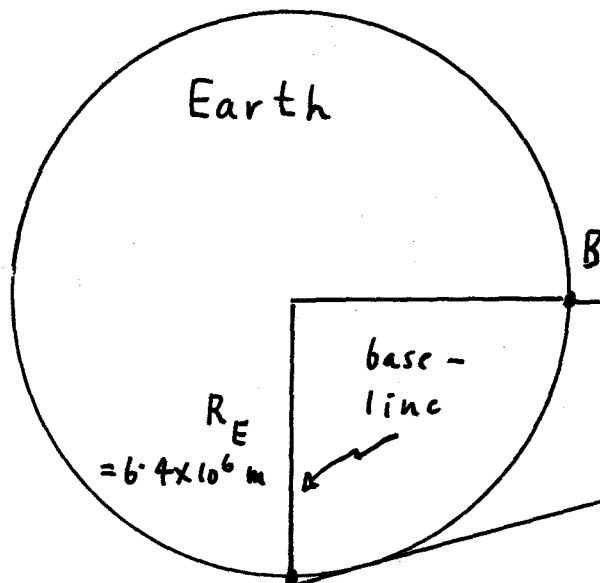


The Geocentric Parallax of the Moon

The parallax is the angle subtended by the radius of the Earth as seen from the Moon. It is measured by measuring the displacement of the image of the Moon on the celestial sphere as observed from two points on the surface of the Earth.



If two observers observe the Moon simultaneously, its image will not appear on the photographs in the same position relative to the more distant stars (at least eighty million times more distant — yes, eighty million).

Here, the base-line is the radius of the Earth.

$\angle p = 0.95^\circ$ (0.95° ?) — nearly two Moon angular 'diameters'

Parallax was introduced by my asking you to line your finger against a vertical mark on the whiteboard, using one eye, then swapping the open eye. The base-line was the distance between your eyes.

From the above diagram,

$$\tan p = \frac{R_E}{d_M}$$

$$d_M = \frac{R_E}{\tan p}$$

$$= \frac{6.4 \times 10^6 \text{ m}}{\tan 0.95^\circ}$$

Pattern of distant, background stars

DF
2009, June 24