Solar, Lunar and Planets Ephemerides

Date and Time in Coordinated Universal Time (UTC)				Date and Time in Terrestrial Time (TT)			
Day	Month	Year	Weekday	Day	Month	Year	
14	4	2017	Friday	14	4	2017	
Hour	Minute	Second	Julian Date	Hour	Minute	Second	Julian Date
19	49	52	2457858.326296	19	51	02	2457858.327108
Mean Greenwich Sidereal Time			$9^h22^m33.78^s$	Local Time (GMT +2)			
Local Sidereal Time			$9^h33^m16.10^s$	21h	49m	52s	
Equation of Time (in minutes)			-0.1417	ΔT * (TT = UTC + ΔT)			70.16 seconds

Coordinates of the Observer

Latitude	48 °	46.31 '	N ▼	—> 48.77183°
Longitude	2 °	40.58 '	E ▼	—> 2.30138°
Elevation	0.0 meters			

The [Lat/Lon DMS<->DD Converter] can help you entering the geographic coordinates of the viewing location.

Fill in the date, time and location before clicking the "Update" button — Update

Real time continuous update (every 2 seconds)... — In Real Time

Refresh the information... — Now

Stop the real time continuous update... — Stop

Note :
* ΔT values from year 1620 onward are taken from a table based on F.R. Stephenson & L.V. Morrison (1984) work studying historical records. In modern times values are essentially based on VLB (Very Long Baseline) observations of radio sources such as quasars. Values since 1973 are given by the following formula `ΔT = TAI - UT1 + 32.184 sec = (TAI - UTC) - (UT1 - UTC) + 32.184 sec` .
Values prior to year 1620 are computed using the following formulas :
`ΔT (sec) = 2177 + 497 * u + 44.1 * u²` (*u* = centuries from 2000) for years between -391 BCE and +948 CE
`ΔT (sec) = 102 + 102 * u + 25.3 * u²` (*u* = centuries from 2000) for years between +948 CE and +1600 CE
from Jean Chapront, Michelle Chapront-Touzé & G. Francou (1997), using a Moon's secular acceleration value (*n*') of -25.7376"/cy² (where cy is given in centuries).
Future values of ΔT can be estimated at best.

	Ecliptic Geocentric Coordinates		Horizontal Topocentric Coordinates		Equatorial Geocentric Coordinates		Topocentric					
	Longitude	Latitude	Altitude (Alt)	Azimuth (Az)	Right Ascension	Declination	Earth Distance	Sun Distance	Elongation	Angular Size	Phase Disk	Apparent Magnitude
Sun	25° 02' 47.62"	0° 00' 00.00"	-11.50°	---	$1^h32^m49.75^s$	9° 41' 35.09"	1.0031460 AU	---	---	31' 53.24"	---	-26.70
Moon	244° 39' 25.24"	5° 05' 14.14"	-19.62°	---	$16^h14^m38.86^s$	-16° 03' 38.99"	405301.953 km	1.00523 AU	140.1° West	29' 28.03"	88.4%	-11.55
Mercury	33° 38' 58.19"	2° 44' 52.04"	-02.78°	---	$2^h01^m47.36^s$	15° 18' 49.52"	0.61823 AU	0.40439 AU	9.6° East	10.88"	3.9%	4.18
Venus	356° 54' 06.69"	4° 33' 23.11"	-31.29°	---	$23^h41^m23.11^s$	2° 56' 59.34"	0.33964 AU	0.72298 AU	28.2° West	49.13"	12.5%	-4.47
Mars	55° 24' 56.52"	0° 31' 09.86"	14.39°	283.48°	$3^h31^m47.01^s$	19° 37' 01.29"	2.31019 AU	1.53121 AU	30.4° East	4.06"	97.2%	1.54
Jupiter	197° 22' 33.58"	1° 34' 35.94"	18.77°	122.52°	$13^h06^m29.89^s$	-5° 21' 50.11"	4.46007 AU	5.45558 AU	172.2° East	44.20"	100.0%	-2.30
Saturn	267° 46' 35.39"	1° 21' 05.66"	-38.80°	---	$17^h50^m24.32^s$	-22° 03' 52.98"	9.55608 AU	10.05516 AU	117.3° West	17.39"	99.8%	0.22
Uranus	24° 31' 27.50"	-0° 33' 36.63"	-12.24°	---	$1^h31^m41.40^s$	8° 58' 50.36"	20.95043 AU	19.94738 AU	0.8° West	3.36"	100.0%	5.96
Neptune	343° 15' 50.62"	-0° 51' 50.24"	-44.77°	---	$22^h59^m38.42^s$	-7° 22' 26.32"	30.69536 AU	29.95485 AU	41.8° West	2.22"	100.0%	7.92
Pluto (*)	289° 09' 40.54"	0° 53' 07.78"	-52.08°	---	$19^h22^m26.12^s$	-21° 11' 20.82"	33.18876 AU	33.30664 AU	95.9° West	0.10"	100.0%	15.08

Note :
The elongation is the angular distance of the object from the Sun. If less than 20 degrees, the celestial body can hardly be seen, and at less than 10 degrees the celestial body is practically indiscernible.

Moon	The gibbous Moon is waning
Mercury	Not observable
Venus	Visible at the end of the night
Mars	Visible at the beginning of the evening
Jupiter	Visible during the whole night
Saturn	Visible during the second half of the night
Uranus	Not observable
Neptune	Visible at the end of the night
Pluto (*)	Visible during the second half of the night

First Quarter	on 03 April at 18:41 UTC
Full Moon	on 11 April at 06:09 UTC
Last Quarter	on 19 April at 10:00 UTC
New Moon	on 26 April at 12:18 UTC

Constellation where the Sun is located : Fish (Pisces)

Astronomical Twilight (h = -18°)	Nautical Twilight (h = -12°)	Civil Twilight (h = -6°)	Sunrise	Sun Transit	Sunset	Civil Twilight (h = -6°)	Nautical Twilight (h = -12°)	Astronomical Twilight (h = -18°)
03:00am	03:45am	04:26am	04:59am	11:49am	06:39pm	07:12pm	07:53pm	08:37pm

	Rise	Transit	Set
Mercury	05:04am	**12:19am**	07:35pm
Venus	03:43am	**09:59am**	04:15pm
Mars	06:10am	**01:49pm**	09:28pm
Jupiter	05:44pm	**11:24pm**	05:04am
Saturn	11:52pm	**04:07am**	08:22am
Uranus	05:05am	**11:49am**	06:33pm
Neptune	03:49am	**09:17am**	02:46pm
Pluto (*)	01:22am	**05:41am**	09:59am

Moon	Rise	Azimuth
	09:53pm	115.2°
	Set	**Azimuth**
	06:57am	247.1°

True north-based azimuths

North	**0°**
North-Northeast	22° 30'
Northeast	45°
East-Northeast	67° 30'
East	**90°**
East-Southeast	112° 30'
Southeast	135°
South-Southeast	157° 30'
South	**180°**
South-Southwest	202° 30'
Southwest	225°
West-Southwest	247° 30'
West	**270°**
West-Northwest	292° 30'
Northwest	315°
North-Northwest	337° 30'

Table for an angular separation lower than 20° :

	Sun	Moon	Mercury	Venus	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto (*)
Sun		--	9.03°	--	--	--	--	0.77°	--	--
Moon	--		--	--	--	--	--	--	--	--
Mercury	9.03°	--		--	--	--	--	9.70°	--	--
Venus	--	--	--		--	--	--	--	14.66°	--
Mars	--	--	--	--		--	--	--	--	--
Jupiter	--	--	--	--	--		--	--	--	--
Saturn	--	--	--	--	--	--		--	--	--
Uranus	0.77°	--	9.70°	--	--	--	--		--	--
Neptune	--	--	--	14.66°	--	--	--	--		--
Pluto (*)	--	--	--	--	--	--	--	--	--	

Note :
(*) During the 26 th International Astronomical Union (IAU) General Assembly , on 2006 August 24, Pluto was demoted to a ne w "dwarf planet" class of objects.

The formulas used can be found in the " *Calculs Astronomiques à l'usage des amateurs* " book by Jean Meeus
[ISBN 2-901730-03-6] 1986 Edition, Société Astronomique de France.