

Celestial Navigation Correspondence Course

1. Geographical Position explained
2. The Sextant, Simply Speaking
3. The "triangle" and some simple measurements
4. H.O. 249 explained pg. 16
5. Ready, Aim, Shoot!

OUTLINE

1. Geographical Position explained
 - using comparison of mapped locations on land
2. The Sextant, Simply Speaking
 - DIAGRAM of angle sextant measures
3. The "triangle" and some simple measurements
 - how the triangle is formed: your AP (from your DR course and distance travelled), a GP (from the Nautical Almanac), and the North Pole.
 - the "known sides and angles: your AP latitude - 90 = one side; GP - 90 = 2nd side; GP longitude - AP longitude = top angle (LHA)
 - the zenith distance
 - comparing the zenith distance you measured with sextant to the distance from the GP to AP
 - DIAGRAM of triangles
 - LOP
 - second sight and advancing LOP
 - **Sum up the 6 steps of celestial navigation (Pg. 15)**
4. H.O. 249 explained pg. 16 (Shoot, don't compute)
 - set of already solved triangles for whole degrees of AP latitudes, whole degrees of GP latitudes, and whole degrees of LHA's.
 - SAMPLE of a page from HO 249 showing the values of the triangle used in the example you've been using from the start.
 - explanation of entries in sample page: LAT in lower rt corner; DECLINATION ($x^\circ - y^\circ$) SAME NAME AS LATITUDE along top and bottom of page; LHA in columns down both sides of page; Hc, d, Z.
 - use "actual" sextant readings to compare to Hc instead of using "zenith distance" (that's how tables are set up)
5. Ready, Aim, Shoot! (Celestial Navigation in your back yard - Commonsense)
 - the sextant and a watchStop 2/24/97 2/25/97
The sextant:
 - DIAGRAM of sextant, labelling the parts (pg. 24 Commonsense)
 - Explain the important parts:
 - index arm with squeeze fitting
 - micrometer drum (fine tuning knob)
 - Index mirror and shades
 - Horizon Mirror and shades
 - Explain how sextant works
 - close up of arc, index arm and drum showing how to read it
 - Using the sextant
 - use window (lower and upper sill) in room to experiment with what a sextant does (pg 25 Commonsense)
 - use watch to time "sight"
 - try in backyard with sun - using shades
 - set sextant to zero and aim at sun
 - bring sun down to a "horizon", a fence, rooftop or other.
 - rock the sextant to find exact perpendicular - time the "sight"

The watch:

- GMT or Universal Coordinated Time

Actual sight:

- take sight using true horizon

6. Work out sight using form

- The "Form"
- brief explanation of entries in form
- use diagrams to show GHA, LHA etc.

Plotting:

- using chart
- using Universal Plotting Sheets

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3/25/97

Plot example:

- selecting mid latitude for page
- selecting longitude
- one way using scale
- another way using compass rose
- selecting AP at closest whole Long. & Lat. to you
- Line Of Position, LOP
- Azimuth and moving LOP along azimuth

7. Noon Sight (pg 92)

8. The Moon:

- the additional corrections for the moon:
- "v"
- H.P. "Horizontal Paralax"
- diagrams to show difference between sun's rays and moon's rays
- Lower and upper limb corrections
- give example showing how to use table

9. Planets: (pg 113 Commonsense)

Twilight shots

- Civil Twilight tables in Nautical Almanac for times

Identifying planets

- Planet diagram in Naut. Almanac for determining which planets would be visible when
- using H.O. 249 to rpre-determine altitude and azimuth of planets (pg 117

Commonsense)

10. Stars: (pg 100 Commonsense)

Listings in Nautical Almanac

- 57 daily
- 126 additional

SHA explained

Aries

LHA of Aries

H.O. 249 Vol. 1 Selected Stars (pg 104 Commonsense)

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