GLOSSARY OF CELESTIAL NAVIGATION TERMINOLOGY

Almanac: An annual publication containing astronomical ephemerals etc.
Altitude: The angular distance of a celestial body above the viewer's horizon.
Astronomical Twilight: The time before morning civil twilight and after evening civil twilight when no light is visible from the sun. The centre of the sun is 18° below the horizon.
Azimuth: The horizontal angle from a reference position to a celestial body.
Bearing: The compass reading taken of an object in relation to the observer.
Celestial Navigation: A method of navigating by referring to the stars or other objects in the sky.
Celestial Sphere: An imaginary sphere with, the earth at its centre, on which heavenly bodies are assumed to be situated.
Chronometer: A very accurate clock or watch.
Civil Twilight: A time of day at dawn and dusk when both the horizon and the heavenly bodies are visible in the night sky. The centre of the sun is 6° below the horizon.
Deck Watch Error (DWE): The difference in time between the deck watch and the chronometer.
Deck Watch: A timepiece taken on deck at the time of a sight.
Declination: The angular distance to a point on the celestial sphere measured north or south of the celestial equator.
Dip: A correction to be applied to sextant attitudes to compensate for height of eye above sea level.
Ephemerals: A published collection of tables giving coordinates for astronomical bodies for specific times.
Equation of Time: The amount by which mean time differs from solar time for a particular day.
First Point of Aries (♈): A point on the celestial sphere which is used as a reference point, it is in fact where the 'Ecliptic' and the Celestial Equator cross.
Geographical Position (GP): The point on the earth's surface directly beneath the Zenith.
Great Circle: A circle whose plane passes through the centre of a sphere.
Greenwich Hour Angle (GHA): The measurement of a position in degrees westward from the Greenwich Meridian.
Greenwich Mean Time (GMT): Also referred to as UTC, Coordinated Universal Time or UT, it is the time at the Greenwich Meridian.
Greenwich Meridian; The Prime Meridian, it is the 0° longitude line so named because it passes through the Royal Observatory at Greenwich in the UK.
Heavenly Body: A celestial object
Height of Eye (HE): The height of a sextant user's eye above sea level, one of the corrections needed to obtain a true altitude from a sextant altitude.
Horizon: The apparent line for an observer where the earth's surface and the sky meet.
Increment: An increase over time.
Index Error: An error in the angle measured by a sextant caused by the vertical misalignment of the index and horizon mirrors.
Intercept: The difference in minutes of arc between the true altitude and the calculated altitude. Therefore equal to the distance in nautical miles of the observer's position from the chosen position.
Latitude: The angular distance north or south from the equator on the earth's surface.
Limb: When taking a sun or moon sight it is difficult to determine where the center is so the observer aligns either the top edge (upper limb) or more usually the bottom edge (lower limb) of the object on to the horizon. The sight is then corrected using the appropriate correction tables.
Line of Position (LOP): A line drawn on a chart on which the position of the vessel must lie.
Local Hour Angle (LHA): The angular distance of an observed celestial object to the west of the observer's meridian.
Longitude: The angular distance east or west from the Greenwich or Prime Meridian (0^0 longitude) on the earth's surface.
Mercator Projection: A method for representing the spherical globe on a plane surface with lines of latitude and longitude intersecting at right angles. Devised by Geradus Mercato in 1569.
Local Noon: The time when the sun reaches its highest altitude at your position and is directly north or south of you. Its GHA will correspond to your longitude. Also known as Meridian Passage.

Local Time: Solar time at your position.
Meridian Passage: The time at which a heavenly body's GP is on an observer's line of longitude.
Meridian: A line of longitude.
Nautical Mile: A unit of distance equal to $^1/_{60}$th of a degree (i.e. 1 minute) of latitude.
Nautical Twilight: The time before morning civil twilight and after evening civil twilight when it is too dark to see the horizon. The centre of the sun is 12° below the horizon.
Nutation: The side-to-side weaving of the earth in its orbit around the sun. Caused by the gravitational force of other heavenly bodies, mainly the moon.
Parallax: The apparent differences in the positions of objects viewed along different lines of sight.
Plotting Sheet: A paper sheet separate from the chart where a navigator can plot LOP's and the vessel's course.
Precession: The slow movement of the axis of a spinning body around another axis i.e. a "wobble".
PZX Triangle: The spherical triangle on the celestial sphere consisting of the elevated pole (P), the observer's zenith (Z) and the heavenly body (X). This triangle is solved by spherical trigonometry to derive an LOP.
Refraction: The "bending" of light rays as they pass through mediums of different density. Causes the apparent position of objects to differ from their true location.
Rhumb Line: A course sailed using a constant compass course. An imaginary line drawn on a chart which crosses all the meridians at a constant angle.
Running Fix: A position based on two separated bearings of the same fixed object and the distance run between the bearings.
Semi-Diameter: Half the diameter of a circle, used to determine the centre of the sun and moon when sights have been taken using the upper or lower limbs.
Sextant: An instrument used to measure angular distances like the altitude of the sun, moon and stars for navigation.
Sidereal Hour Angle (SHA): The angular distance of a star from the First Point of Aries.
Small Circle: A circle whose plane does not pass through the centre of the eEarth.
Solar Time: The time according to the actual position of the sun.
Universal Time Co-ordinated: See GMT.
Zenith Distance: The angular distance between a celestial object and the observer's zenith.
Zenith: The point on the celestial sphere where a heavenly body is situated. Also the point on the celestial sphere directly above the head of an observer on the earth's surface.
Zone Time (ZT): The clock time within each sector of 15° of longitude.
Zulu Time: Military term for GMT.

Parts of a Sextant

Arc
Frame
Horizon mirror/glass
Index
Index arm
Index mirror
Micrometer drum
Rack

Variable Sextant Errors

N.B. Order of adjustment
1) Perpendicularity of index mirror
2) Side error
3) Index error