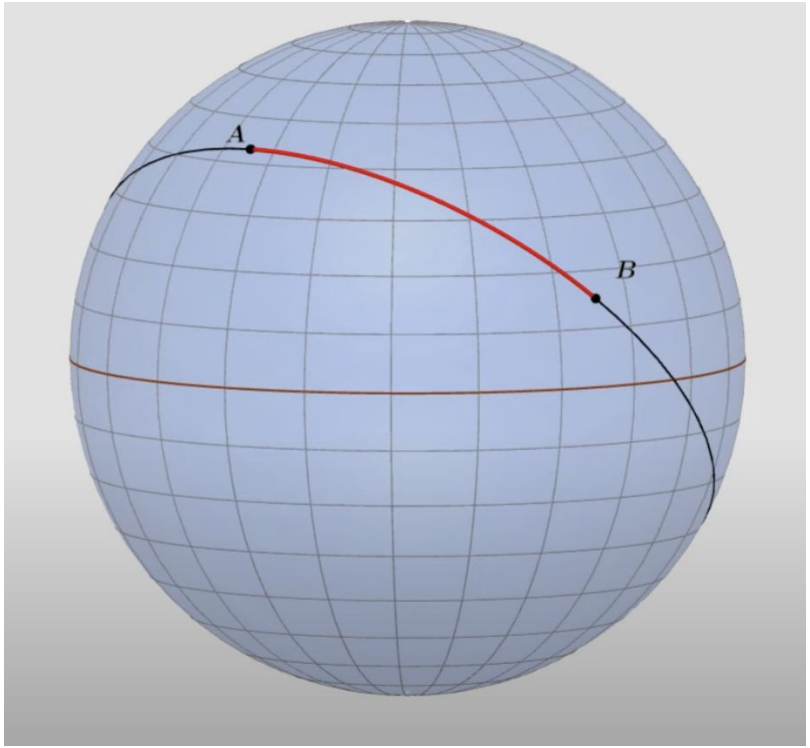
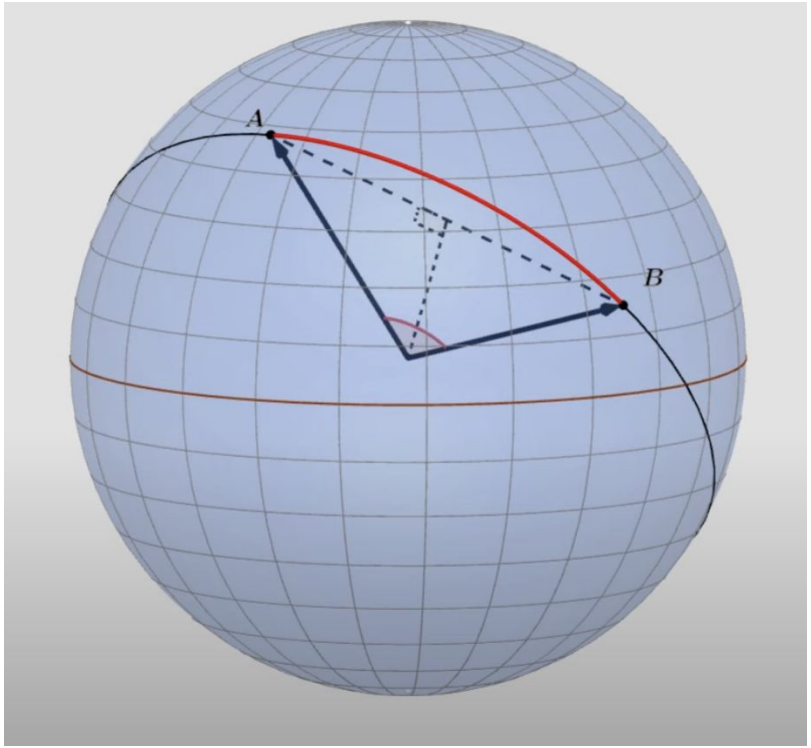
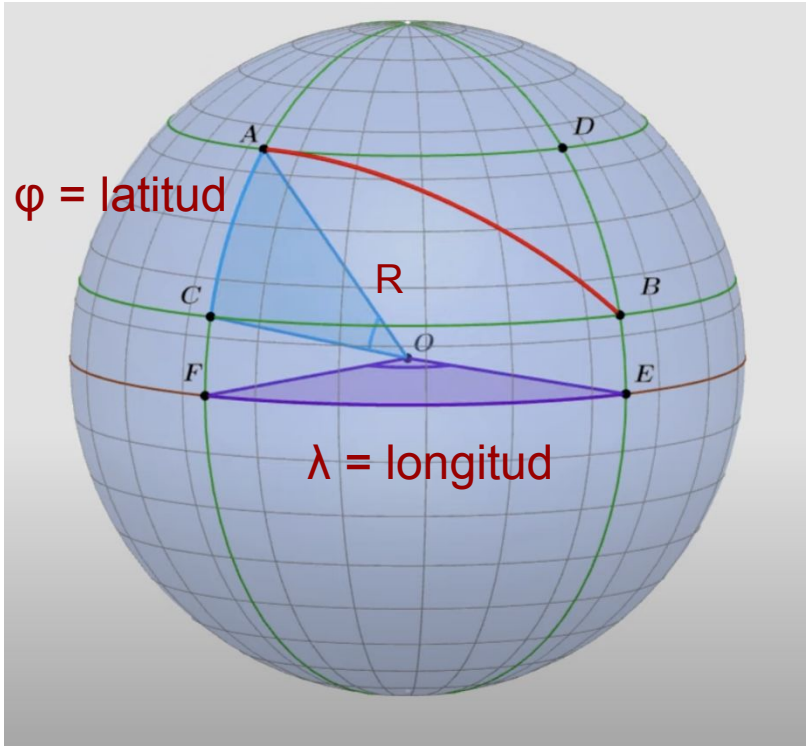
FÓRMULA DE HAVERSINE


A
B


A
B



R = radio de la Tierra

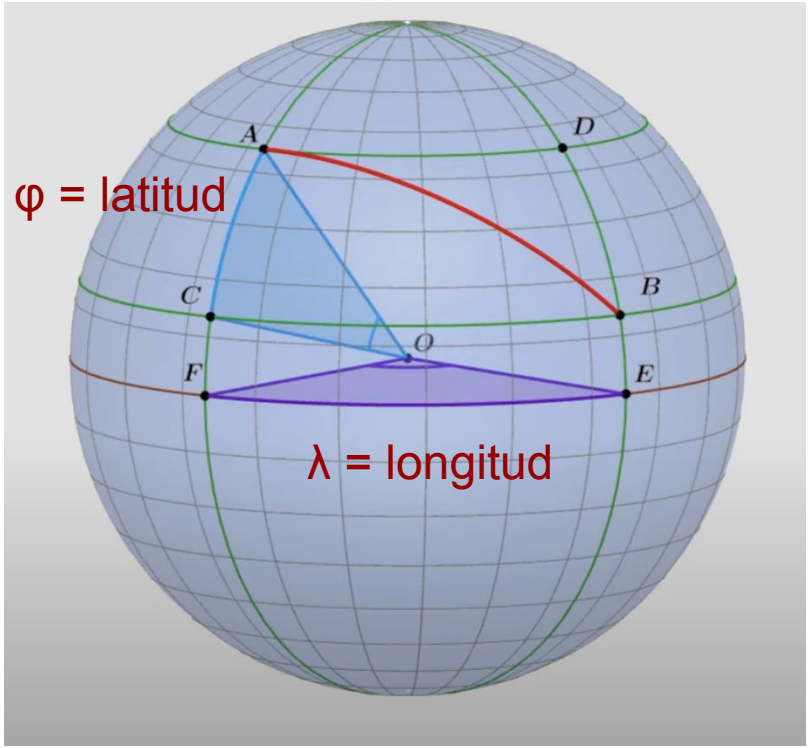
$\Delta lat = lat2 - lat1$

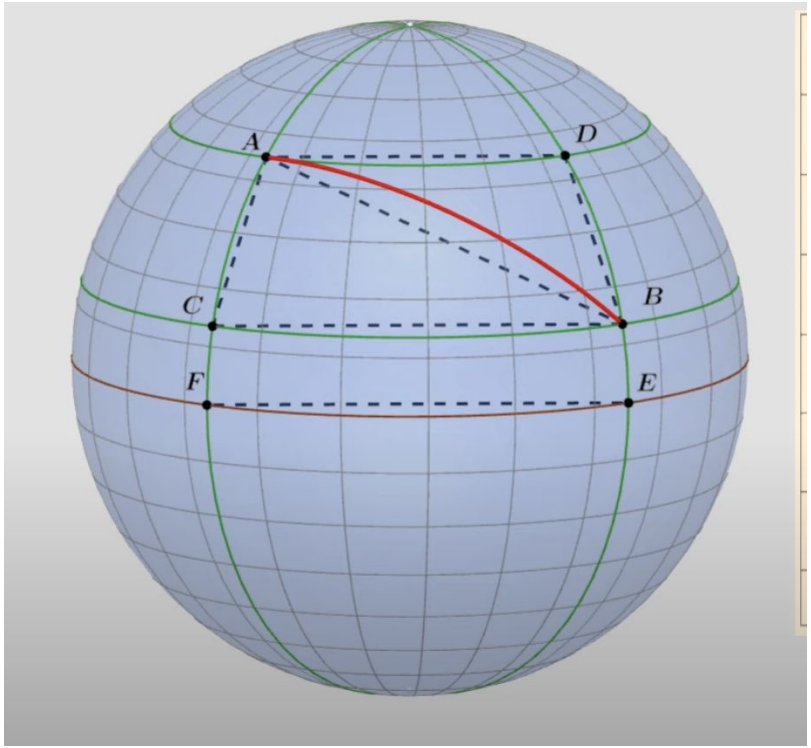
$\Delta long = long2 - long1$

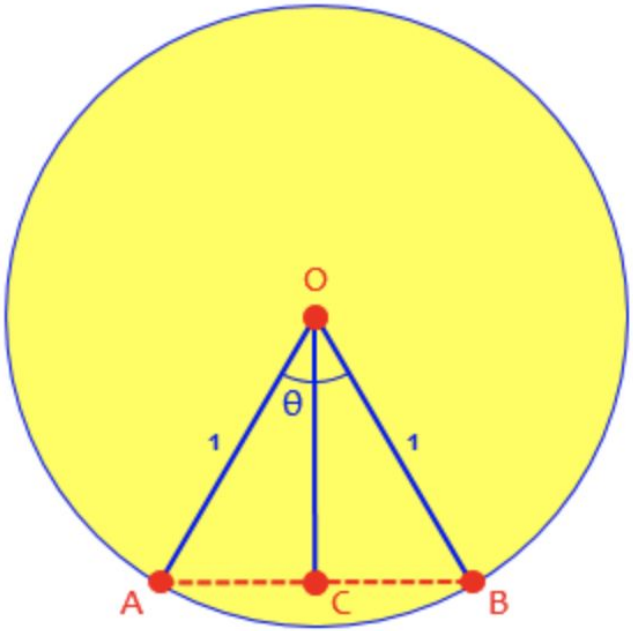
$a = \sin^2(\Delta lat/2) + \cos(lat1) \cdot \cos(lat2) \cdot \sin^2(\Delta long/2)$

$c = 2 \cdot atan2(\sqrt{a}, \sqrt{(1-a)})$

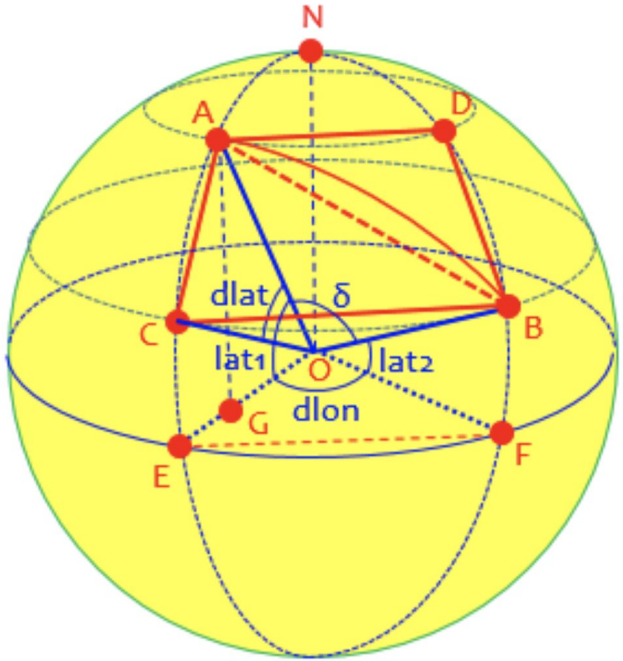
$d = R \cdot c$

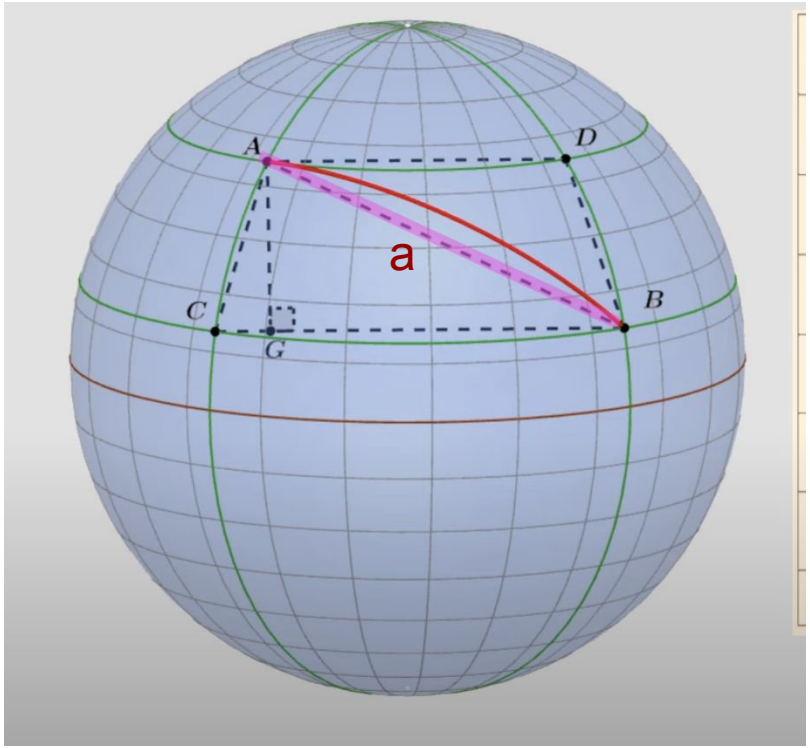

φ = latitud
A
D
C
B
O
F
E
λ = longitud


A
D
C
B
F
E



$$AB = 2\sin\left(\frac{\theta}{2}\right)$$





R = radio de la Tierra

Δlat = lat2– lat1

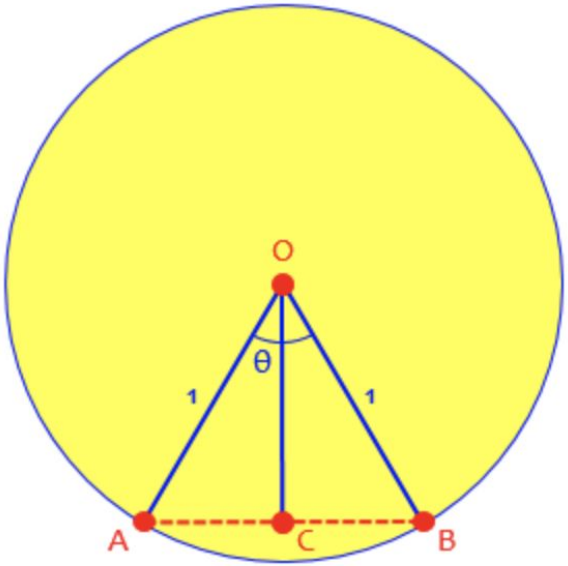
Δlong = long2– long1

$$a = \left(\frac{AB}{2}\right)^2$$

a = sin²(Δlat/2) + cos(lat1) · cos(lat2) · sin²(Δlong/2)

c = 2 · atan2(√a, √(1–a))

d = R · c



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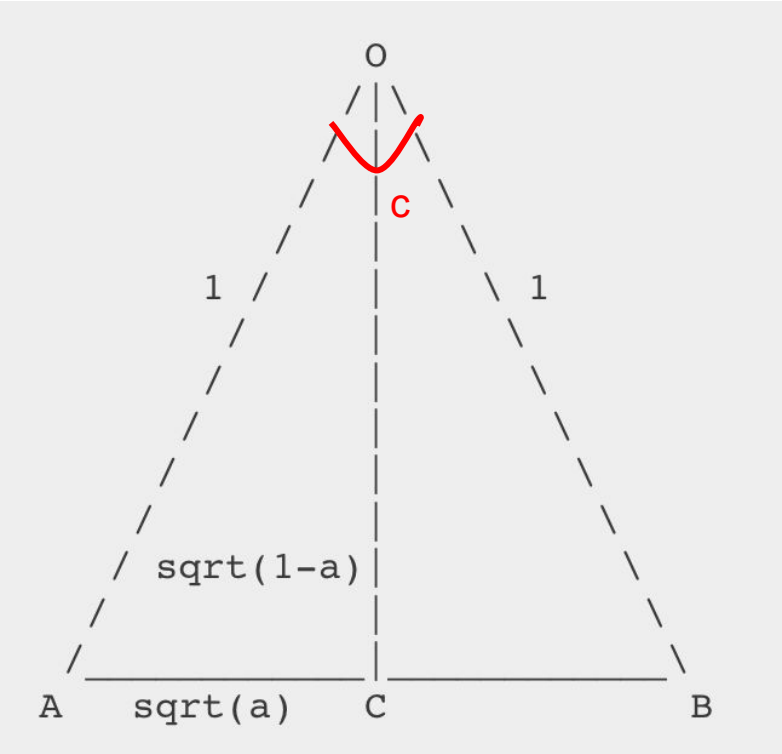
d = R · c



R = radio de la Tierra

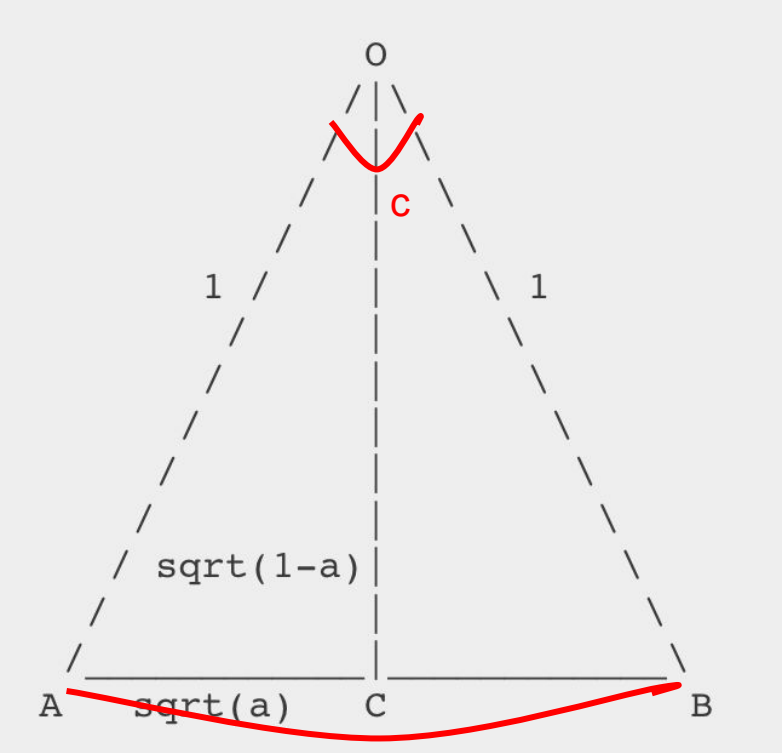
Δlat = lat2– lat1

Δlong = long2– long1

$a = \sin^2(\Delta lat/2) + \cos(lat1) \cdot \cos(lat2) \cdot \sin^2(\Delta long/2)$

$c = 2 \cdot \text{atan2}(\sqrt{a}, \sqrt{(1-a)})$ $\quad c = 2 \cdot atan(\frac{\sqrt{a}}{\sqrt{1-a}})$

$d = R \cdot c$



R = radio de la Tierra

$\Delta lat = lat2 - lat1$

$\Delta long = long2 - long1$

$a = \sin^2(\Delta lat/2) + \cos(lat1) \cdot \cos(lat2) \cdot \sin^2(\Delta long/2)$

$c = 2 \cdot atan2(\sqrt{a}, \sqrt{(1-a)})$

$d = R \cdot c$