
Do 29.11.2012	00:00	16h21'14.0"	-21°29'54.0"	247° 7'28.0"	- 0° 0' 0.1"	0.98636	172° -61°	08:12	12:17	+18°	16:21	OPH
Fr 30.11.2012	00:00	16h25'31.9"	-21°39'47.4"	248° 8'13.8"	- 0° 0' 0.2"	0.98619	172° -61°	08:14	12:17	+18°	16:20	OPH
Sa 01.12.2012	00:00	16h29'50.5"	-21°49'16.0"	249° 9' 0.9"	- 0° 0' 0.3"	0.98603	172° -61°	08:15	12:18	+18°	16:20	OPH

# Sonnenephemeride für den Zeitraum 1. 1.2012 - 31.12.2012

## Berechnet für den Standort Boden (50.5° N, 7.9° O)

Datum	RA (2000.0)	D (2000.0)	ekl. Länge	ekl. Breite	Entfg.	Azim	Höhe	Aufg.	Kulm.	KHöh	Untg.	Stb.
So 02.12.2012	00:00	16h34' 9.7"	-21°58'19.7"	250° 9'49.3"	- 0° 0' 0.4"	0.98587	171°	-61°	08:16	12:18	+17°	16:19 OPH
Mo 03.12.2012	00:00	16h38'29.6"	-22° 6'58.0"	251°10'39.0"	- 0° 0' 0.4"	0.98572	171°	-61°	08:18	12:19	+17°	16:19 OPH
Di 04.12.2012	00:00	16h42'50.0"	-22°15'10.7"	252°11'30.0"	- 0° 0' 0.5"	0.98558	171°	-62°	08:19	12:19	+17°	16:18 OPH
Mi 05.12.2012	00:00	16h47'11.1"	-22°22'57.6"	253°12'22.3"	- 0° 0' 0.5"	0.98544	171°	-62°	08:20	12:19	+17°	16:18 OPH
Do 06.12.2012	00:00	16h51'32.7"	-22°30'18.4"	254°13'16.0"	- 0° 0' 0.4"	0.98531	170°	-62°	08:21	12:20	+17°	16:17 OPH
Fr 07.12.2012	00:00	16h55'54.8"	-22°37'12.8"	255°14'11.0"	- 0° 0' 0.4"	0.98518	170°	-62°	08:23	12:20	+17°	16:17 OPH
Sa 08.12.2012	00:00	17h 0'17.5"	-22°43'40.7"	256°15' 7.2"	- 0° 0' 0.3"	0.98505	170°	-62°	08:24	12:21	+17°	16:17 OPH
So 09.12.2012	00:00	17h 4'40.7"	-22°49'41.7"	257°16' 4.8"	- 0° 0' 0.2"	0.98493	170°	-62°	08:25	12:21	+17°	16:17 OPH
Mo 10.12.2012	00:00	17h 9' 4.3"	-22°55'15.8"	258°17' 3.5"	- 0° 0' 0.0"	0.98481	169°	-62°	08:26	12:22	+17°	16:17 OPH
Di 11.12.2012	00:00	17h13'28.3"	-23° 0'22.8"	259°18' 3.4"	+ 0° 0' 0.1"	0.98470	169°	-62°	08:27	12:22	+16°	16:17 OPH
Mi 12.12.2012	00:00	17h17'52.8"	-23° 5' 2.4"	260°19' 4.3"	+ 0° 0' 0.2"	0.98459	169°	-62°	08:28	12:23	+16°	16:17 OPH
Do 13.12.2012	00:00	17h22'17.6"	-23° 9'14.6"	261°20' 6.2"	+ 0° 0' 0.4"	0.98448	169°	-62°	08:29	12:23	+16°	16:17 OPH
Fr 14.12.2012	00:00	17h26'42.7"	-23°12'59.2"	262°21' 8.8"	+ 0° 0' 0.5"	0.98438	168°	-62°	08:30	12:24	+16°	16:17 OPH
Sa 15.12.2012	00:00	17h31' 8.2"	-23°16'16.0"	263°22'12.2"	+ 0° 0' 0.6"	0.98428	168°	-62°	08:30	12:24	+16°	16:17 SGR
So 16.12.2012	00:00	17h35'33.8"	-23°19' 5.0"	264°23'16.2"	+ 0° 0' 0.7"	0.98418	168°	-62°	08:31	12:25	+16°	16:17 SGR
Mo 17.12.2012	00:00	17h39'59.7"	-23°21'26.1"	265°24'20.7"	+ 0° 0' 0.7"	0.98408	168°	-62°	08:32	12:25	+16°	16:17 SGR
Di 18.12.2012	00:00	17h44'25.7"	-23°23'19.1"	266°25'25.5"	+ 0° 0' 0.8"	0.98399	167°	-62°	08:33	12:26	+16°	16:18 SGR
Mi 19.12.2012	00:00	17h48'51.9"	-23°24'44.0"	267°26'30.8"	+ 0° 0' 0.8"	0.98391	167°	-62°	08:33	12:26	+16°	16:18 SGR
Do 20.12.2012	00:00	17h53'18.2"	-23°25'40.7"	268°27'36.3"	+ 0° 0' 0.7"	0.98383	167°	-62°	08:34	12:27	+16°	16:18 SGR
Fr 21.12.2012	00:00	17h57'44.5"	-23°26' 9.3"	269°28'42.1"	+ 0° 0' 0.7"	0.98375	167°	-62°	08:34	12:27	+16°	16:19 SGR
Sa 22.12.2012	00:00	18h 2'10.9"	-23°26' 9.6"	270°29'48.0"	+ 0° 0' 0.6"	0.98368	166°	-62°	08:35	12:28	+16°	16:19 SGR
So 23.12.2012	00:00	18h 6'37.3"	-23°25'41.6"	271°30'54.2"	+ 0° 0' 0.5"	0.98361	166°	-62°	08:35	12:28	+16°	16:20 SGR
Mo 24.12.2012	00:00	18h11' 3.6"	-23°24'45.5"	272°32' 0.6"	+ 0° 0' 0.3"	0.98355	166°	-62°	08:36	12:29	+16°	16:21 SGR
Di 25.12.2012	00:00	18h15'29.9"	-23°23'21.1"	273°33' 7.2"	+ 0° 0' 0.2"	0.98350	166°	-62°	08:36	12:29	+16°	16:21 SGR
Mi 26.12.2012	00:00	18h19'56.1"	-23°21'28.6"	274°34'13.9"	+ 0° 0' 0.1"	0.98345	166°	-62°	08:36	12:30	+16°	16:22 SGR
Do 27.12.2012	00:00	18h24'22.1"	-23°19' 7.9"	275°35'20.9"	- 0° 0' 0.0"	0.98341	165°	-62°	08:37	12:30	+16°	16:23 SGR
Fr 28.12.2012	00:00	18h28'48.0"	-23°16'19.2"	276°36'28.1"	- 0° 0' 0.1"	0.98337	165°	-62°	08:37	12:31	+16°	16:24 SGR
Sa 29.12.2012	00:00	18h33'13.7"	-23°13' 2.5"	277°37'35.4"	- 0° 0' 0.2"	0.98334	165°	-62°	08:37	12:31	+16°	16:25 SGR
So 30.12.2012	00:00	18h37'39.2"	-23° 9'17.9"	278°38'43.0"	- 0° 0' 0.3"	0.98332	165°	-62°	08:37	12:32	+16°	16:25 SGR
Mo 31.12.2012	00:00	18h42' 4.5"	-23° 5' 5.5"	279°39'50.9"	- 0° 0' 0.3"	0.98330	164°	-62°	08:37	12:32	+16°	16:26 SGR

### Legende:

Eine Zeile in dieser Farbe signalisiert eine Kulminationshöhe über 10°

Eine Zeile in dieser Farbe signalisiert eine Kulminationshöhe unter 10°

Eine Zeile in dieser Farbe signalisiert eine Unbeobachtbarkeit der Sonne

Datum = Berechnungsdatum und -Uhrzeit

RA (2000.0) = Rektaszension zum Berechnungszeitpunkt (Äquinoktium 2000.0)

Dek. (2000.0) = Deklination zum Berechnungszeitpunkt (Äquinoktium 2000.0)

ekl. Länge = ekliptikale Sonnenlänge zum Berechnungszeitpunkt

ekl. Breite = ekliptikale Sonnenbreite zum Berechnungszeitpunkt

Entfg. = Abstand Erde - Sonne zum Berechnungszeitpunkt

Azim = Azimut der Sonne zum Berechnungszeitpunkt

Legende (Forts.):

Höhe = Höhe der Sonne zum Berechnungszeitpunkt  
Aufg. = Sonnenaufgang  
Kulm. = Kulmination der Sonne  
KHöh = Höhe der Sonne zum Kulminationszeitpunkt  
Untg. = Sonnenuntergang  
Stb. = Sternbild zur berechneten Position