Apéndice 2
Cálculos pertinentes al 10 y 11 de septiembre de 1996, equivalentes al 31 de agosto y 1 de septiembre de 1580, respectivamente

31 de agosto de 1580:

$$GHA = 60° \ 48.4'$$
$$= 60.806667°$$

$$LHA = GHA - \lambda°$$
$$= (60.806667° + 360°) - (66.116667°)$$
$$= 354.69°$$

$$\delta = LHA \div 15$$
$$= 354.69 \div 15$$
$$= 23.646$$

$$T = (16 + 24) - (23.646)$$
$$= 16.354$$

$$\delta_{16} = 4° \ 39'.7 \qquad\qquad \delta_{17} = 4° \ 38.7'$$

$$= 4.6616667° \qquad\qquad\qquad = 4.645°$$

$$\Delta\delta = \delta_{16} - \delta_{17}$$
$$= 4.6616667° - 4.645°$$
$$= 0.0166667°$$

$$0.0166667 \times 0.354 = 0.0059000$$
$$\delta = 4.6616667 - 0.0059000$$
$$= 4.6557667 = 4° \ 39.3'$$

$$SinAlt = (cosLHA \times cos\lambda^a \times cos\delta) + (sin \ \lambda^a \times sin\delta)$$
$$= [cos(0) \times cos(18.466667) \times cos(4.6557667)] + [sin(18.466667) \times sin(4.6557667)]$$
$$= [(1) \times (0.948508) \times (0.9967003)] + [(0.3167529) \times (0.081169)]$$
$$= (0.9453782) + (0.0257105)$$
$$= 0.9710887$$

$$sin^{-1}Alt = 0.9710887$$
$$Alt = 76.189058°$$

cenit: $\qquad 90° - 76.189058°$
$$= 13.810942°$$

sol: $\qquad 13.810942° - 0.53°$
$$= 13.280942°$$

refracción: $\qquad 13.280942° - 0.26$
$$= 13.020942°$$

medida calculada: 13.0° $\qquad\qquad$ **medida observada:** ≈12.8°

1 de septiembre de 1580:

$$GHA = 60° 53.6'$$
$$= 60.893333°$$

$$LHA = GHA - \lambda°$$
$$= (60.893333° + 360°) - (66.116667°)$$
$$= 354.77667°$$

$$\tau = LHA \div 15$$
$$= 354.77667° \div 15$$
$$= 23.651778h$$

$$T = (16h + 24h) - (23.651778h)$$
$$= 16.348222h$$

$$\delta_{16} = 4° 16.8' \qquad\qquad \delta_{17} = 4° 15.9'$$
$$= 4.28° \qquad\qquad\qquad\quad = 4.265°$$

$$\Delta\delta = \delta_{16} - \delta_{17}$$
$$= 4.28° - 4.265° = 0.015°$$

$$0.015° \times 0.348222° = 0.0052233°$$
$$\delta = 4.28° - 0.0052233°$$
$$= 4.2747767°$$
$$= 4° 16.5'$$

$SinAlt = (cos LHA \times cos\lambda^a \times cos\delta) + (sin\lambda^a \times sin\delta)$
$= [cos(0) \times cos(18.466667) \times cos(4.2747767)] + [sin(18.466667) \times sin(4.2747767)]$
$= [(1) \times (0.948508) \times (0.997218)] + [(0.3167529) \times (0.0745397)]$
$= (0.9458692) + (0.0236106)$
$= 0.9694798°$

$sin^{-1}Alt = 0.9694798°$
Alt $= 75.808061°$

cenit: $90° - 75.808061°$
$= 14.191939°$

sol: $14.191939° - 0.53°$
$= 13.661939°$

refracción: $13.661939° - 0.26$
$= 13.401939°$

medida calculada: 13.4°　　　　　**medida observada:** $\approx 13.3°$