

ERRORS IN LHA AND TIME, ARISING FROM USING AN INCORRECT LATITUDE IN A SERIES OF TIME SIGHTS

Sights assumed taken from Mystic (latitude 41.36N). The “wrong” latitude used here is 48.64 which is 7.28 degrees greater than Mystic’s latitude (the graphs of the errors in the tilted sundial were also for a tilt of 7.28 degrees).

The sun declination here is +20 degrees.

Sun altitudes simulated here are from 10 to 60 degrees, though some of these would be undesirable for a time sight, I am understanding from Frank’s posting on 8th June.

Sun Altitude deg.	10	15	20	25	30	35	40	45	50	55	60
Sun declination deg.	20	20	20	20	20	20	20	20	20	20	20
Latitude 1 (correct for Mystic)	41.36	41.36	41.36	41.36	41.36	41.36	41.36	41.36	41.36	41.36	41.36
Latitude 2 (incorrect for Mystic)	48.64	48.64	48.64	48.64	48.64	48.64	48.64	48.64	48.64	48.64	48.64
LHA from latitude 1	94.26	87.33	80.53	73.81	67.14	60.48	53.78	46.99	40.03	32.76	24.85
LHA from latitude 2	97.69	89.81	82.10	74.50	66.93	59.32	51.55	43.50	34.89	25.07	11.10
LHA error, degrees	3.43	2.47	1.57	0.69	-0.21	-1.16	-2.22	-3.49	-5.14	-7.69	-13.74
Time error, minutes	13.72	9.89	6.28	2.76	-0.83	-4.64	-8.89	-13.95	-20.57	-30.75	-54.97

Error in time
through using
the wrong
latitude in the
time sight

(minutes of time)

