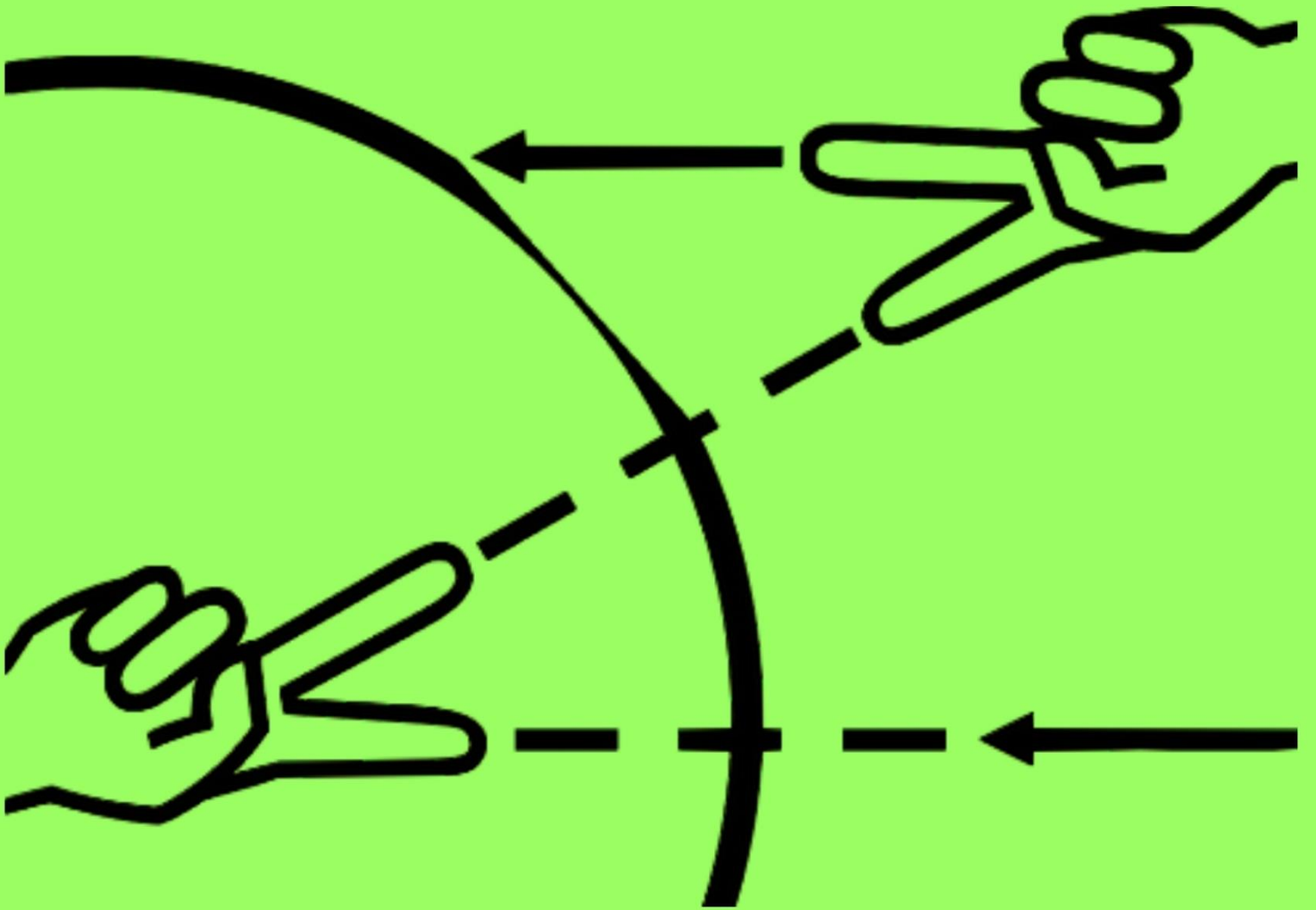


# Eratosthenes



May 2017

**3** Continents

**10** Countries

**22** Schools

**97** Measures

**ARGENTINA (1)**

Anisacate

**BRAZIL (3)**

Piranguinho, Rio de Janeiro (2)

**CROATIA (2)**

Brštanovo, Donji Muć

**COLOMBIA (1)**

Guarne

**FRANCE (1)**

Lafrançaise

**GERMANY (1)**

Pfaffenhofen

**GREECE (6)**

Aigio, Athens, Ilion, Nafplion, Petroupoli, Piraeus

**INDIA (2)**

Bhusawar, Hyderabad

**ITALY (2)**

Marina di Carrara, Merlara

**ROMANIA (3)**


Busteni, Mărgineni, Râmnicu Vâlcea

| Flag                                                                               | City              | Country   | School                                   | Latitude (°)<br>+N/-S | Longitude (°)<br>+E/-W |
|------------------------------------------------------------------------------------|-------------------|-----------|------------------------------------------|-----------------------|------------------------|
|    | Aigio             | Greece    | 1st High School of Aigio                 | 38.252                | 22.079                 |
|    | Anisacate         | Argentina | Fundación Caminos de Anisacate           | -31.717               | -64.400                |
|    | Athens            | Greece    | Experimental College Agion Anargyron     | 38.027                | 23.726                 |
|    | Bhusawar          | India     | CTE                                      | 27.046                | 77.054                 |
|    | Brštanovo         | Croatia   | Osnovna škola kneza Branimira            | 43.658                | 16.415                 |
|    | Busteni           | Romania   | Colegiul Ion Kalinderu                   | 45.416                | 25.535                 |
|    | Donji Muć         | Croatia   | oš kneza Branimira                       | 43.694                | 16.462                 |
|    | Guarne            | Colombia  | Grupo Astrofanáticos                     | 6.274                 | -75.449                |
|   | Hyderabad         | India     | Space Adhyaan                            | 17.385                | 78.487                 |
|  | Ilion             | Greece    | 11th Junior High School of Ilion         | 38.033                | 23.697                 |
|  | Lafrançaise       | France    | Collège Antonin Perbosc                  | 44.127                | 1.237                  |
|  | Mărgineni         | Romania   | Gh. Popescu School                       | 44.533                | 24.554                 |
|  | Marina di Carrara | Italy     | M Buonarroti primary school              | 44.045                | 10.031                 |
|  | Merlara           | Italy     | Lower Secondary School "Dante Alighieri" | 45.166                | 11.433                 |
|  | Nafplion          | Greece    | 2nd Junior High School of Korydallos     | 37.567                | 22.795                 |
|  | Petroupoli        | Greece    | 4o Junior High School                    | 38.036                | 23.674                 |
|  | Pfaffenhofen      | Germany   | Projekt Seminar                          | 48.526                | 11.498                 |
|  | Piraeus           | Greece    | 2nd Junior High School of Korydallos     | 37.977                | 23.655                 |
|  | 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                |
|  | Rio de Janeiro    | Brazil    | Escola Municipal Bento Ribeiro, Méier    | -22.904               | -43.280                |

# Aigio, Greece

May 2017

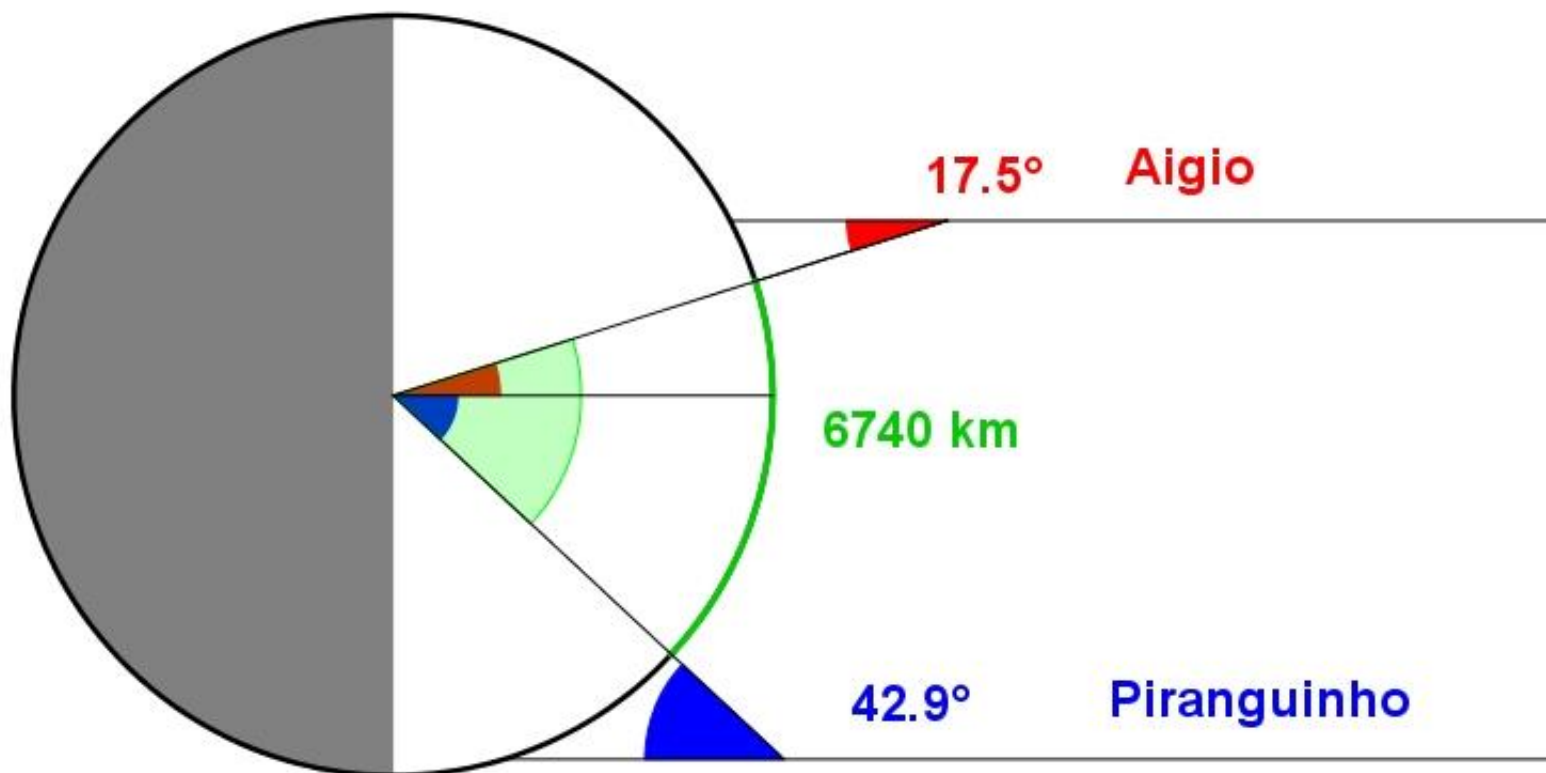


| Flag                                                                             | City  | Country | School                   | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|-------|---------|--------------------------|--------------------|---------------------|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

| Date   | Gnomon | Shadow  | Angle  |
|--------|--------|---------|--------|
| 02 May | 50 cm  | 21 cm   | 22.8 ° |
| 19 May | 50 cm  | 16.5 cm | 18.3 ° |
| 23 May | 50 cm  | 15.8 cm | 17.5 ° |

23 May 2017 (Aigio-GREECE) Latitude: 38.252 °

23 May 2017 (Piranguinho-BRAZIL) Latitude: -22.411 °



$$\text{circumference} = \frac{360^\circ \times 6740 \text{ km}}{17.5^\circ + 42.9^\circ} = 40172 \text{ km}$$



# Anisacate, Argentina

May 2017

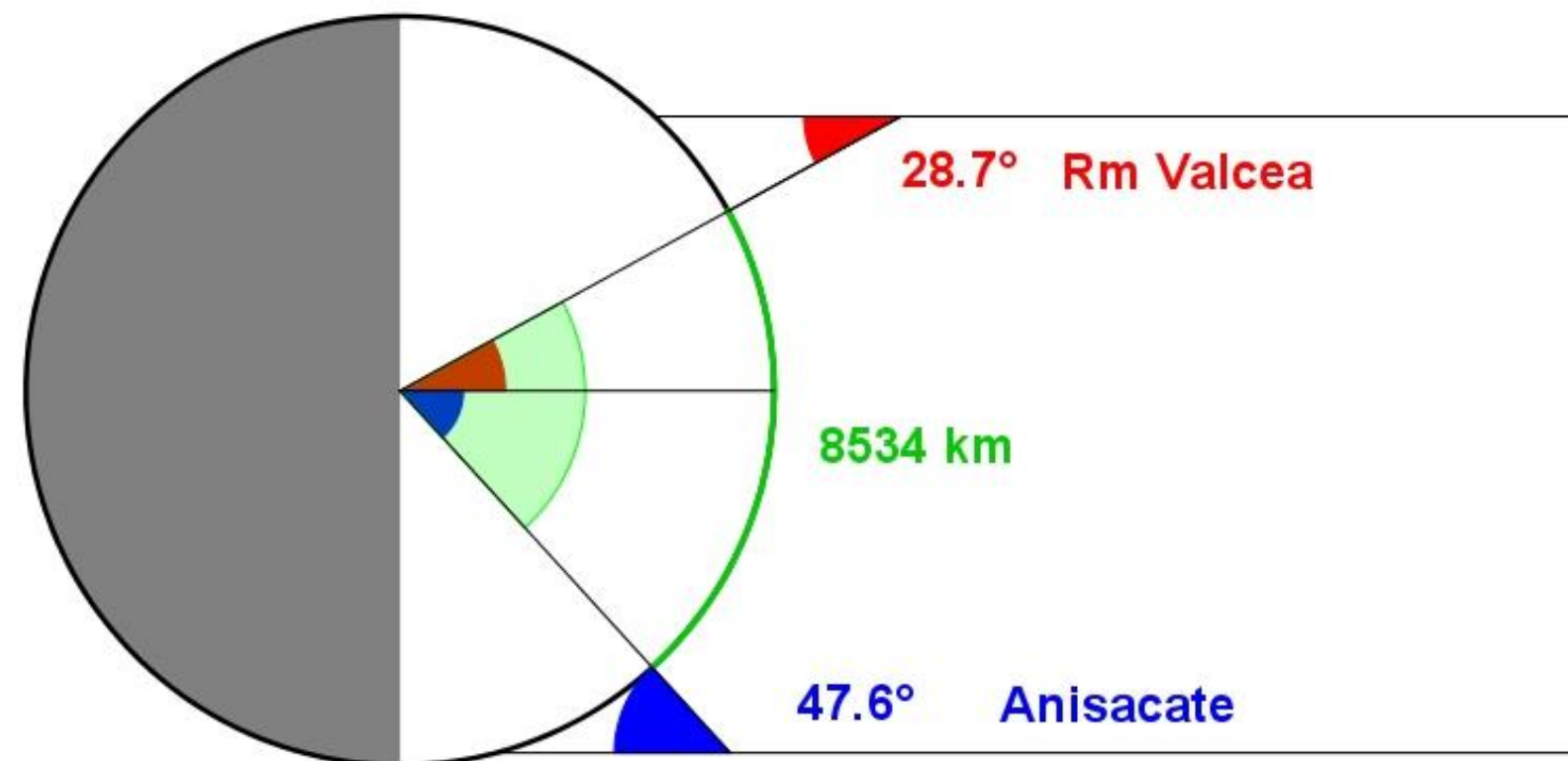


| Flag                                                                             | City      | Country   | School                         | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|-----------|-----------|--------------------------------|--------------------|---------------------|
|  | Anisacate | Argentina | Fundación Caminos de Anisacate | -31.717            | -64.400             |

| Date   | Gnomon | Shadow    | Angle   |
|--------|--------|-----------|---------|
| 04 May | 100 cm | -109.5 cm | -47.6 ° |

04 May 2017 (Rm Valcea-ROMANIA) Latitude: 45.093 °

04 May 2017 (Anisacate-ARGENTINA) Latitude: -31.717 °



$$\text{circumference} = \frac{360^\circ \times 8534 \text{ km}}{28.7^\circ + 47.6^\circ} = 40265 \text{ km}$$



# Athens-A, Greece

May 2017

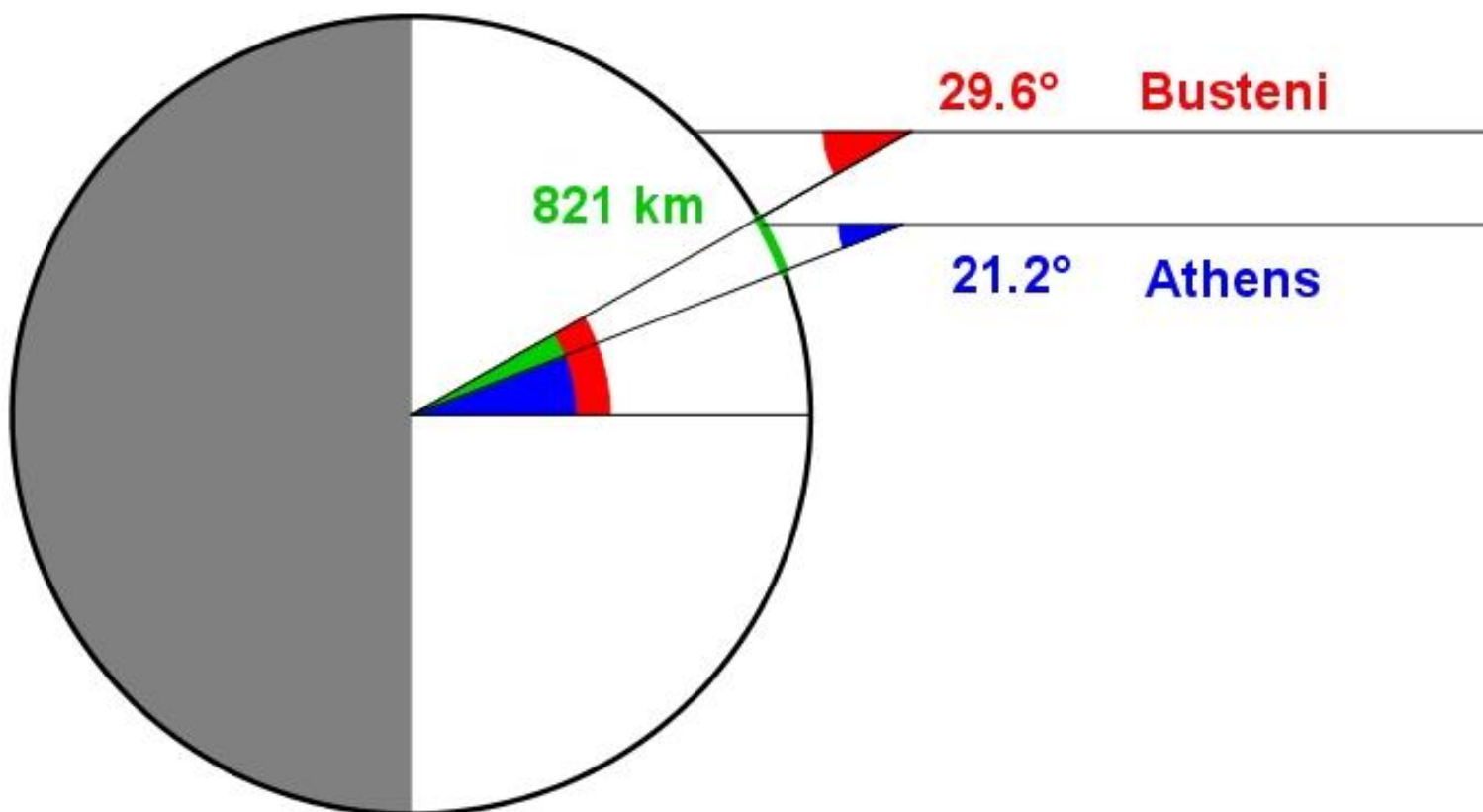


| Flag                                                                             | City   | Country | School                               | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|--------|---------|--------------------------------------|--------------------|---------------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

| Date   | Gnomon | Shadow | Angle  |
|--------|--------|--------|--------|
| 02 May | 49 cm  | 19 cm  | 21.2 ° |

02 May 2017 (Busteni-ROMANIA) Latitude: 45.416°

02 May 2017 (Athens-GREECE) Latitude: 38.027°



$$\text{circumference} = \frac{360^\circ \times 821 \text{ km}}{29.6^\circ - 21.2^\circ} = 35186 \text{ km}$$






# Bhusawar, India

May 2017

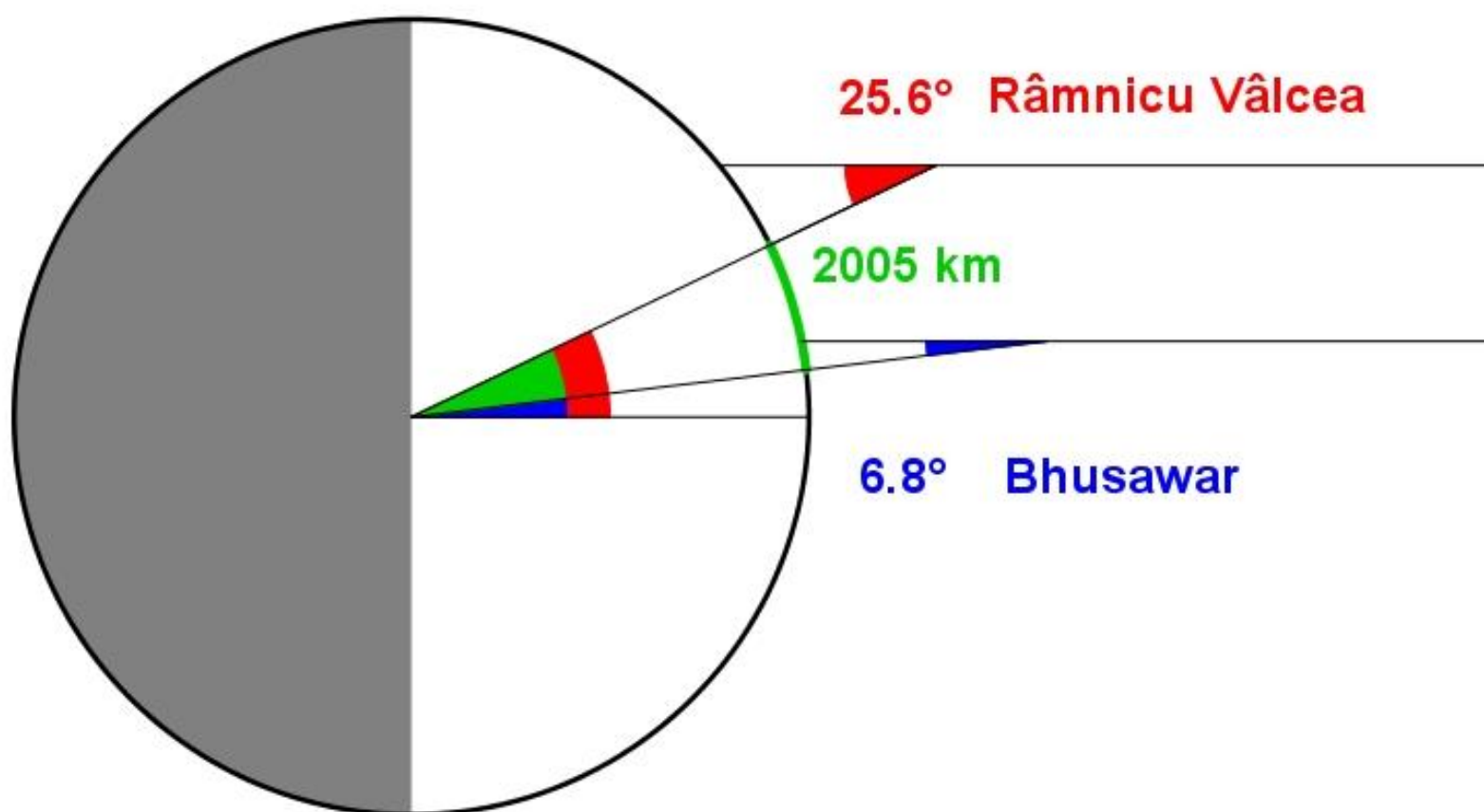


| Flag                                                                             | City     | Country | School | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|----------|---------|--------|--------------------|---------------------|
|  | Bhusawar | India   | CTE    | 27.046             | 77.054              |

| Date   | Gnomon   | Shadow | Angle |
|--------|----------|--------|-------|
| 16 May | 168.5 cm | 20 cm  | 6.8 ° |

16 May 2017 (Râmnicu Vâlcea-ROMANIA) Latitude: 45.093°

16 May 2017 (Bhusawar-INDIA) Latitude: 27.046°



$$\text{circumference} = \frac{360^\circ \times 2005 \text{ km}}{25.6^\circ - 6.8^\circ} = 38394 \text{ km}$$



# Brštanovo, Croatia

May 2017

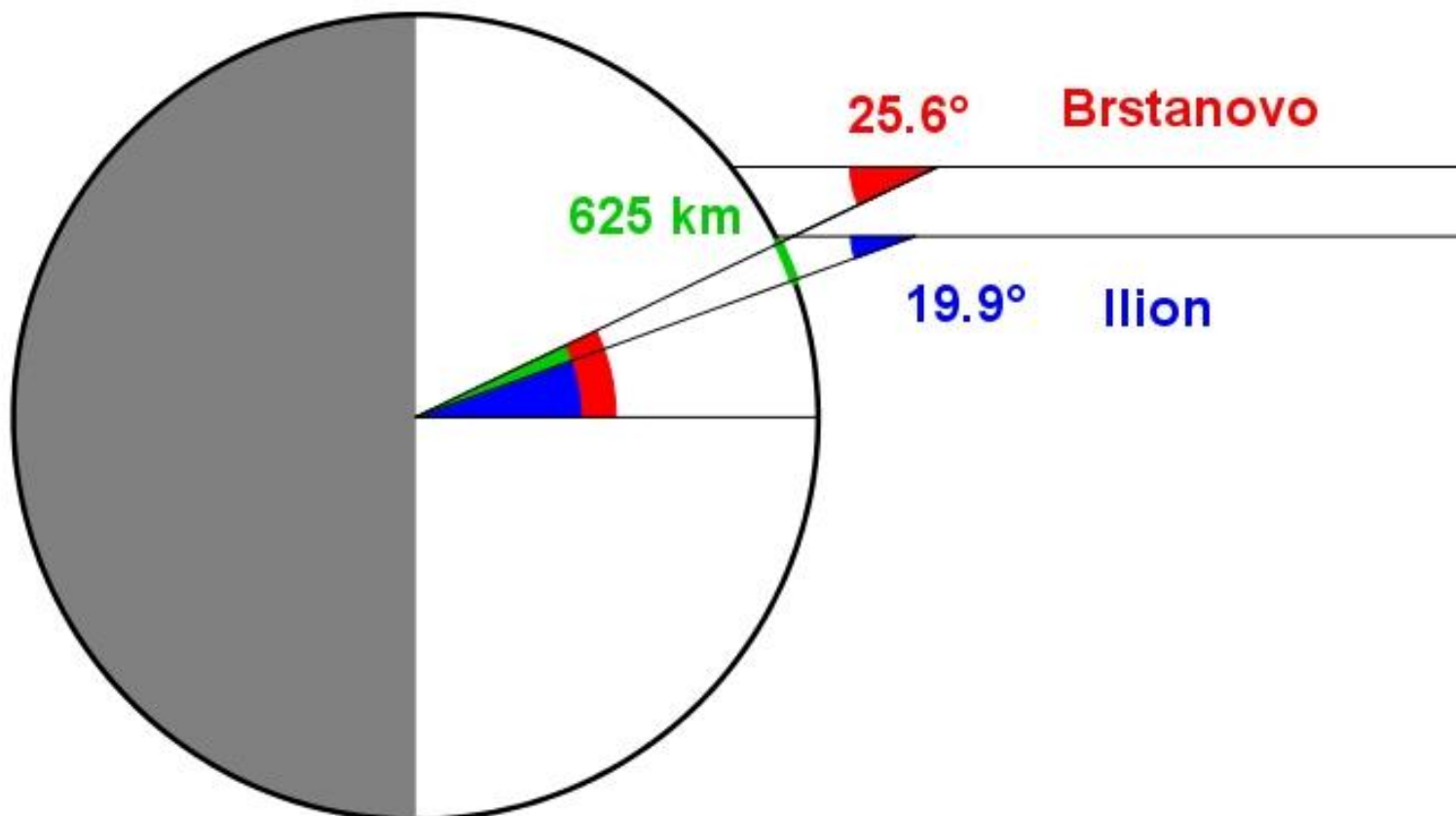


| Flag                                                                             | City      | Country | School                        | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|-----------|---------|-------------------------------|--------------------|---------------------|
|  | Brštanovo | Croatia | Osnovna škola kneza Branimira | 43.658             | 16.415              |

| Date   | Gnomon | Shadow  | Angle  |
|--------|--------|---------|--------|
| 03 May | 100 cm | 52.2 cm | 27.6 ° |
| 10 May | 100 cm | 48 cm   | 25.6 ° |
| 31 May | 100 cm | 40.3 cm | 21.9 ° |

10 May 2017 (Brstanovo-CROATIA) Latitude: 43.658°

10 May 2017 (Ilion-GREECE) Latitude: 38.033°




$$\text{circumference} = \frac{360^\circ \times 625 \text{ km}}{25.6^\circ - 19.9^\circ} = 39474 \text{ km}$$



# Busteni, Romania

May 2017

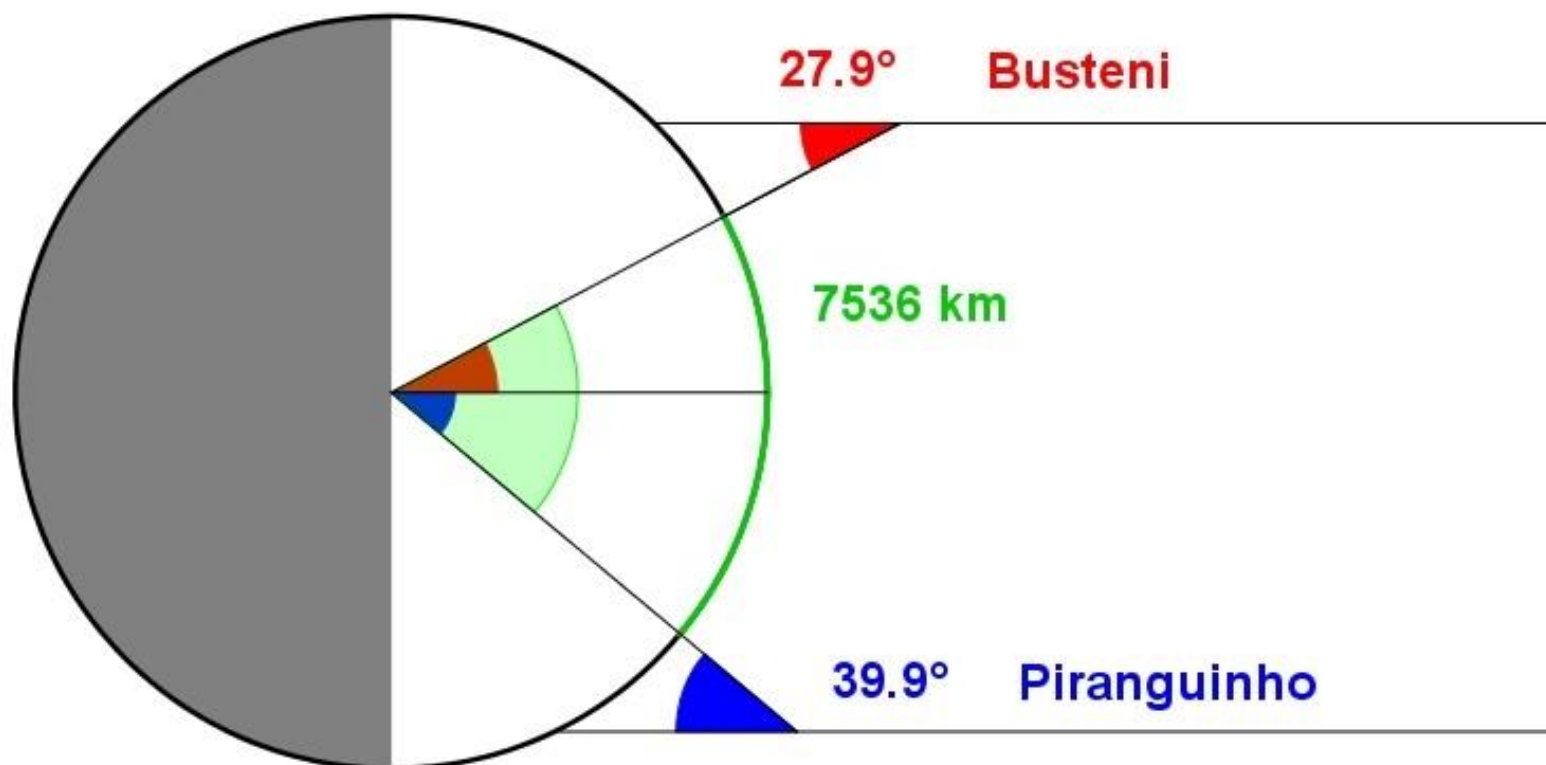


| Flag                                                                             | City    | Country | School                 | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|---------|---------|------------------------|--------------------|---------------------|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

| Date   | Gnomon  | Shadow  | Angle  |
|--------|---------|---------|--------|
| 02 May | 27.3 cm | 15.5 cm | 29.6 ° |
| 03 May | 100 cm  | 56.2 cm | 29.3 ° |
| 04 May | 100 cm  | 55.5 cm | 29 °   |
| 08 May | 66 cm   | 35 cm   | 27.9 ° |
| 11 May | 100 cm  | 51.2 cm | 27.1 ° |
| 15 May | 50 cm   | 24.6 cm | 26.2 ° |
| 18 May | 50 cm   | 23.8 cm | 25.5 ° |
| 22 May | 32.6 cm | 15 cm   | 24.7 ° |
| 25 May | 50 cm   | 22.5 cm | 24.2 ° |
| 30 May | 60 cm   | 26 cm   | 23.4 ° |

08 May 2017 (Busteni-ROMANIA) Latitude: 45.416 °

08 May 2017 (Piranguinho-BRASIL) Latitude: -22.411 °




$$\text{circumference} = \frac{360^\circ \times 7536 \text{ km}}{27.9^\circ + 39.9^\circ} = 40014 \text{ km}$$



# Donji Muć, Croatia

May 2017

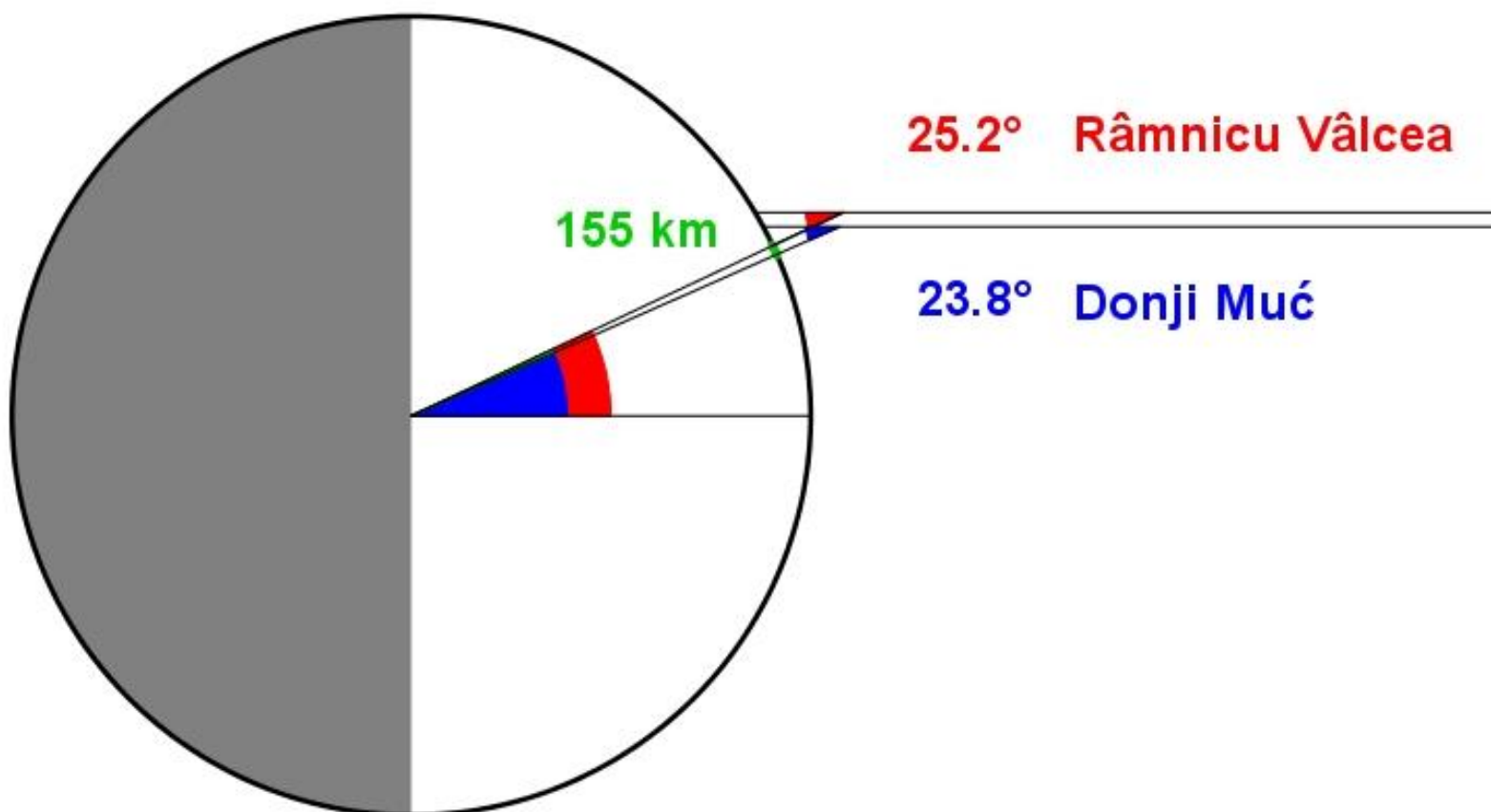


| Flag                                                                             | City      | Country | School             | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|-----------|---------|--------------------|--------------------|---------------------|
|  | Donji Muć | Croatia | oš kneza Branimira | 43.694             | 16.462              |

| Date   | Gnomon | Shadow  | Angle  |
|--------|--------|---------|--------|
| 11 May | 100 cm | 47.8 cm | 25.5 ° |
| 18 May | 100 cm | 44.2 cm | 23.8 ° |

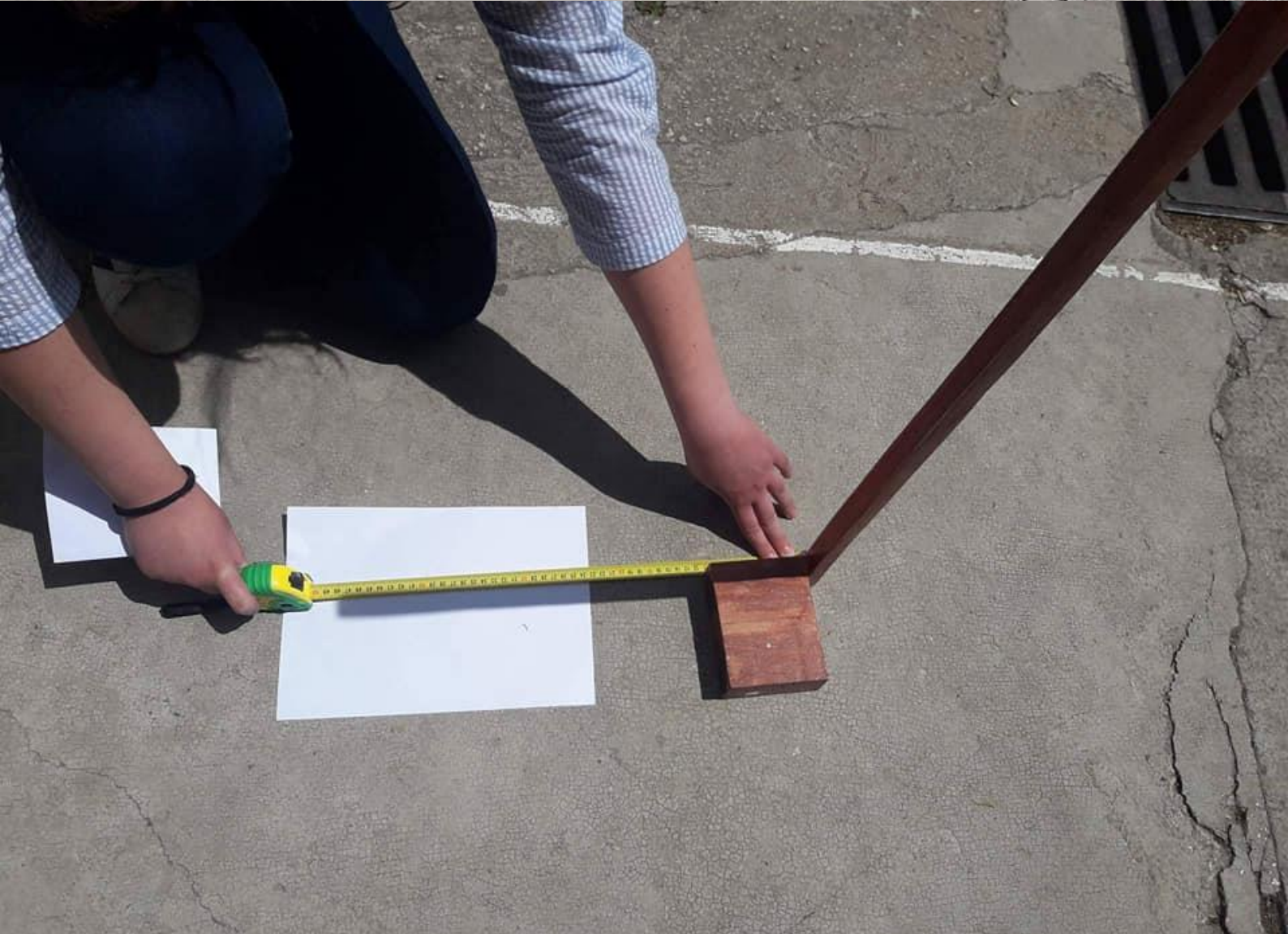
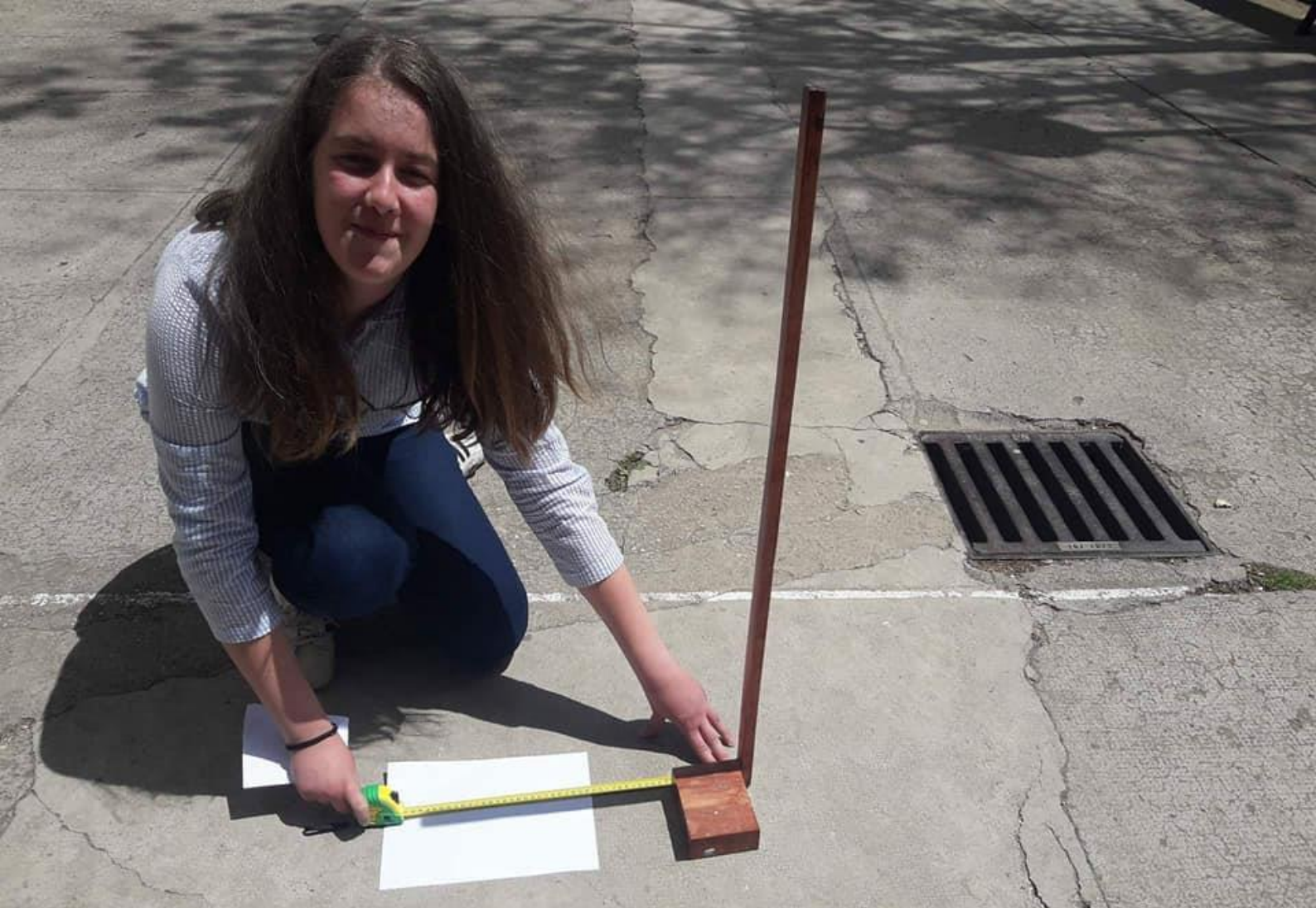
18 May 2017 (Râmnicu Vâlcea-ROMANIA) Latitude: 45.093°

18 May 2017 (Donji Muć-CROATIA) Latitude: 43.694°



$$\text{circumference} = \frac{360^\circ \times 155 \text{ km}}{25.2^\circ - 23.8^\circ} = 39857 \text{ km}$$






# Guarne, Colombia

May 2017

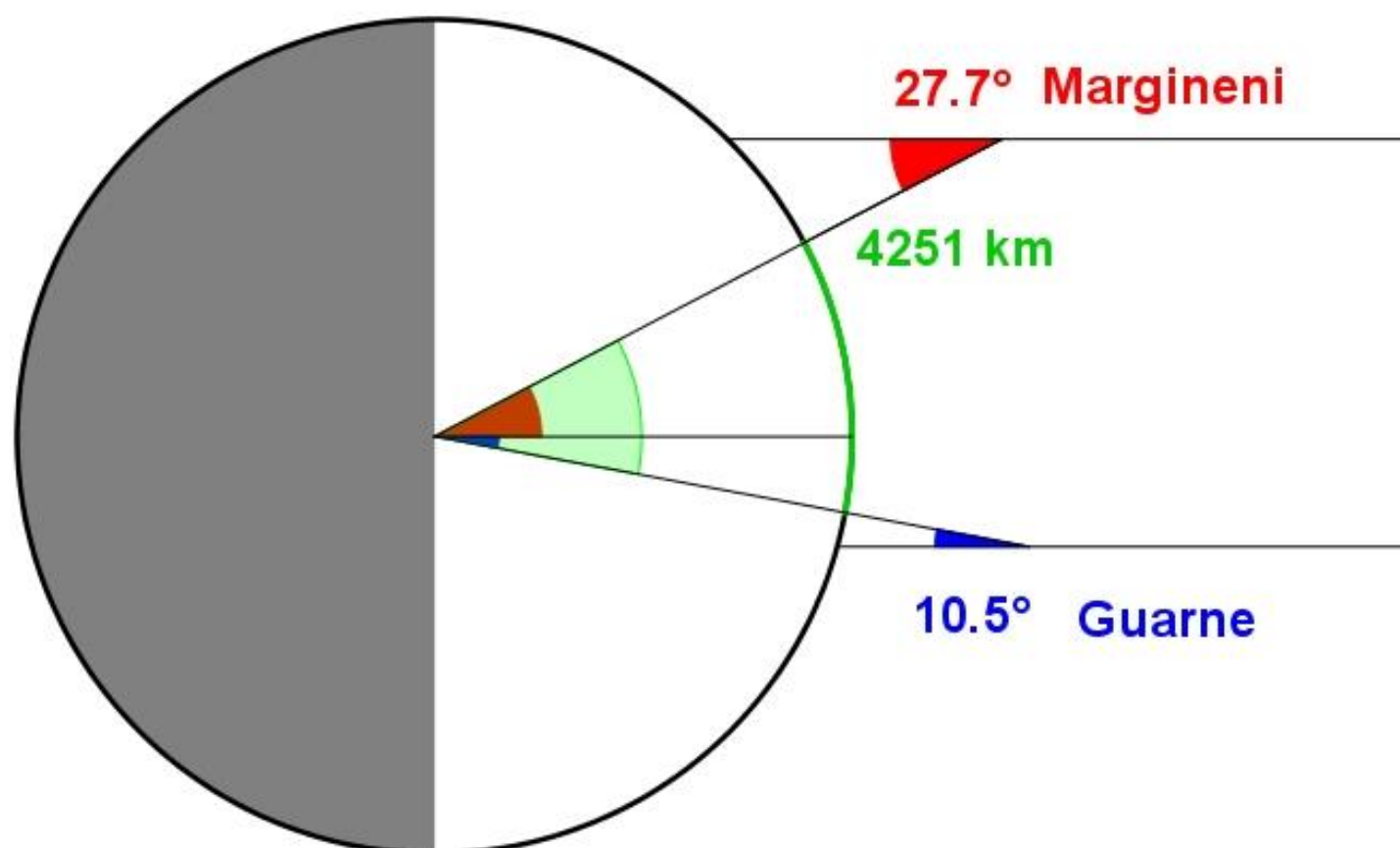


| Flag                                                                             | City   | Country  | School               | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|--------|----------|----------------------|--------------------|---------------------|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

| Date   | Gnomon  | Shadow   | Angle   |
|--------|---------|----------|---------|
| 04 May | 67.4 cm | -10.6 cm | -8.9 °  |
| 05 May | 67.4 cm | -10.9 cm | -9.2 °  |
| 10 May | 67.4 cm | -12.5 cm | -10.5 ° |
| 15 May | 67.4 cm | -13.9 cm | -11.7 ° |
| 16 May | 67.4 cm | -14.1 cm | -11.8 ° |
| 19 May | 64.8 cm | -15 cm   | -13 °   |
| 23 May | 64.8 cm | -15.9 cm | -13.8 ° |
| 25 May | 64.8 cm | -16.3 cm | -14.1 ° |
| 29 May | 64.8 cm | -17 cm   | -14.7 ° |

10 May 2017 (Margineni-ROMANIA) Latitude: 44.53 °

10 May 2017 (Guarne-COLOMBIA) Latitude: 6.27 °



$$\text{circumference} = \frac{360^\circ \times 4251 \text{ km}}{27.7^\circ + 10.5^\circ} = 40062 \text{ km}$$



# Hyderabad, India

May 2017

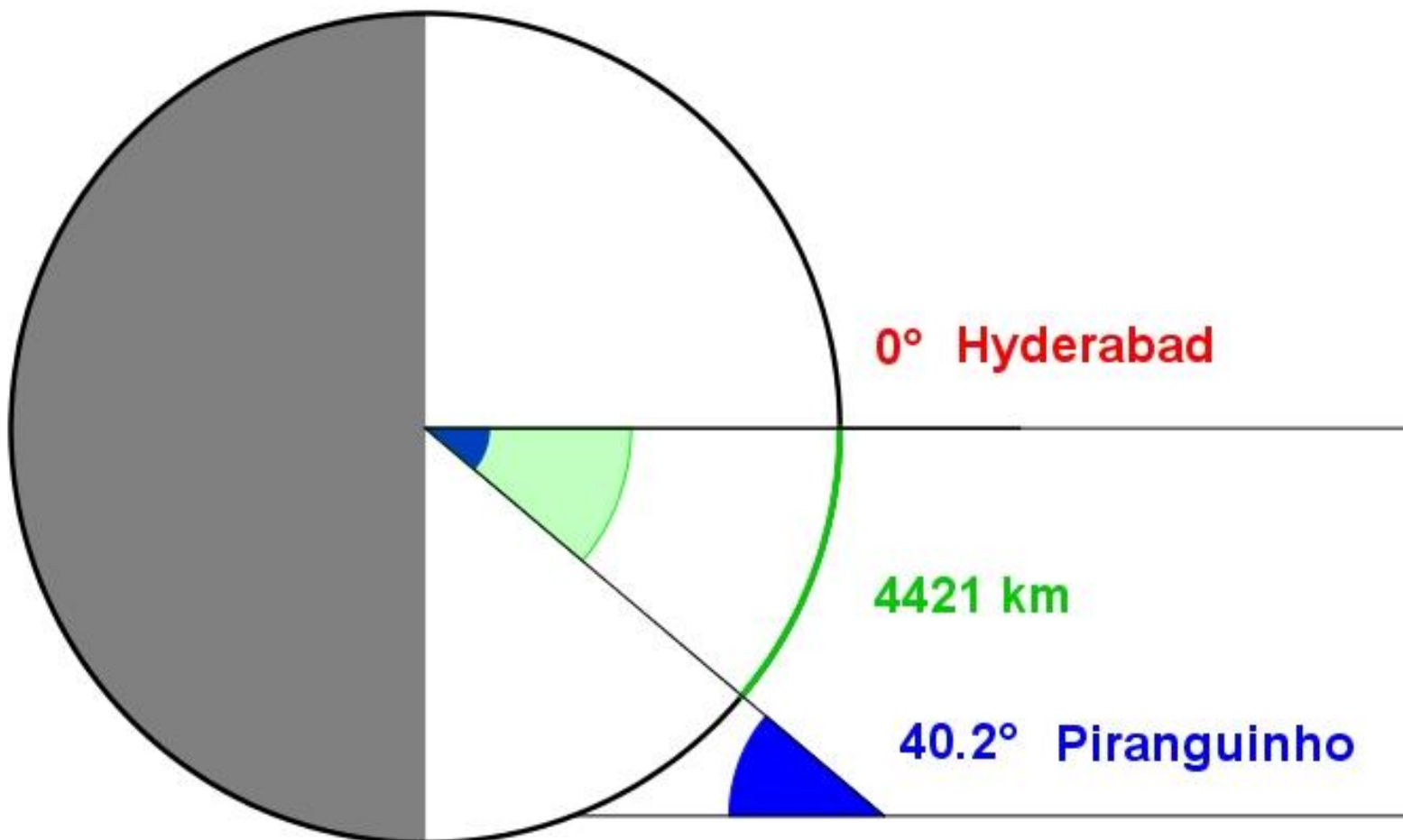


| Flag | City      | Country | School        | Latitude (°) +N/-S | Longitude (°) +E/-W |
|------|-----------|---------|---------------|--------------------|---------------------|
|      | Hyderabad | India   | Space Adhyaan | 17.385             | 78.487              |

| Date   | Gnomon | Shadow | Angle |
|--------|--------|--------|-------|
| 09 May | 100 cm | 0 cm   | 0 °   |

09 May 2017 (Hyderabad-INDIA) Latitude: 17.39 °

09 May 2017 (Piranguinho-BRAZIL) Latitude: -22.41 °



$$\text{circumference} = \frac{360^\circ \times 4421 \text{ km}}{0^\circ + 40.2^\circ} = 39591 \text{ km}$$



# Ilion, Greece

May 2017

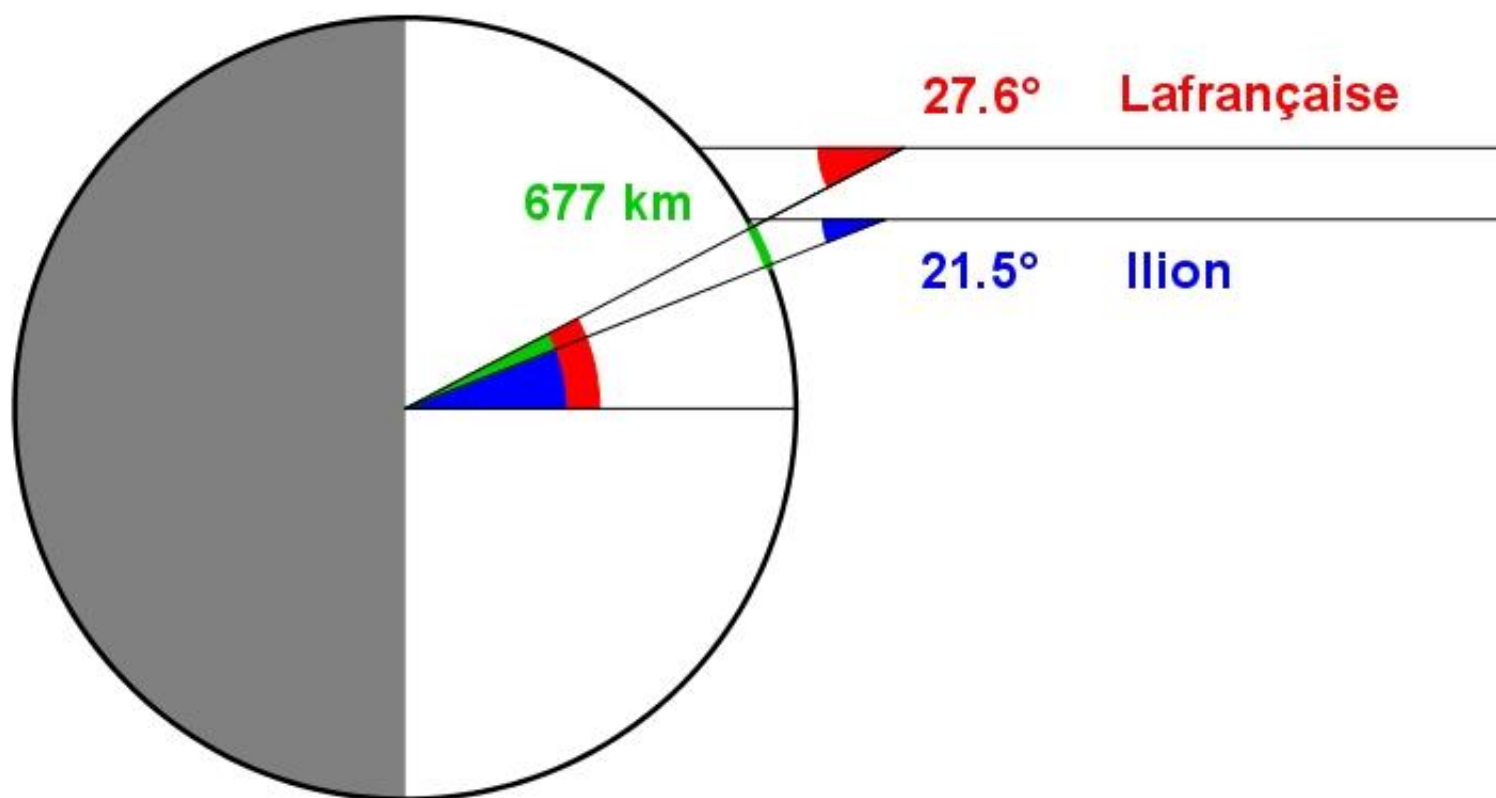


| Flag                                                                             | City  | Country | School                           | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|-------|---------|----------------------------------|--------------------|---------------------|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

| Date   | Gnomon  | Shadow | Angle  |
|--------|---------|--------|--------|
| 05 May | 30,4 cm | 12 cm  | 21.5 ° |
| 10 May | 30.4 cm | 11 cm  | 19.9 ° |

05 May 2017 (Lafrançaise-FRANCE) Latitude: 44.127°

05 May 2017 (Ilion-GREECE) Latitude: 38.033°



$$\text{circumference} = \frac{360^\circ \times 677 \text{ km}}{27.6^\circ - 21.5^\circ} = 39954 \text{ km}$$



# Lafrançaise, France

May 2017

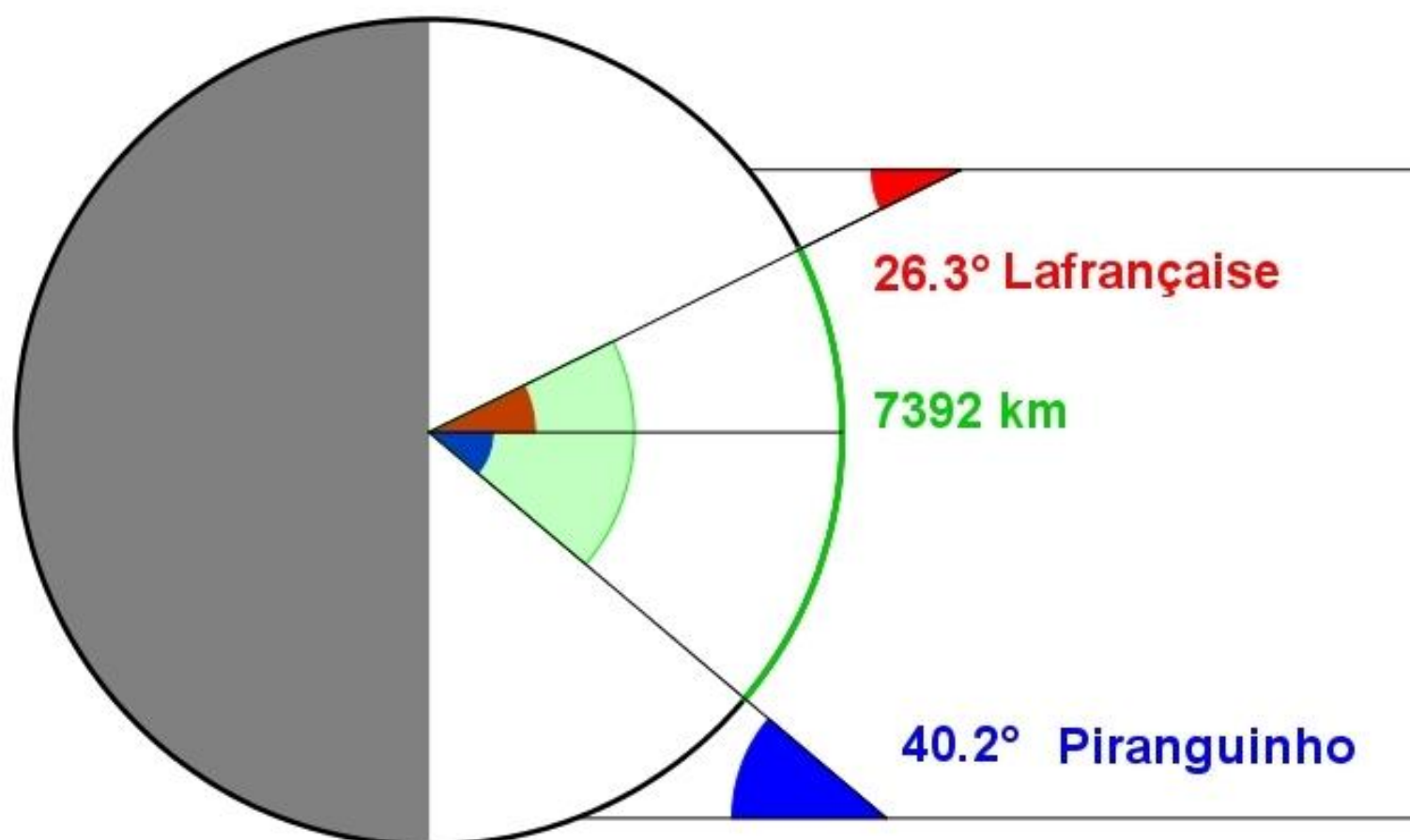


| Flag                                                                             | City        | Country | School                  | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|-------------|---------|-------------------------|--------------------|---------------------|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

| Date   | Gnomon | Shadow  | Angle  |
|--------|--------|---------|--------|
| 02 May | 100 cm | 53.8 cm | 28.3 ° |
| 05 May | 100 cm | 52.3 cm | 27.6 ° |
| 09 May | 100 cm | 49.5 cm | 26.3 ° |
| 12 May | 100 cm | 49.3 cm | 26.2 ° |
| 15 May | 100 cm | 46.6 cm | 25.0 ° |
| 16 May | 100 cm | 46.0 cm | 24.7 ° |
| 22 May | 100 cm | 43.3 cm | 23.4 ° |
| 29 May | 100 cm | 40.2 cm | 21.9 ° |

**09 May 2017 (Lafrançaise-FRANCE) Latitude: 44.13 °**

**09 May 2017 (Piranguinho-BRAZIL) Latitude: -22.41 °**



$$\text{circumference} = \frac{360^\circ \times 7392 \text{ km}}{26.3^\circ + 40.2^\circ} = 40017 \text{ km}$$





# Mărgineni, Romania

May 2017

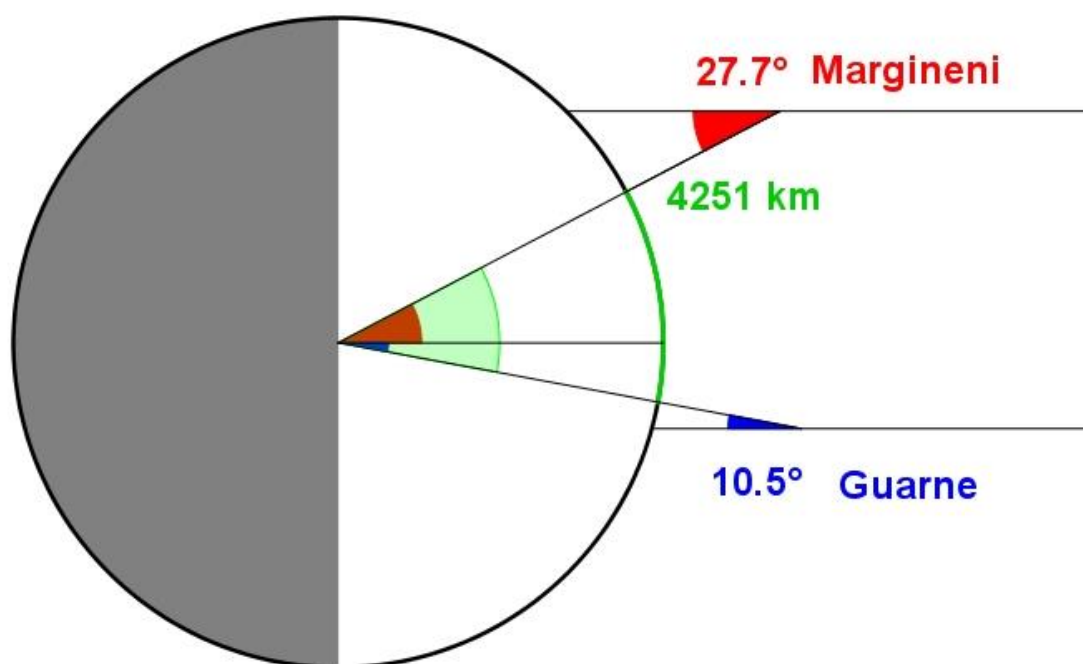


| Flag                                                                             | City      | Country | School             | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|-----------|---------|--------------------|--------------------|---------------------|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

| Date   | Gnomon | Shadow  | Angle  |
|--------|--------|---------|--------|
| 02 May | 100 cm | 56 cm   | 29.2 ° |
| 03 May | 100 cm | 55 cm   | 28.8 ° |
| 04 May | 100 cm | 54.5 cm | 28.6 ° |
| 05 May | 100 cm | 54 cm   | 28.4 ° |
| 08 May | 100 cm | 52 cm   | 27.5 ° |
| 10 May | 100 cm | 52.5 cm | 27.7 ° |
| 11 May | 100 cm | 50.8 cm | 26.9 ° |
| 12 May | 100 cm | 50 cm   | 26.6 ° |
| 16 May | 100 cm | 47.3 cm | 27.3 ° |
| 18 May | 100 cm | 46.7 cm | 25.0 ° |
| 19 May | 100 cm | 46.5 cm | 24.9 ° |
| 24 May | 100 cm | 44.2 cm | 23.8 ° |
| 29 May | 100 cm | 42.4 cm | 23 °   |
| 30 May | 100 cm | 42.7 cm | 23.1 ° |

10 May 2017 (Margineni-ROMANIA) Latitude: 44.53 °

10 May 2017 (Guarne-COLOMBIA) Latitude: 6.27 °



$$\text{circumference} = \frac{360^\circ \times 4251 \text{ km}}{27.7^\circ + 10.5^\circ} = 40062 \text{ km}$$



School Gh. Popescu, Romania

05/05/2017



# Marina di Carrara, Italy

May 2017

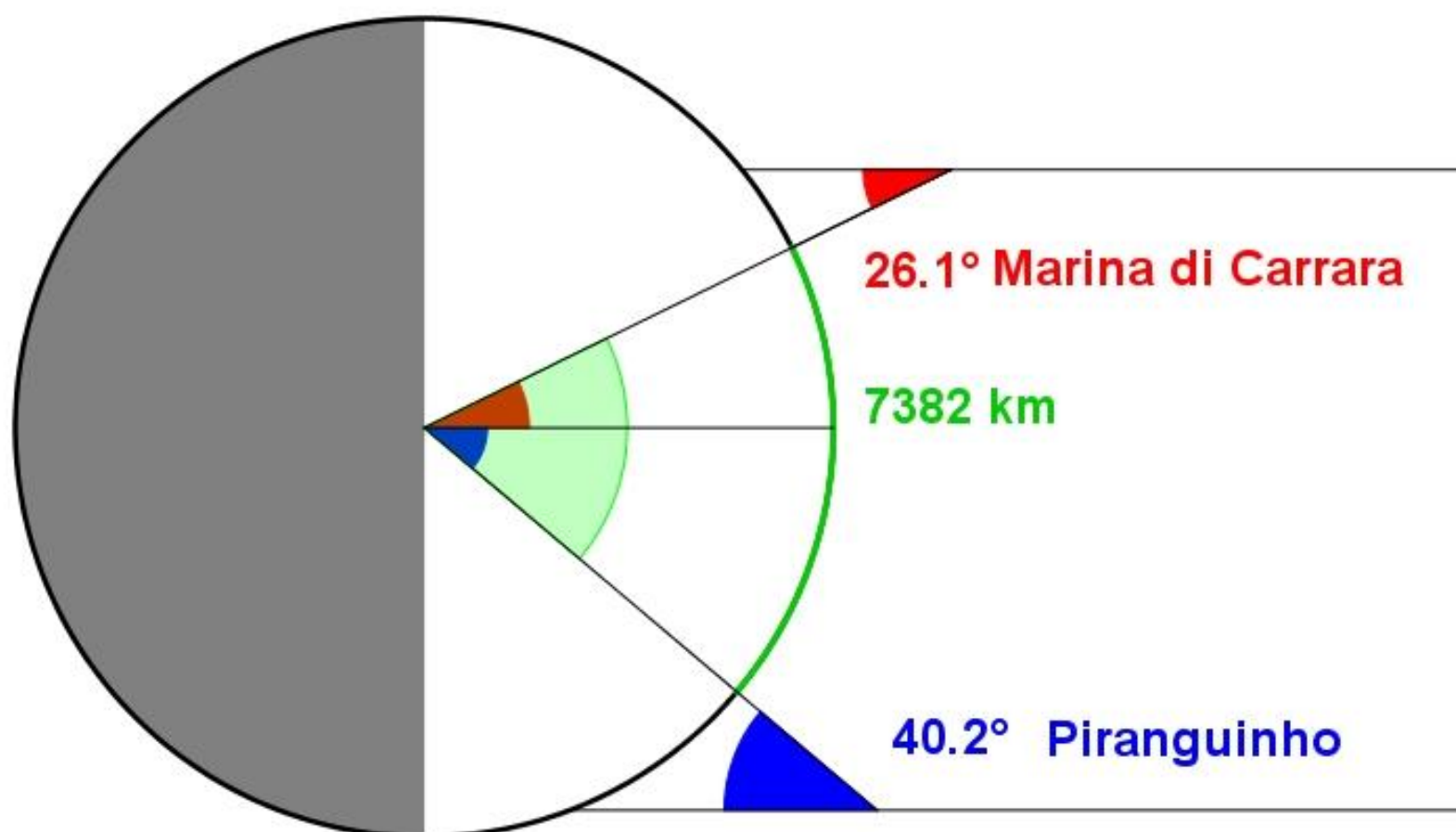


| Flag                                                                             | City              | Country | School                      | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|-------------------|---------|-----------------------------|--------------------|---------------------|
|  | Marina di Carrara | Italy   | M Buonarroti primary school | 44.045             | 10.031              |

| Date   | Gnomon | Shadow | Angle  |
|--------|--------|--------|--------|
| 09 May | 10 cm  | 4.9 cm | 26.1 ° |
| 16 May | 100 cm | 45 cm  | 24.2 ° |
| 30 May | 10 cm  | 4.1 cm | 22.3 ° |

09 May 2017 (Marina di Carrara -ITALY) Latitude: 44.03 °

09 May 2017 (Piranguinho-BRAZIL) Latitude: -22.41 °



$$\text{circumference} = \frac{360^\circ \times 7382 \text{ km}}{26.1^\circ + 40.2^\circ} = 40083 \text{ km}$$



# Merlara, Italy

May 2017

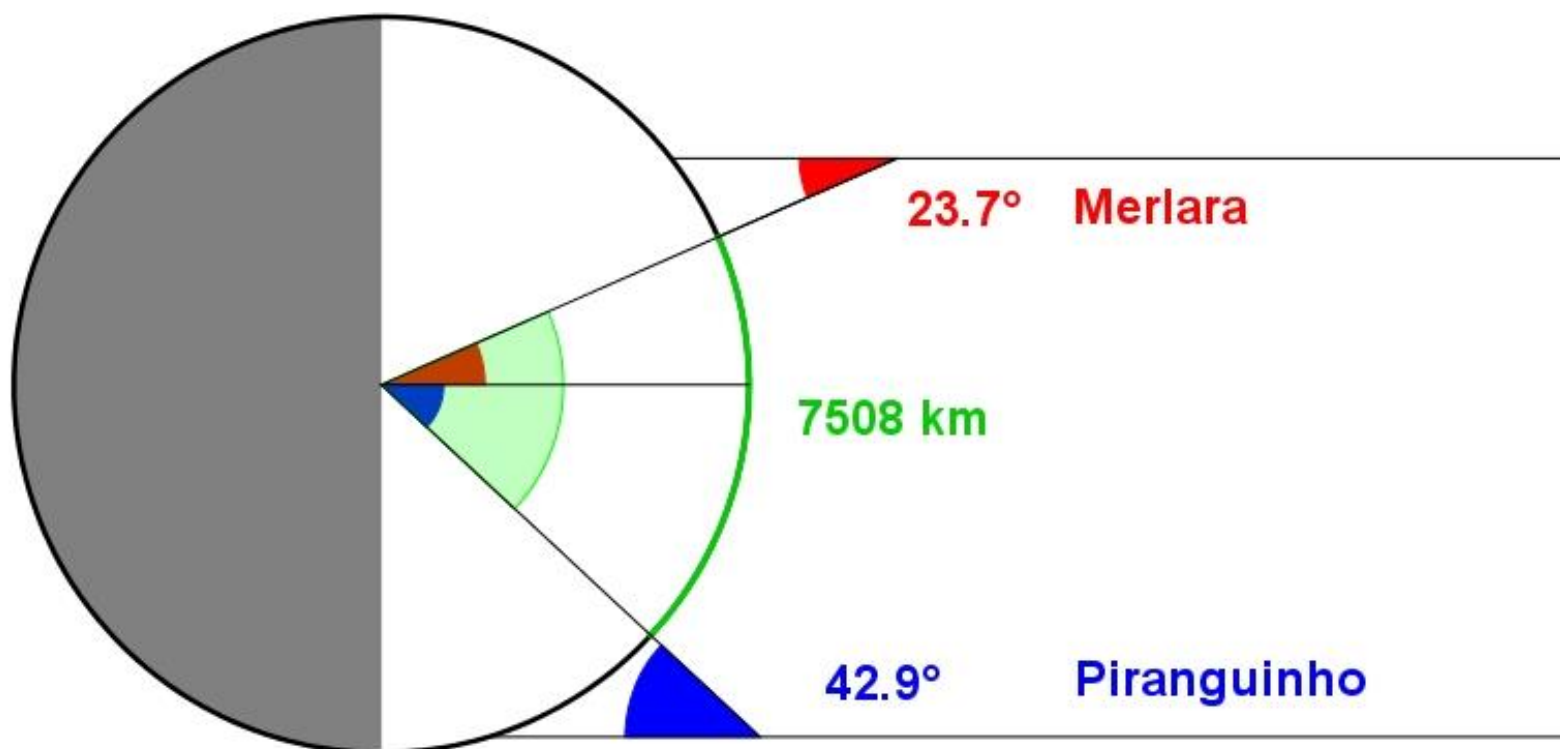


| Flag                                                                             | City    | Country | School                                   | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|---------|---------|------------------------------------------|--------------------|---------------------|
|  | Merlara | Italy   | Lower Secondary School "Dante Alighieri" | 45.166             | 11.433              |

| Date   | Gnomon | Shadow  | Angle  |
|--------|--------|---------|--------|
| 03 May | 100 cm | 54 cm   | 28.4 ° |
| 10 May | 100 cm | 52.5 cm | 27.7 ° |
| 23 May | 100 cm | 44 cm   | 23.7 ° |
| 30 May | 100 cm | 40 cm   | 21.8 ° |

23 May 2017 (Merlara-ITALY) Latitude: 45.166 °

23 May 2017 (Piranguinho-BRAZIL) Latitude: -22.411 °



$$\text{circumference} = \frac{360^\circ \times 7508 \text{ km}}{23.7^\circ + 42.9^\circ} = 40584 \text{ km}$$



# Nafplion, Greece

May 2017

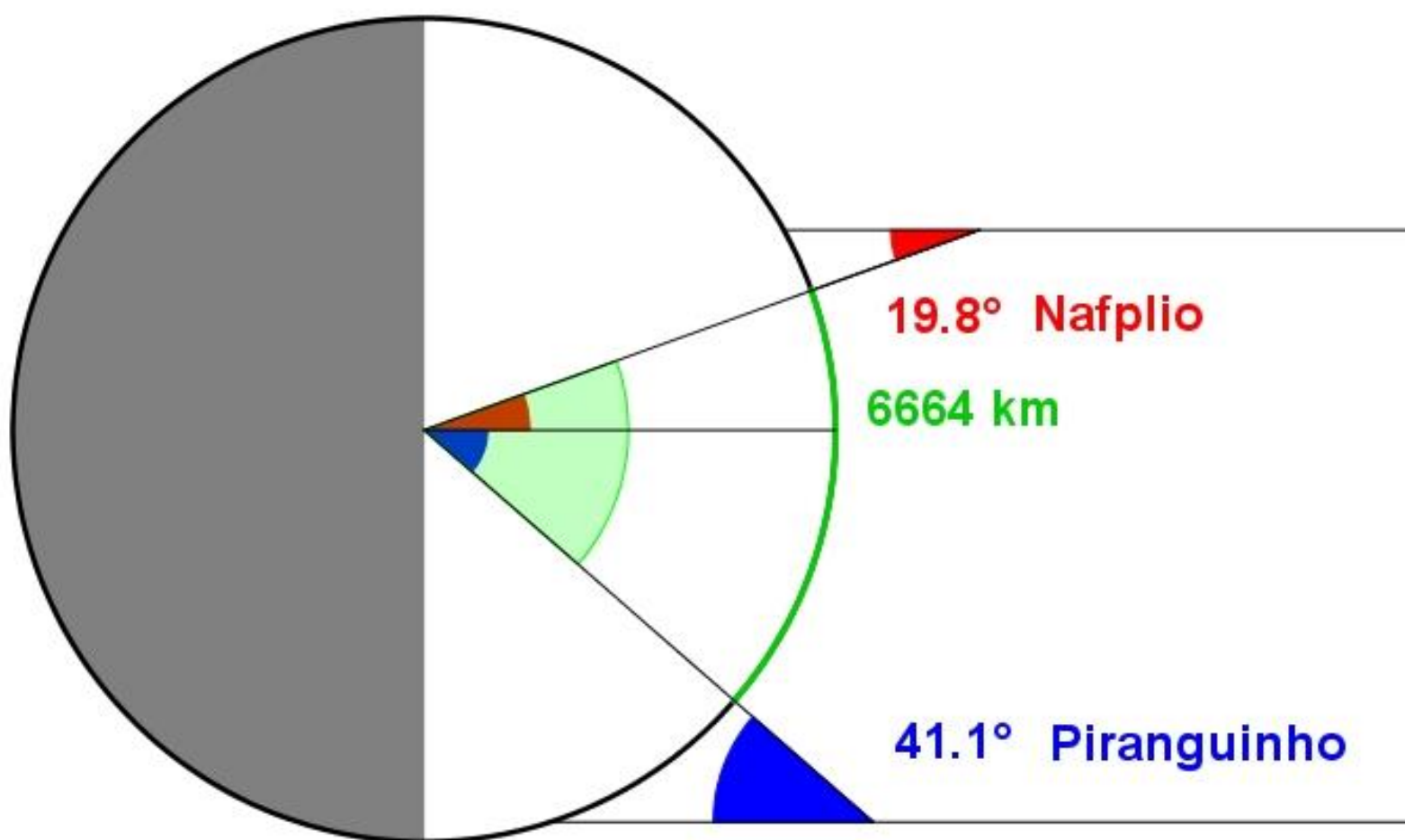


| Flag                                                                             | City     | Country | School                               | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|----------|---------|--------------------------------------|--------------------|---------------------|
|  | Nafplion | Greece  | 2nd Junior High School of Korydallos | 37.567             | 22.795              |

| Date   | Gnomon | Shadow | Angle  |
|--------|--------|--------|--------|
| 12 May | 100 cm | 36 cm  | 19.8 ° |

12 May 2017 (Nafplio-GREECE) Latitude: 37.567 °

12 May 2017 (Piranguinho-BRAZIL) Latitude: -22.411 °



$$\text{circumference} = \frac{360^\circ \times 6664 \text{ km}}{19.8^\circ + 41.1^\circ} = 39393 \text{ km}$$






# Petroupoli, Greece

May 2017

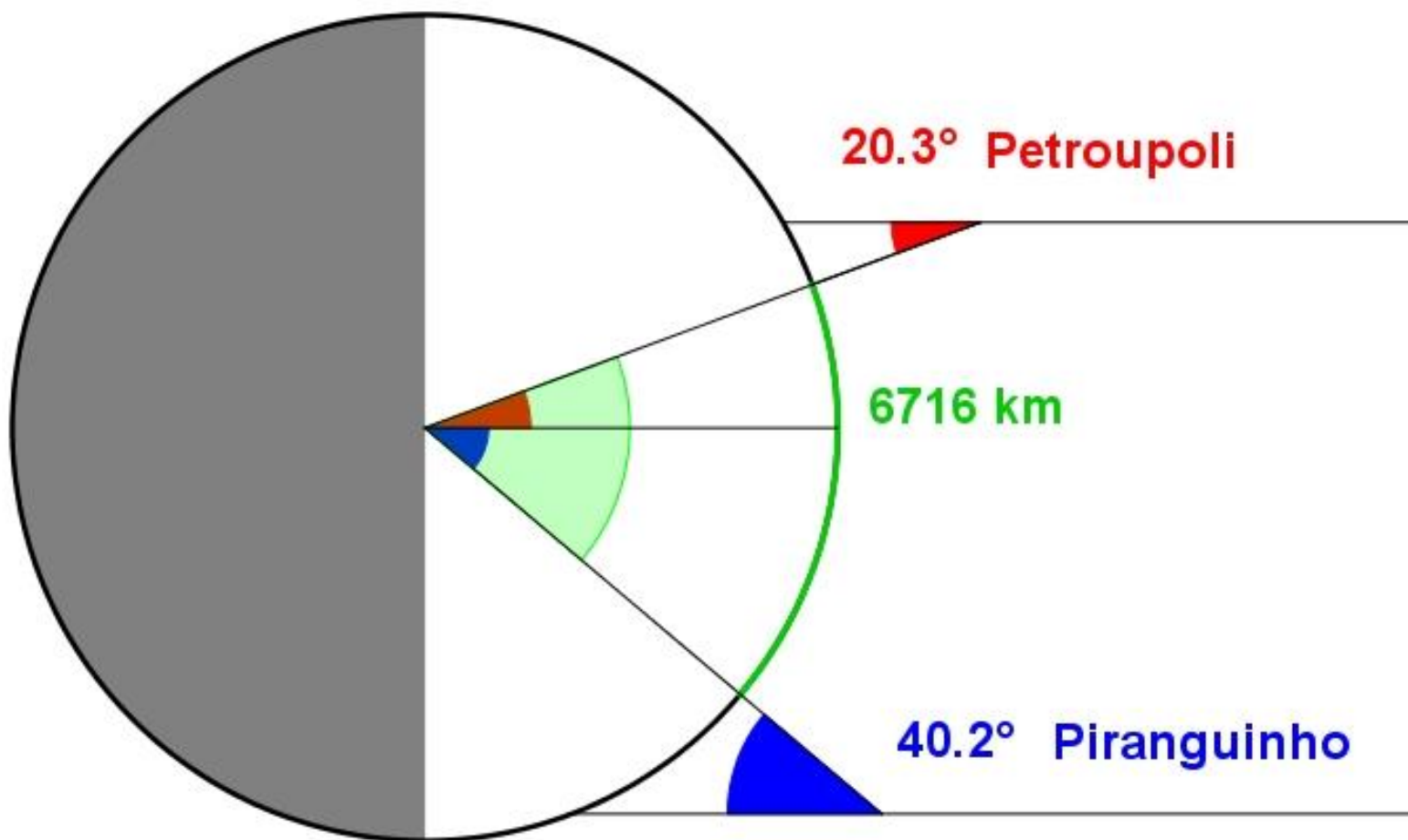


| Flag                                                                             | City       | Country | School                | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|------------|---------|-----------------------|--------------------|---------------------|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

| Date   | Gnomon  | Shadow  | Angle  |
|--------|---------|---------|--------|
| 09 May | 52.3 cm | 19.3 cm | 20.3 ° |
| 11 May | 52.3 cm | 19 cm   | 20 °   |
| 22 May | 52.3 cm | 16.4 cm | 17.4 ° |

09 May 2017 (Petroupoli-GREECE) Latitude: 38.04 °

09 May 2017 (Piranguinho-BRAZIL) Latitude: -22.41 °



$$\text{circumference} = \frac{360^\circ \times 6716 \text{ km}}{20.3^\circ + 40.2^\circ} = 39963 \text{ km}$$



# Pfaffenhofen, Germany

May 2017

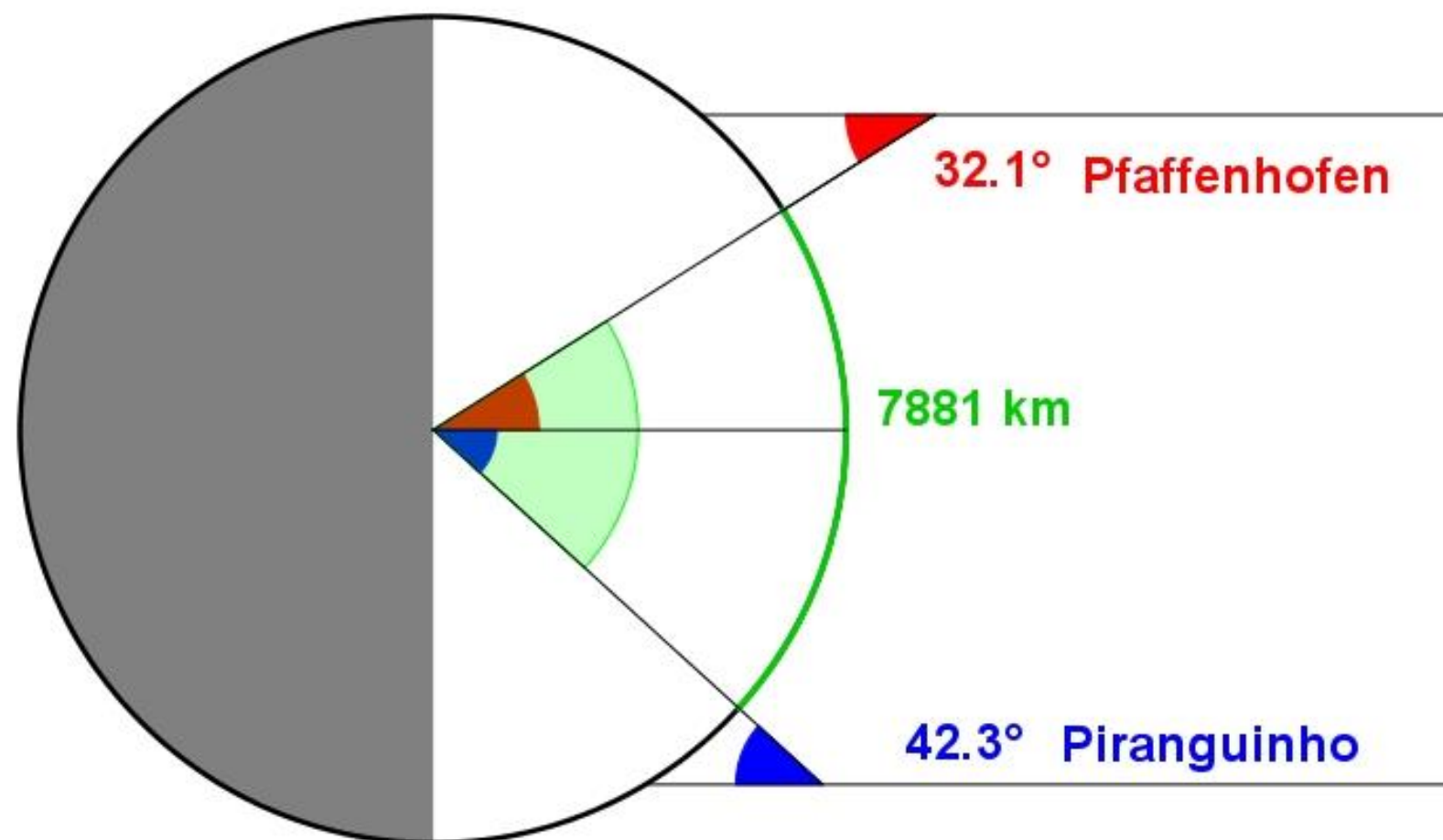


| Flag                                                                             | City         | Country | School          | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|--------------|---------|-----------------|--------------------|---------------------|
|  | Pfaffenhofen | Germany | Projekt Seminar | 48.526             | 11.498              |

| Date   | Gnomon  | Shadow  | Angle  |
|--------|---------|---------|--------|
| 18 May | 91.5 cm | 57.5 cm | 32.1 ° |

18 May 2017 (Pfaffenhofen-GERMANY) Latitude: 48.526 °

18 May 2017 (Piranguinho-BRAZIL) Latitude: -22.411 °



$$\text{circumference} = \frac{360^\circ \times 7881 \text{ km}}{32.1^\circ + 42.3^\circ} = 38134 \text{ km}$$



# Piraeus, Greece

May 2017

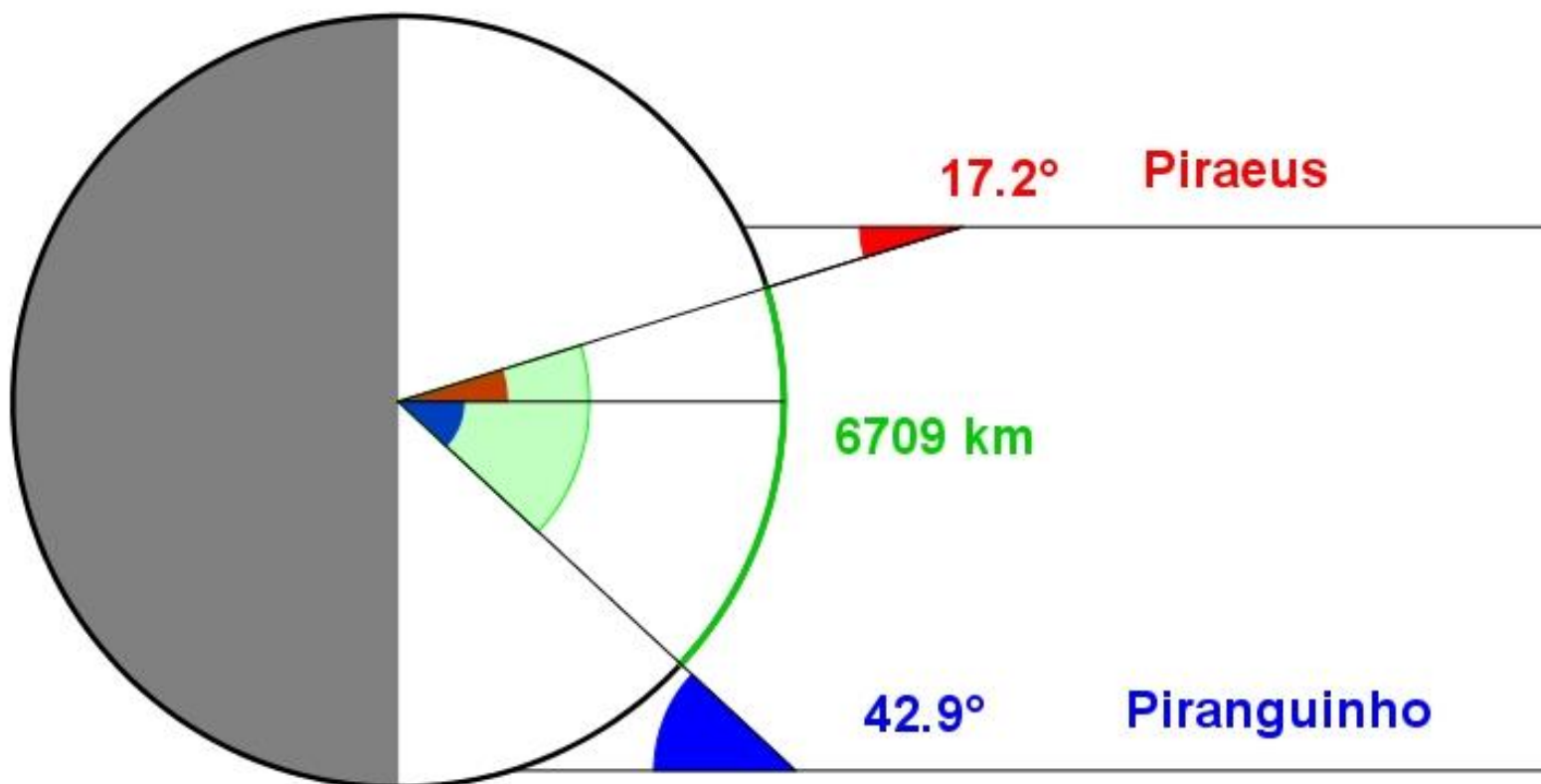


| Flag                                                                             | City    | Country | School                               | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|---------|---------|--------------------------------------|--------------------|---------------------|
|  | Piraeus | Greece  | 2nd Junior High School of Korydallos | 37.977             | 23.655              |

| Date   | Gnomon | Shadow  | Angle  |
|--------|--------|---------|--------|
| 02 May | 100 cm | 43 cm   | 23.3 ° |
| 11 May | 100 cm | 35.5 cm | 19.5 ° |
| 23 May | 100 cm | 31 cm   | 17.2 ° |

23 May 2017 (Piraeus-GREECE) Latitude: 37.977 °

23 May 2017 (Piranguinho-BRAZIL) Latitude: -22.411 °

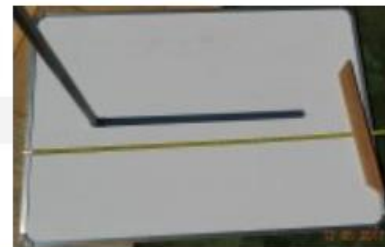


$$\text{circumference} = \frac{360^\circ \times 6709 \text{ km}}{17.2^\circ + 42.9^\circ} = 40187 \text{ km}$$



# Piranguinho, Brazil

May 2017

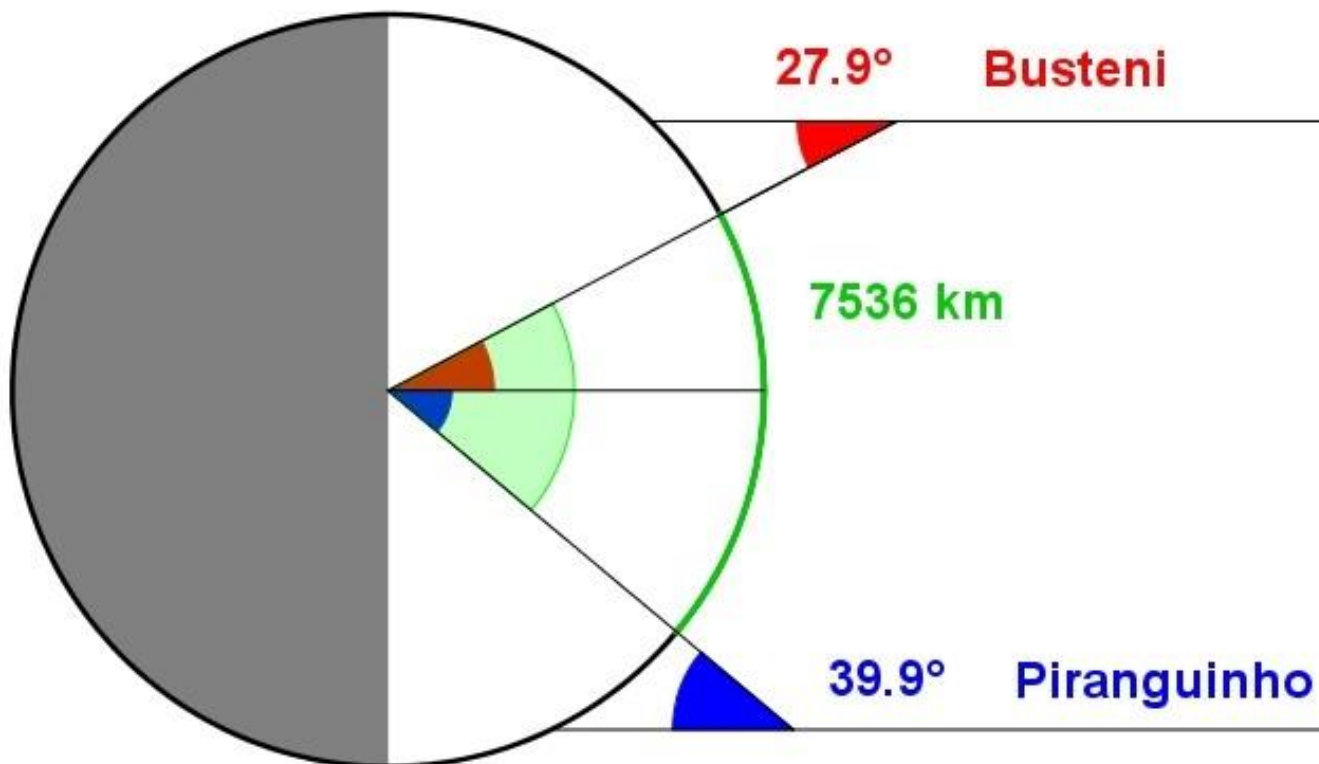


| Flag                                                                             | City        | Country | School                          | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|-------------|---------|---------------------------------|--------------------|---------------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

| Date   | Gnomon | Shadow   | Angle   |
|--------|--------|----------|---------|
| 01 May | 70 cm  | -54.3 cm | -37.8 ° |
| 08 May | 70 cm  | -58.5 cm | -39.9 ° |
| 09 May | 70 cm  | -59.2 cm | -40.2 ° |
| 12 May | 70 cm  | -61.1 cm | -41.1 ° |
| 15 May | 70 cm  | -62.3 cm | -41.7 ° |
| 23 May | 70 cm  | -65 cm   | -42.9 ° |
| 25 May | 70 cm  | -67 cm   | -43.8 ° |
| 29 May | 70 cm  | -68.7 cm | -44.5 ° |
| 30 May | 70 cm  | -69.1 cm | -44.6 ° |

08 May 2017 (Busteni-ROMANIA) Latitude: 45.416 °

08 May 2017 (Piranguinho-BRASIL) Latitude: -22.411 °

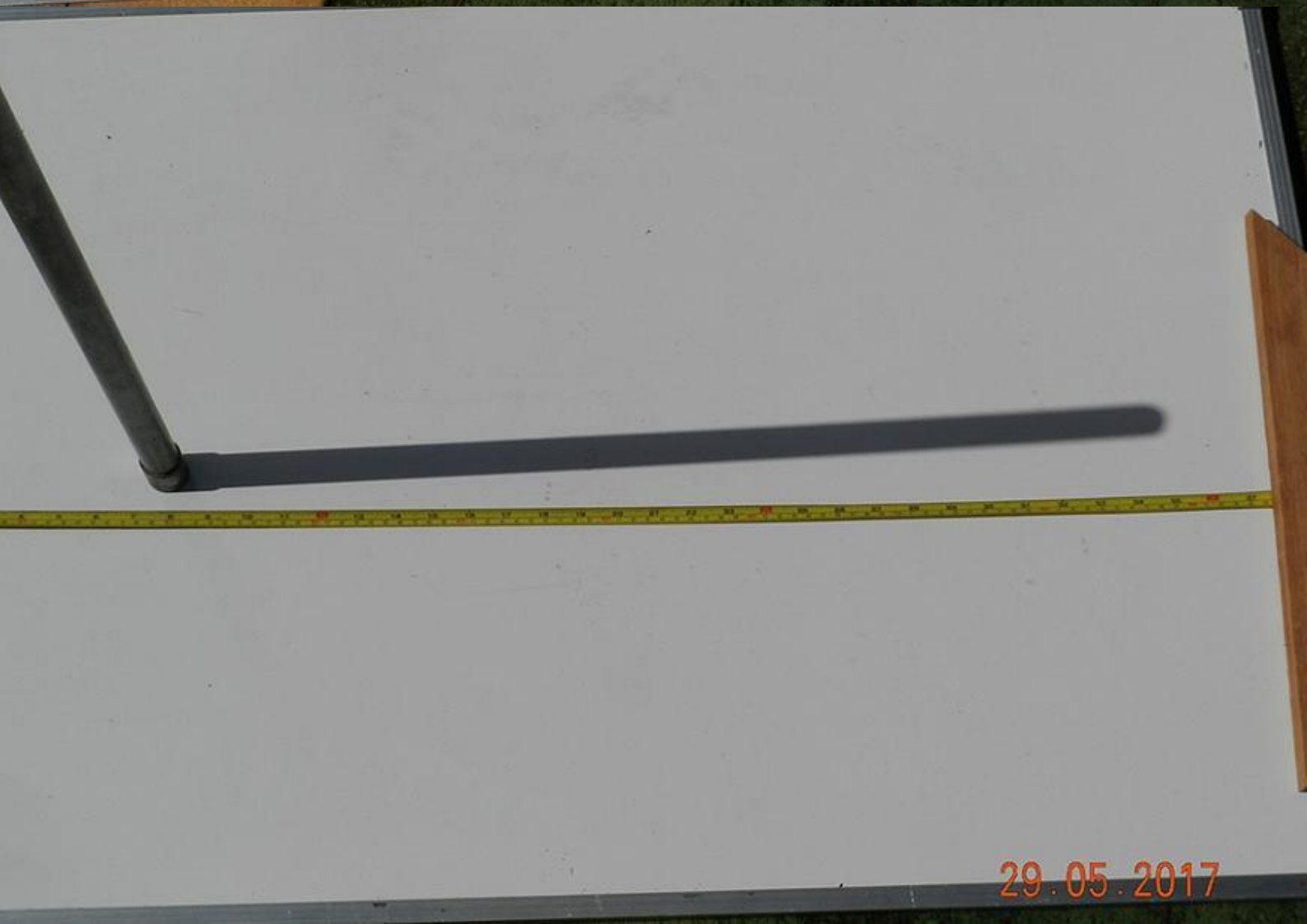


$$\text{circumference} = \frac{360^\circ \times 7536 \text{ km}}{27.9^\circ + 39.9^\circ} = 40014 \text{ km}$$





12.05.2017



29.05.2017

# Râmnicu Vâlcea, Romania

May 2017

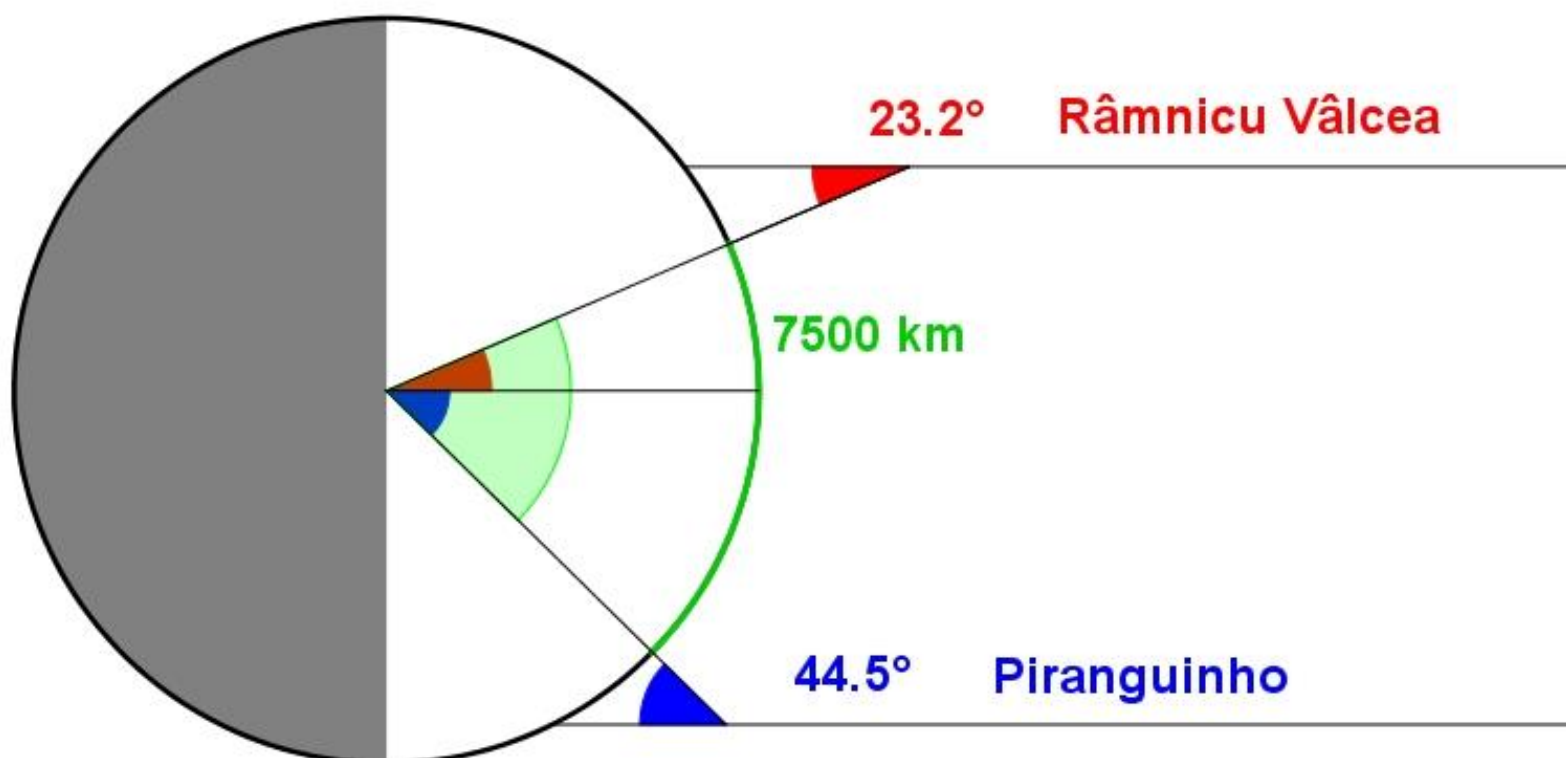


| Flag                                                                             | City           | Country | School                              | Latitude (°)<br>+N/-S | Longitude (°)<br>+E/-W |
|----------------------------------------------------------------------------------|----------------|---------|-------------------------------------|----------------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

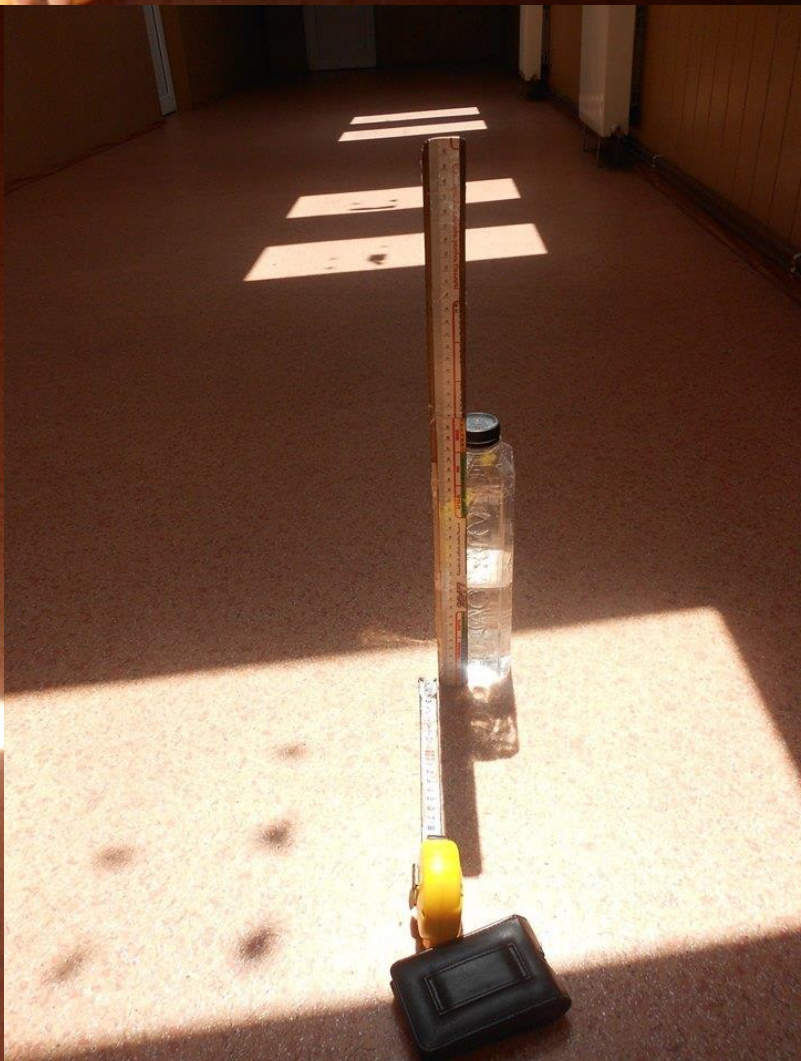
| Date   | Gnomon | Shadow  | Angle  |
|--------|--------|---------|--------|
| 03 May | 100 cm | 55.4 cm | 29.0 ° |
| 04 May | 100 cm | 54.8 cm | 28,7 ° |
| 16 May | 100 cm | 47.9 cm | 25.6 ° |
| 18 May | 51 cm  | 24 cm   | 25.2 ° |
| 23 May | 100 cm | 44.9 cm | 24.2 ° |
| 24 May | 100 cm | 44.5 cm | 24.0 ° |
| 29 May | 51 cm  | 21.9 cm | 23.2 ° |
| 30 May | 51 cm  | 22.1 cm | 23.4 ° |

29 May 2017 (Râmnicu Vâlcea-ROMANIA) Latitude: 45.093°

29 May 2017 (Piranguinho-BRAZIL) Latitude: -22.411°




$$\text{circumference} = \frac{360^\circ \times 7500 \text{ km}}{23.2^\circ + 44.5^\circ} = 39882 \text{ km}$$



# Rio de Janeiro CENOM, Brazil

May 2017

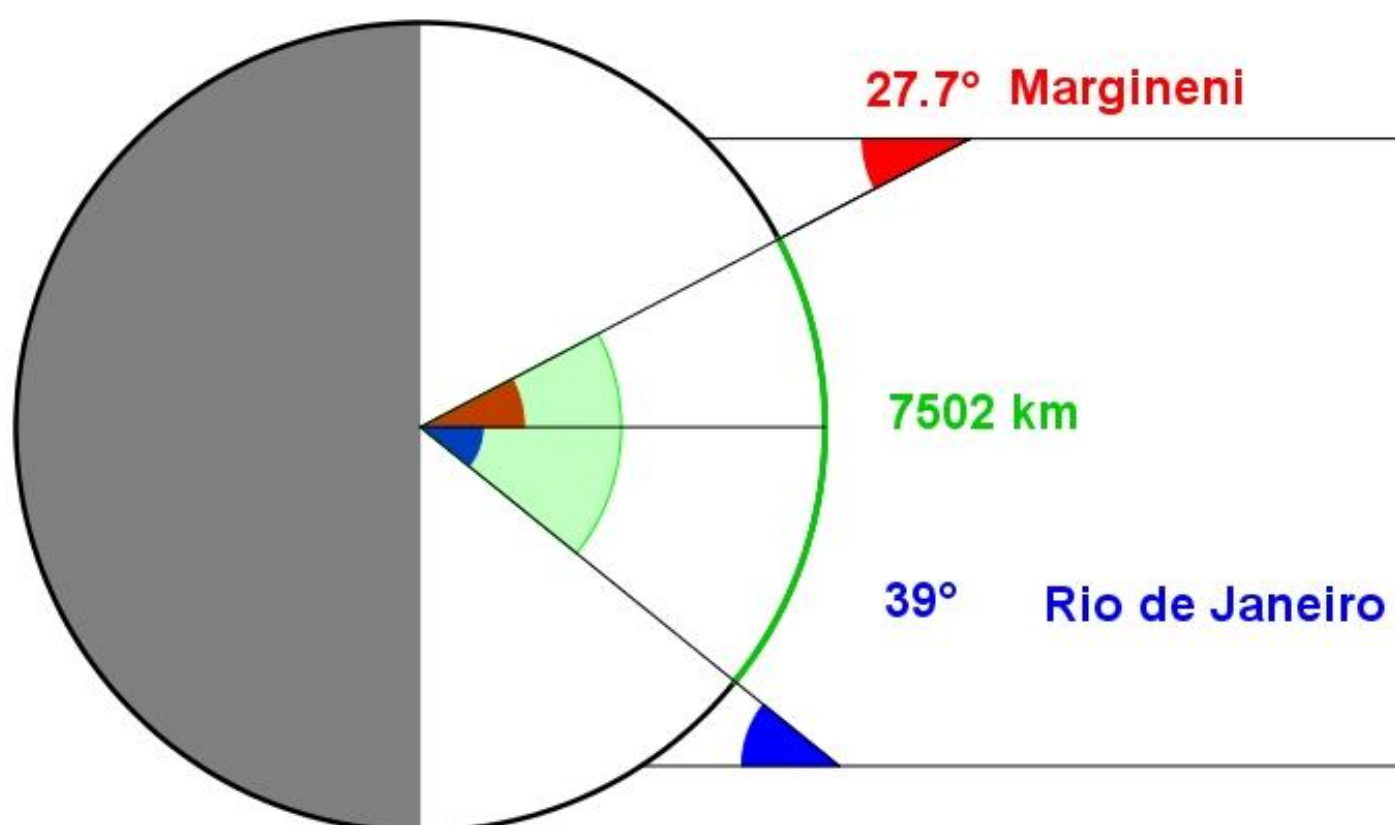


| Flag                                                                             | City           | Country | School                         | Latitude (°) +N/-S | Longitude (°) +E/-W |
|----------------------------------------------------------------------------------|----------------|---------|--------------------------------|--------------------|-----------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

| Date   | Gnomon | Shadow | Angle   |
|--------|--------|--------|---------|
| 10 May | 100 cm | -81 cm | -39 °   |
| 13 May | 13 cm  | -11 cm | -40.2 ° |
| 24 May | 100 cm | -88 cm | -41.3 ° |
| 25 May | 100 cm | -90 cm | -42.0 ° |
| 26 May | 100 cm | -88 cm | -41.3 ° |
| 29 May | 100 cm | -92 cm | -42.6 ° |
| 30 May | 100 cm | -94 cm | -43.2 ° |
| 31 May | 100 cm | -95 cm | -43.5 ° |

10 May 2017 (Margineni-ROMANIA) Latitude: 44.53 °

10 May 2017 (Rio de Janeiro-BRAZIL) Latitude: -22.99 °



$$\text{circumference} = \frac{360^\circ \times 7502 \text{ km}}{27.7^\circ + 39^\circ} = 40491 \text{ km}$$



# Rio de Janeiro Méier, Brazil

May 2017



| Flag                                                                             | City           | Country | School                                | Latitude (°)<br>+N/-S | Longitude (°)<br>+E/-W |
|----------------------------------------------------------------------------------|----------------|---------|---------------------------------------|-----------------------|------------------------|
|  | Rio de Janeiro | Brazil  | Escola Municipal Bento Ribeiro, Méier | -22.904               | -43.280                |

| Date   | Gnomon | Shadow | Angle   |
|--------|--------|--------|---------|
| 27 May | 15 cm  | -12 cm | -38.7 ° |

