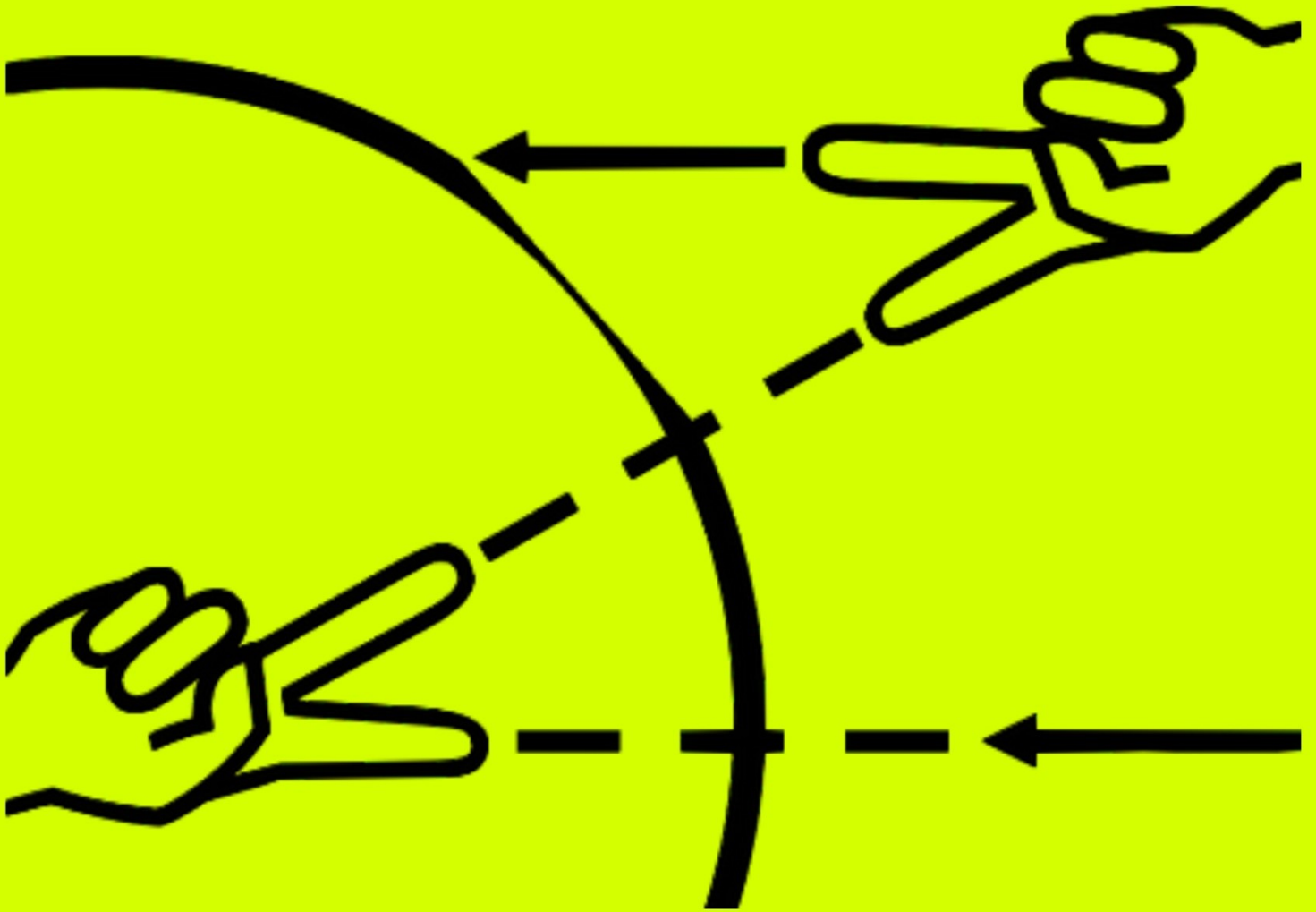


Eratoosthenes



4 Continents

9 Countries

22 Schools

93 Measures

4 Continents

9 Countries

22 Schools

93 Measures

BRAZIL (4)

Campos, Itajubá, Piranguinho, Rio de Janeiro

COLOMBIA (1)

Guarne

FRANCE (1)

Lafrançaise

GREECE (2)

Aigio, Petropouli

MALAYSIA (1)

Cameron Highlands

ROMANIA (3)

Busteni, Mărgineni, Râmnicu Vâlcea

SPAIN (1)

Úbeda

TUNISIA (1)

Bizerte

VIETNAM (8)

Bắc Giang, Biên Hòa, Hà Đông, Hà Nội Academy,
Hà Nội CVA, Hà Nội NGS, Hồ Chí Minh City NT, Hưng Yên

Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Aigio	Greece	1st High School of Aigio	38.252	22.079
	Bắc Giang	Việt Nam	THPT Ngô Sĩ Liên	21.279	106.197
	Biên Hòa NQ	Việt Nam	Ngo Quyen High School	10.955	106.826
	Bizerte	Tunisia	Ecole Primaire Raouabi	37.284	9.868
	Busteni	Romania	Colegiul Ion Kalinderu	45.416	25.535
	Cameron Highlands	Malaysia	SMK Kampung Raja	4.564	101.408
	Campos	Brazil	IFF Campus Guarus	-21.735	-41.324
	Guarne	Colombia	Grupo Astrofanáticos	6.274	-75.449
	Hà Đông	Việt Nam	Trần Hưng Đạo Hà Đông High school	20.943	105.758
	Hà Nội Academy	Việt Nam	Trường Song Ngữ Hanoi Academy	21.073	105.803
	Hà Nội CVA	Việt Nam	Trường THCS Chu Văn An	21.043	105.824
	Hà Nội NGS	Việt Nam	Newton Grammar School	21.053	105.784
	Hồ Chí Minh City NT	Việt Nam	Nguyen Trai High School	10.760	106.712
	Hưng Yên	Việt Nam	Edison schools	20.949	105.939
	Itajubá	Brazil	Universidade Federal de Itajubá	-22.415	-45.449
	Lafrançaise	France	Collège Antonin Perbosc	44.127	1.237
	Mărgineni	Romania	Gh. Popescu School	44.533	24.554
	Petroupoli	Greece	4o Junior High School	38.036	23.674
	Piranguinho	Brazil	Universidade Federal de Itajubá	-22.411	-45.535
	Râmnicu Vâlcea	Romania	S.G. Nr4 Gradinita Dumbrava Minuata	45.093	24.358
	Rio de Janeiro	Brazil	Centro Educacional Nosso Mundo	-22.890	-43.317
	Úbeda	Spain	Colegio Salesiano Santo Domingo Savio	38.017	-3.367

Aigio, Greece

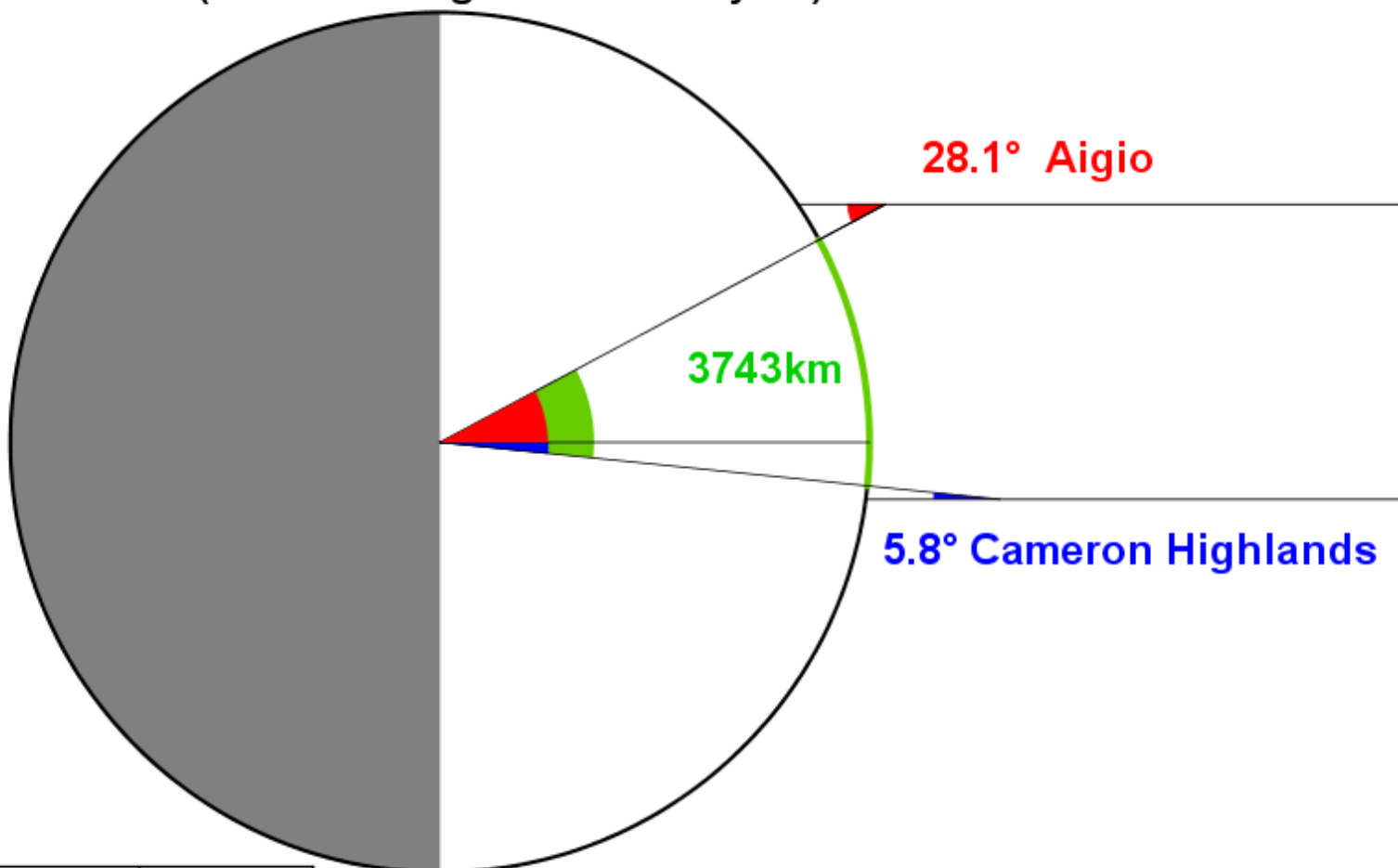


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Aigio	Greece	1st High School of Aigio	38.252	22.079

Date	Gnomon	Shadow	Angle
16 April 2019	30.0cm	16.0cm	28.1°

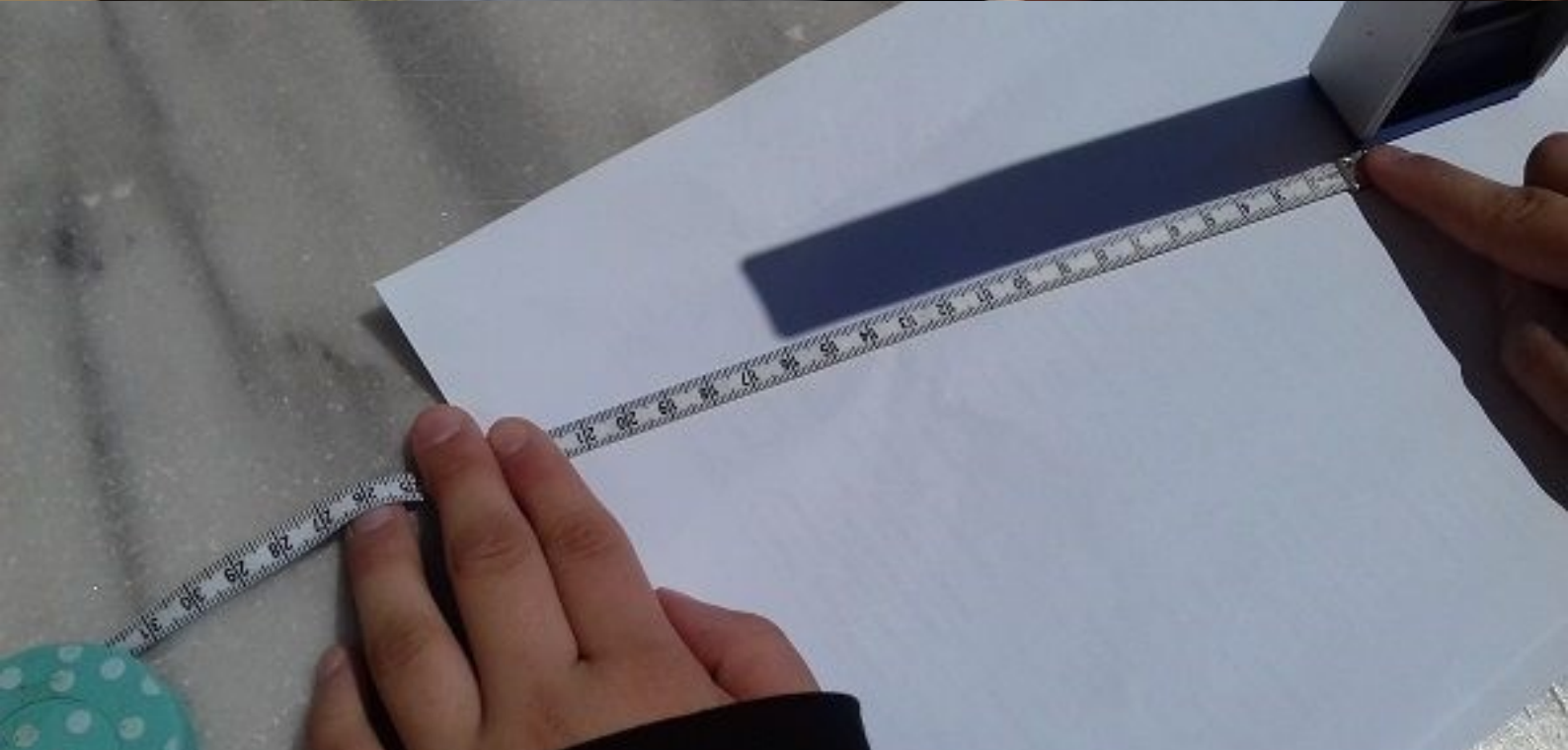
16/04/2019 (Aigio-Greece) Latitude: 38.252°

16/04/2019 (Cameron Highlands-Malaysia) Latitude: 4.564°



Distance	Angle
circumference	360°
3743km	28.1° + 5.8°

$$\text{circumference} = \frac{360^\circ \times 3743\text{km}}{28.1^\circ + 5.8^\circ} = 39749 \text{ km}$$



Bắc Giang, Việt Nam

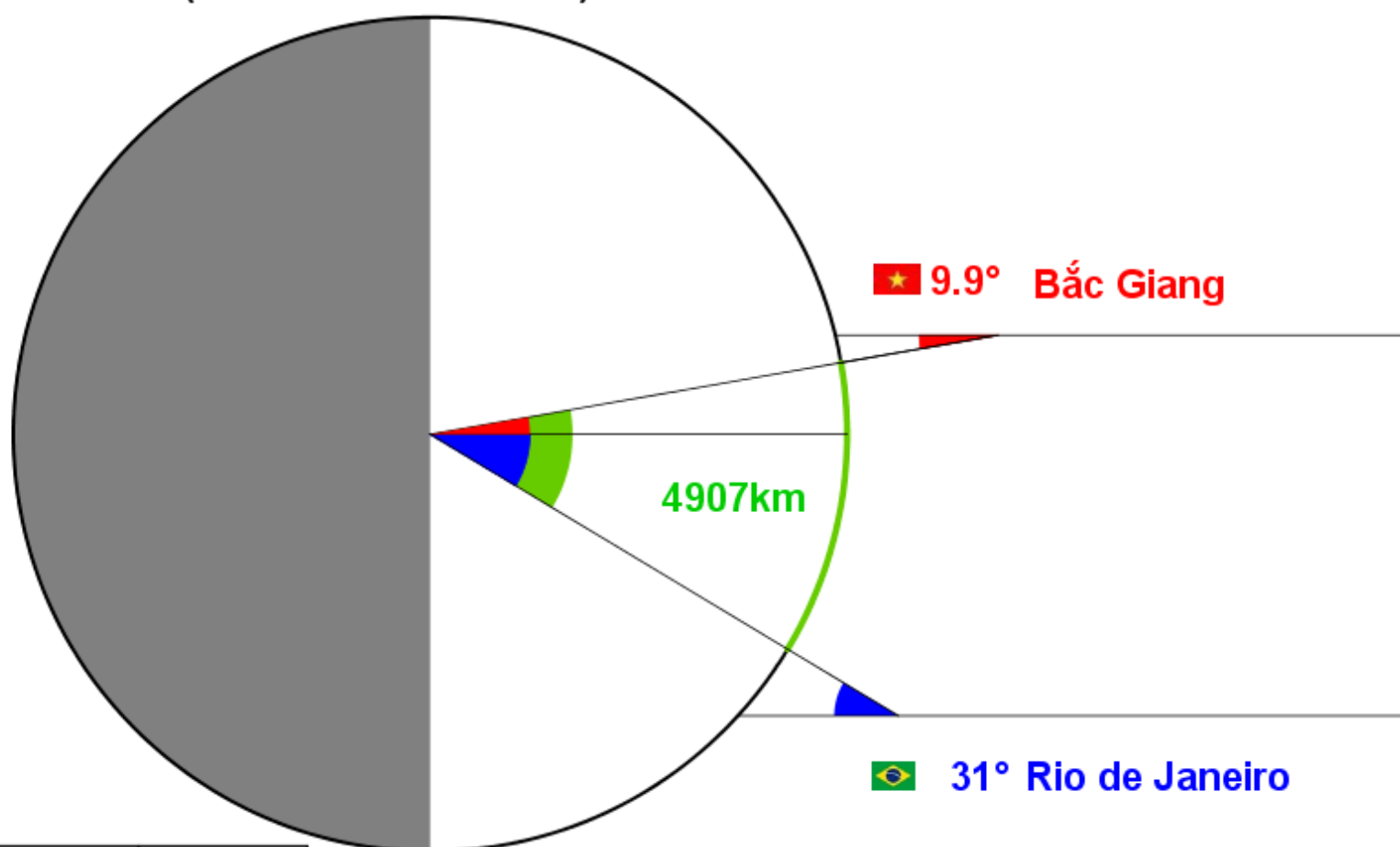


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Bắc Giang	Việt Nam	THPT Ngô Sĩ Liên	21.279	106.197

Date	Gnomon	Shadow	Angle
19 April 2019	110.0cm	25.0cm	12.8°
24 April 2019	88cm	15.4cm	9.9°

24/04/2019 (Bắc Giang-Việt Nam) Latitude: 21.279°

24/04/2019 (Rio de Janeiro-Brazil) Latitude: -22.89°



Distance	Angle
circumference	360°
4907km	9.9° + 31°

$$\text{circumference} = \frac{360^\circ \times 4907\text{km}}{9.9^\circ + 31^\circ} = 43191 \text{ km}$$



Biên Hòa NQ, Việt Nam

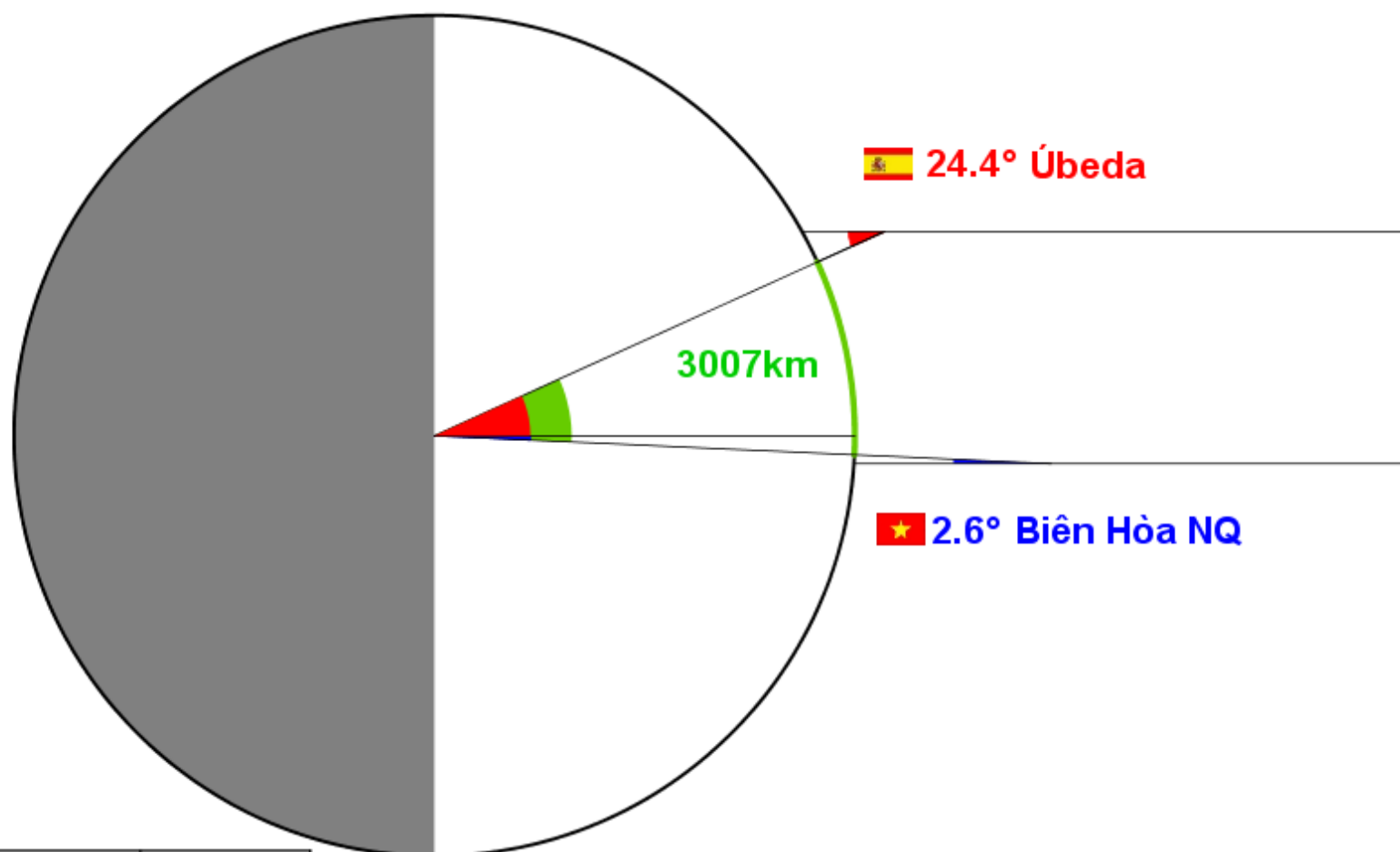


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Biên Hòa NQ	Việt Nam	Ngo Quyen High School	10.955	106.826

Date	Gnomon	Shadow	Angle
20 April 2019	48.0cm	0.0cm	0.0°
23 April 2019	129.6cm	-4.3cm	-1.9°
24 April 2019	66.5cm	-2.6cm	-2.2°
25 April 2019	112.7cm	-5.1cm	-2.6°
26 April 2019	121cm	-5.5cm	-2.6°
27 April 2019	70cm	-3.1cm	-2.5°
30 April 2019	70cm	-3.7cm	-3.0°

26/04/2019 (Úbeda-Spain) Latitude: 38.017°

26/04/2019 (Biên Hòa NQ-Việt Nam) Latitude: 10.955°



$$\text{circumference} = \frac{360^\circ \times 3007\text{km}}{24.4^\circ + 2.6^\circ} = 40093 \text{ km}$$

Distance	Angle
circumference	360°
3007km	24.4° + 2.6°



Bizerte, Tunisia

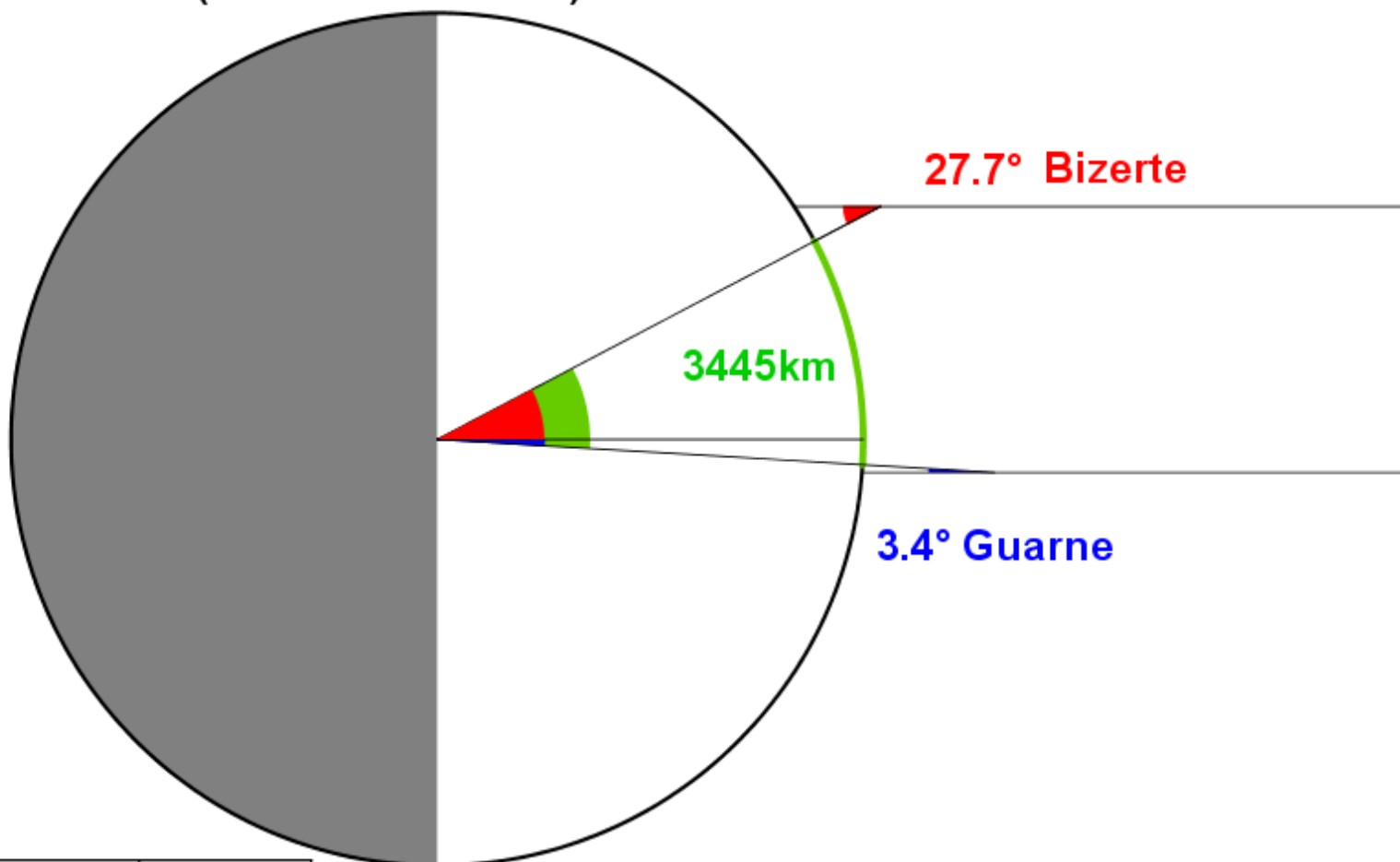


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Bizerte	Tunisia	Ecole Primaire Raouabi	37.284	9.868

Date	Gnomon	Shadow	Angle
02 April 2019	96cm	51cm	28°
08 April 2019	50cm	33cm	33.4°
15 April 2019	97.0cm	50.8cm	27.6°
16 April 2019	97.0cm	51.0cm	27.7°
29 April 2019	49.5cm	23.0cm	24.9°
30 April 2019	31.0cm	14.5cm	25.1°

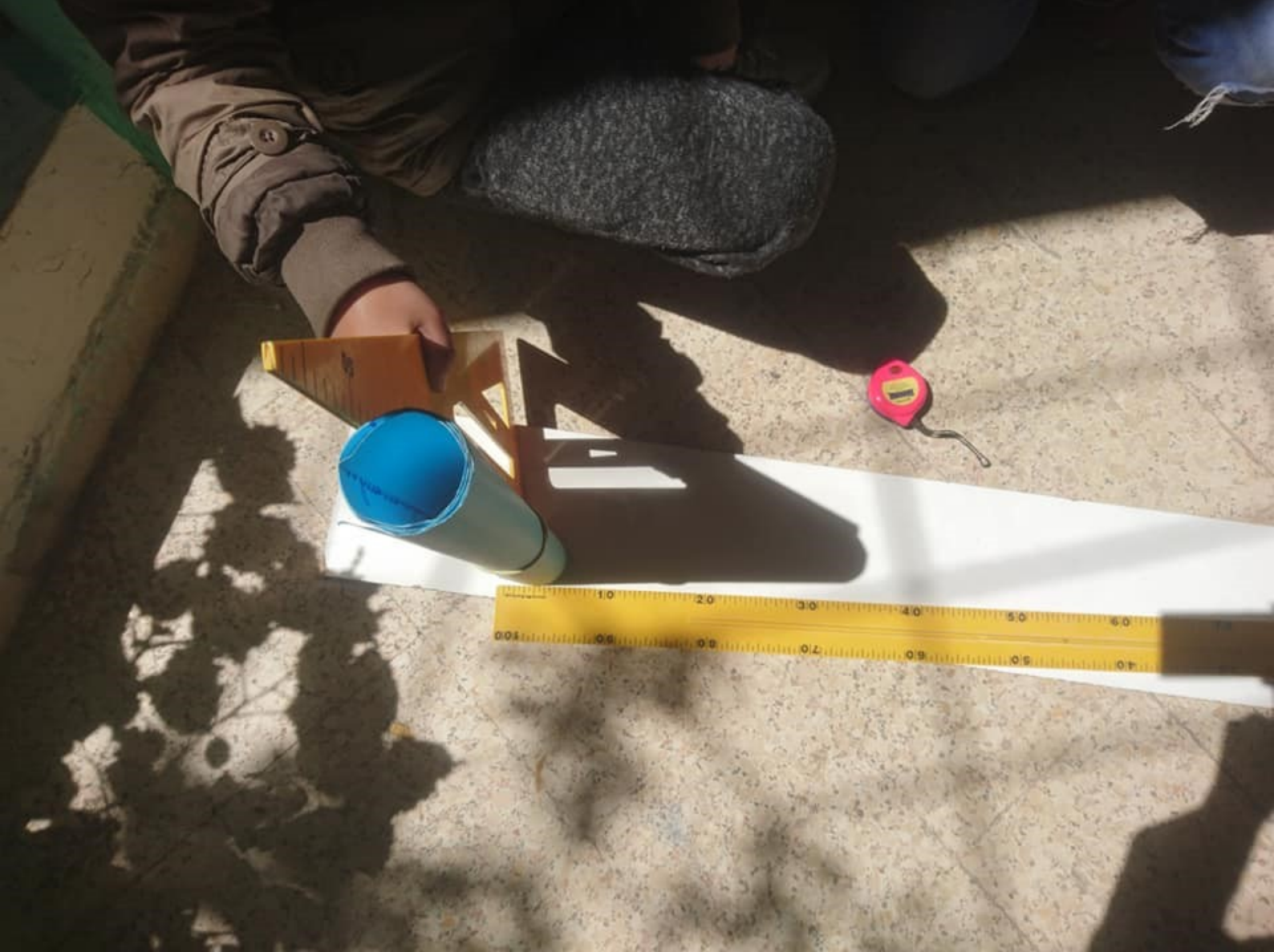
16/04/2019 (Bizerte-Tunisia) Latitude: 37.284°

16/04/2019 (Guarne-Colombia) Latitude: 6.274°



Distance	Angle
circumference	360°
3445km	27.7°+3.4°

$$\text{circumference} = \frac{360^\circ \times 3445\text{km}}{27.7^\circ + 3.4^\circ} = 39878 \text{ km}$$



Busteni, Romania

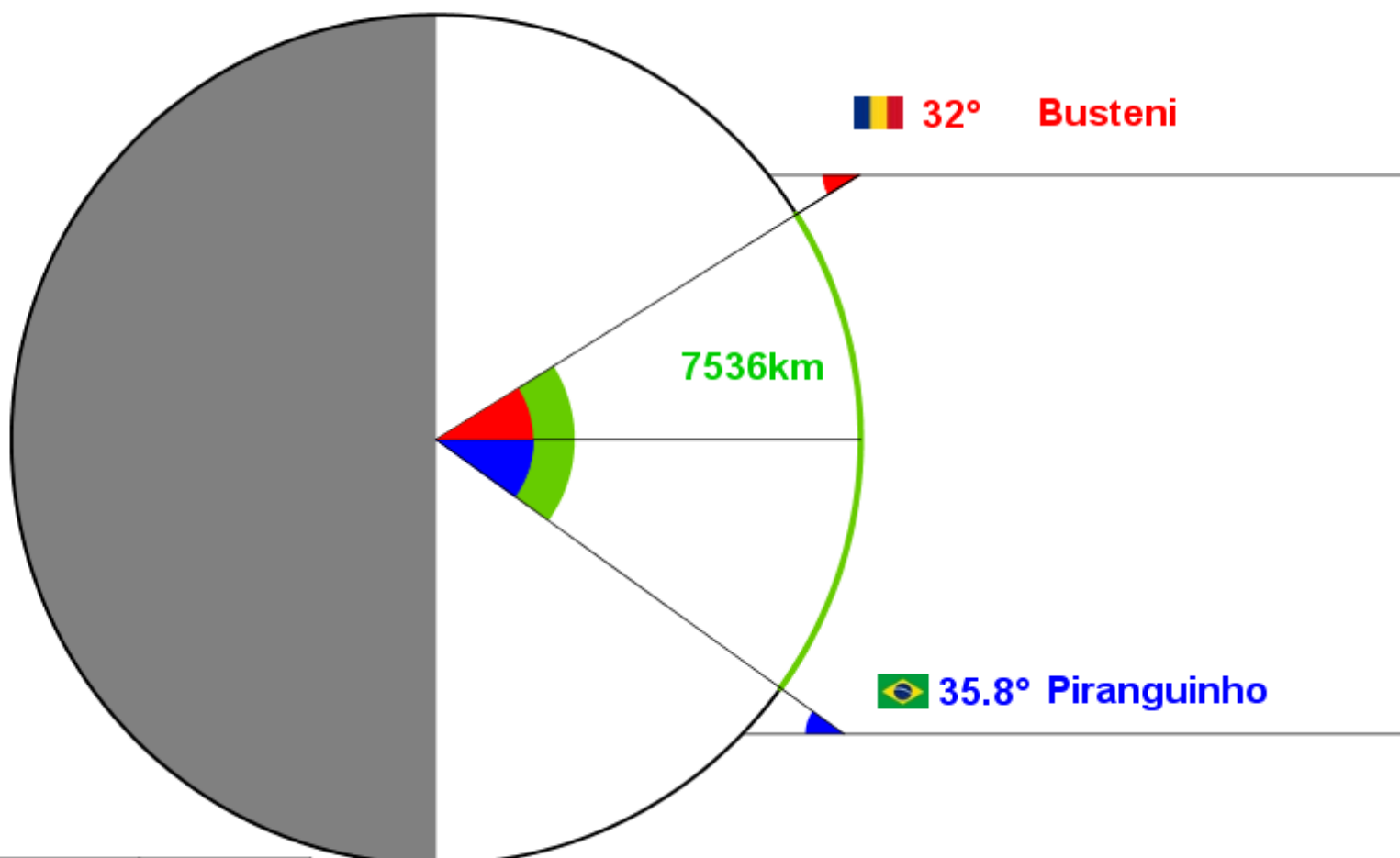


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Busteni	Romania	Colegiul Ion Kalinderu	45.416	25.535

Date	Gnomon	Shadow	Angle
01 April 2019	100cm	86.3cm	40.8°
03 April 2019	100cm	83.9cm	40.0°
04 April 2019	100cm	82.8cm	39.6°
05 April 2019	100cm	81.7cm	39.2°
09 April 2019	100.0cm	77.3cm	37.7°
10 April 2019	100cm	76.2cm	37.3°
12 April 2019	100cm	74.2cm	36.6°
15 April 2019	39.3cm	28.0cm	35.5°
16 April 2019	100.0cm	70.3cm	35.1°
23 April 2019	9.5cm	6.1cm	32.7°
25 April 2019	9.6cm	6.0cm	32.0°

25/04.2019 (Busteni-Romania) Latitude: 45.416°

25/05/2019 (Piranguinho-Brazil) Latitude: -22.411°



$$\text{circumference} = \frac{360^\circ \times 7536\text{km}}{32^\circ + 35.8^\circ} = 40014 \text{ km}$$

Distance	Angle
circumference	360°
7536km	32° + 35.8°



Cameron Highlands, Malaysia

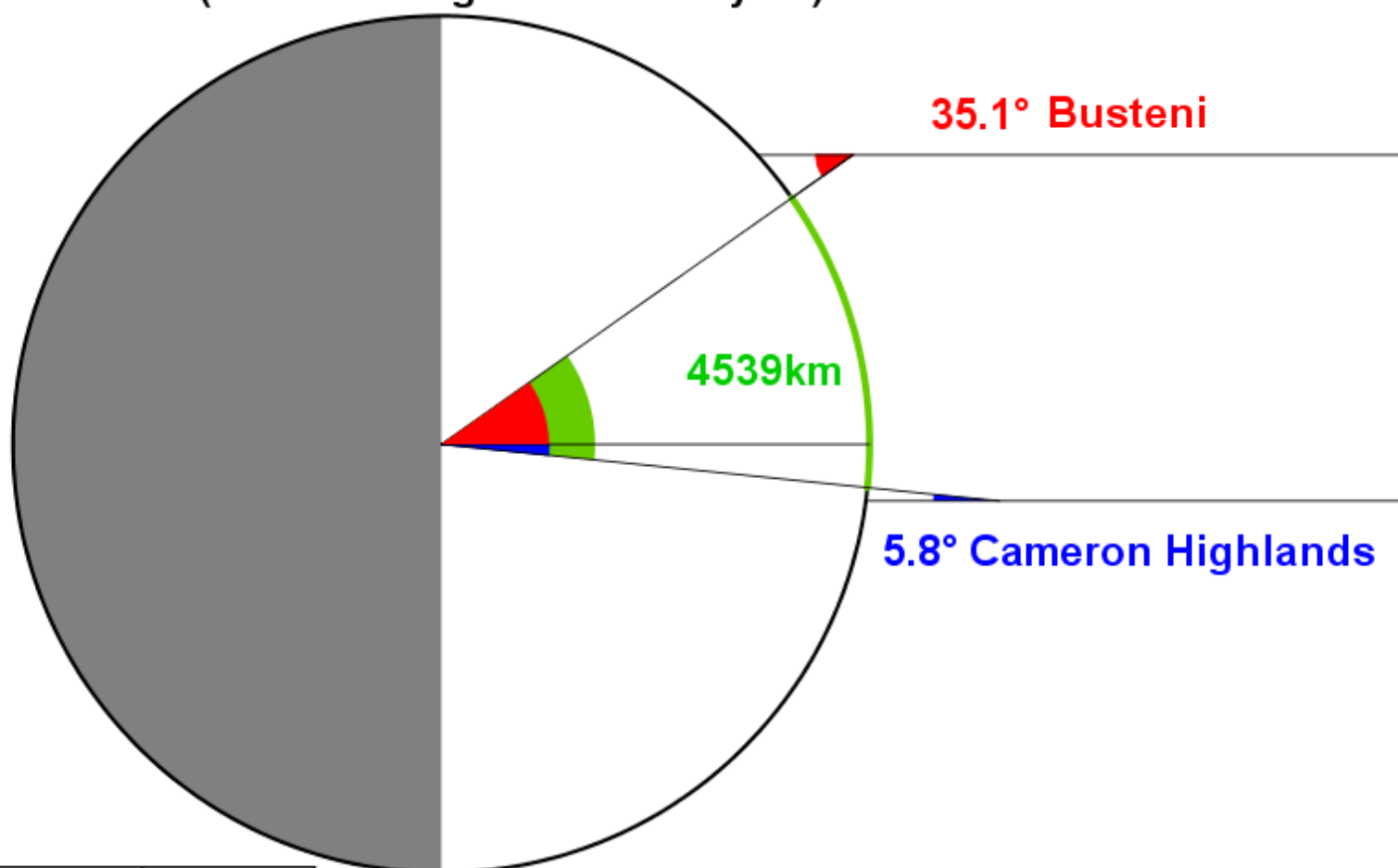


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Cameron Highlands	Malaysia	SMK Kampung Raja	4.564	101.408

Date	Gnomon	Shadow	Angle
16 April 2019	73.7cm	-7.5cm	-5.8°
22 April 2019	79.5cm	-11.5cm	-8.2°

16/04/2019 (Busteni-Romania) Latitude: 45.416°

16/04/2019 (Cameron Highlands-Malaysia) Latitude: 4.564°



Distance	Angle
circumference	360°
4539km	35.1°+5.8°

$$\text{circumference} = \frac{360^\circ \times 4539\text{km}}{35.1^\circ + 5.8^\circ} = 39952 \text{ km}$$



Campos, Brazil

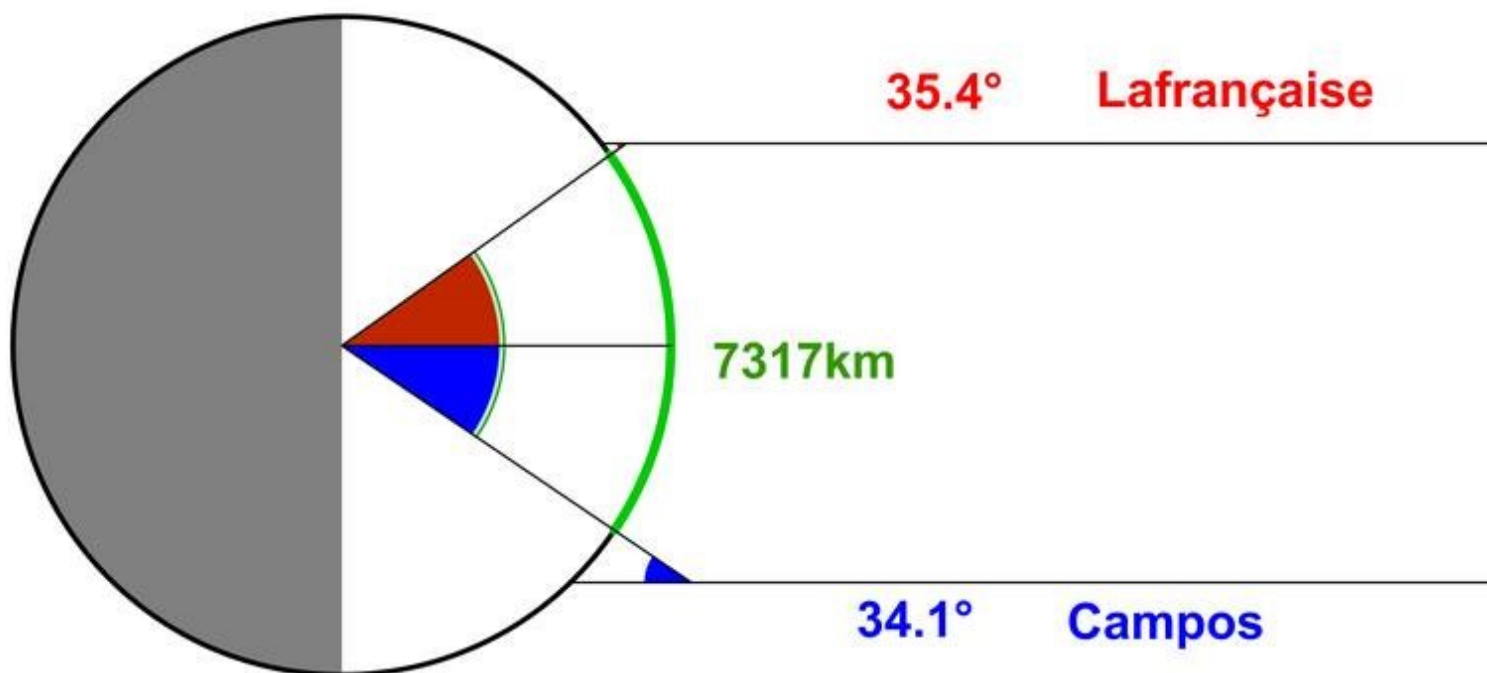


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Campos	Brazil	IFF Campus Guarus	-21.735	-41.324

Date	Gnomon	Shadow	Angle
12 April 2019	34.0cm	-23.0cm	-34.1°
13 April 2019	21.0cm	-9.0cm	-23.2°

12/04/2019 (Lafrançaise-France) Latitude: 44.127°

12/04/2019 (Campos-Brazil) Latitude: -21.735°



$$\text{circumference} = \frac{360^\circ \times 7317\text{km}}{35.4^\circ + 34.1^\circ} = 37901 \text{ km}$$



Guarne, Colombia

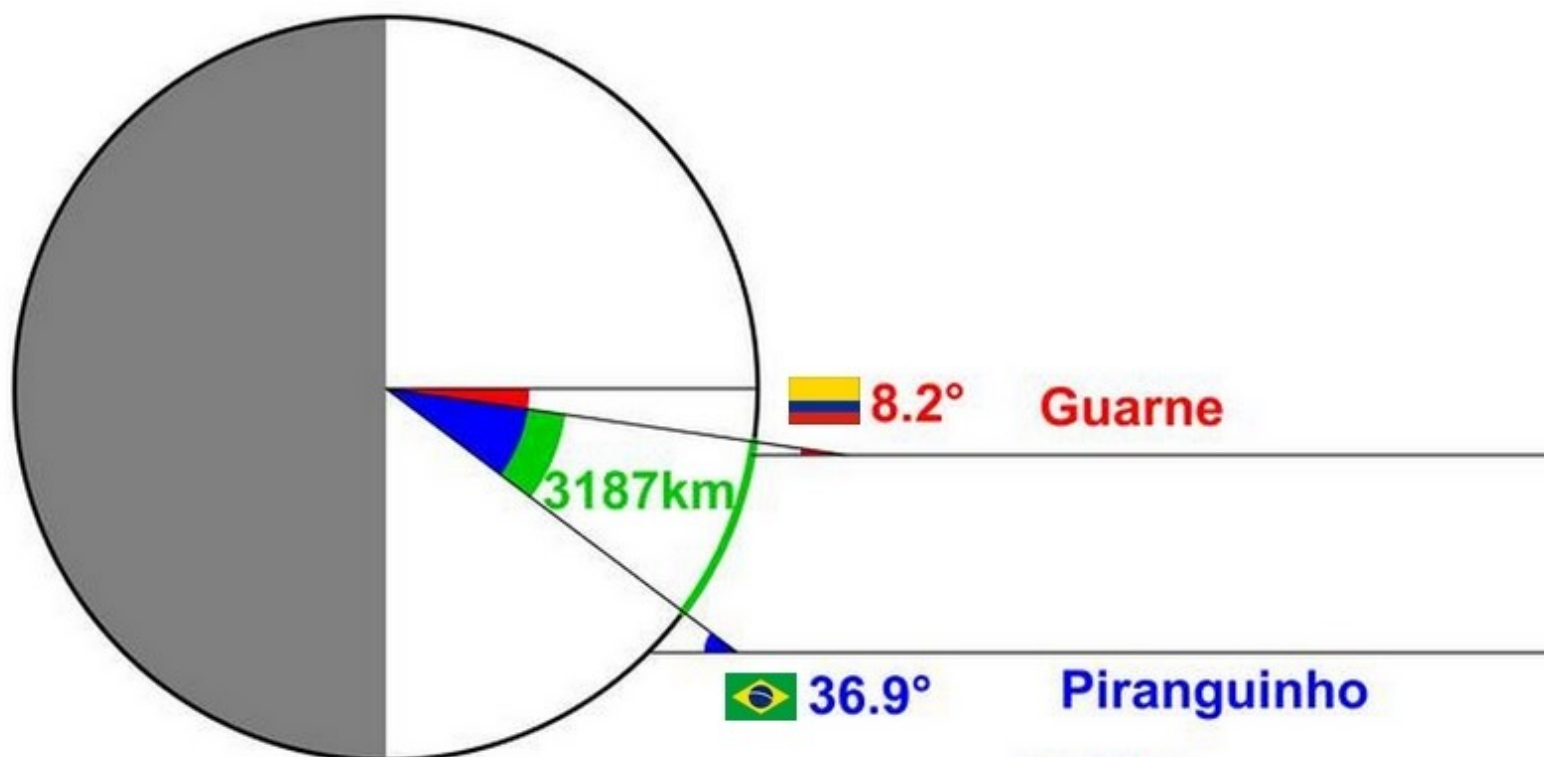


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Guarne	Colombia	Grupo Astrofanáticos	6.274	-75.449

Date	Gnomon	Shadow	Angle
05 April 2019	100cm	0cm	0°
09 April 2019	94.2cm	-2.2cm	-1.3°
12 April 2019	94.4cm	-2.9cm	-1.8°
16 April 2019	94.5cm	-5.6cm	-3.4°
26 April 2019	94.6cm	-11.4cm	-6.9°
29 April 2019	94.5cm	-12.8cm	-7.7°
30 April 2019	94.5cm	-13.7cm	-8.2°

30/04/2019 (Guarne-Colombia) Latitude: 6.274°

30/04/2019 (Piranguinho-Brazil) Latitude: -22.411°



Distance	Angle
circumference	360°
3187km	36.9° - 8.2°

$$\text{circumference} = \frac{360^\circ \times 3187\text{km}}{36.9^\circ - 8.2^\circ} = 39976 \text{ km}$$



Hà Đông, Việt Nam

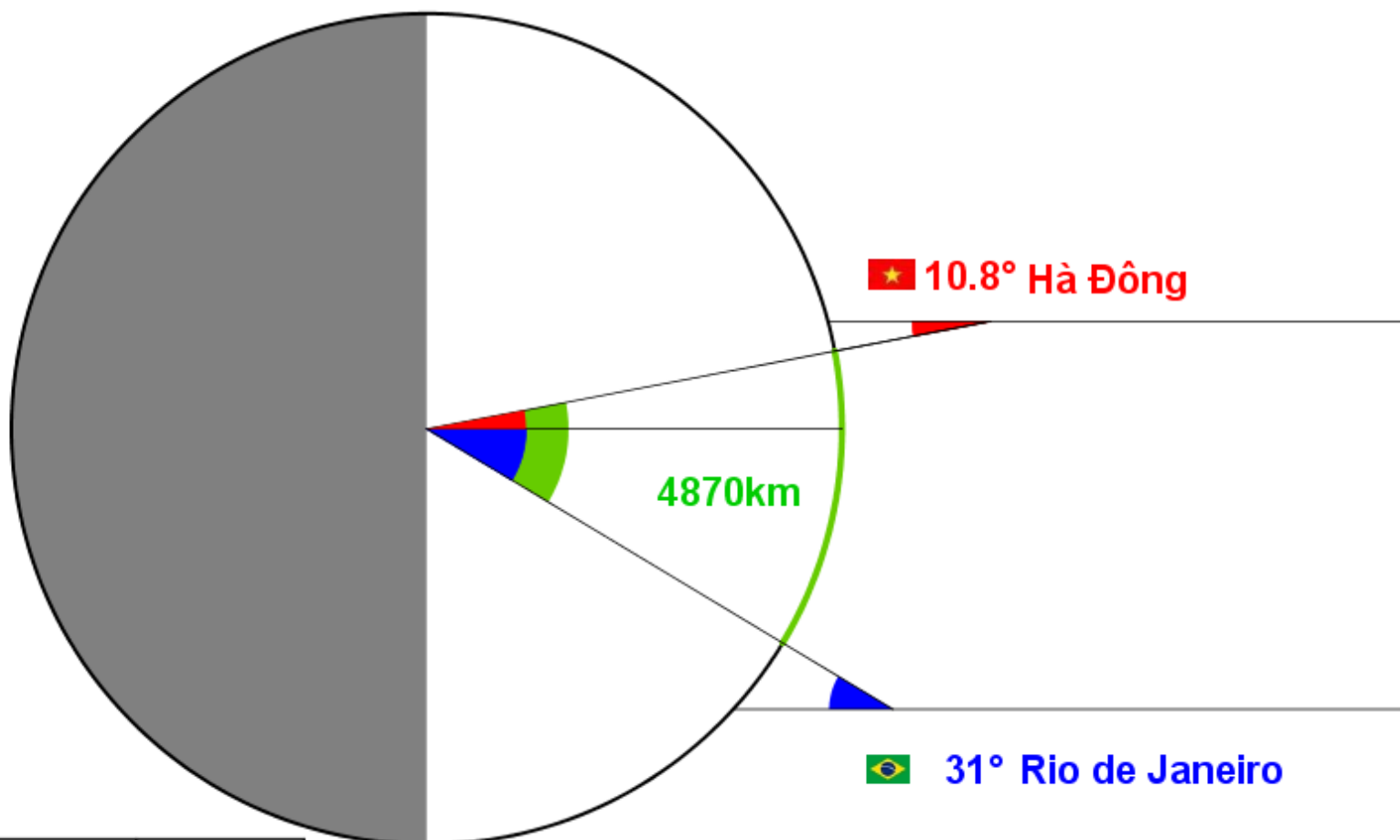


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Hà Đông	Việt Nam	Trần Hưng Đạo Hà Đông High school	20.943	105.758

Date	Gnomon	Shadow	Angle
19 April 2019	49.7cm	10.2cm	11.6°
20 April 2019	49.7cm	10.7cm	12.1°
22 April 2019	79.2cm	17.3cm	12.3°
24 April 2019	49.9cm	9.5cm	10.8°
27 April 2019	49.9cm	5.9cm	6.7°

24/04/2019 (Hà Đông-Việt Nam) Latitude: 20.943°

24/04/2019 (Rio de Janeiro-Brazil) Latitude: -22.89°



Distance	Angle
circumference	360°
4870km	10.8° + 31°

$$\text{circumference} = \frac{360^\circ \times 4870\text{km}}{10.8^\circ + 31^\circ} = 41943 \text{ km}$$



Hà Nội Academy, Việt Nam

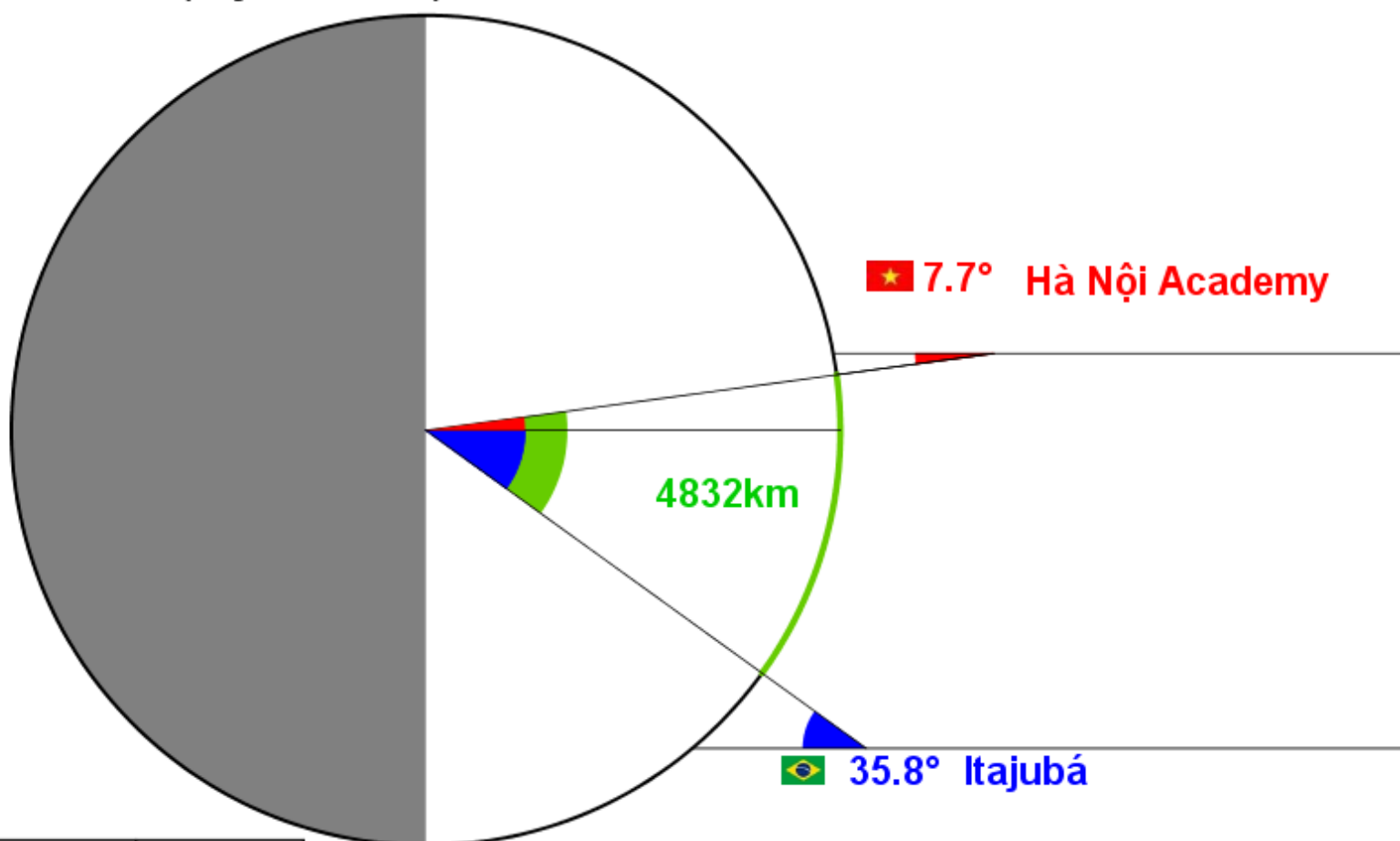


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Hà Nội Academy	Việt Nam	Trường Song Ngữ Hanoi Academy	21.073	105.803

Date	Gnomon	Shadow	Angle
19 April 2019	56.3cm	11.5cm	11.5°
24 April 2019	63.0cm	9.0cm	8.1°
26 April 2019	63.0cm	8.5cm	7.7°

26/04/2019 (Hà Nội Academy-Việt Nam) Latitude: 21.073°

26/04/2019 (Itajubá-Brazil) Latitude: -22.415°



Distance	Angle
circumference	360°
4832km	7.7° + 35.8°

$$\text{circumference} = \frac{360^\circ \times 4832\text{km}}{7.7^\circ + 35.8^\circ} = 39989 \text{ km}$$



Hà Nội CVA, Việt Nam

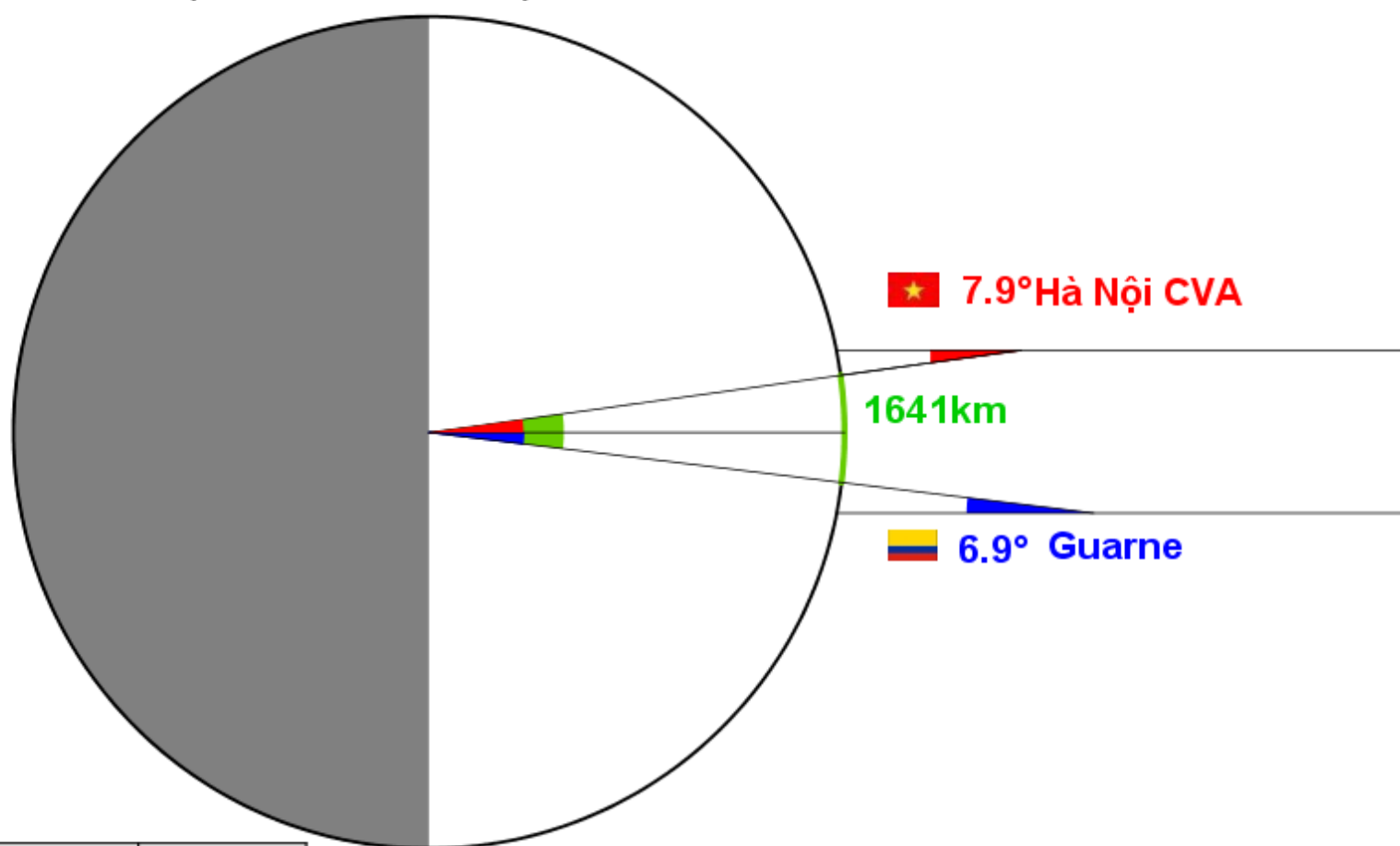


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Hà Nội CVA	Việt Nam	Trường THCS Chu Văn An	21.043	105.824

Date	Gnomon	Shadow	Angle
13 April 2019	50.0cm	10.5cm	11.9°
18 April 2019	49.8cm	9.6cm	10.9°
24 April 2019	15.0cm	2.1cm	8.0°
26 April 2019	15.2cm	2.1cm	7.9°
27 April 2019	9.9cm	1.3cm	7.5°

26/04/2019 (Hà Nội CVA-Việt Nam) Latitude: 21.043°

26/04/2019 (Guarne-Colombia) Latitude: 6.274°



Distance	Angle
circumference	360°
1641km	7.9° + 6.9°

$$\text{circumference} = \frac{360^\circ \times 1641\text{km}}{7.9^\circ + 6.9^\circ} = 39916 \text{ km}$$



Hà Nội NGS, Việt Nam

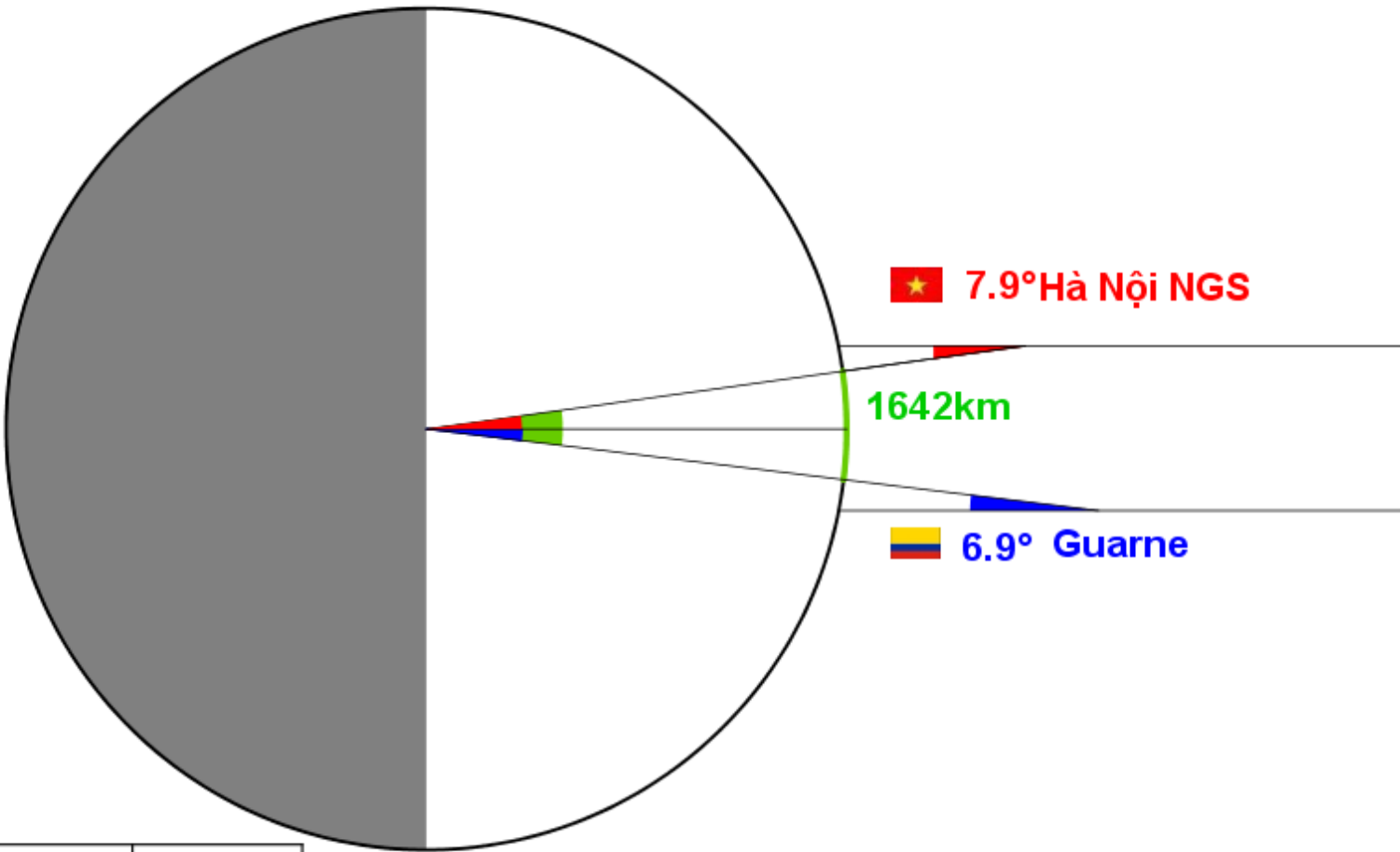


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Hà Nội NGS	Việt Nam	Newton Grammar School	21.053	105.784

Date	Gnomon	Shadow	Angle
13 April 2019	145.0cm	35.8cm	13.9°
26 April 2019	71.0cm	9.8cm	7.9°
27 April 2019	71.0cm	10.9cm	8.7°

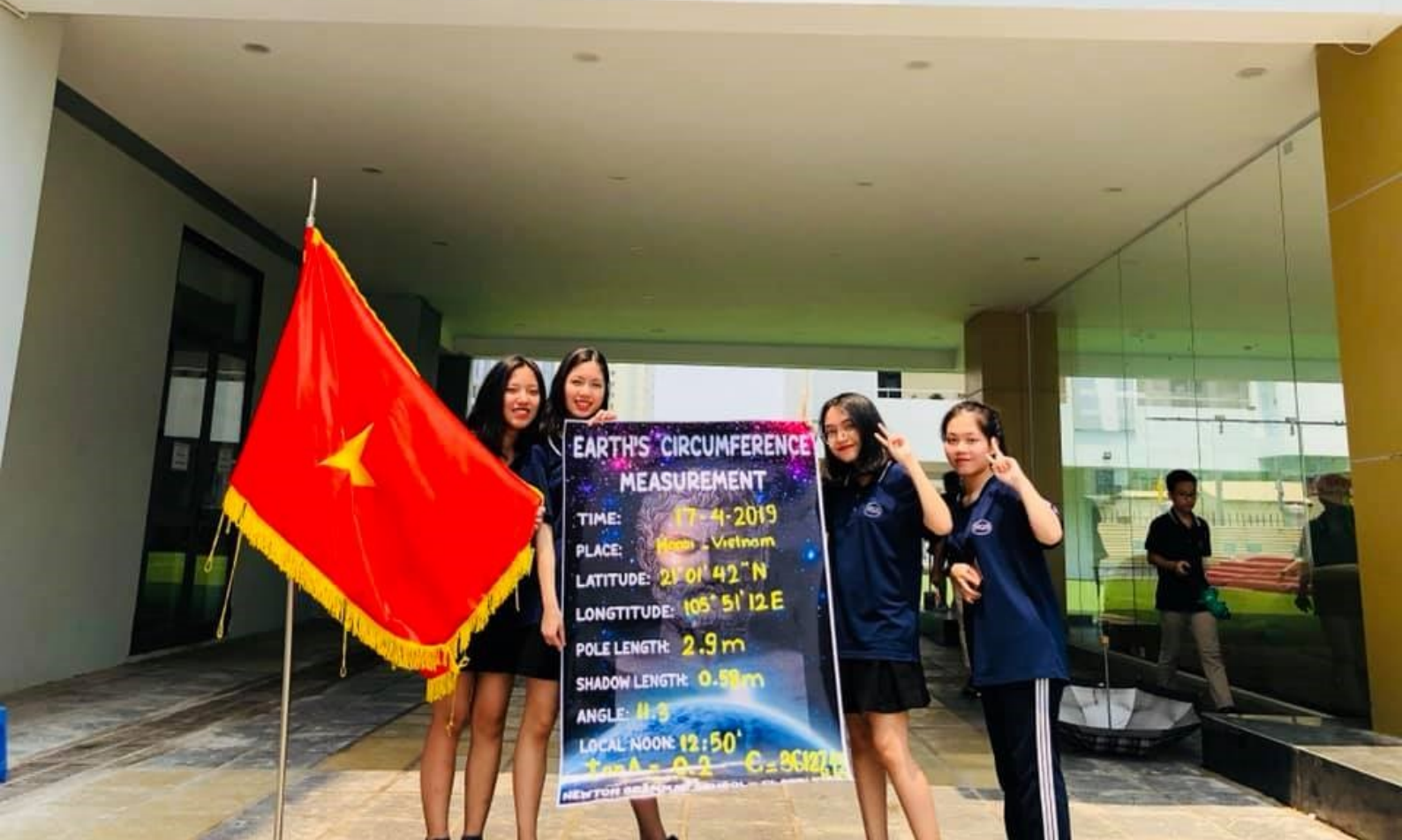
26/04/2019 (Hà Nội NGS-Việt Nam) Latitude: 21.053°

26/04/2019 (Guarne-Colombia) Latitude: 6.274°



Distance	Angle
circumference	360°
1642km	7.9° + 6.9°

circumference = $\frac{360^\circ \times 1642\text{km}}{7.9^\circ + 6.9^\circ} = 39941 \text{ km}$



Hồ Chí Minh City NT, Việt Nam

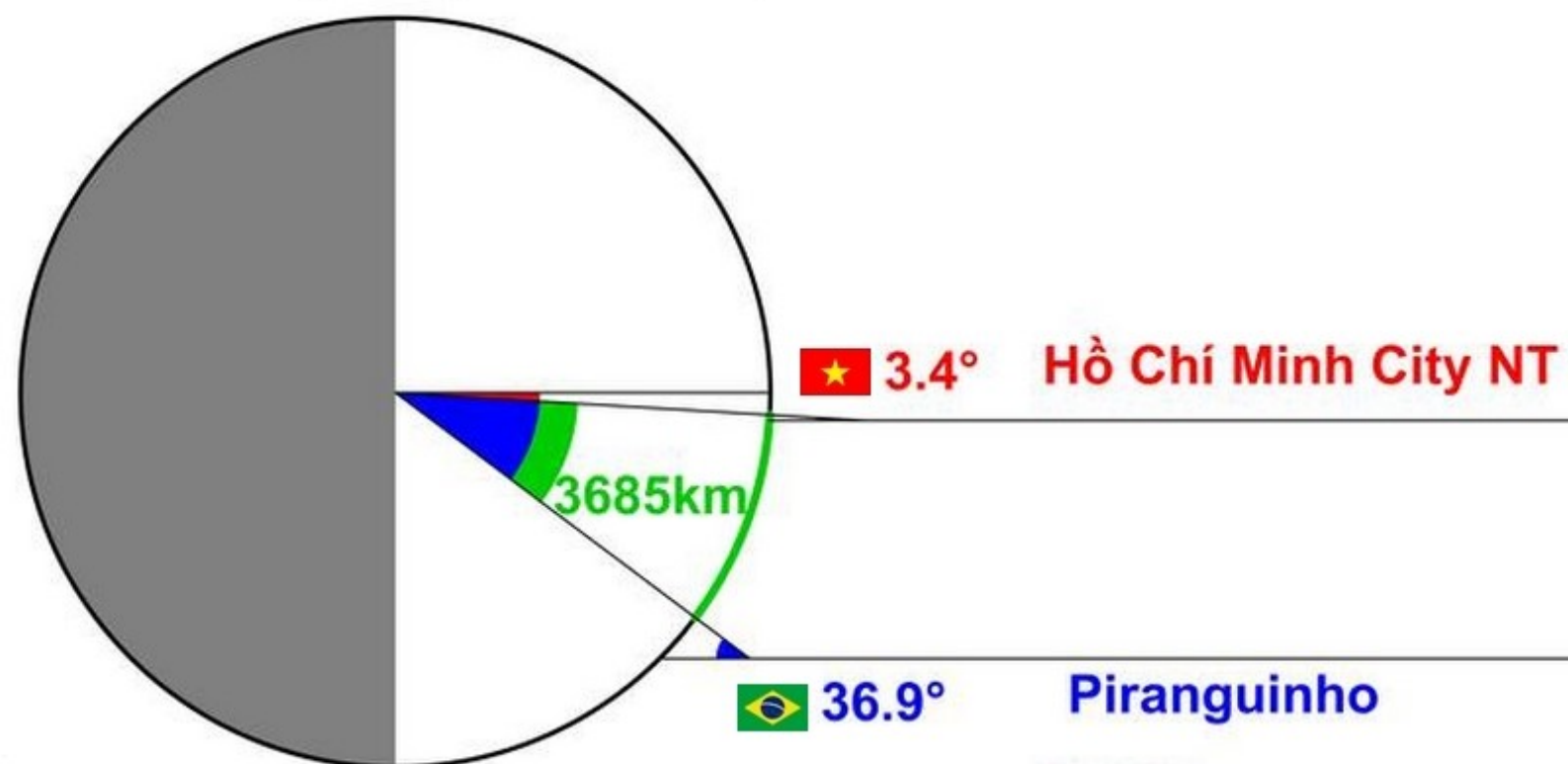


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Hồ Chí Minh City NT	Việt Nam	Nguyen Trai High School	10.760	106.712

Date	Gnomon	Shadow	Angle
26 April 2019	9.0cm	-0.4cm	-2.2°
27 April 2019	101.0cm	-8.1cm	-4.6°
29 April 2019	77.3cm	-4.6cm	-3.4°
30 April 2019	77.3cm	-4.6cm	-3.4°

30/04/2019 (Hồ Chí Minh City NT-Việt Nam) Latitude: 10.76°

30/04/2019 (Piranguinho-Brazil) Latitude: -22.411°



Distance	Angle
circumference	360°
3685km	36.9° - 3.4°

$$\text{circumference} = \frac{360^\circ \times 3685\text{km}}{36.9^\circ - 3.4^\circ} = 39600 \text{ km}$$



Hưng Yên, Việt Nam

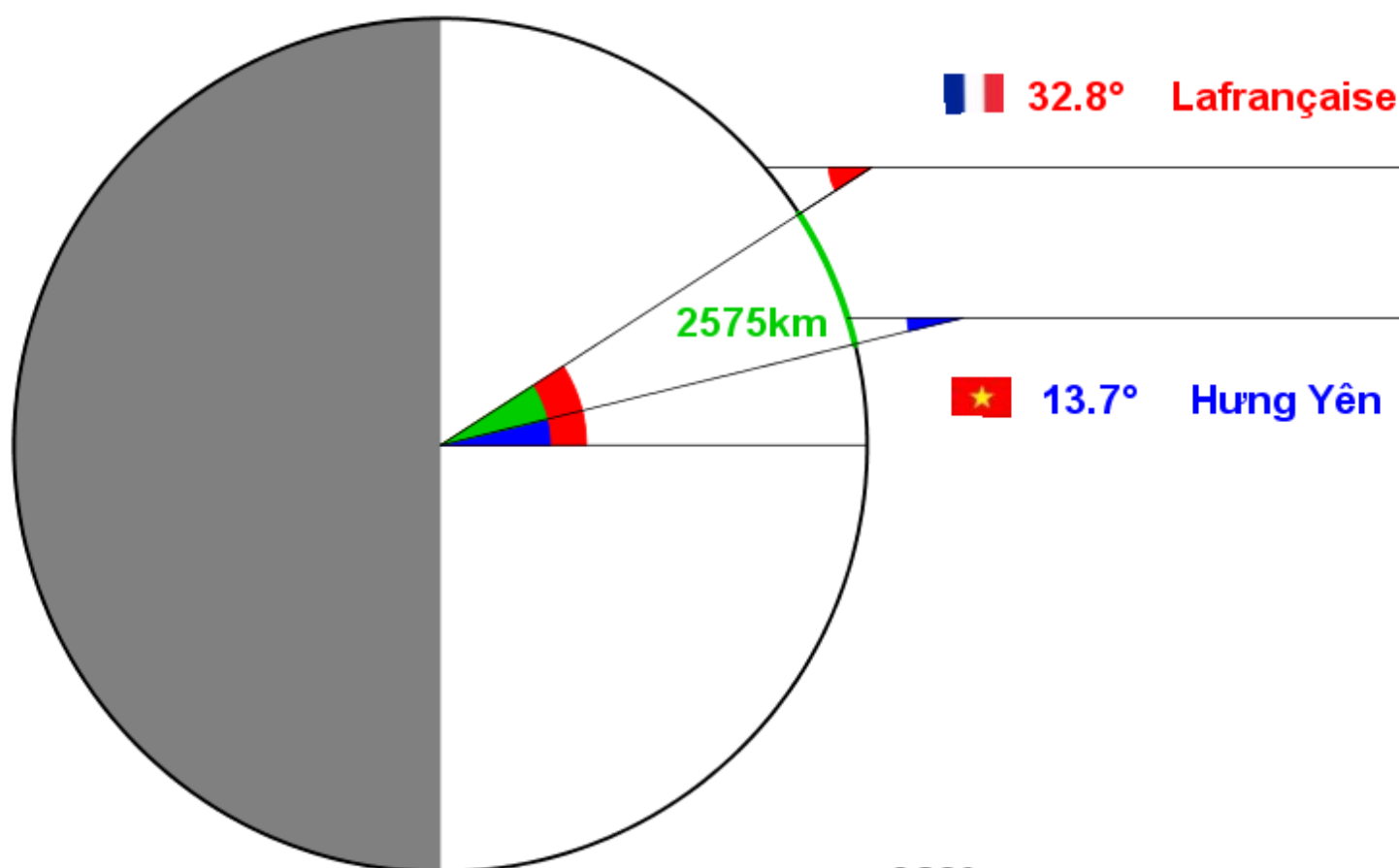


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Hưng Yên	Việt Nam	Edison schools	20.949	105.939

Date	Gnomon	Shadow	Angle
19 April 2019	..cm	..cm	13.7°

19/04/2019 (Lafrançaise-France) Latitude: 44.127°

19/04/2019 (Hưng Yên-Việt Nam) Latitude: 20.949°



Distance	Angle
circumference	360°
2575km	32.8° - 13.7°

$$\text{circumference} = \frac{360^\circ \times 2575\text{km}}{32.8^\circ - 13.7^\circ} = 48534 \text{ km}$$



Itajubá, Brazil

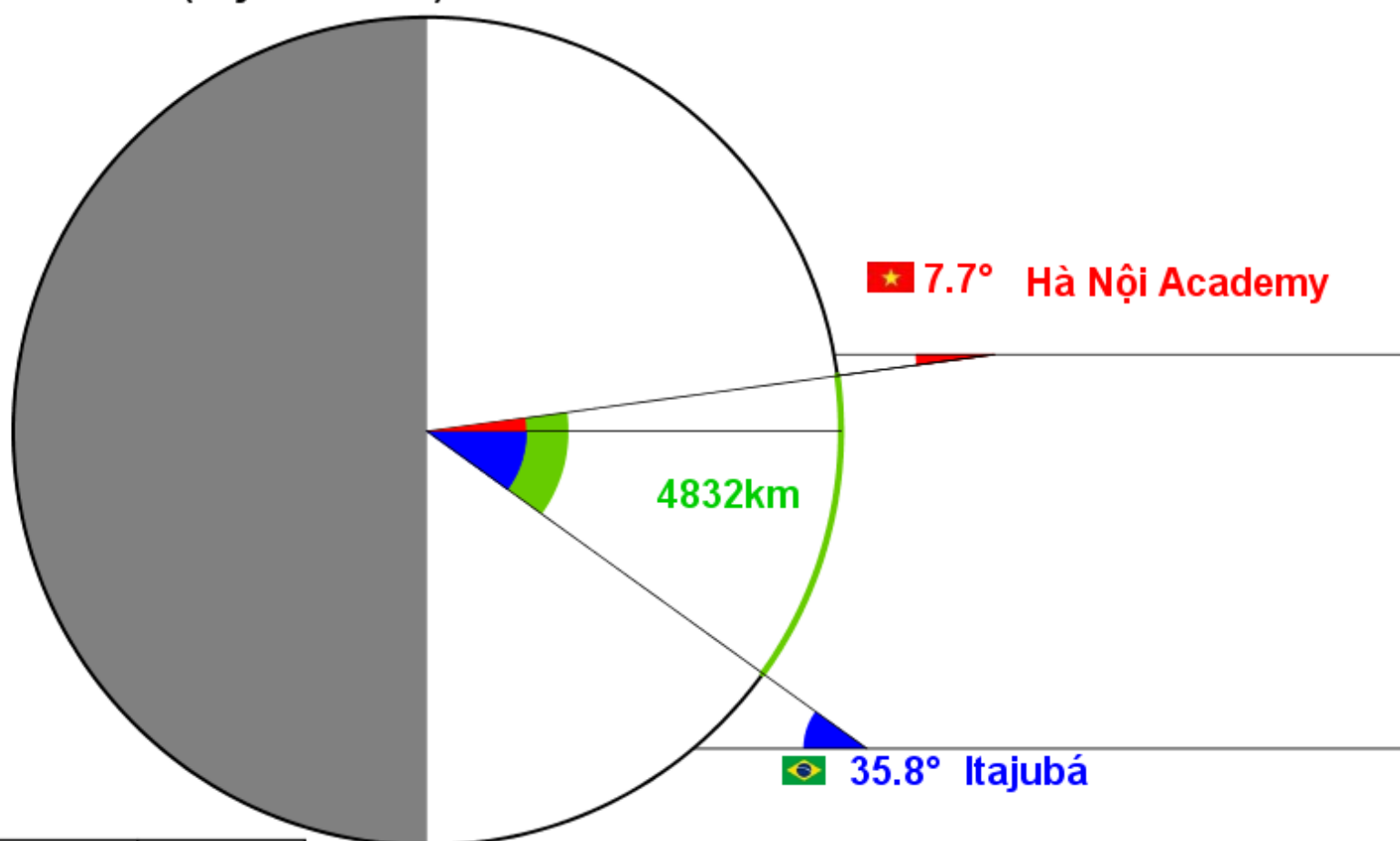


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Itajubá	Brazil	Universidade Federal de Itajubá	-22.415	-45.449

Date	Gnomon	Shadow	Angle
03 April 2018	80.0cm	-41.6cm	-27.5°
10 April 2019	80.0cm	-46.3cm	-30.1°
17 April 2019	80.0cm	-51.1cm	-32.6°
26 April 2019	80.0cm	-57.6cm	-35.8°

26/04/2019 (Hà Nội Academy-Việt Nam) Latitude: 21.073°

26/04/2019 (Itajubá-Brazil) Latitude: -22.415°



Distance	Angle
circumference	360°
4832km	7.7° + 35.8°

$$\text{circumference} = \frac{360^\circ \times 4832\text{km}}{7.7^\circ + 35.8^\circ} = 39989 \text{ km}$$



03.04.2019

Lafrançaise, France

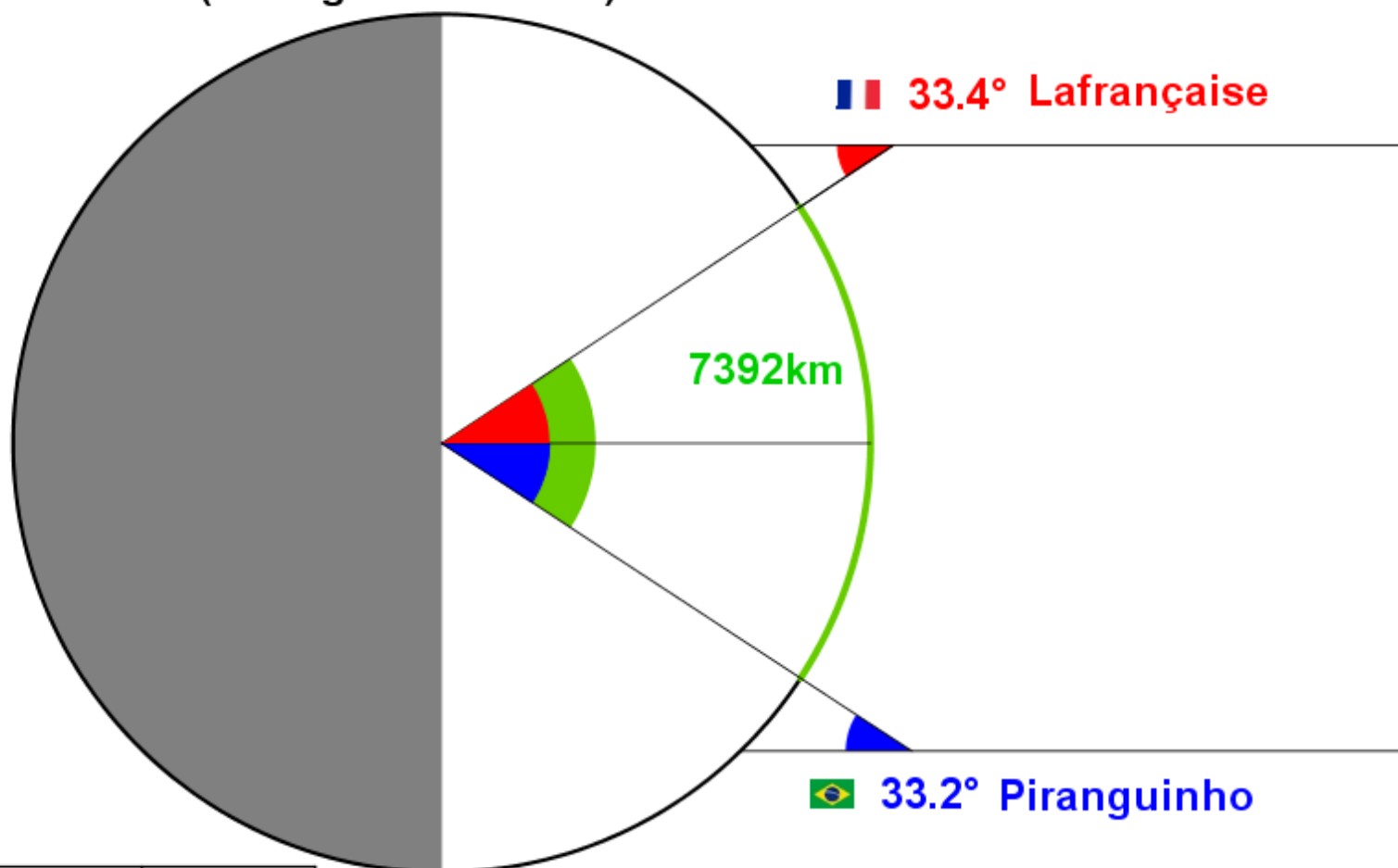


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Lafrançaise	France	Collège Antonin Perbosc	44.127	1.237

Date	Gnomon	Shadow	Angle
01 April 2019	100.0cm	83.0cm	39.7°
05 April 2019	100cm	78cm	38°
08 April 2019	100cm	75.5cm	37.1°
12 April 2019	100.0cm	71.0cm	35.4°
15 April 2019	100.0cm	68.0cm	34.2°
18 April 2019	100.0cm	66.0cm	33.4°
19 April 2019	100.0cm	64.4cm	32.8°

18/04/2019 (Lafrançaise-France) Latitude: 44.127°

18/04/2019 (Piranguinho-Brazil) Latitude: -22.411°



Distance	Angle
circumference	360°
7392km	33.4°+33.2°

$$\text{circumference} = \frac{360^\circ \times 7392\text{km}}{33.4^\circ + 33.2^\circ} = 39957 \text{ km}$$



Mărgineni, Romania

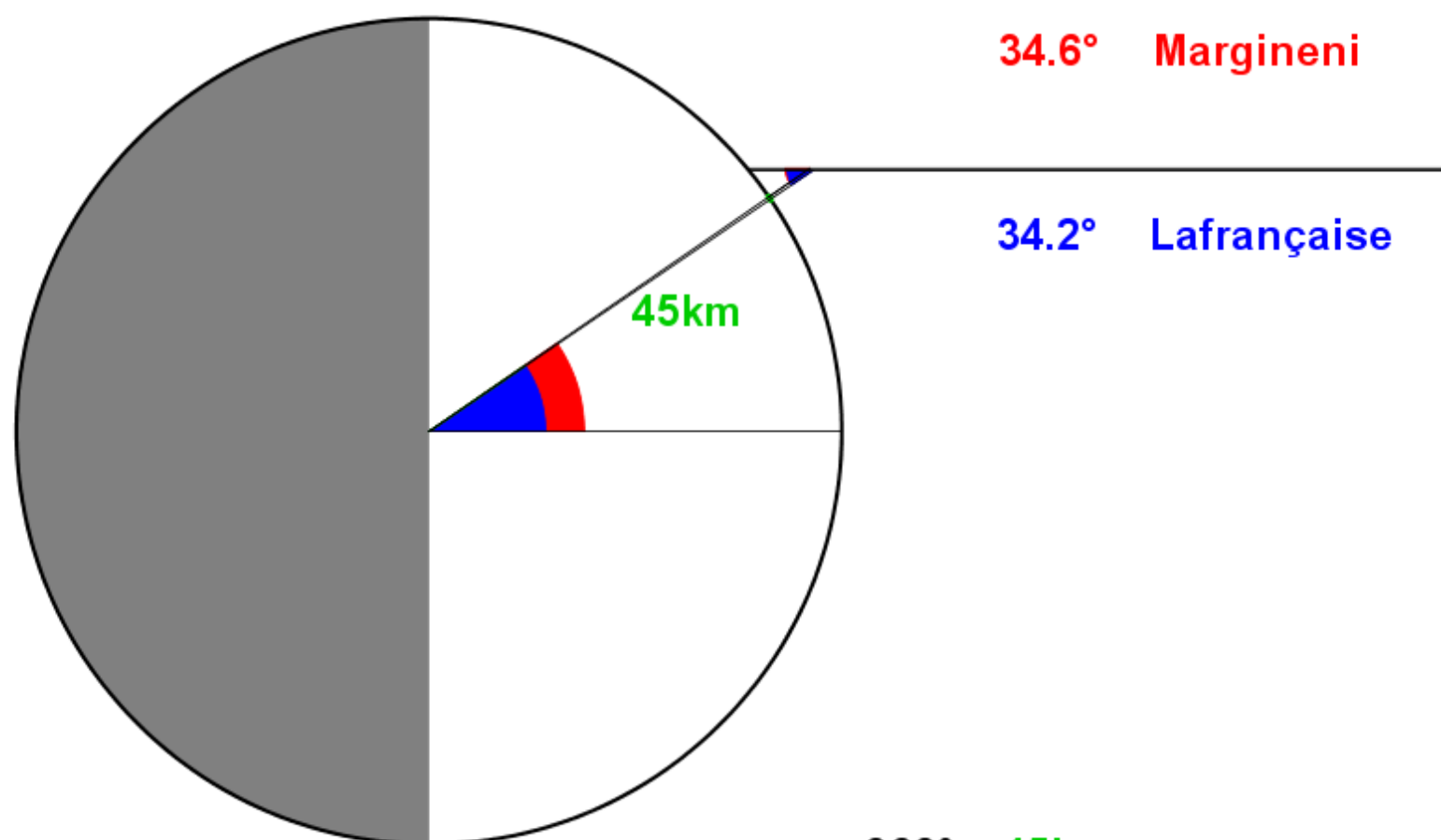


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Mărgineni	Romania	Gh. Popescu School	44.533	24.554

Date	Gnomon	Shadow	Angle
15 April 2019	100.0cm	69.0cm	34.6°

15/04/2019 (Margineni-Romania) Latitude: 44.533°

15/04/2019 (Lafrançaise-France) Latitude: 44.127°



Distance	Angle
circumference	360°
45km	34.6° - 34.2°

$$\text{circumference} = \frac{360^\circ \times 45\text{km}}{34.6^\circ - 34.2^\circ} = 40500 \text{ km}$$



Petroupoli, Greece

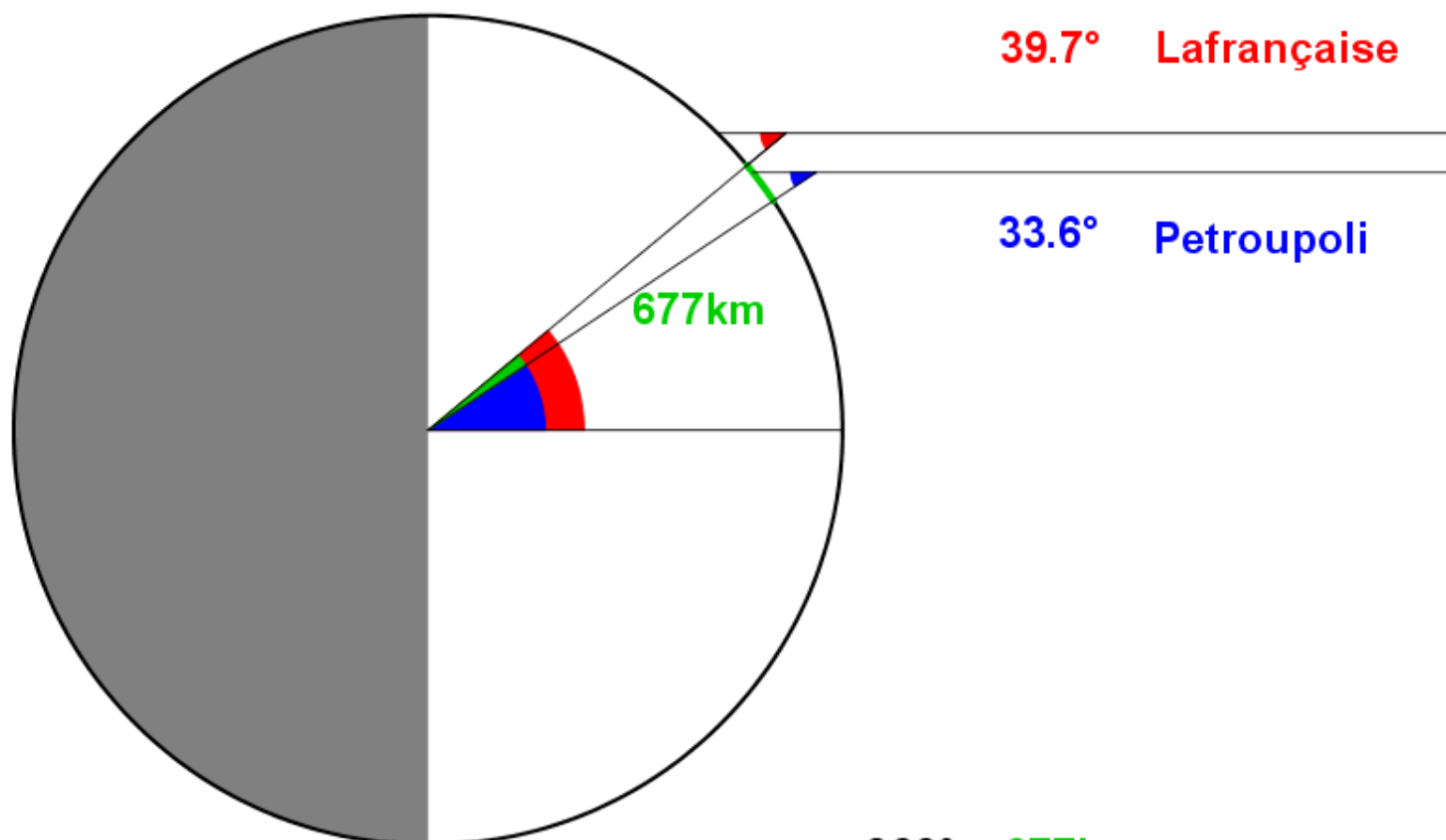


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Petroupoli	Greece	4o Junior High School	38.036	23.674

Date	Gnomon	Shadow	Angle
01 April 2019	60.0cm	39.8cm	33.6°
05 April 2019	60.0cm	37.3cm	31.9°
17 April 2019	60.0cm	31.4cm	27.6°
24 April 2019	31.5cm	14.8cm	25.2°

01/04/2019 (Lafrançaise-France) Latitude: 44.127°

01/04/2019 (Petroupoli-Greece) Latitude: 38.036°

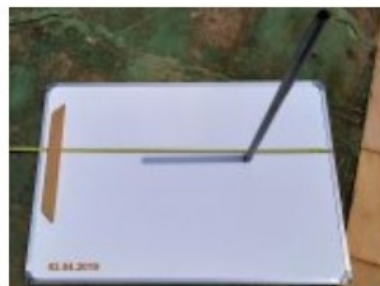


Distance	Angle
circumference	360°
677km	39.7° - 33.6°

$$\text{circumference} = \frac{360^\circ \times 677\text{km}}{39.7^\circ - 33.6^\circ} = 39954 \text{ km}$$



Piranguinho, Brazil

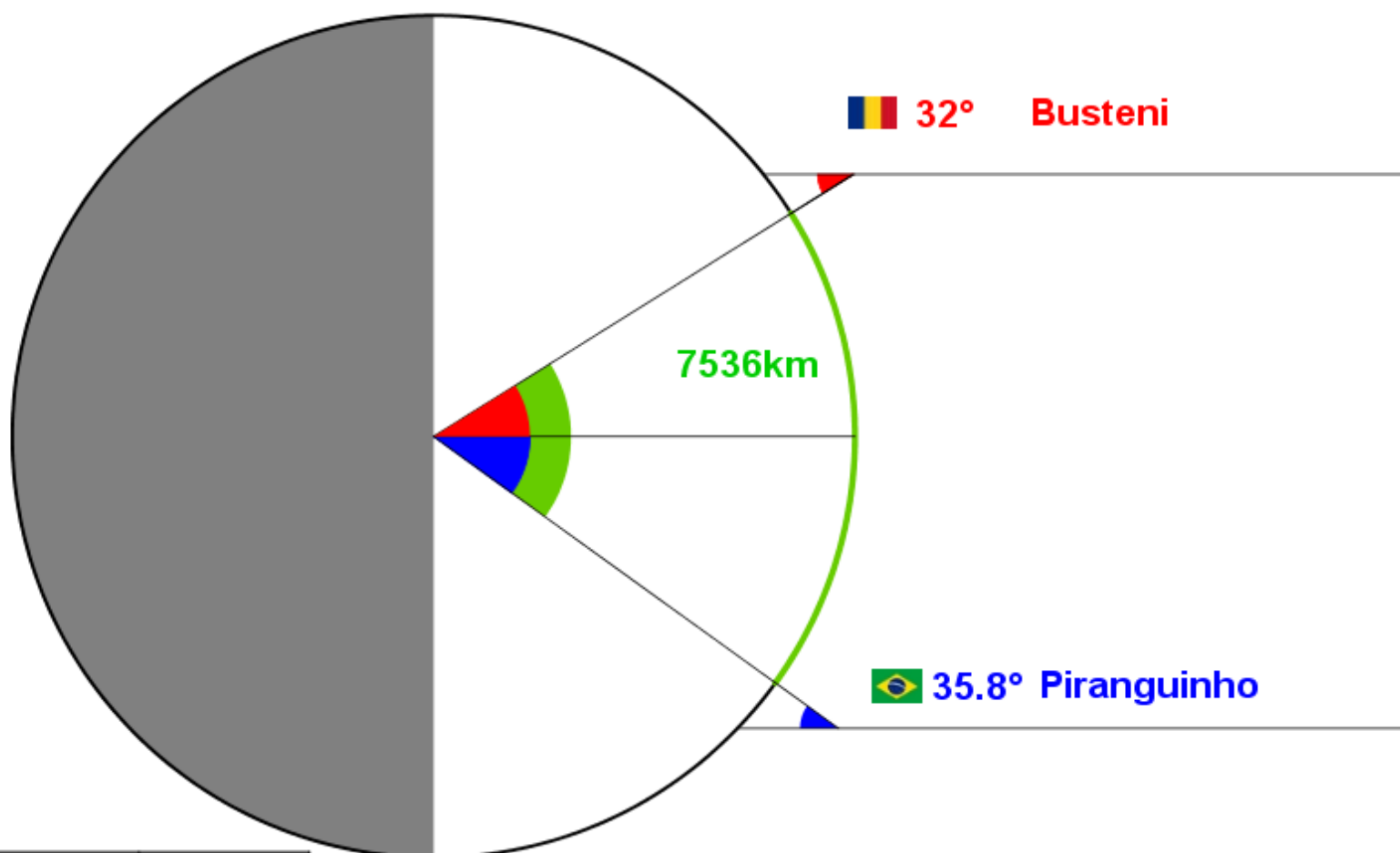


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Piranguinho	Brazil	Universidade Federal de Itajubá	-22.411	-45.535

Date	Gnomon	Shadow	Angle
02 April 2019	70.0cm	-35.6cm	-27°
04 April 2019	70.0cm	-37.6cm	-28.2°
09 April 2019	70.0cm	-40.8cm	-30.2°
18 April 2019	70.0cm	-45.8cm	-33.2°
22 April 2019	70.0cm	-47.7cm	-34.3°
23 April 2019	70.0cm	-48.6cm	-34.8°
25 April 2019	70.0cm	-50.4cm	-35.8°
30 April 2019	70.0cm	-52.6cm	-36.9°

25/04.2019 (Busteni-Romania) Latitude: 45.416°

25/05/2019 (Piranguinho-Brazil) Latitude: -22.411°



$$\text{circumference} = \frac{360^\circ \times 7536\text{km}}{32^\circ + 35.8^\circ} = 40014 \text{ km}$$

Distance	Angle
circumference	360°
7536km	32° + 35.8°



Râmnicu Vâlcea, Romania

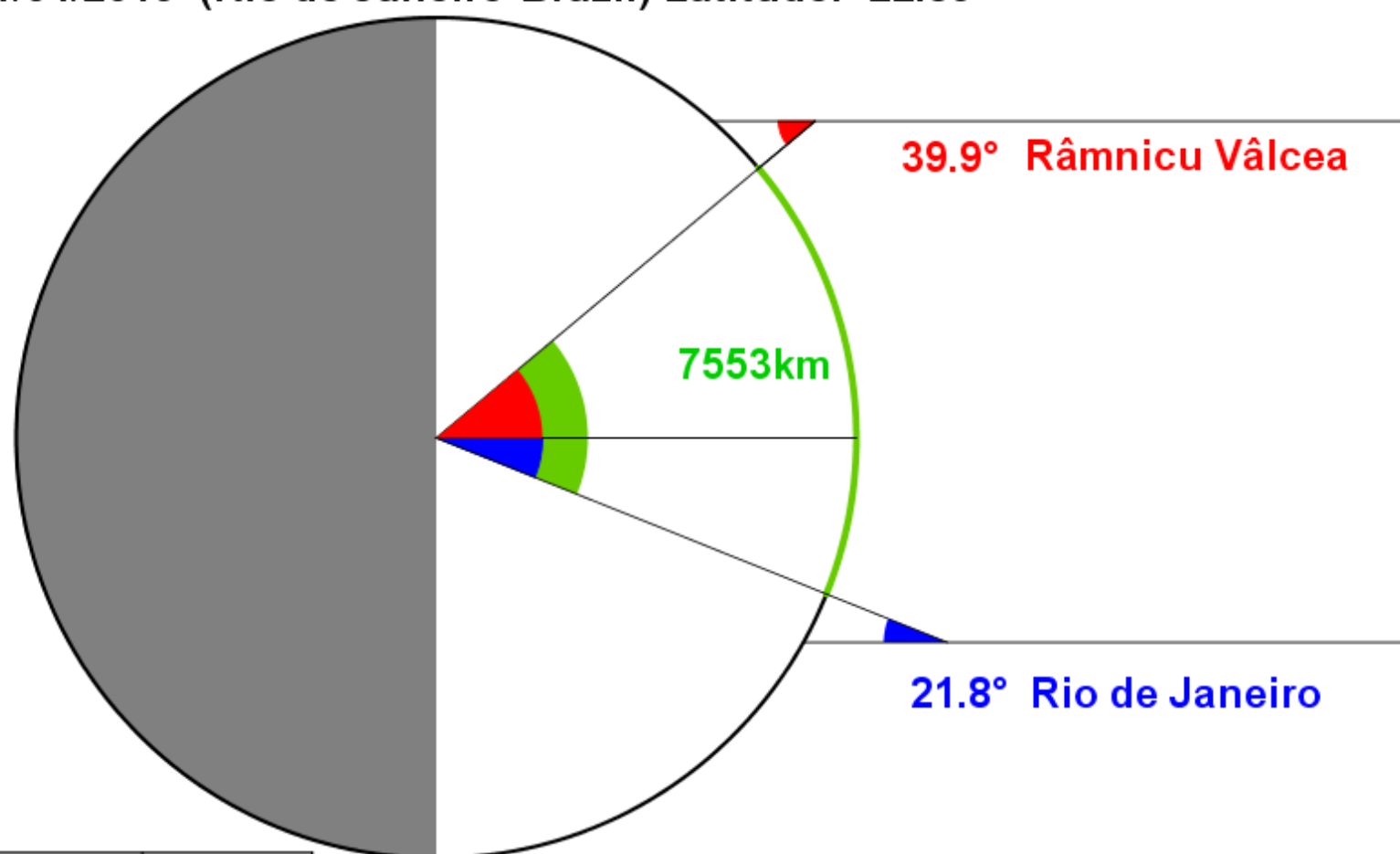


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Râmnicu Vâlcea	Romania	S.G. Nr4 Gradinita Dumbrava Minuata	45.093	24.358

Date	Gnomon	Shadow	Angle
01 April 2019	30.0cm	25.1cm	39.9°
08 April 2019	30.0cm	23.2cm	37.7°

01/04/2019 (Râmnicu Vâlcea-Romania) Latitude: 45.093°

01/04/2019 (Rio de Janeiro-Brazil) Latitude: -22.89°



Distance	Angle
circumference	360°
7553km	39.9°+21.8°

$$\text{circumference} = \frac{360^\circ \times 7553\text{km}}{39.9^\circ + 21.8^\circ} = 44069 \text{ km}$$



Rio de Janeiro, Brazil

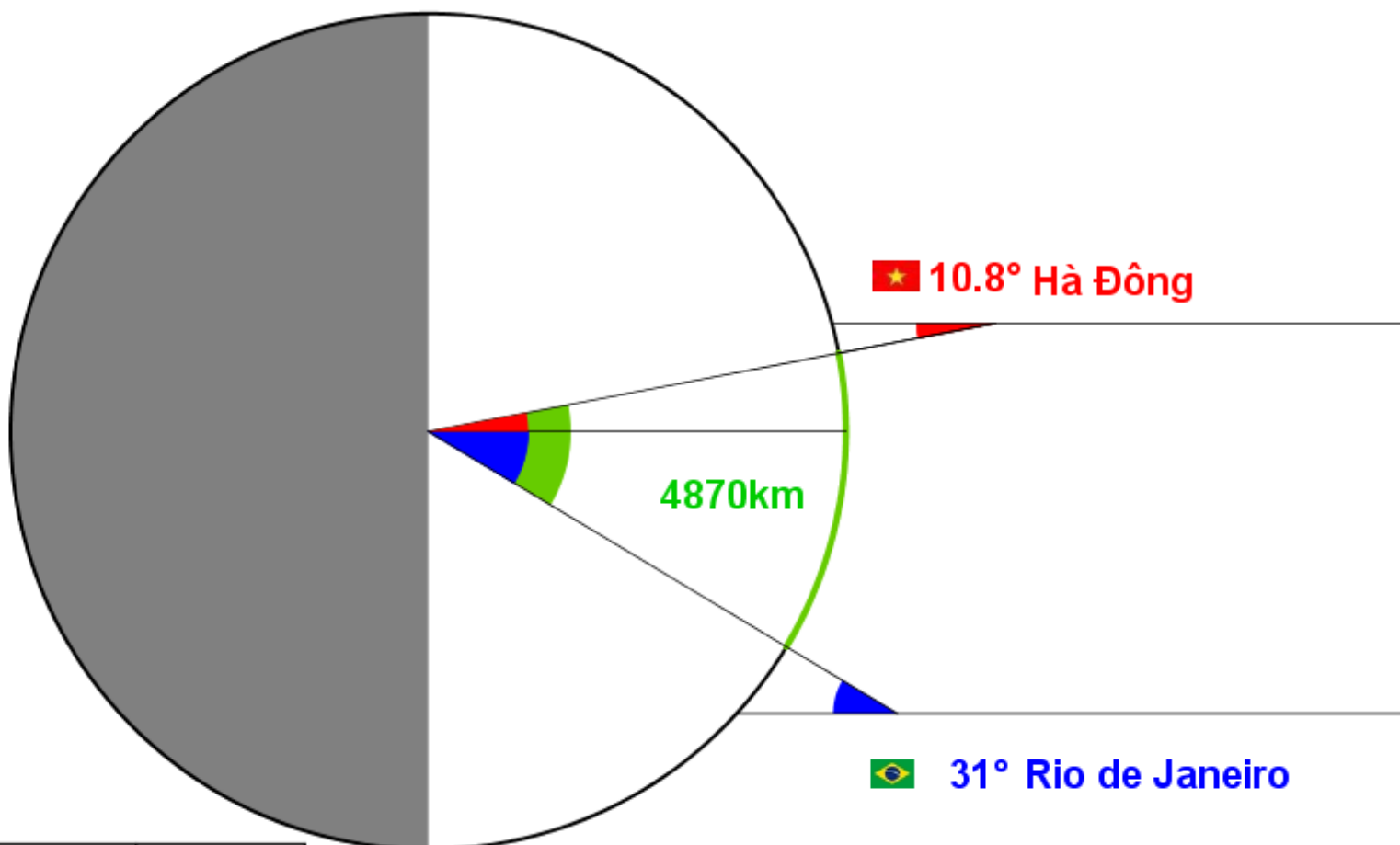


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Rio de Janeiro	Brazil	Centro Educacional Nosso Mundo	-22.890	-43.317

Date	Gnomon	Shadow	Angle
01 April 2019	100.0cm	-40.0cm	-21.8°
03 April 2019	100.0cm	-43.0cm	-23.3°
04 April 2019	100cm	-42cm	-22.8°
05 April 2019	100cm	-44cm	-23.7°
08 April 2019	100.0cm	-44.0cm	-23.7°
24 April 2019	100.0cm	-60.0cm	-31.0°

24/04/2019 (Hà Đông-Việt Nam) Latitude: 20.943°

24/04/2019 (Rio de Janeiro-Brazil) Latitude: -22.89°



Distance	Angle
circumference	360°
4870km	10.8° + 31°

$$\text{circumference} = \frac{360^\circ \times 4870\text{km}}{10.8^\circ + 31^\circ} = 41943 \text{ km}$$



Úbeda, Spain

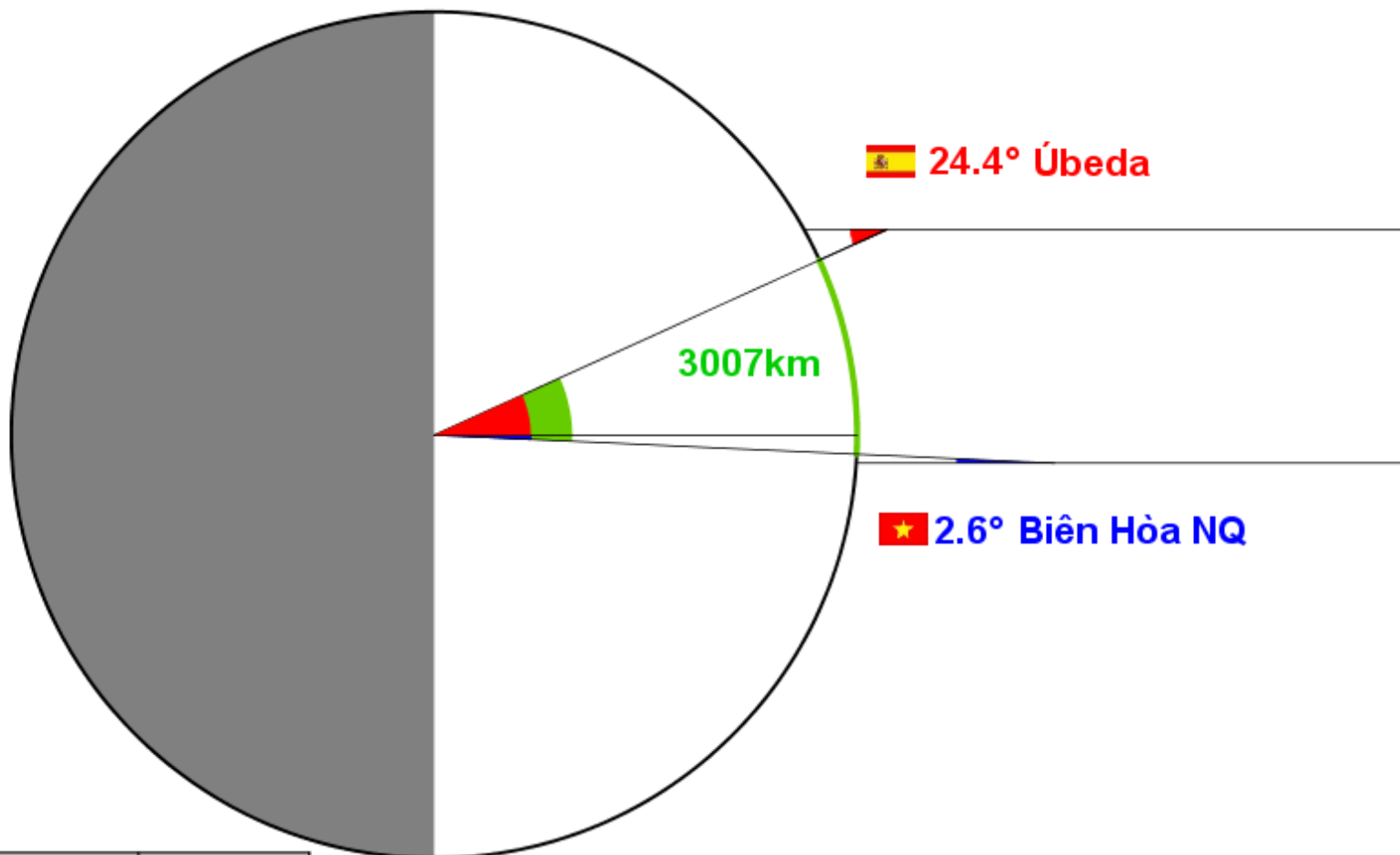


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Úbeda	Spain	Colegio Salesiano Santo Domingo Savio	38.017	-3.367

Date	Gnomon	Shadow	Angle
12 April 2019	119.9cm	75.6cm	32.2°
26 April 2019	120cm	54.5cm	24.4°

26/04/2019 (Úbeda-Spain) Latitude: 38.017°

26/04/2019 (Biên Hòa NQ-Việt Nam) Latitude: 10.955°



 24.4° Úbeda

 2.6° Biên Hòa NQ

$$\text{circumference} = \frac{360^\circ \times 3007\text{km}}{24.4^\circ + 2.6^\circ} = 40093 \text{ km}$$

Distance	Angle
circumference	360°
3007km	24.4° + 2.6°



