Earth Radius Calculation

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31 de marzo de 2023

1. Eratóstenes

Eratóstenes (Cyrene , 276 BC 1 - Alexandria , 194 BC) was a Greek polymath : mathematician , astronomer and geographer of Cyrenaic origin . He first conceived of geography as a systematic discipline, developing a terminology that is still in use today. He is known primarily for being the first person to calculate the diameter and circumference of the Earth

2. Calculation

In order to calculate the earth radius, Eratóstenes used a essential principle of Angles, parallel lines and mathematics, derived from his measurements of the shadow of a stick, the distance between two cities, sun position, and hour, also having some assumptions as the curve of earth (circular earth), the gigantic distance sun-earth (parallel sunlight), so on.

To get the radius, Eratóstenes had to use the ecuation of circunference $C = 2\pi r$
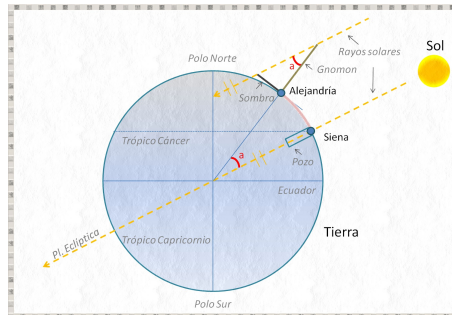
$$r = \frac{C}{2\pi} \tag{1}$$

Figura 1: Descriptive Graphic

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Referencias

[1] Levi O. de A. Azevedo, Orlando S. Ribeiro, Natanael C. Costa, Elis H. C. P. Sinnecker, and Miriam Gandelman. Revisitando o Experimento de Eratóstenes: medida do raio de Terra. *arXiv e-prints*, page arXiv:2110.01610, October 2021.