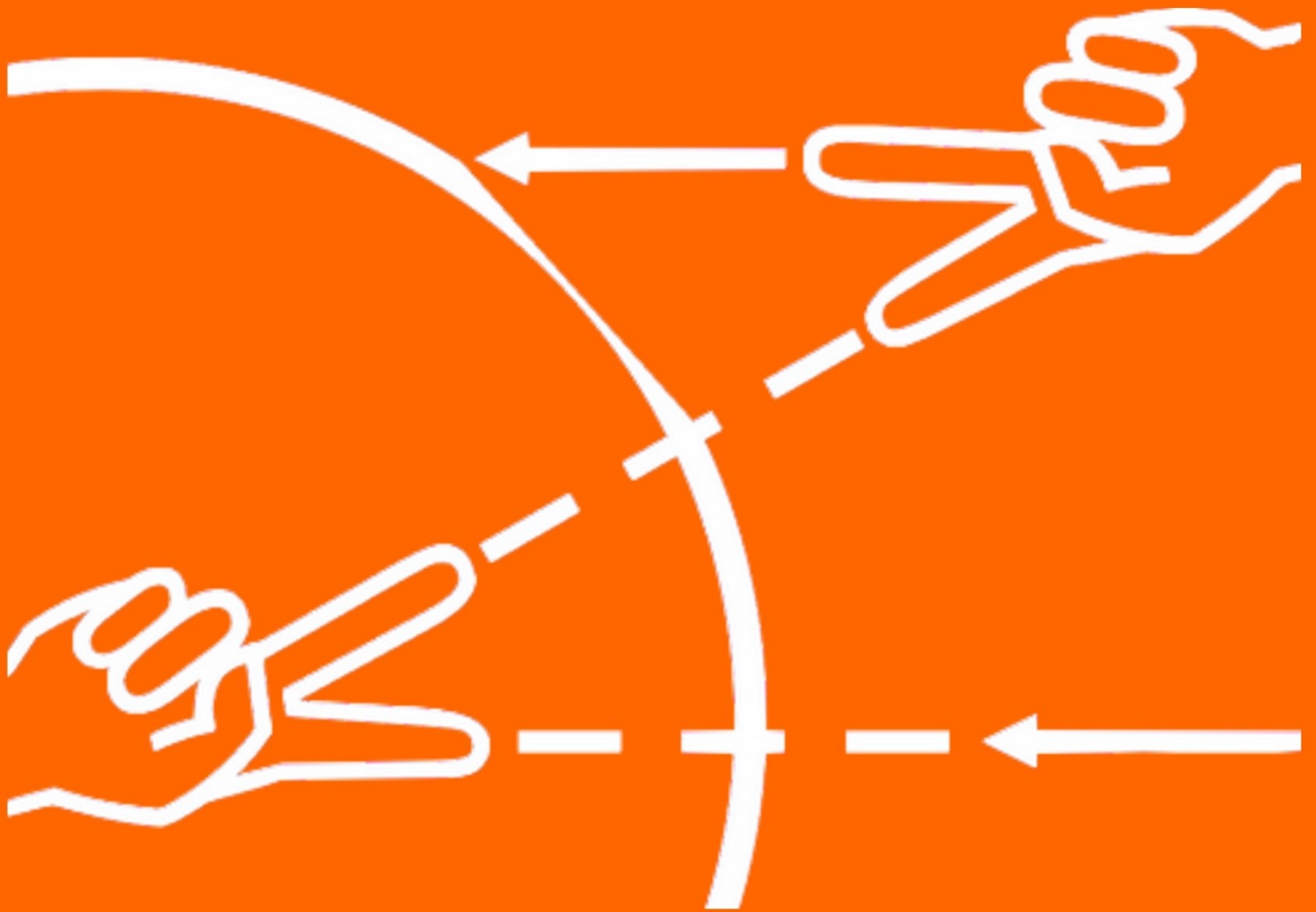


Eratosthenes



4 Continents

12 Countries

18 Schools

118 Measures

4 Continents

12 Countries

18 Schools

118 Measures

ARGENTINA (2)

Alta Gracia, Chivilcoy

BRAZIL (2)

Méier, Rio de Janeiro

COLOMBIA (1)

Guarne

FRANCE (1)

Lafrançaise

GERMANY (1)

Garmisch Partenkirchen

GREECE (3)

Aigio, Athens, Ilion

ITALY (1)

Merlara

INDIA (1)

Yamunanagar

ROMANIA (3)

Busteni, Dorohoi, Pogana

TUNISIA (1)

Bizerte

TURKEY (1)

Istanbul


UKRAINE (1)

Dnipropetrosvk

Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Aigio	Greece	1st High School of Aigio	38.252	22.079
	Alta Gracia	Argentina	Fundacion Caminos de Anisacate	-31.656	-64.414
	Athens	Greece	Experimental School Agion Anrgyron	38.027	23.726
	Bizerte	Tunisia	École primaire Raouebi	37.284	9.868
	Busteni	Romania	Scoala Gimnaziala Sanatoriala	45.416	25.535
	Chivilcoy	Argentina	Parque Cielos del Sur	-34.911	-60.014
	Dnipropetrosvk	Ukraine	#126 School	48.405	35.007
	Dorohoi	Romania	Grigore Ghica National College	47.953	26.934
	Garmisch Partenkirchen	Germany	St.-Irmengard-Gymnasium	47.493	11.102
	Guarne	Colombia	Grupo Astrofanáticos	6.274	-75.449
	Ilion	Greece	11th JuniorHigh School of Ilion	38.033	23.697
	Istanbul	Turkey	Zübeyde Hanım Secondary school	41.005	28.976
	Lafrançaise	France	Collège Antonin Perbosc	44.127	1.237
	Méier	Brazil	Escola Municipal Bento Ribeiro	-22.904	-43.280
	Merlara	Italy	Lower Secondary School "Dante Alighieri"	45.166	11.445
	Pogana	Romania	Scoala Gimnaziala Nr.1 Pogana	46.313	27.575
	Rio de Janeiro	Brazil	Centro Educacional Nosso Mundo	-22.890	-43.317
	Yamunanagar	India	C V Raman Science Club	30.133	77.283

Aigio, Greece




Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Aigio	Greece	1st High School of Aigio	38.252	22.079

Date	Gnomon	Shadow	Angle
03 February 2021	30.0cm	51.0cm	59.5°
12 February 2021	30.0cm	38.8cm	52.3°
19 February 2021	28.5cm	32cm	48.3°
24 February 2021	19.0cm	21.0cm	47.9°

03/02/2021 (Aigio-Greece) Latitude: 38.252°

03/02/2021 (Méier-Brazil) Latitude: -22.904°

 59.5° Aigio

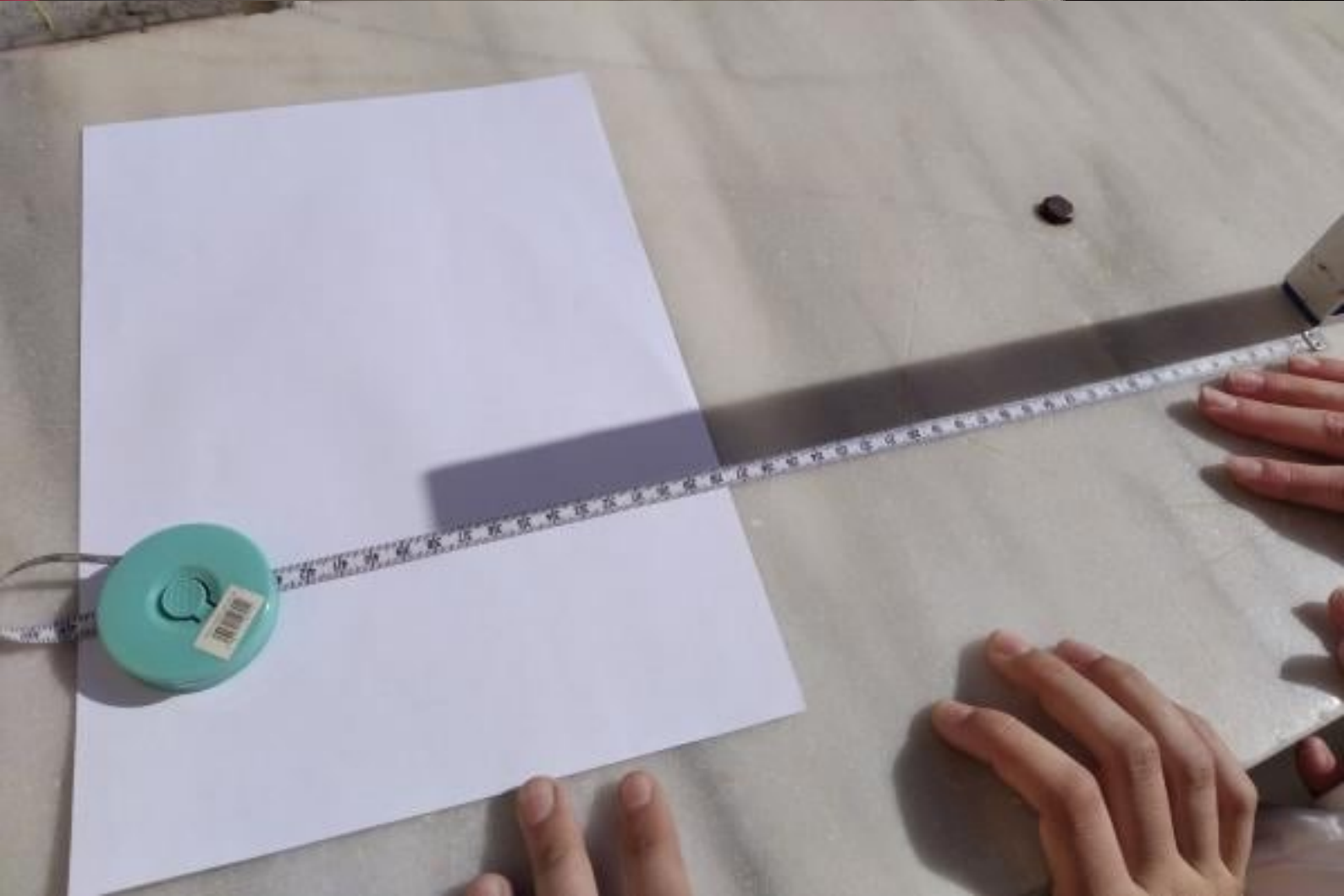
 2.3° Méier

6794km

Distance	Angle
circumference	360°
6794km	59.5° + 2.3°

circumference =

$$\frac{360^\circ \times 6794\text{km}}{59.5^\circ + 2.3^\circ} = 39577 \text{ km}$$



Alta Gracia, Argentina

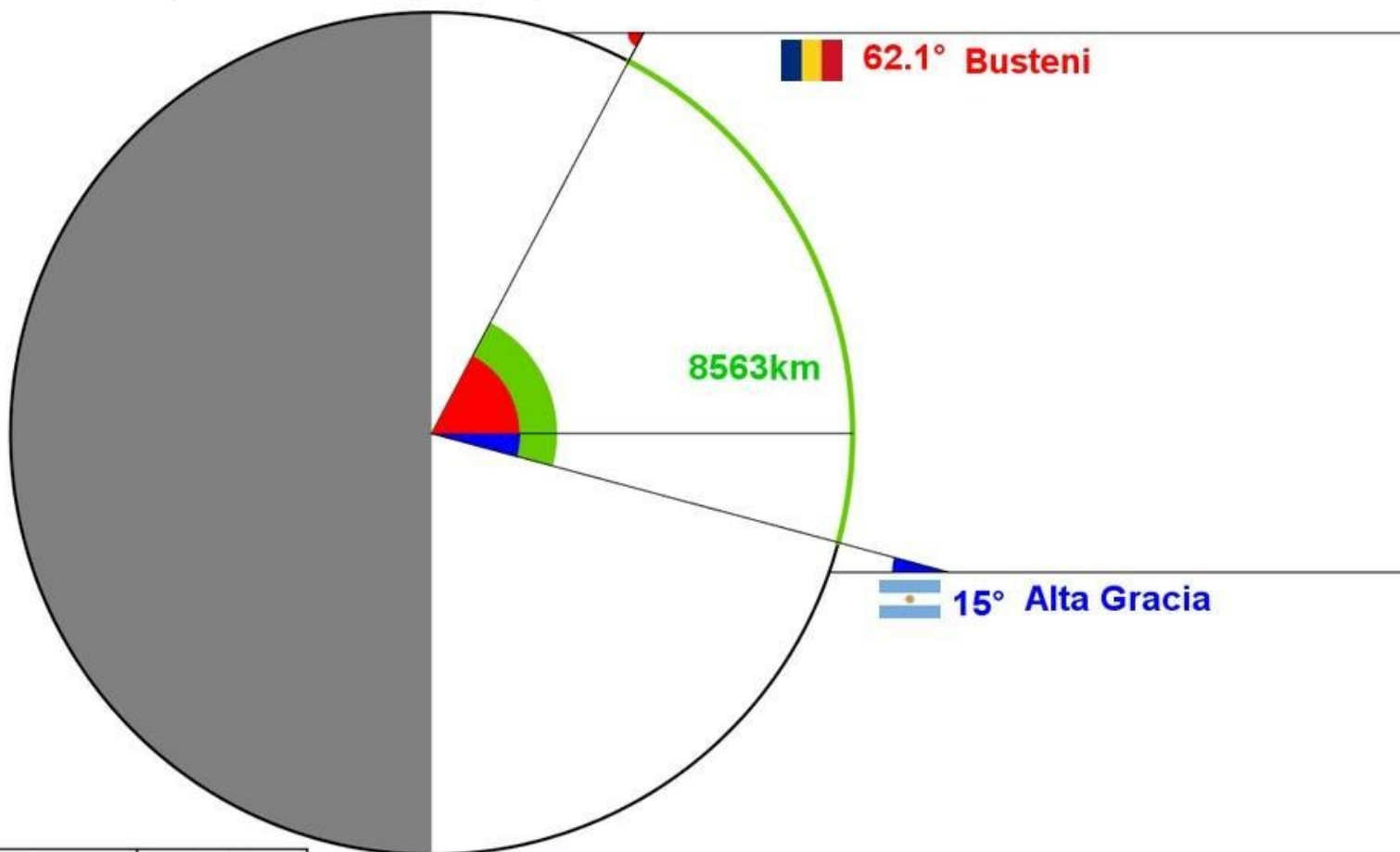


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Alta Gracia	Argentina	Fundacion Caminos de Anisacate	-31.656	-64.414

Date	Gnomon	Shadow	Angle
03 February 2021	17.5cm	-4.7cm	-15.0°
04 February 2021	17.5cm	-4.8cm	-15.3°
05 February 2021	17.5cm	-4.9cm	-15.6°
06 February 2021	17.5cm	-5.0cm	-15.9°
13 February 2021	17.5cm	-5.7cm	-18.0°
17 February 2021	17.5cm	-6.2cm	-19.5°
18 February 2021	17.5cm	-6.4cm	-20.1°
22 February 2021	17.5cm	-6.8cm	-21.2°
25 February 2021	17.5cm	-7.1cm	-22.1°
26 February 2021	17.5cm	-7.4cm	-22.9°

03/02/2021 (Busteni-Romania) Latitude: 45.416°

03/02/2021 (Alta Gracia-Argentina) Latitude: -31.656°



Distance	Angle
circumference	360°
8563km	62.1° + 15°

circumference = $\frac{360^\circ \times 8563\text{km}}{62.1^\circ + 15^\circ} = 39983 \text{ km}$



Athens, Greece

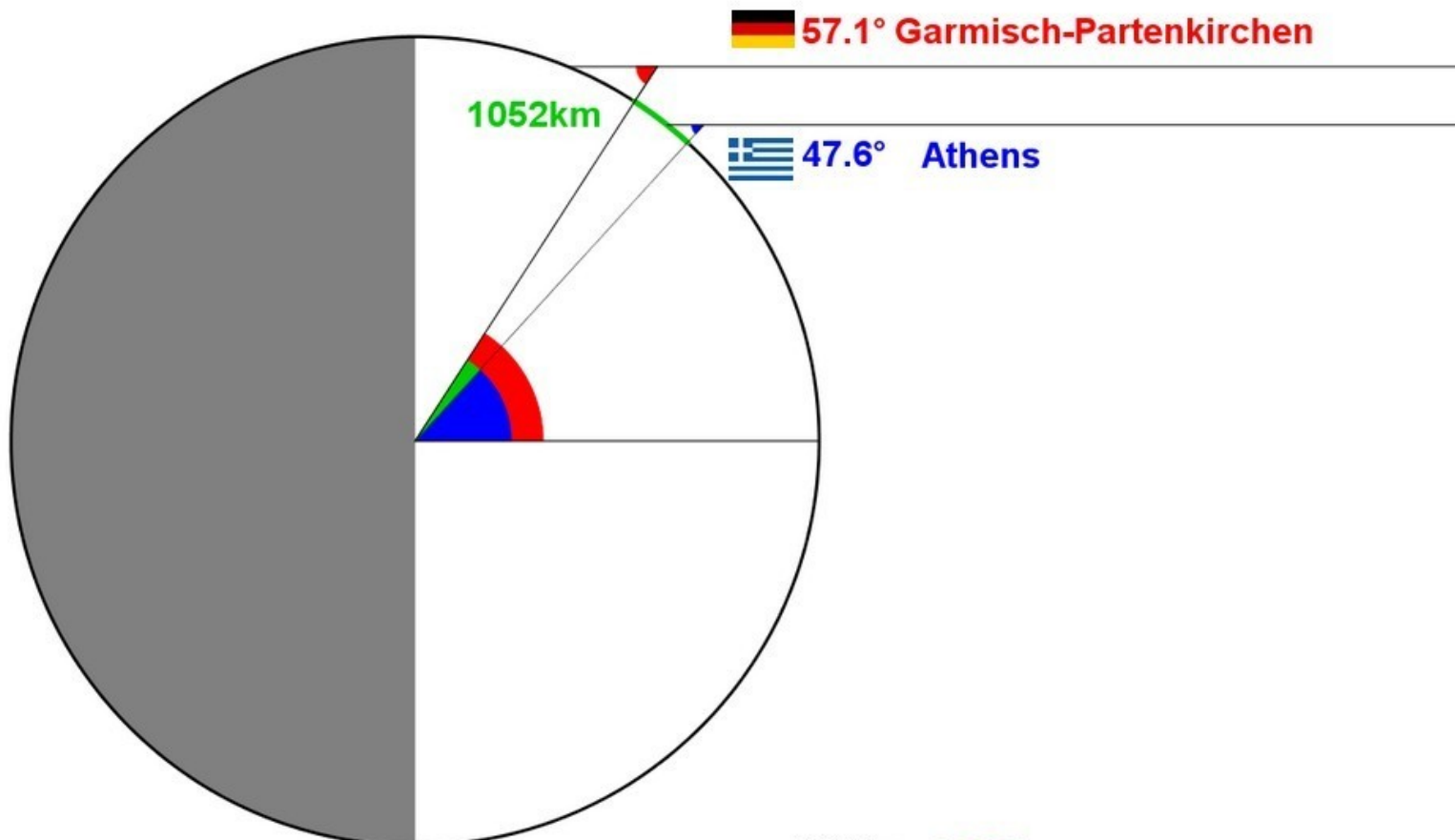


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Athens	Greece	Experimental School Agion Anrgyron	38.027	23.726

Date	Gnomon	Shadow	Angle
23 February 2021	13.7cm	15.0cm	47.6°
24 February 2021	15.2cm	16.5cm	47.3°

23/02/2021 (Garmisch-Partenkirchen-Germany) Latitude: 47.493°

23/02/2021 (Athens-Greece) Latitude: 38.027°

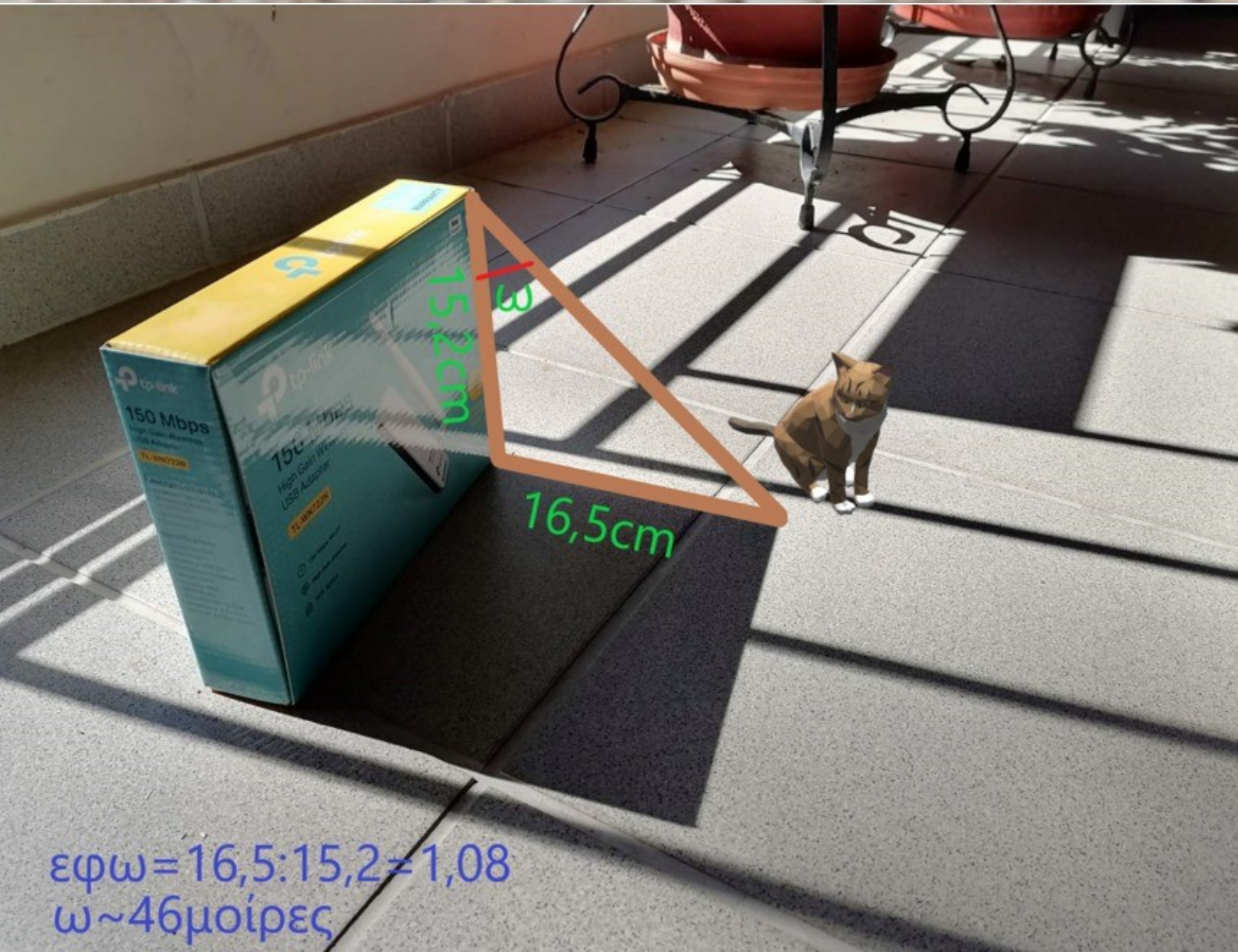
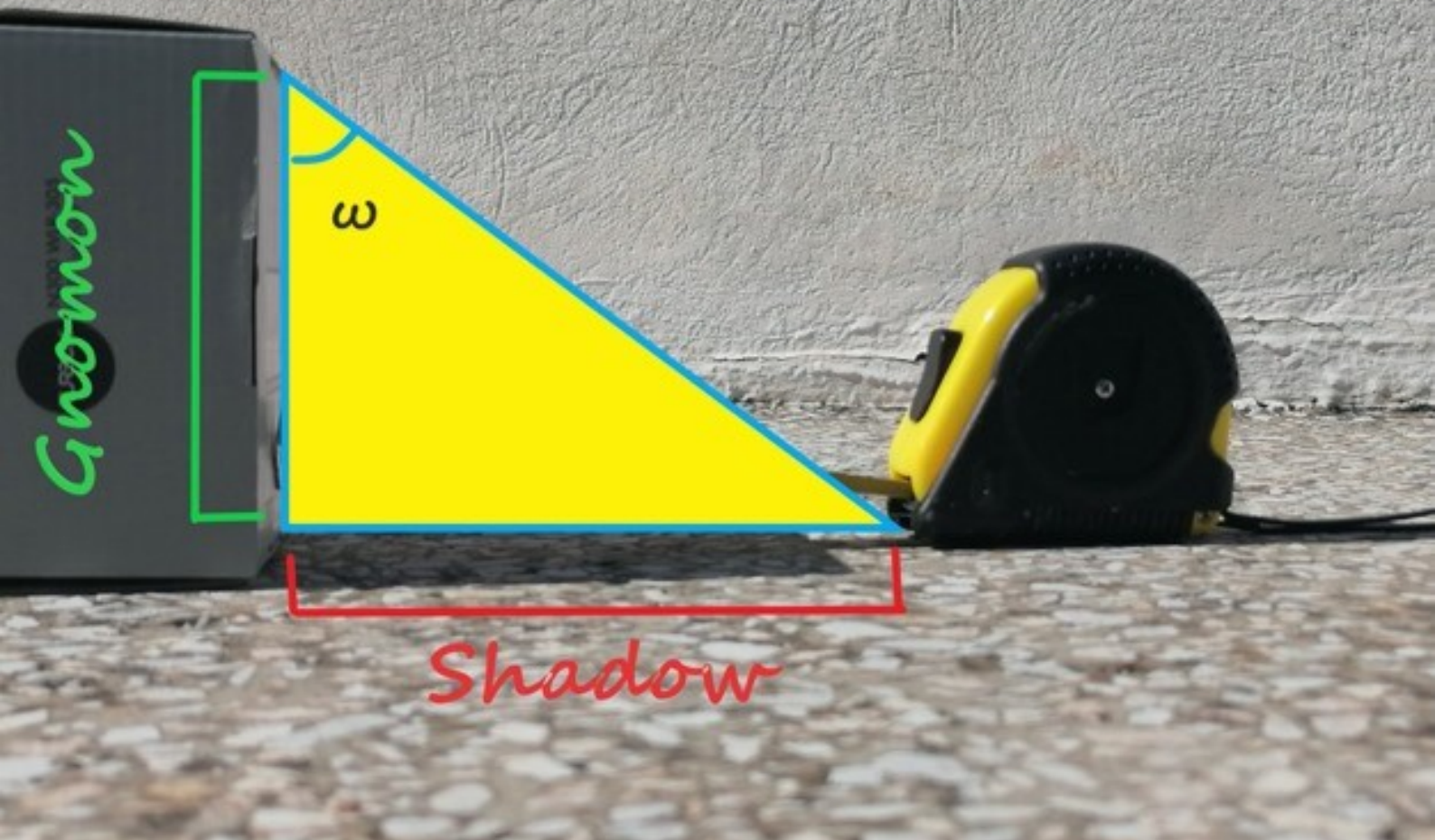


 57.1° Garmisch-Partenkirchen

 47.6° Athens

$$\text{circumference} = \frac{360^\circ \times 1052\text{km}}{57.1^\circ - 47.6^\circ} = 39865 \text{ km}$$

Distance	Angle
circumference	360°
1052km	57.1° - 47.6°



Bizerte, Tunisia

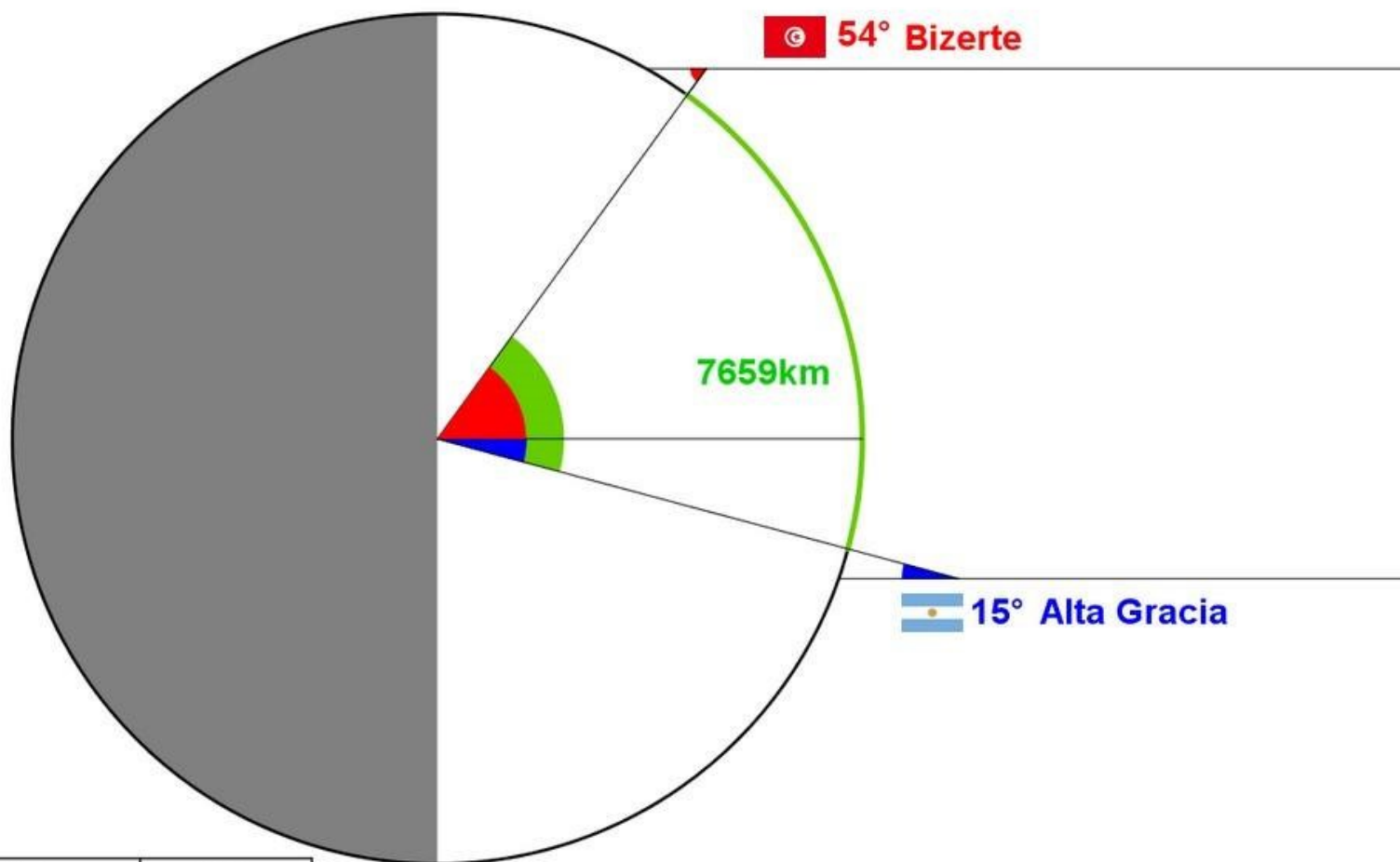


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Bizerte	Tunisia	École primaire Raouebi	37.284	9.868

Date	Gnomon	Shadow	Angle
03 February 2021	32.7cm	45.0cm	54.0°
04 February 2021	33.2cm	46.0cm	54.2°
06 February 2021	32.7cm	43.5cm	53.1°
12 February 2021	21.5cm	26.9cm	51.4°
17 February 2021	23.4cm	27.2cm	49.3°
18 February 2021	23.5cm	25.5cm	47.3°
19 February 2021	13.0cm	14.0cm	47.1°
24 February 2021	33cm	38cm	49°
26 February 2021	17.3cm	18.5cm	46.9°

03/02/2021 (Bizerte-Tunisia) Latitude: 37.284°

03/02/2021 (Alta Gracia-Argentina) Latitude: -31.656°



Distance	Angle
circumference	360°
7659km	54° + 15°

$$\text{circumference} = \frac{360^\circ \times 7659\text{km}}{54^\circ + 15^\circ} = 39960 \text{ km}$$



Busteni, Romania

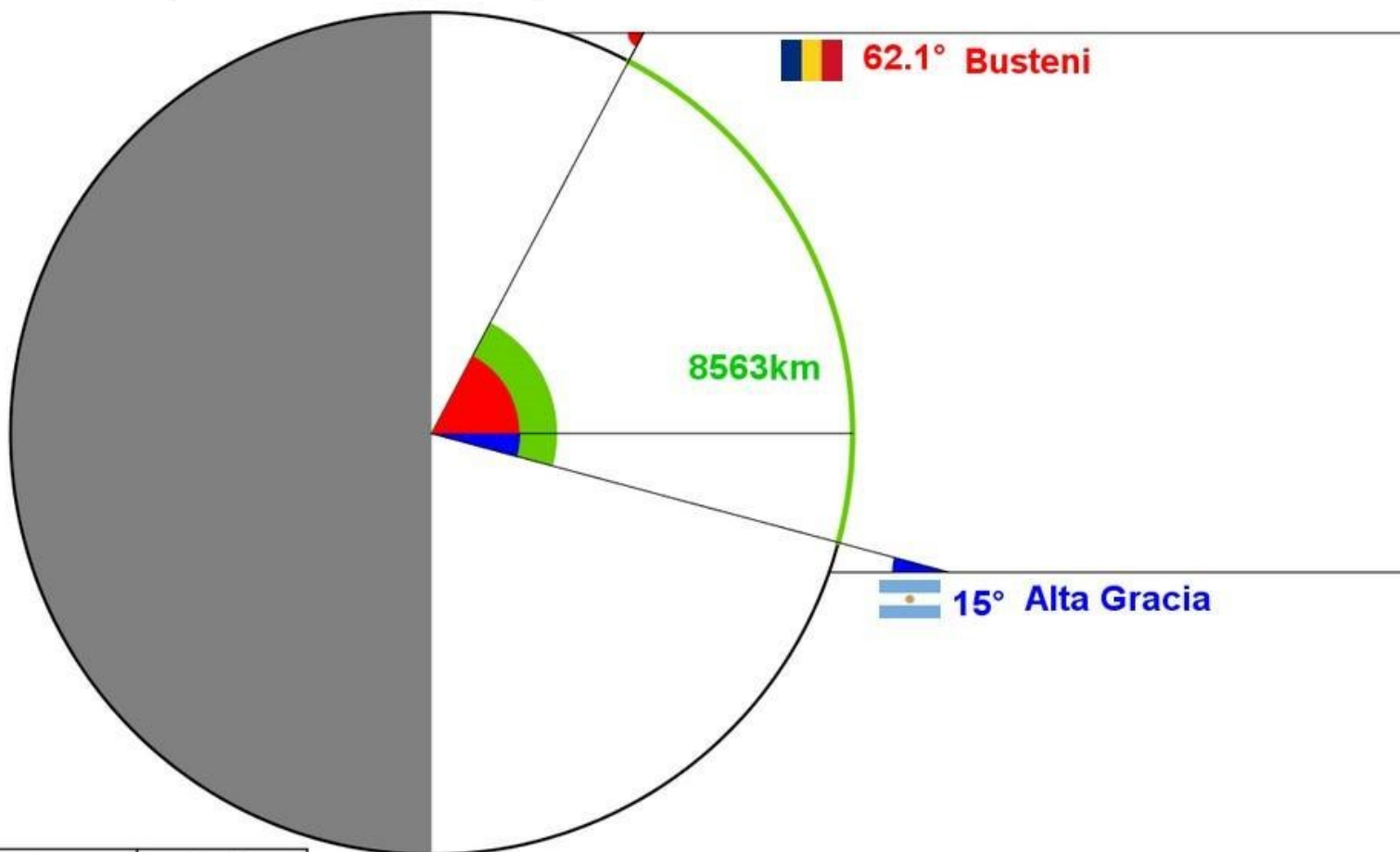


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Busteni	Romania	Scoala Gimnaziala Sanatoriala	45.416	25.535

Date	Gnomon	Shadow	Angle
01 February 2021	23.6cm	45.0cm	62.3°
03 February 2021	21.2cm	40.0cm	62.1°
04 February 2021	25.0cm	46.0cm	61.5°
05 February 2021	60.0cm	110.0cm	61.4°
09 February 2021	23.3cm	40.3cm	60.0°
10 February 2021	98.4cm	168.0cm	59.6°
15 February 2021	50.0cm	80.0cm	58.0°
19 February 2021	70.6cm	107.0cm	56.6°

03/02/2021 (Busteni-Romania) Latitude: 45.416°

03/02/2021 (Alta Gracia-Argentina) Latitude: -31.656°



Distance	Angle
circumference	360°
8563km	62.1° + 15°

$$\text{circumference} = \frac{360^\circ \times 8563\text{km}}{62.1^\circ + 15^\circ} = 39983 \text{ km}$$



Chivilcoy, Argentina

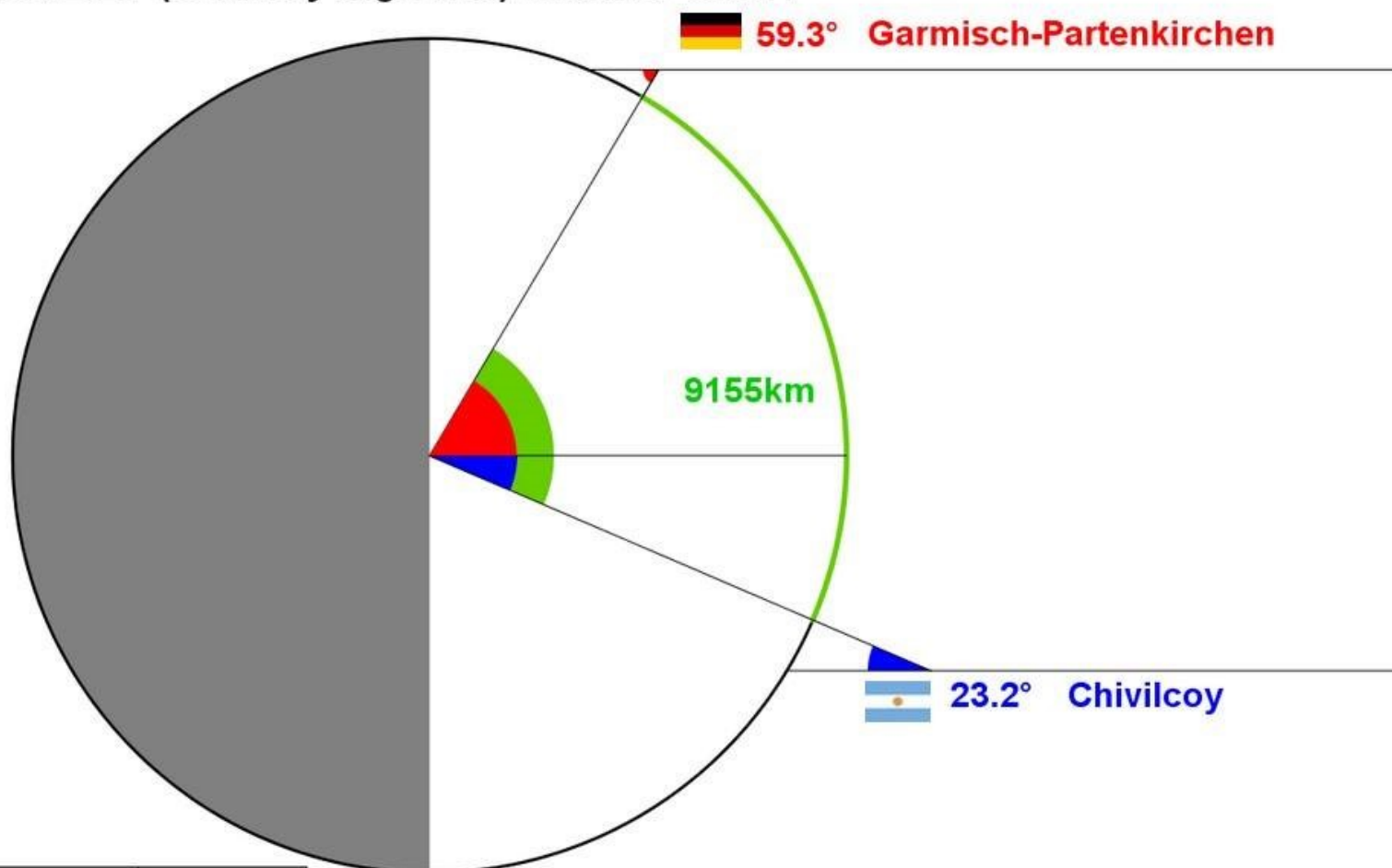


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Chivilcoy	Argentina	Parque Cielos del Sur	-34.911	-60.014

Date	Gnomon	Shadow	Angle
03 February 2021	22.6cm	-7.6cm	-18.6°
04 February 2021	184.0cm	-63.0cm	-18.9°
06 February 2021	46.0cm	-16.3cm	-19.5°
07 February 2021	44.7cm	-16.1cm	-19.8°
12 February 2021	60.7cm	-23.8cm	-21.4°
17 February 2021	18.9cm	-8.1cm	-23.2°
18 February 2021	37.0cm	-16.1cm	-23.5°
20 February 2021	21.1cm	-9.5cm	-24.2°

17/02/2021 (Garmisch-Partenkirchen-Germany) Latitude: 47.493°

17/02/2021 (Chivilcoy-Argentina) Latitude: -34.911°



Distance	Angle
circumference	360°
9155km	59.3° + 23.2°

$$\text{circumference} = \frac{360^\circ \times 9155\text{km}}{59.3^\circ + 23.2^\circ} = 39949 \text{ km}$$



Dnipropetrosvk, Ukraine

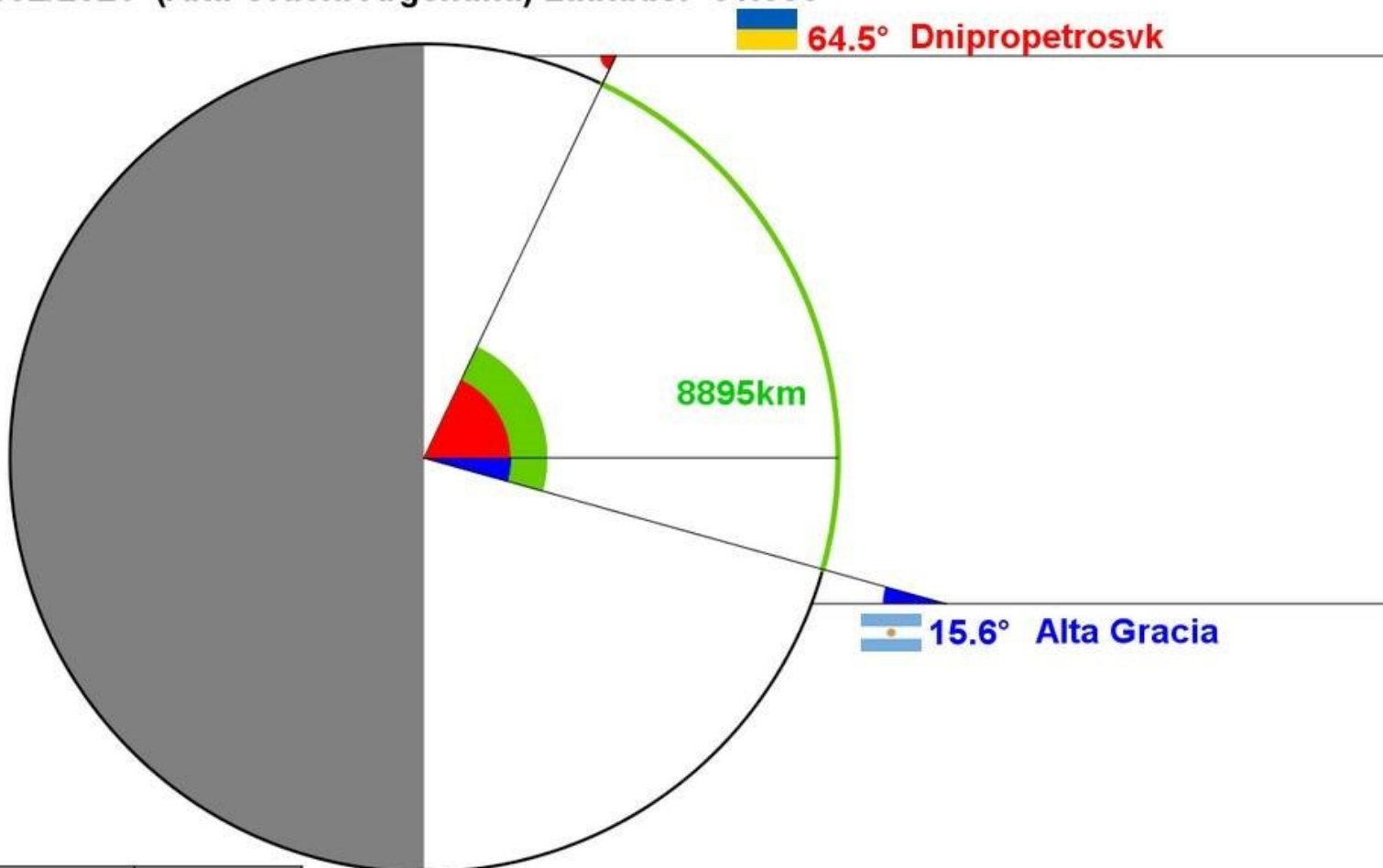


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Dnipropetrosvk	Ukraine	#126 School	48.405	35.007

Date	Gnomon	Shadow	Angle
05 February 2021	24.0cm	50.4cm	64.5°
23 February 2021	24cm	40cm	59°

05/02/2021 (Dnipropetrosvk-Ukraine) Latitude: 48.405°

05/02/2021 (Alta Gracia-Argentina) Latitude: -31.656°




Distance	Angle
circumference	360°
8895km	64.5° + 15.6°

$$\text{circumference} = \frac{360^\circ \times 8895\text{km}}{64.5^\circ + 15.6^\circ} = 39978 \text{ km}$$



Dorohoi, Romania

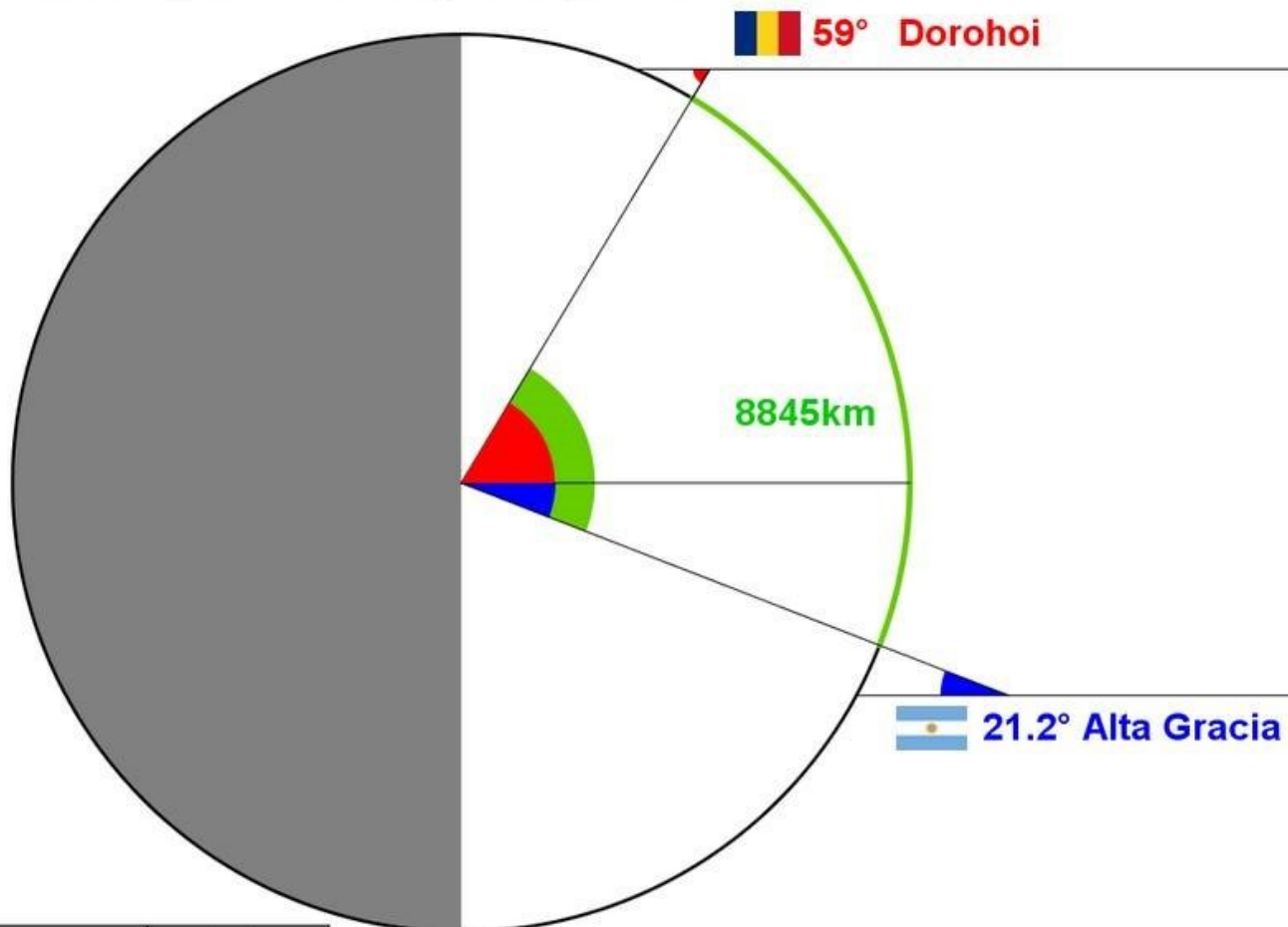


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Dorohoi	Romania	Grigore Ghica National College	47.953	26.934

Date	Gnomon	Shadow	Angle
10 February 2021	12.0cm	24.0cm	63.4°
22 February 2021	24.0cm	40.0cm	59.0°

22/02/2021 (Dorohoi-Romania) Latitude: 47.953°

22/02/2021 (Alta Gracia-Argentina) Latitude: -31.656°



Distance	Angle
circumference	360°
8845km	59° + 21.2°

$$\text{circumference} = \frac{360^\circ \times 8845\text{km}}{59^\circ + 21.2^\circ} = 39703 \text{ km}$$



Garmisch Partenkirchen, Germany

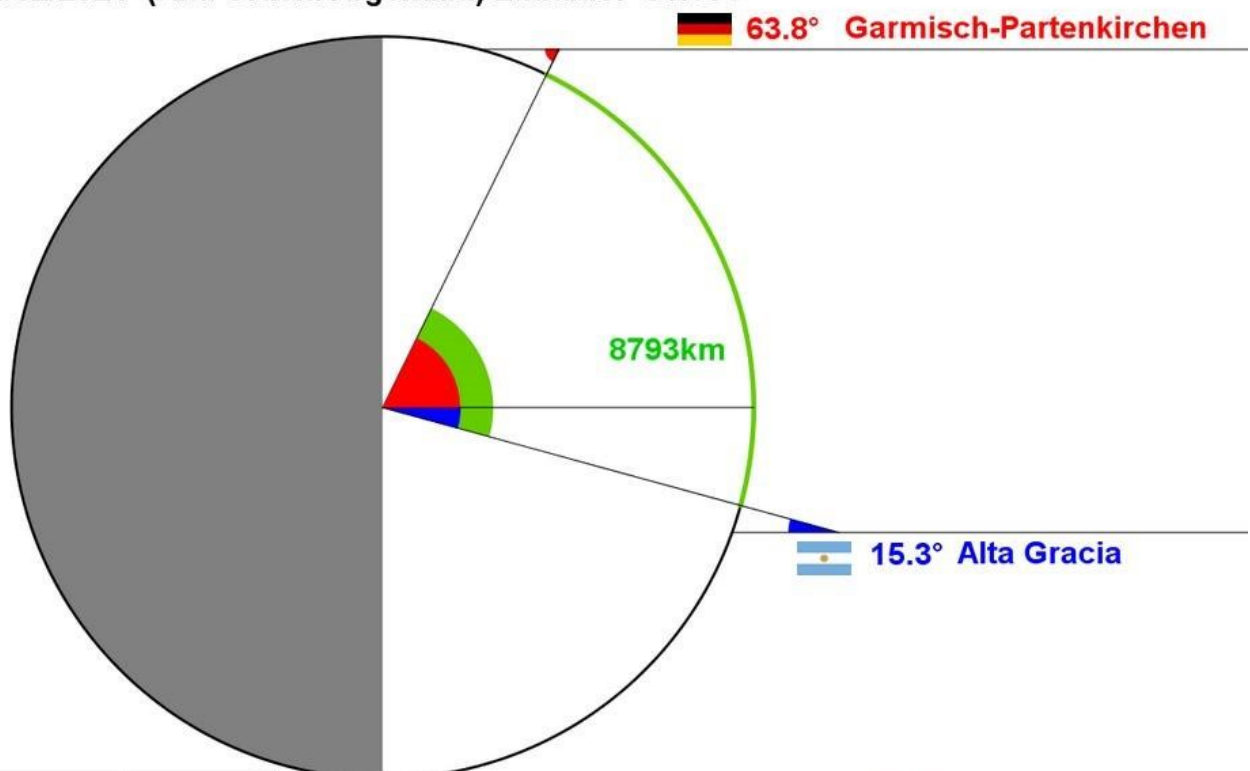


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Garmisch Partenkirchen	Germany	St.-Irmengard-Gymnasium	47.493	11.102

Date	Gnomon	Shadow	Angle
04 February 2021	14.0cm	28.5cm	63.8°
05 February 2021	23.0cm	46.0cm	63.4°
06 February 2021	28.0cm	56.0cm	63.4°
07 February 2021	14.0cm	27.5cm	63.0°
12 February 2021	9.3cm	17.0cm	61.3°
13 February 2021	6.9cm	12.4cm	60.9°
14 February 2021	16.3cm	29.0cm	60.7°
17 February 2021	30.0cm	50.5cm	59.3°
18 February 2021	29.5cm	50.0cm	59.5°
20 February 2021	14cm	23.5cm	59.2°
21 February 2021	14.0cm	22.5cm	58.1°
22 February 2021	14.0cm	22.0cm	57.5°
23 February 2021	17.5cm	27.0cm	57.1°
24 February 2021	18.5cm	28.5cm	57.0°
26 February 2021	19cm	28.3cm	56.1°

04/02/2021 (Garmisch-Partenkirchen-Germany) Latitude: 47.493°

04/02/2021 (Alta Gracia-Argentina) Latitude: -31.656°




Distance	Angle
circumference	360°
8793km	63.8° + 15.3°

$$\text{circumference} = \frac{360^\circ \times 8793\text{km}}{63.8^\circ + 15.3^\circ} = 40019 \text{ km}$$



Guarne, Colombia

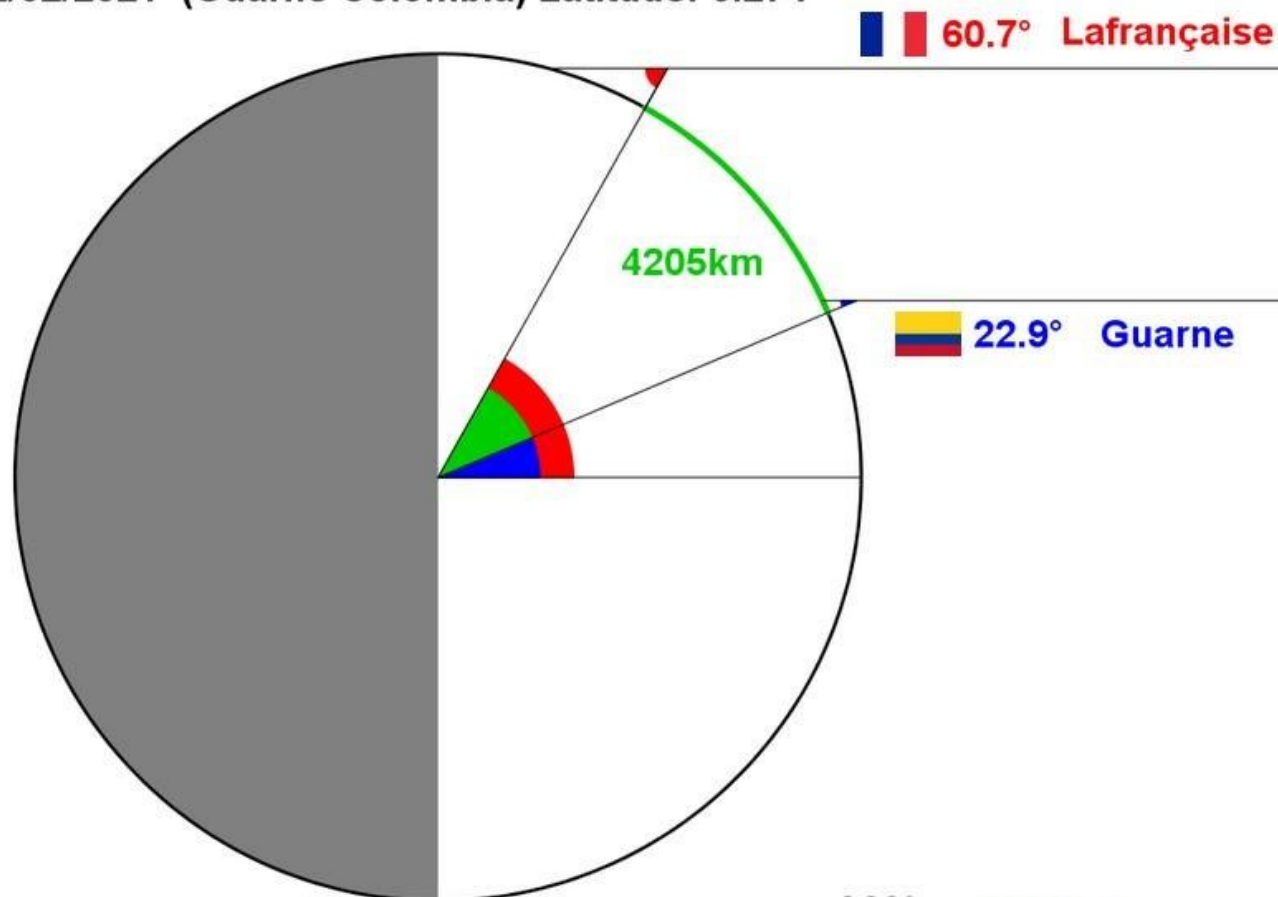


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Guarne	Colombia	Grupo Astrofanáticos	6.274	-75.449

Date	Gnomon	Shadow	Angle
02 February 2021	10.4cm	4.4cm	22.9°
05 February 2021	10.4cm	4.1cm	21.5°
10 February 2021	10.4cm	3.7cm	19.6°
25 February 2021	10.4cm	2.9cm	15.6°

02/02/2021 (Lafrançaise-France) Latitude: 44.127°

02/02/2021 (Guarne-Colombia) Latitude: 6.274°



Distance	Angle
circumference	360°
4205km	60.7° - 22.9°

$$\text{circumference} = \frac{360^\circ \times 4205\text{km}}{60.7^\circ - 22.9^\circ} = 40048 \text{ km}$$



Ilion, Greece

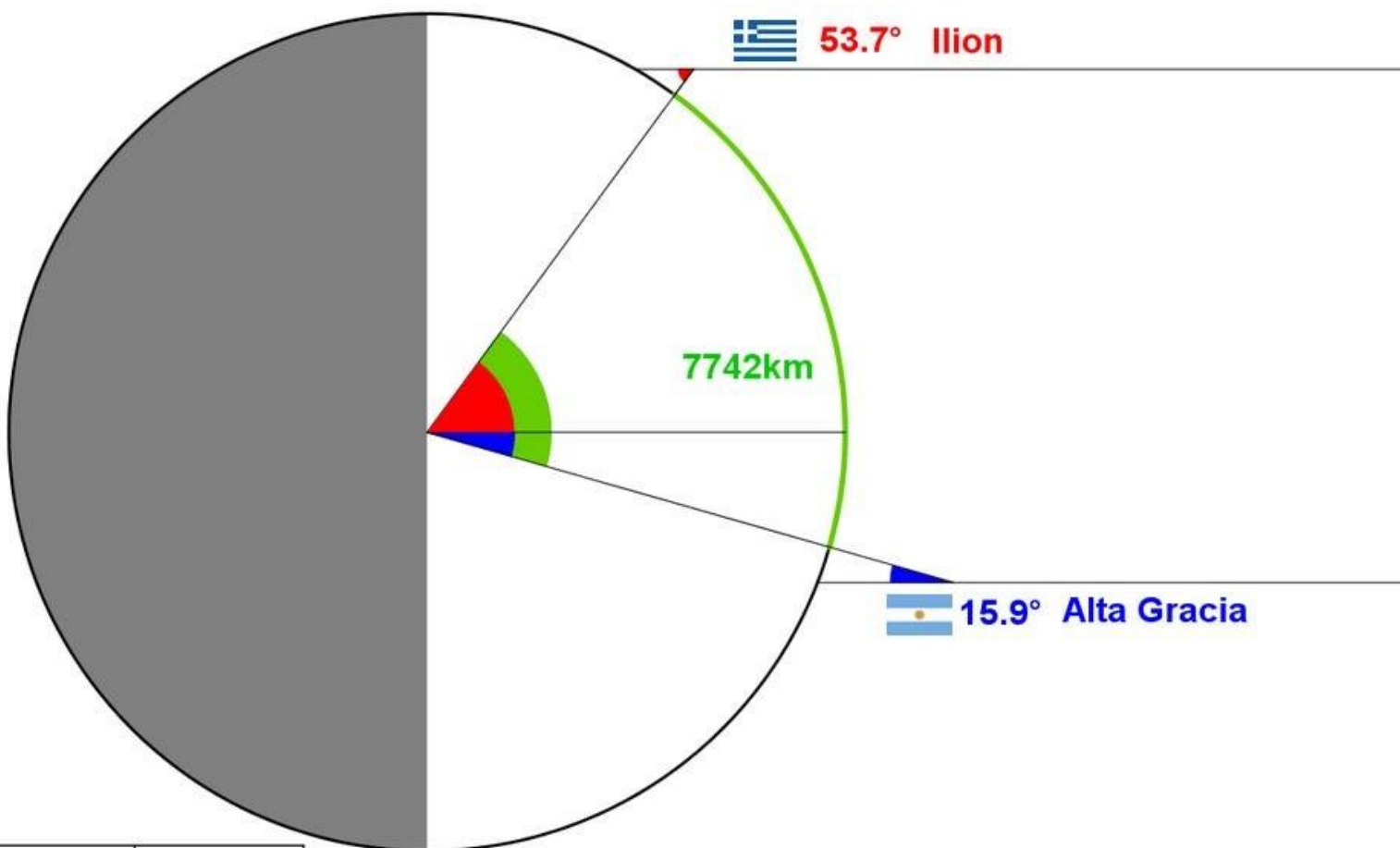


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Ilion	Greece	11th JuniorHigh School of Ilion	38.033	23.697

Date	Gnomon	Shadow	Angle
05 February 2021	40.0cm	54.7cm	53.8°
06 February 2021	19.5cm	26.5cm	53.7°
09 February 2021	40.0cm	52.0cm	52.4°
10 February 2021	40.0cm	51.8cm	52.3°
11 February 2021	14.4cm	18.1cm	51.5°
17 February 2021	24.5cm	29.2cm	50.0°
19 February 2021	37.4cm	43.2cm	49.1°
22 February 2021	25.0cm	28cm	48.2°
24 February 2021	11.5cm	12.3cm	46.9°
25 February 2021	12.7cm	13.6cm	47°
26 February 2021	14.6cm	15.2cm	46.2°

06/02/2021 (Ilion-Greece) Latitude: 38.033°

06/02/2021 (Alta Gracia-Argentina) Latitude: -31.656°




Distance	Angle
circumference	360°
7742km	53.7° + 15.9°

$$\text{circumference} = \frac{360^\circ \times 7742\text{km}}{53.7^\circ + 15.9^\circ} = 40045 \text{ km}$$



Istanbul, Turkey

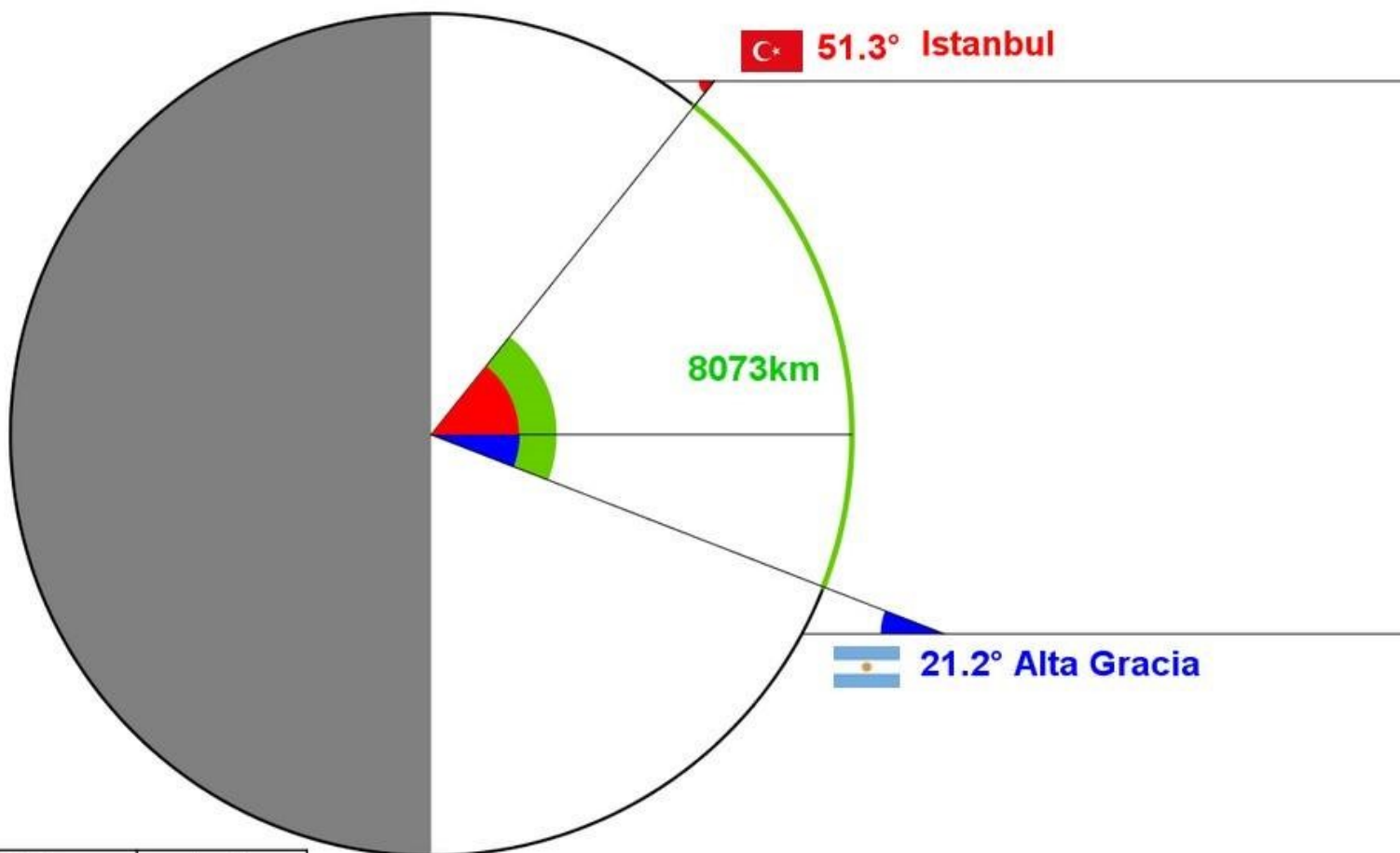


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Istanbul	Turkey	Zübeyde Hanım Secondary school	41.005	28.976

Date	Gnomon	Shadow	Angle
02 February 2021	93.0cm	25.0cm	15.0°
03 February 2021	106.0cm	43.0cm	22.1°
04 February 2021	40.0cm	18.5cm	24.8°
05 February 2021	43.0cm	22.5cm	27.6°
06 February 2021	6.5cm	4.5cm	34.7°
07 February 2021	20.0cm	6.0cm	16.7°
11 February 2021	55.0cm	35.0cm	32.5°
20 February 2021	19cm	32cm	59.3°
21 February 2021	14cm	26cm	61.7°
22 February 2021	32.0cm	40.0cm	51.3°
23 February 2021	25cm	30cm	50.2°
26 February 2021	30cm	36cm	50.2°

22/02/2021 (Istanbul-Turkey) Latitude: 41.005°

22/02/2021 (Alta Gracia-Argentina) Latitude: -31.656°




Distance	Angle
circumference	360°
8073km	51.3° + 21.2°

$$\text{circumference} = \frac{360^\circ \times 8073\text{km}}{51.3^\circ + 21.2^\circ} = 40087 \text{ km}$$



Lafrançaise, France

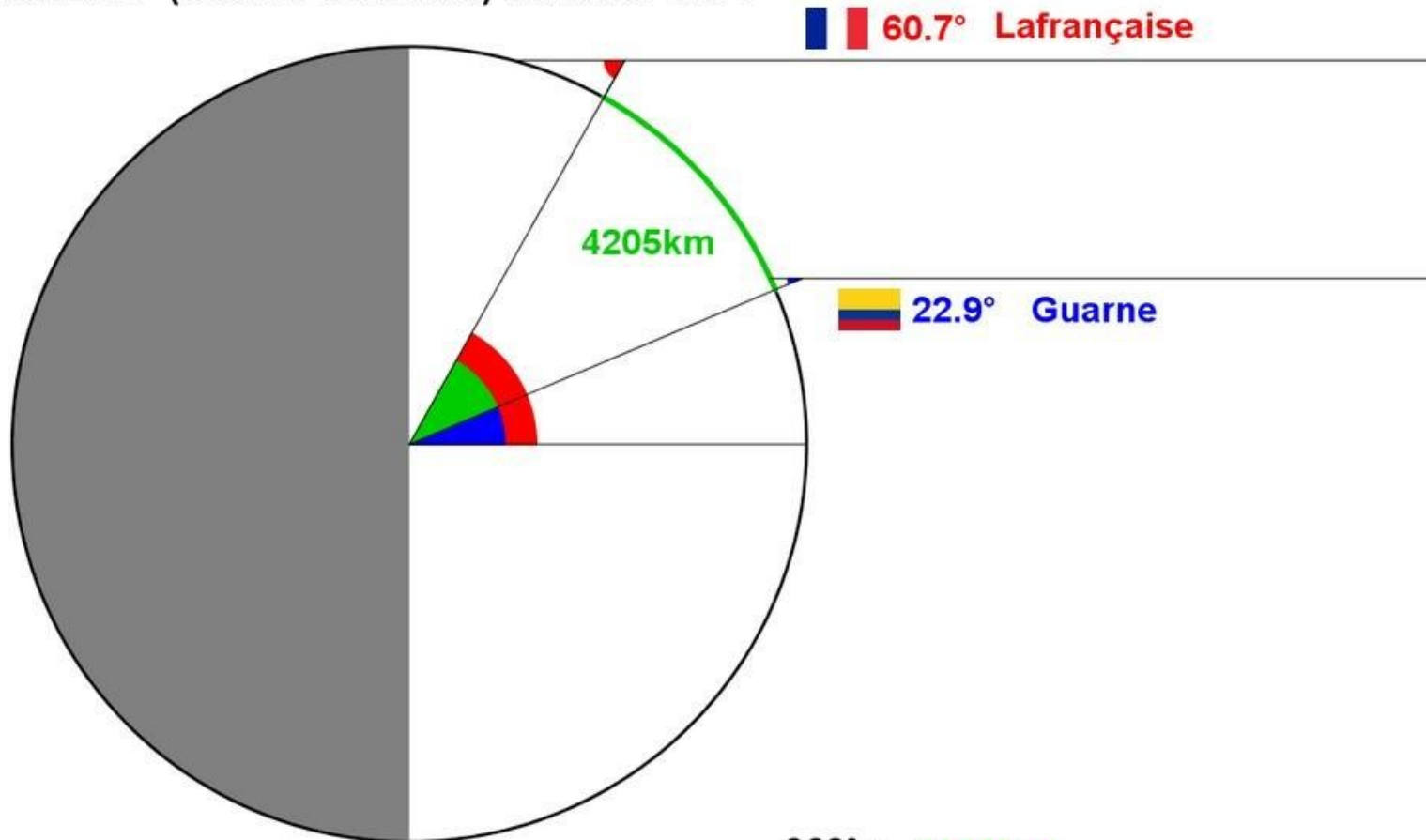


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Lafrançaise	France	Collège Antonin Perbosc	44.127	1.237

Date	Gnomon	Shadow	Angle
02 February 2021	100.0cm	178.0cm	60.7°
04 February 2021	100.0cm	172.7cm	59.9°
05 February 2021	100.0cm	171.8cm	59.8°
11 February 2021	100.0cm	157.5cm	57.6°

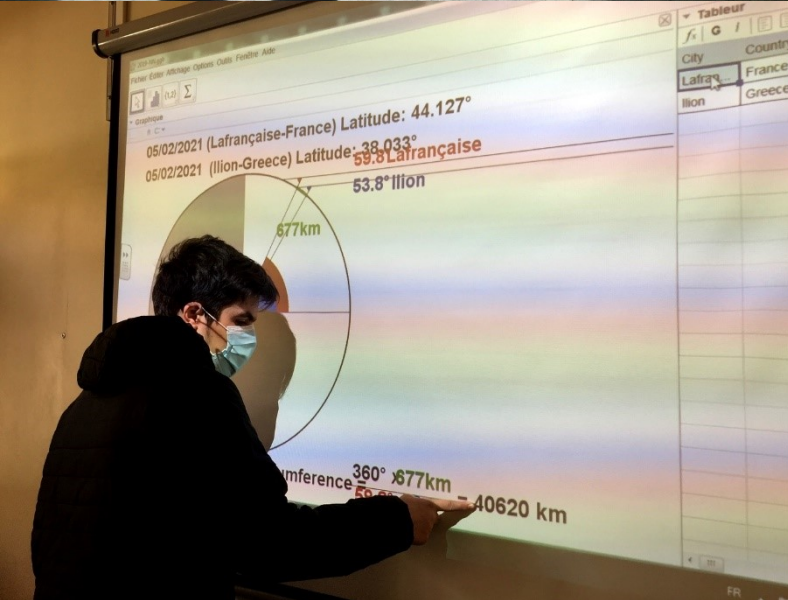
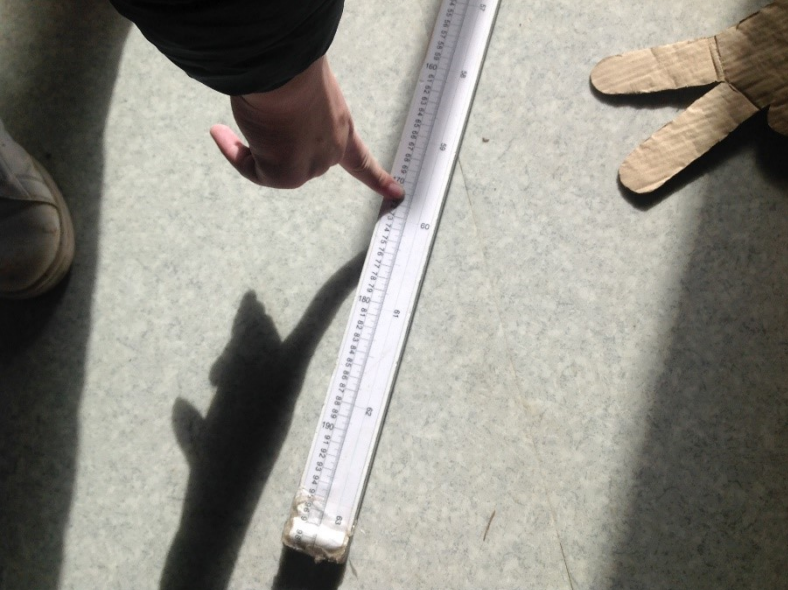
02/02/2021 (Lafrançaise-France) Latitude: 44.127°

02/02/2021 (Guarne-Colombia) Latitude: 6.274°




Distance	Angle
circumference	360°
4205km	60.7° - 22.9°

$$\text{circumference} = \frac{360^\circ \times 4205\text{km}}{60.7^\circ - 22.9^\circ} = 40048 \text{ km}$$



Méier, Brazil

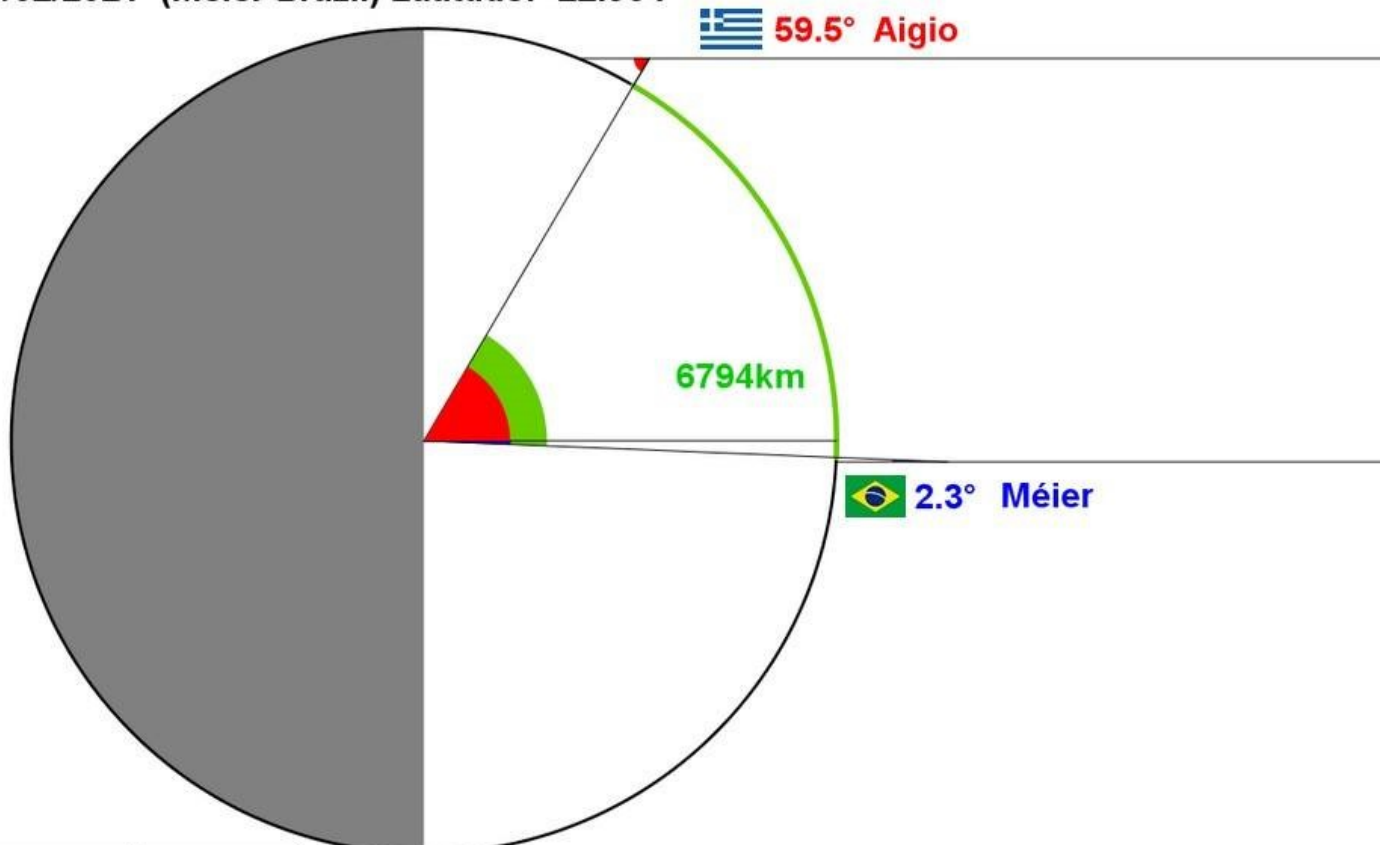


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Méier	Brazil	Escola Municipal Bento Ribeiro	-22.904	-43.280

Date	Gnomon	Shadow	Angle
01 February 2021	5.0cm	-0.2cm	-2.3°
02 February 2021	21.0cm	-3.0cm	-8.1°
03 February 2021	5.0cm	-0.2cm	-2.3°
04 February 2021	30.0cm	-2.0cm	-3.8°
05 February 2021	10.0cm	-0.5cm	-2.9°
10 February 2021	16.0cm	-1.0cm	-3.6°
12 February 2021	16.0cm	-1.0cm	-3.6°
14 February 2021	17.0cm	-2.0cm	-6.7°
15 February 2021	19.0cm	-1.5cm	-4.5°
20 February 2021	18.0cm	-2.0cm	-6.3°
22 February 2021	20.0cm	-3.0cm	-8.5°
23 February 2021	31.0cm	-3.0cm	-5.5°
24 February 2021	18cm	-1.5cm	-4.8°

03/02/2021 (Aigio-Greece) Latitude: 38.252°

03/02/2021 (Méier-Brazil) Latitude: -22.904°



Distance	Angle
circumference	360°
6794km	59.5° + 2.3°

$$\text{circumference} = \frac{360^\circ \times 6794\text{km}}{59.5^\circ + 2.3^\circ} = 39577 \text{ km}$$



Merlara, italy

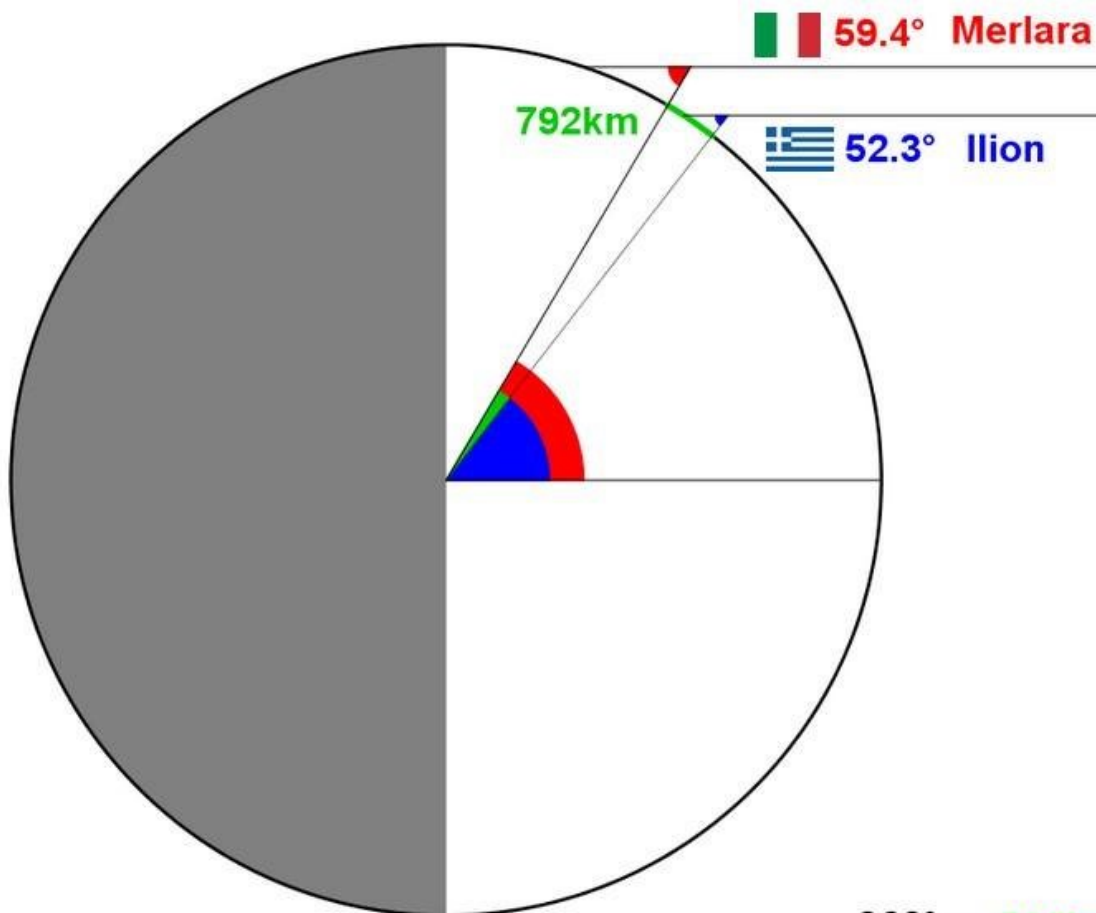


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Merlara	Italy	Lower Secondary School "Dante Alighieri"	45.166	11.445

Date	Gnomon	Shadow	Angle
08 February 2021	100.0cm	170.0cm	59.5°
10 February 2021	100.0cm	169.0cm	59.4°

10/02/2021 (Merlara-Italy) Latitude: 45.166°

10/02/2021 (Ilion-Greece) Latitude: 38.033°




Distance	Angle
circumference	360°
792km	59.4° - 52.3°

$$\text{circumference} = \frac{360^\circ \times 792\text{km}}{59.4^\circ - 52.3^\circ} = 40158 \text{ km}$$



Pogana, Romania

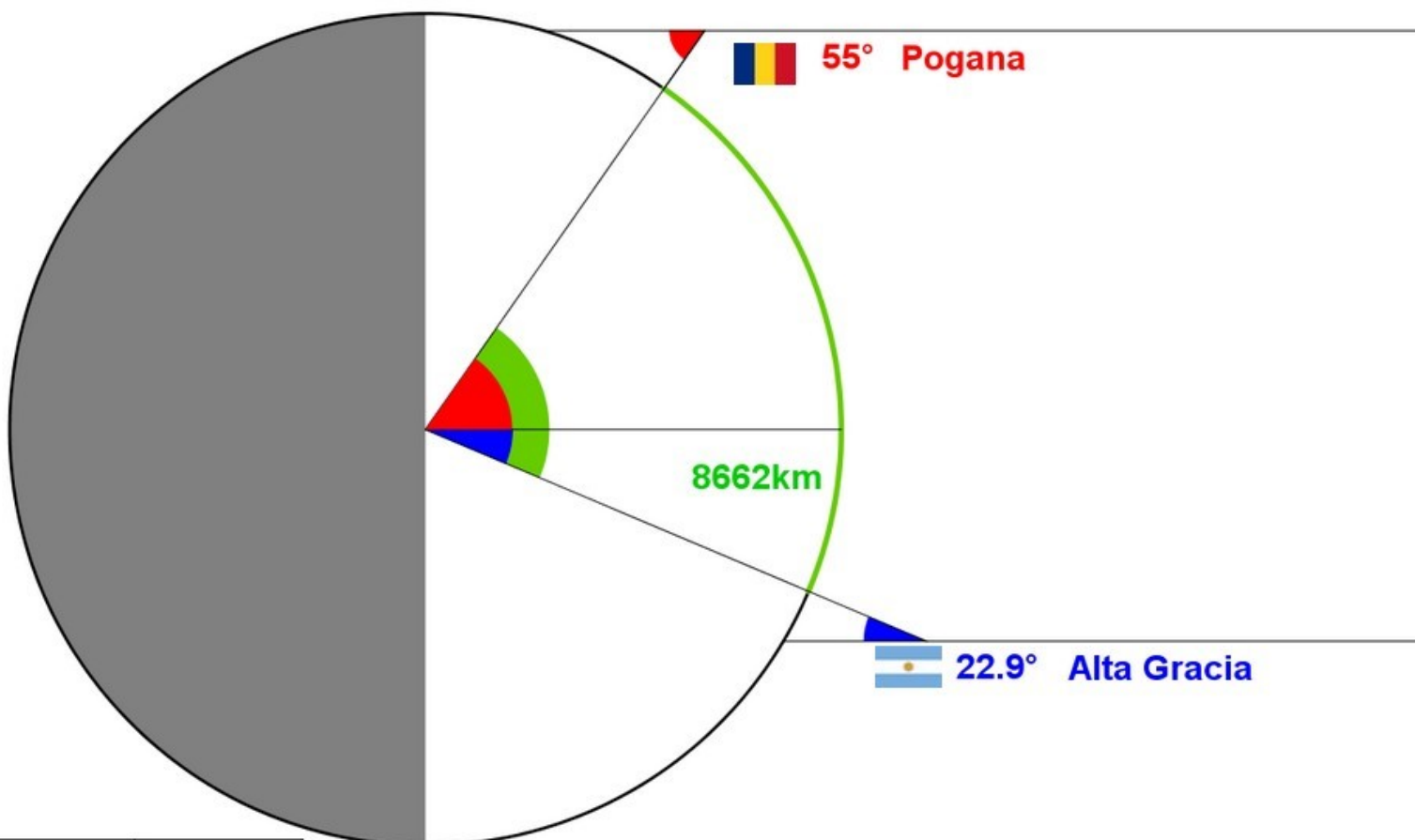


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Pogana	Romania	Scoala Gimnaziala Nr.1 Pogana	46.313	27.575

Date	Gnomon	Shadow	Angle
24 February 2021	39.5cm	58.0cm	55.7°
25 February 2021	39.5cm	57cm	55.3°
26 February 2021	39.5cm	56.5cm	55°

26/02/2021 (Pogana-Romania) Latitude: 46.313°

26/02/2021 (Alta Gracia-Argentina) Latitude: -31.656°




Distance	Angle
circumference	360°
8662km	55° + 22.9°

$$\text{circumference} = \frac{360^\circ \times 8662\text{km}}{55^\circ + 22.9^\circ} = 40030 \text{ km}$$



Rio de Janeiro CENOM, Brazil

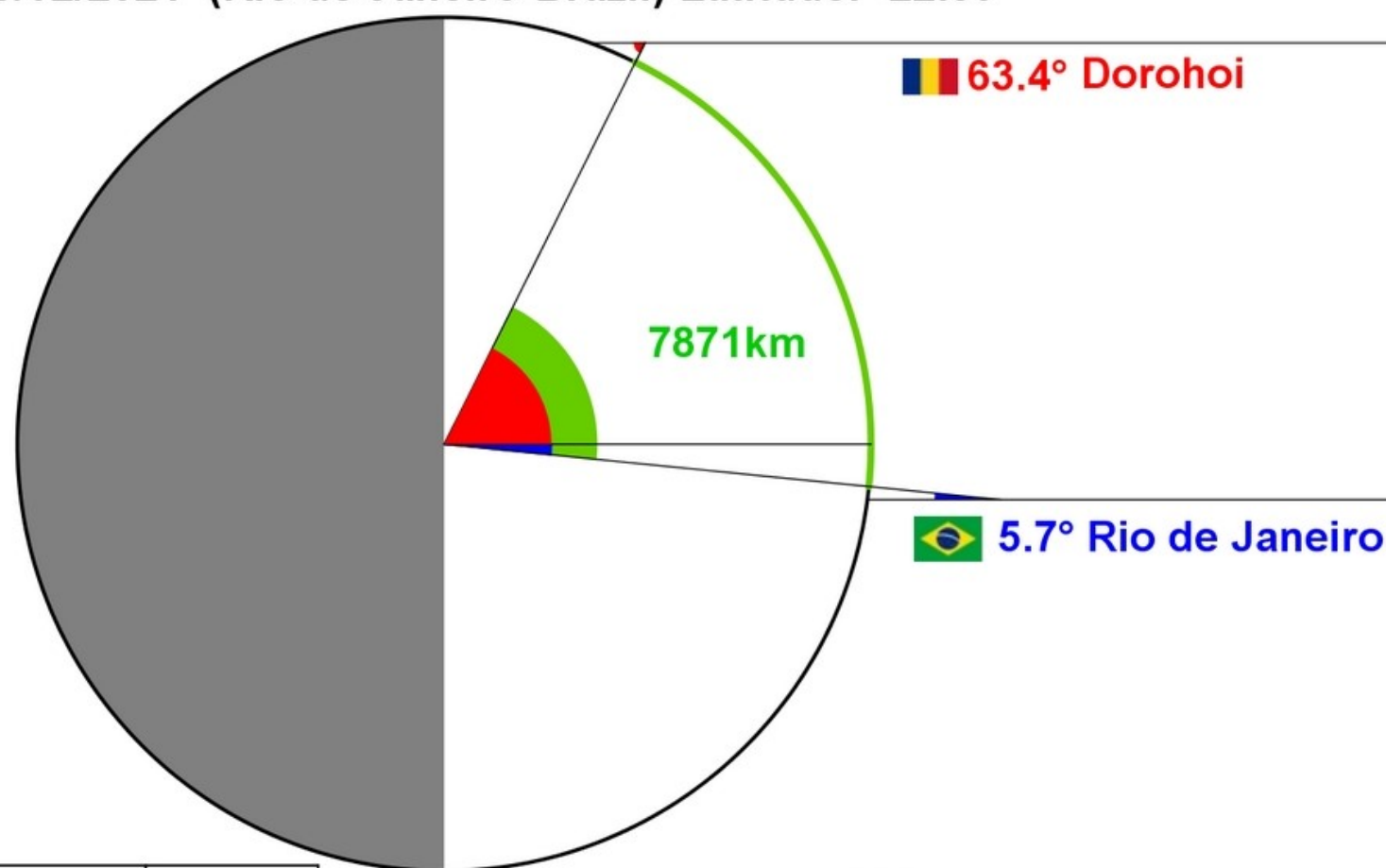


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Rio de Janeiro	Brazil	Centro Educacional Nosso Mundo	-22.890	-43.317

Date	Gnomon	Shadow	Angle
01 February 2021	20.0cm	-0.7cm	-2.0°
04 February 2021	20.0cm	-1.0cm	-2.9°
09 February 2021	20.0cm	-2.0cm	-5.7°
10 February 2021	20.0cm	-2.0cm	-5.7°
11 February 2021	20.0cm	-2.0cm	-5.7°
12 February 2021	20.0cm	-2.0cm	-5.7°
19 February 2021	20.0cm	-3.0cm	-8.5°
20 February 2021	20cm	-1.5cm	-4.3°

10/02/2021 (Dorohoi-Romania) Latitude: 47.953°

10/02/2021 (Rio de Janeiro-Brazil) Latitude: -22.89°



Distance	Angle
circumference	360°
7871km	63.4°+5.7°

$$\text{circumference} = \frac{360^\circ \times 7871\text{km}}{63.4^\circ + 5.7^\circ} = 41007 \text{ km}$$



Yamunanagar, India



Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Yamunanagar	India	C V Raman Science Club	30.133	77.283

Date	Gnomon	Shadow	Angle
28 February 2021	50cm	39.1cm	38°





VIPNET

(Vigyan Prasar NETWORK of Science Clubs)
Department of Science and Technology (DST), Government of India.

