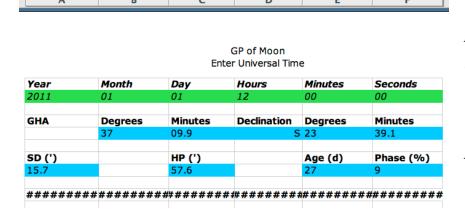# Interactive Spreadsheets for Celestial Navigation

http://www.navigation-spreadsheets.com

The spreadsheets available through this website are designed to increase the accuracy, reliability, and speed with which you can derive your position from sextant observations. The ubiquity of Microsoft Excel® and other compatible third-party software allows you to easily perform the requisite calculations on your computer, laptop, or a smartphone using this suite of spreadsheets.

This is a free suite that can provide and process data essential in celestial navigation:

- Almanac data (calculation of Geographical Positions of main celestial bodies)
- Sextant altitude corrections
- Solutions of the navigation triangle (the Marcq St. Hilaire intercept method)
- Intersections of lines of position (direct two-body and many-body fixes)
- Running fixes and sailings
- Noon sights, noon curves, and meridian transits, including the effect of vessel motion
- Dead reckoning (DR) positions and a DR fix along a line of position
- Lunar distance clearing and UT recovery

moon.xls

	A	B	C	D	E	F

GP of Moon
Enter Universal Time

Year	Month	Day	Hours	Minutes	Seconds
2011	01	01	12	00	00
GHA	**Degrees**	**Minutes**	**Declination**	**Degrees**	**Minutes**
	37	09.9		S 23	39.1
SD (')		**HP (')**		**Age (d)**	**Phase (%)**
15.7		57.6		27	9

##

This image shows the user part of the Moon almanac spreadsheet, which you may freely download and test on your computing platform.

Download link: http://www.navigation-spreadsheets.com/uploads/moon.xls

Alphabetical list of spreadsheets

1. **alt_corr**:   sextant altitude corrections
2. **alt_move**:   altitude corrected for motion of the vessel
3. **alt_prec**:   precomputed sextant altitude
4. **amplitude**:   amplitude and azimuth of a rising or a setting body
5. **aries_stars**:   GHA of Aries and GPs of 57 main navigation stars
6. **average1**:   averaging of sights (precomputed slope)
7. **average2**:   averaging of sights (fitted slope)
8. **composite**:   composite sailing calculation
9. **course_and_speed**:   ground speed from the vessel speed and speed of current
10. **course_to_steer**:   vessel course from set and drift and desired ground track
11. **cpa.xls:**   closest point of approach from two ranges and relative bearings
12. **dip_short**:   dip short of the horizon
13. **distance**:   distance by vertical angle
14. **dr**:   dead reckoning position (DRP)
15. **dr_fix_lop**:   estimated position (EP) from a DRP and a celestial LOP
16. **ex_meridian**:   ex-meridian latitude calculation (time away from transit input)
17. **ex_meridian_t**:   ex-meridian latitude calculation (meridian angle input)
18. **ground_speed**:   ground speed from vessel speed and set and drift
19. **intercept**:   intercept and azimuth for the St. Hilaire method
20. **jupiter**:   almanac data for Jupiter
21. **ld_prec**:   geocentric and topocentric lunar distance from almanac data
22. **lops**:   two-body fix (using spatial geometry)
23. **lunar_distance**:   LD clearing and chronometer resetting
24. **many_body_fix**:   multiple LOP fix calculation
25. **mars**:   almanac data for Mars
26. **mercury**:   almanac data for Mercury
27. **minutes**:   conversion of fractional angles into minutes of arc
28. **moon**:   almanac data for Moon
29. **neptune**:   almanac data for Neptune
30. **noon_curv**e: Sun LAN curve fix
31. **noon_motion**:   Sun LAN curve fix with motion of the vessel
32. **noon_sight**:   Sun LAN fix
33. **one_body_fix**:   fix from a zenith distance and azimuth
34. **polaris**:   latitude from Polaris (UT input)
35. **polaris_lha**:   latitude from Polaris (LHA input)
36. **running_fix**:   running fix (LOP1 advanced in time)
37. **sailings**: great-circle and rhumb-line sailings
38. **saturn**:   almanac data for Saturn
39. **set_and_drift**:   set and drift from the difference between DRP and EP
40. **sun**:   almanac data for Sun
41. **time**:   conversion of time data between formats
42. **transit**:   fix from a meridian transit on a moving vessel
43. **two_body_fix**: two-body fix (using spherical trigonometry)
44. **uranus**:   almanac data for Uranus
45. **venus**:   almanac data for Venus
46. **waypoints**:   rhumb-line sailing between great-circle waypoints
47. **what_star**:   star identification based on altitude and azimuth