

Explanation of The Nautical Almanac Daily Pages

1	Date based on GMT/UT
2	Time based on GMT/UT (this is just integral hour only)
3	Mer. pass- meridian passage of Aries at the Prime Meridian- Greenwich- 0°. Time figure is GMT/UT.
4	GHA v correction and Declination d correction. The amount to correct v and d for is determined by the minutes and seconds of time of the planet observation and is found in the <i>Increments and Corrections</i> pages of The Nautical Almanac. The Increments and Corrections pages are also known as <i>The Yellow Pages</i> as that's the color of the paper in the USNO published Nautical Almanac.
4a	m- is the <i>magnitude</i> or brightness of the planet. A bright planet will have a <i>minus</i> sign beside the figure. A fainter planet will have no sign beside its magnitude figure.
5	Stars- SHA, Sidereal Hour Angle, and Declination. 59 stars are listed. Typically, only 57 stars are used for navigational purposes in both Northern and Southern Hemispheres.
6	Mer. pass- planet meridian passage time at the Prime Meridian- Greenwich- 0°. Time figure is GMT/UT.
7	SHA- planet <i>SHA</i> at the time of meridian passage at the Prime Meridian- Greenwich- 0°. Planet SHA is calculated by subtracting planet GHA from Aries GHA. Time figure is GMT/UT.
8	Horizontal parallax- for Venus and Mars.
9	Date based on GMT/UT
10	Time based on GMT/UT (this is just integral hour only)
11	SD- Semi-diameter of the Sun. One half of the angular width of the Sun as observed on earth.
12	d- the amount the declination of the Sun changes per hour. If there's a minus sign beside the declination figure in the Dec column then the Sun is in the Southern hemisphere.
13	The Moon's GHA v correction. The amount to correct the Moon's GHA using v is determined by the minutes and seconds of time of the Moon's observation and is found in the <i>Increments and Corrections</i> pages of The Nautical Almanac. The Increments and Corrections pages are also known as <i>The Yellow Pages</i> as that's the color of the paper in the USNO published Nautical Almanac.
14	SD- Semi-diameter of the Moon. One half of the angular width of the Moon, as observed on earth.
15	<p>The Moon's declination d correction. It's the amount of declination the Moon changes per hour. However the amount to correct the Moon's declination using d is determined by the minutes and seconds of time of the Moon's observation and is found in the <i>Increments and Corrections</i> pages of The Nautical Almanac. The d correction is <i>algebraically</i> added.</p> <p>An easy way to determine whether to <i>add</i> or <i>subtract</i> the d correction found in the <i>Increments and Corrections</i> pages is by examining the Moon's declination trend in The Nautical Almanac. If the declination is increasing (regardless of its sign + or -) from the integral hour of the observation you made then add the d increment and increase the value of the declination. If the declination is decreasing (regardless of its sign + or -) from the integral hour of the observation you made then subtract the d increment and decrease the value of the declination. Make sure to put the sign "back on" the corrected declination so you know which hemisphere the Moon's in.</p> <p>The Increments and Corrections pages are also known as <i>The Yellow Pages</i> as that's the color of the paper in the USNO published Nautical Almanac.</p>
16	HP- the angle between two lines, one from the center of the Moon to the center of the Earth, the other from the center of the Moon to the edge of the Earth. This angle is about 56', but it changes slightly from day to day as the distance to the Moon changes along its elliptical path around the Earth. <i>Source- starpath.com</i>
17	Sun- Eqn. of Time- Equation of Time is the difference between GMT/UT and LAN at Greenwich. The figures listed are for GMT/UT at 00 ^h and 12 ^h . If you look at Mer. Pass just to the right of the Eqn. of Time you'll find, approximately, when the Sun crosses The Prime Meridian (at Greenwich). The figures in the 12 ^h column indicate, approximately, how many minutes and seconds are subtracted, or added, to 12 to determine when Local Apparent Noon is at The Prime Meridian. You can calculate, approximately, when LAN is at your Longitude by adding, or subtracting the amount of time difference between you and

	Greenwich and the Equation of Time.
17 <i>continued</i>	Example- May 30, 2016. Mer. Pass is at UT 11:57. 12^h is 02:25. This means <i>subtract</i> 2 minutes and 25 seconds from UT 12 to calculate when Meridian Passage is at Greenwich. So at W 075° meridian passage would occur at about- 12 hours + 5 hours <i>MINUS</i> 2 minutes and 25 seconds, or UT 16:57:35.
18	Sun- Mer. Pass just to the right of the Eqn. of Time is the approximate GMT/UT when the Sun crosses The Prime Meridian (at Greenwich) for that specific date.
19	Moon- Mer. Pass- is the approximate GMT/UT when the Moon crosses The Prime Meridian (at Greenwich) or The International Date Line for that specific date. Upper means the GMT/UT when the Moon crosses The Prime Meridian (Greenwich) and Lower means the GMT/UT when the Moon crosses The International Date Line (180°).
20	Moon- Age- this is the number of days past a new Moon. Typically, there are 29 days in a lunar month.
20 <i>continued</i>	Moon- %- the amount of the Moon's illumination. 100% would be a full moon. 49% would be about ½ of the Moon is illuminated.
21* <i>see note at bottom</i>	(morning) Twilight- Naut.- the approximate GMT/UT when morning Nautical Twilight begins. Nautical twilight is the time when the center of the sun is 12° below the horizon and the horizon is visible enough to be used for marine sextant observations. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
21* <i>see note at bottom</i>	(morning) Twilight- Civil- the approximate GMT/UT of morning civil twilight starts when the geometric center of the sun is 6° below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
21* <i>see note at bottom</i>	Sunrise- the approximate GMT/UT when the Sun is 0° 50' (semi-diameter plus refraction) below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
21* <i>see note at bottom</i>	(evening) Twilight- Naut.- the approximate GMT/UT of when evening Nautical Twilight ends. Nautical twilight is the time when the center of the sun is 12° below the horizon and the horizon is no longer visible enough to be used for sextant observations. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
21* <i>see note at bottom</i>	(evening) Twilight- Civil- the approximate GMT/UT of evening civil twilight that ends when the geometric center of the sun is 6° below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
21* <i>see note at bottom</i>	Sunset- the approximate GMT/UT when the Sun is 0° 50' (semi-diameter plus refraction) below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
22* <i>see note at bottom</i>	Moonrise- the approximate GMT/UT when the Moon is about 0° 05' to 0° 10' below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time under the specific day. The USNO has a more detailed explanation of this here- http://aa.usno.navy.mil/faq/docs/RST_defs.php
22* <i>see note at bottom</i>	Moonset- the approximate GMT/UT when the Moon is about 0° 05' to 0° 10' below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time under the specific day. The USNO has a more detailed explanation of this here- http://aa.usno.navy.mil/faq/docs/RST_defs.php

* **Note-** Time of Sunrise, Sunset, Moonrise, Moonset and twilight is based on GMT/UT of the event at 0° (Greenwich). To determine the GMT/UT time at your Longitude add or subtract the time difference between your AP Longitude and Greenwich.

