



No Noon Shadow Day

Soumis par eric vayssie le dim, 05/04/2015 - 15:09

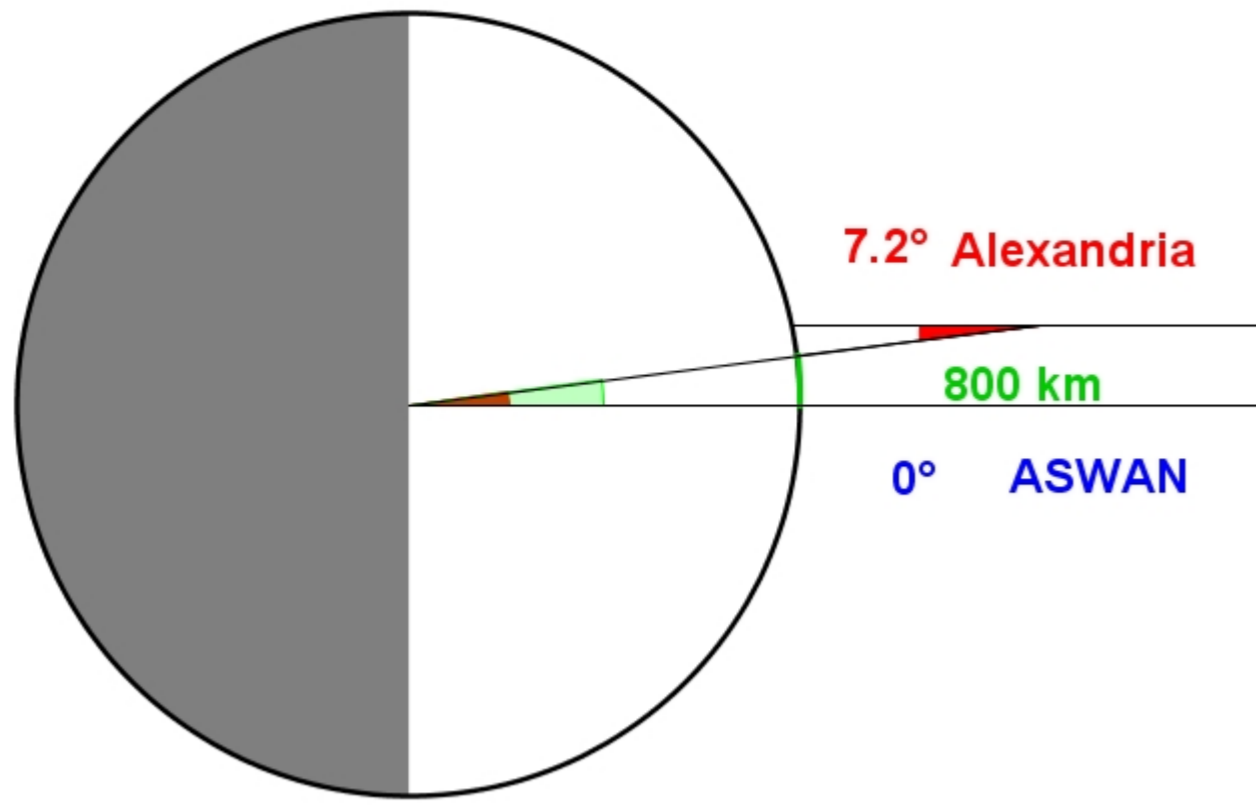
There are special days, special places, when and where the sun casts no shadow at noon.
This was the first Eratosthenes experiment between Alexandria and Aswan, 2200 years ago.
It Happened on march 31, 2015 in Kuantan Malaysia



Eratosthenes, at the time Director of the Great Library of Alexandria in Egypt, proposed a purely geometrical method to measure the length of the Earth's meridian (circle passing through the poles).
He started by using the observation of shadows made at two different places, Alexandria and Syene (now Aswan) distanced approximately 800 km apart (distance estimated in relation to the time taken by a caravan of camels to connect the two towns !) at the time of the Summer solstice and at noon local solar time.

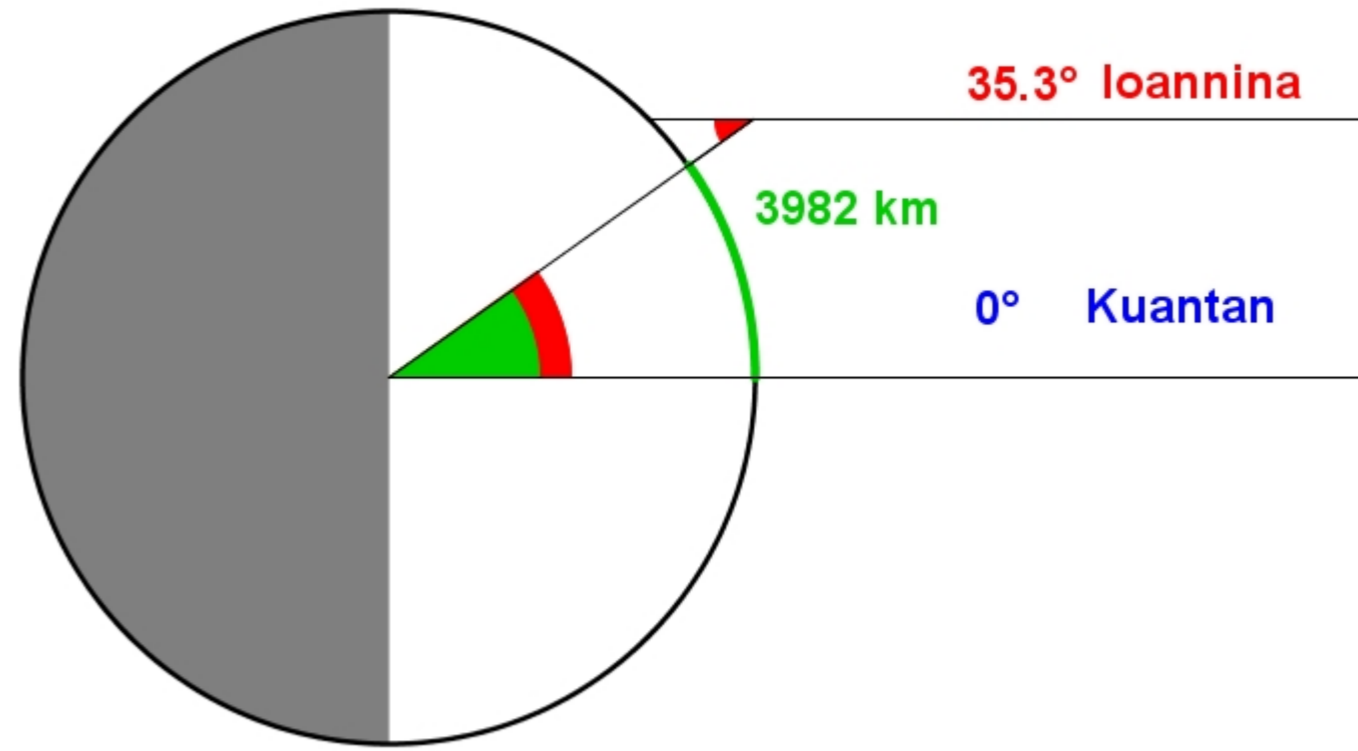
Addons

21 june 200 BC (Alexandria-EGYPT)
 21 june 200 BC (ASWAN-EGYPT)



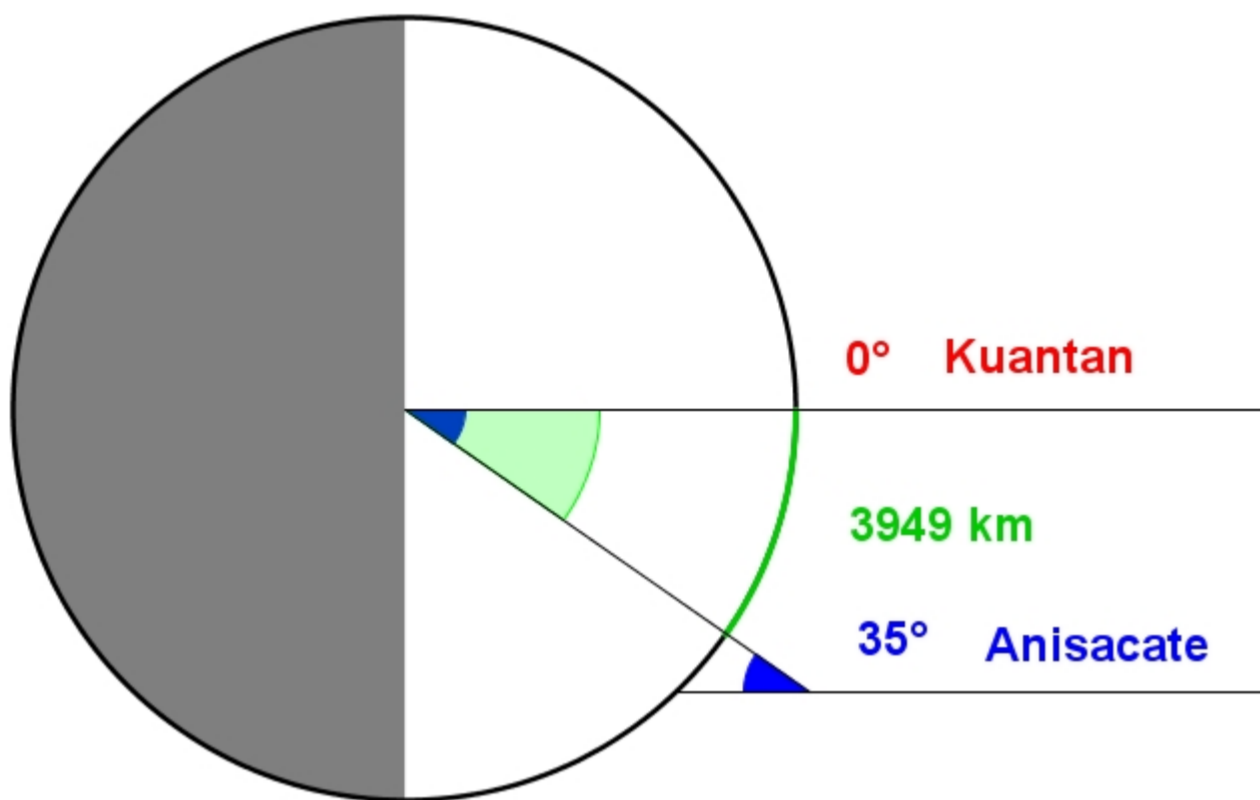
$$\text{circumference} = \frac{360^\circ \times 800 \text{ km}}{7.2^\circ} = 40000 \text{ km}$$

31 march 2015 (Ioannina-GREECE)
 31 march 2015 (Kuantan-MALAYSIA)



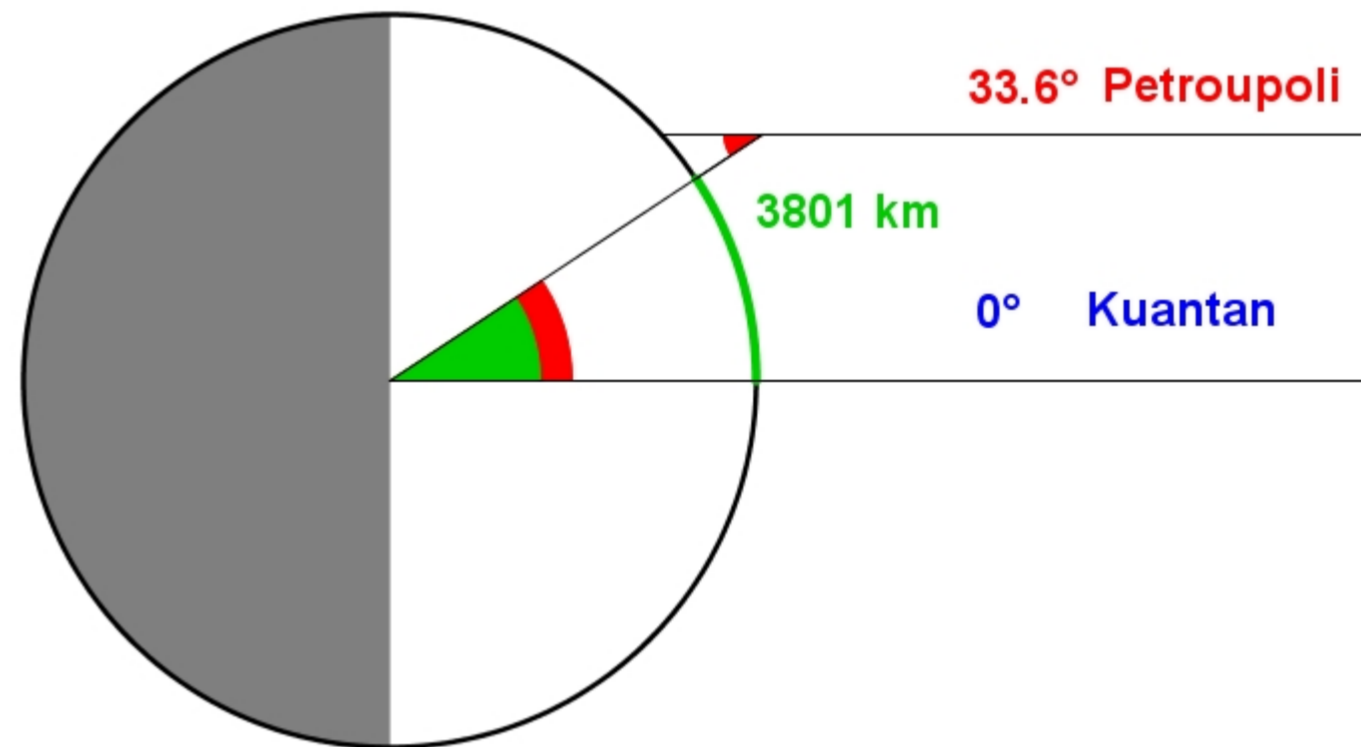
$$\text{circumference} = \frac{360^\circ \times 3982 \text{ km}}{35.3^\circ - 0^\circ} = 40610 \text{ km}$$

31 march 2015 (Kuantan-MALAYSIA)
 31 march 2015 (Anisacate-ARGENTINA)



$$\text{circumference} = \frac{360^\circ \times 3949 \text{ km}}{0^\circ + 35^\circ} = 40618 \text{ km}$$

31 march 2015 (Petroupoli-GREECE)
 31 march 2015 (Kuantan-MALAYSIA)



$$\text{circumference} = \frac{360^\circ \times 3801 \text{ km}}{33.6^\circ - 0^\circ} = 40725 \text{ km}$$

City	Country	School	Latitude	Longitude	Date	Gnomon height [cm]	Shadow length [cm]	Angle
Ioannina	Greece	Experimental College	39.666	20.845	31-Mar	100.0	70.8	35.3
Petroupoli	Greece	4th Junior High School of Petroupoli	38.036	23.674	31-Mar	100.1	66.4	33.6
Kuantan	Malaysia	SMK Saint Thomas	3.827	103.339	31-Mar	101.0	0.0	0.0
Anisacate	Argentina	Fundación Caminos de Anisacate	-31.717	-64.4	31-Mar	100.0	-70.0	-35.0

31-Mar		Ioannina	Petroupoli	Kuantan	Anisacate	
	Angle >	35.3	33.6	0.0	-35.0	
	Latitude V					
Ioannina	39.666		38329	40610	40614	CIR
Petroupoli	38.036	181		40725	40671	CUM
Kuantan	3.827	3982	3801		40618	FE
Anisacate	-31.717	7931	7750	3949		RENCE
			DISTANCE			

Commentaires
 Aucun commentaire