

PER AXBOM

THE SPECTACULAR LIES OF MAPS



Earthrise. Photo by William Anders, 1968.

Raise your hand and keep it raised as long as you agree with my statements.



**Raise your hand and keep it raised as long as you
agree with my statements.**

I have lied.



**Raise your hand and keep it raised as long as you
agree with my statements.**

**I have lied to someone
I care about.**



**Raise your hand and keep it raised as long as you
agree with my statements.**

**I believe I will continue
to lie in the future.**



Raise your hand and keep it raised as long as you agree with my statements.

I've made design decisions with insufficient data.



Raise your hand and keep it raised as long as you agree with my statements.

I will continue to make design decisions with insufficient data.



Raise your hand and keep it raised as long as you agree with my statements.

I trust maps to give me accurate information.



Raise your hand and keep it raised as long as you agree with my statements.

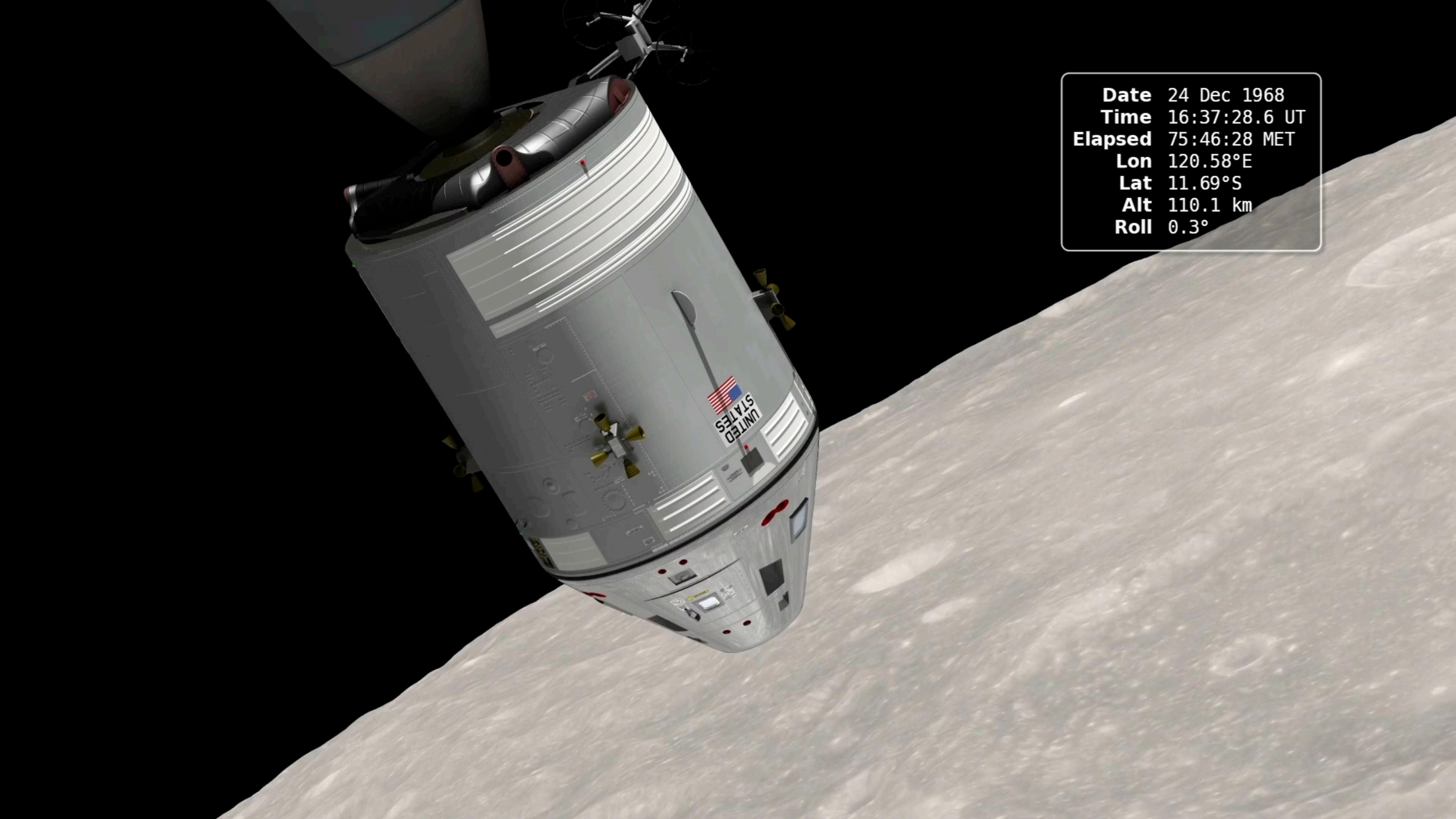
The Earth is flat.





Earthrise. December 24, 1968.

Taken by astronaut William Anders during the Apollo 8 mission, the first crewed voyage to orbit the Moon. The three astronauts were William Anders, Frank Borman and James Lovell.



Date	24 Dec 1968
Time	16:37:28.6 UT
Elapsed	75:46:28 MET
Lon	120.58°E
Lat	11.69°S
Alt	110.1 km
Roll	0.3°



Anders: Oh my God! Look at that picture over there! There's the Earth coming up. Wow, that's pretty.

Borman: Hey, don't take that, it's not scheduled. (joking)

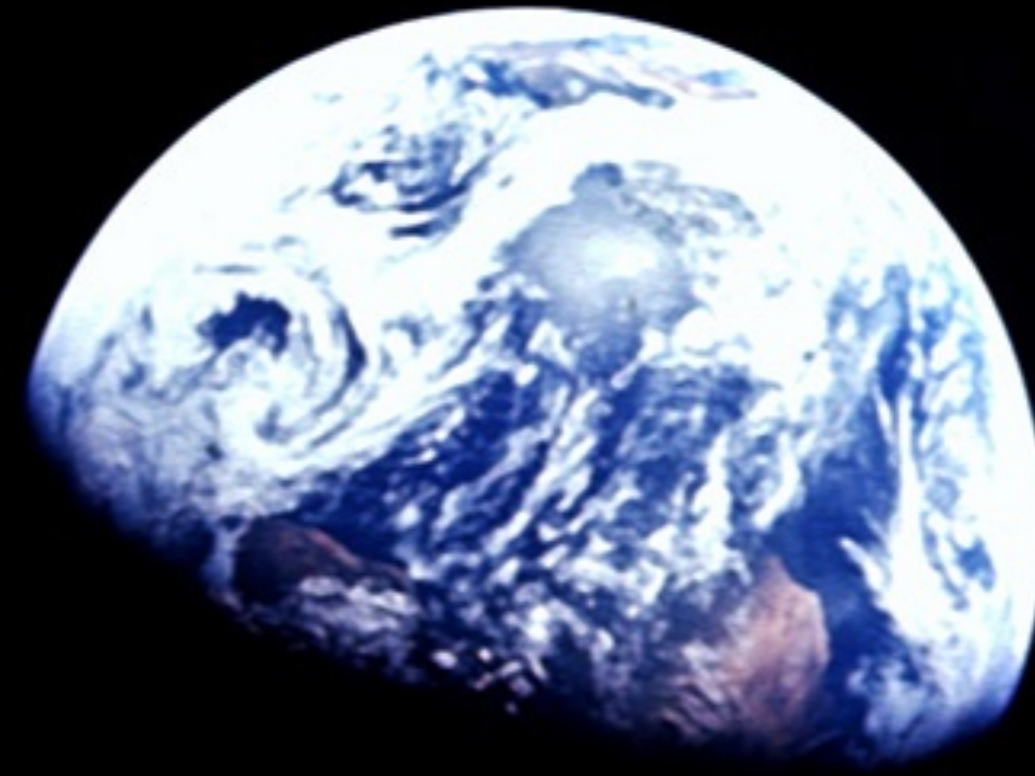
Anders: (laughs) You got a color film, Jim?

Hand me that roll of color quick, would you...

Lovell: Oh man, that's great!



18 months after the Apollo 8 astronauts took this photo, 20 million people took to the streets across the US to protest environmental destruction in the first ever Earth Day.



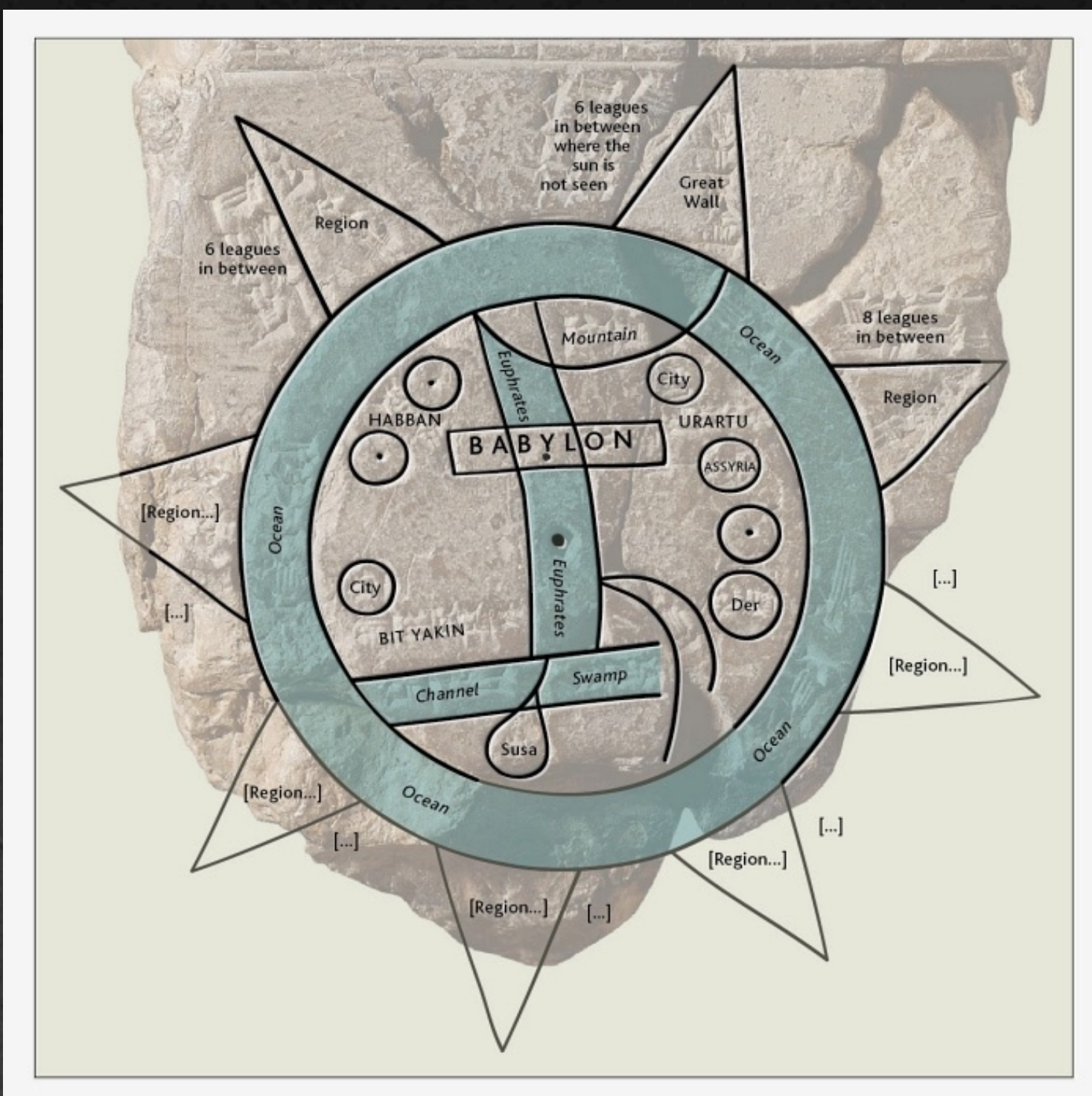
“It shows the Earth that we all live on, a little blue sphere set within this black expanse. It suggests everything from fragility to our uniqueness.”

*– Michael Pritchard,
programmes director at the
Royal Photographic Society in the UK*

There are no lines in space.

There are no lines in space.

Humans started drawing them to make sense of the world.



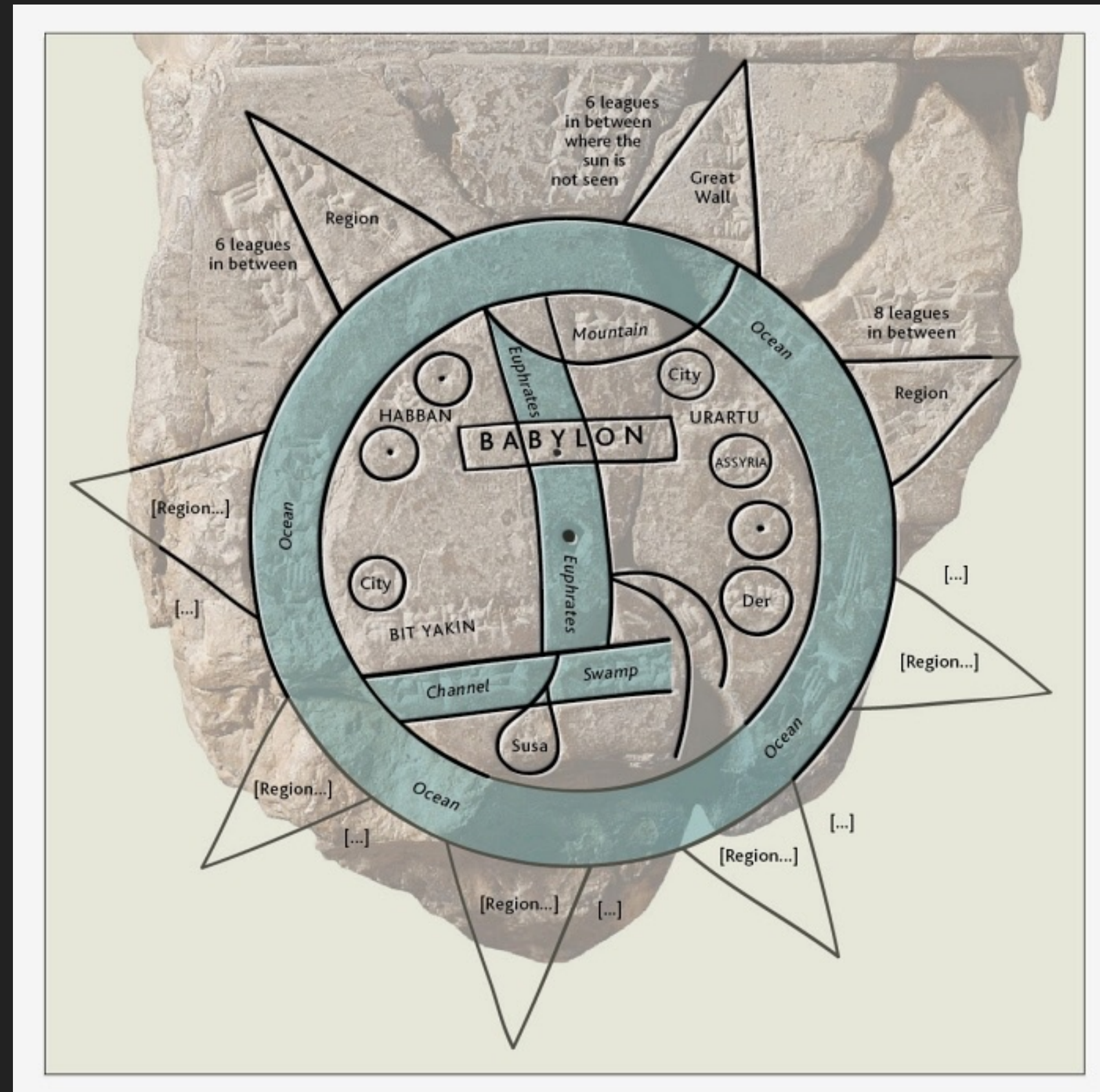
Imago Mundi

2,600-year-old
Babylonian clay tablet

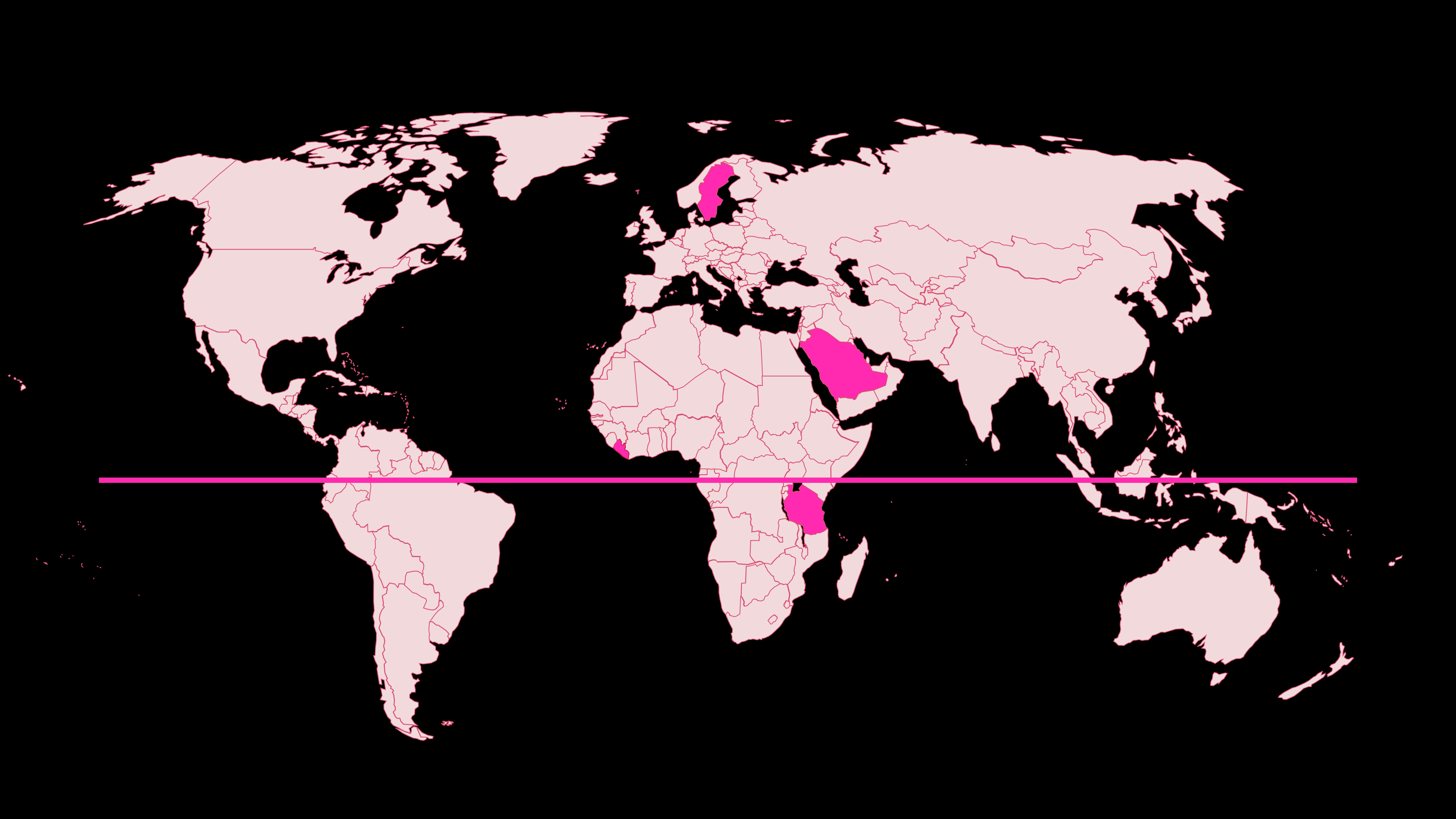
mythology,
astronomy, geography

discovered in Sippar,
an ancient
Babylonian city along
the Euphrates River,
housed at the British
Museum

Properties of maps

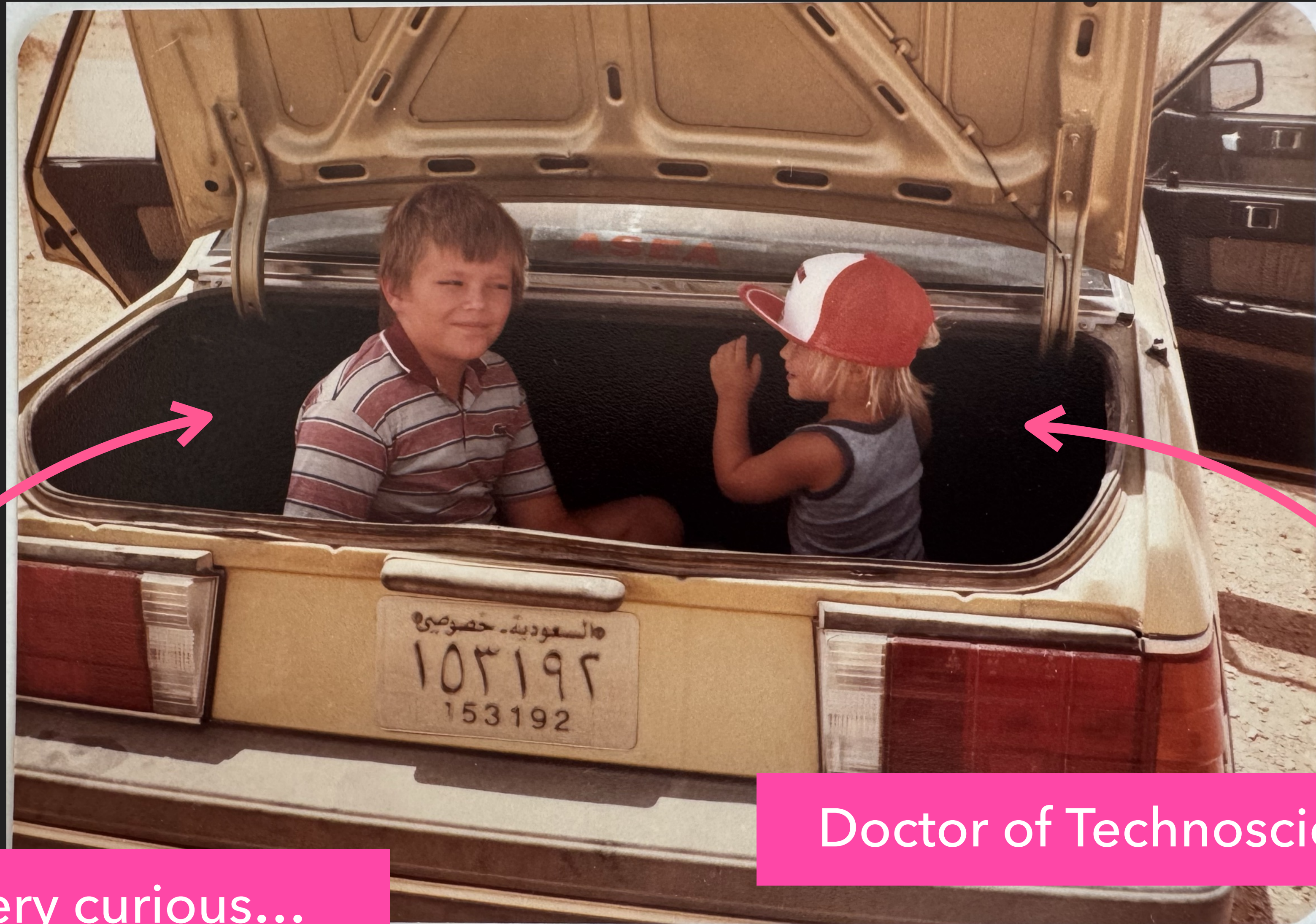


Size
Dominance
Centricity
Omission
Exaggeration
Distortion
Mythology
Perspective





Middle East

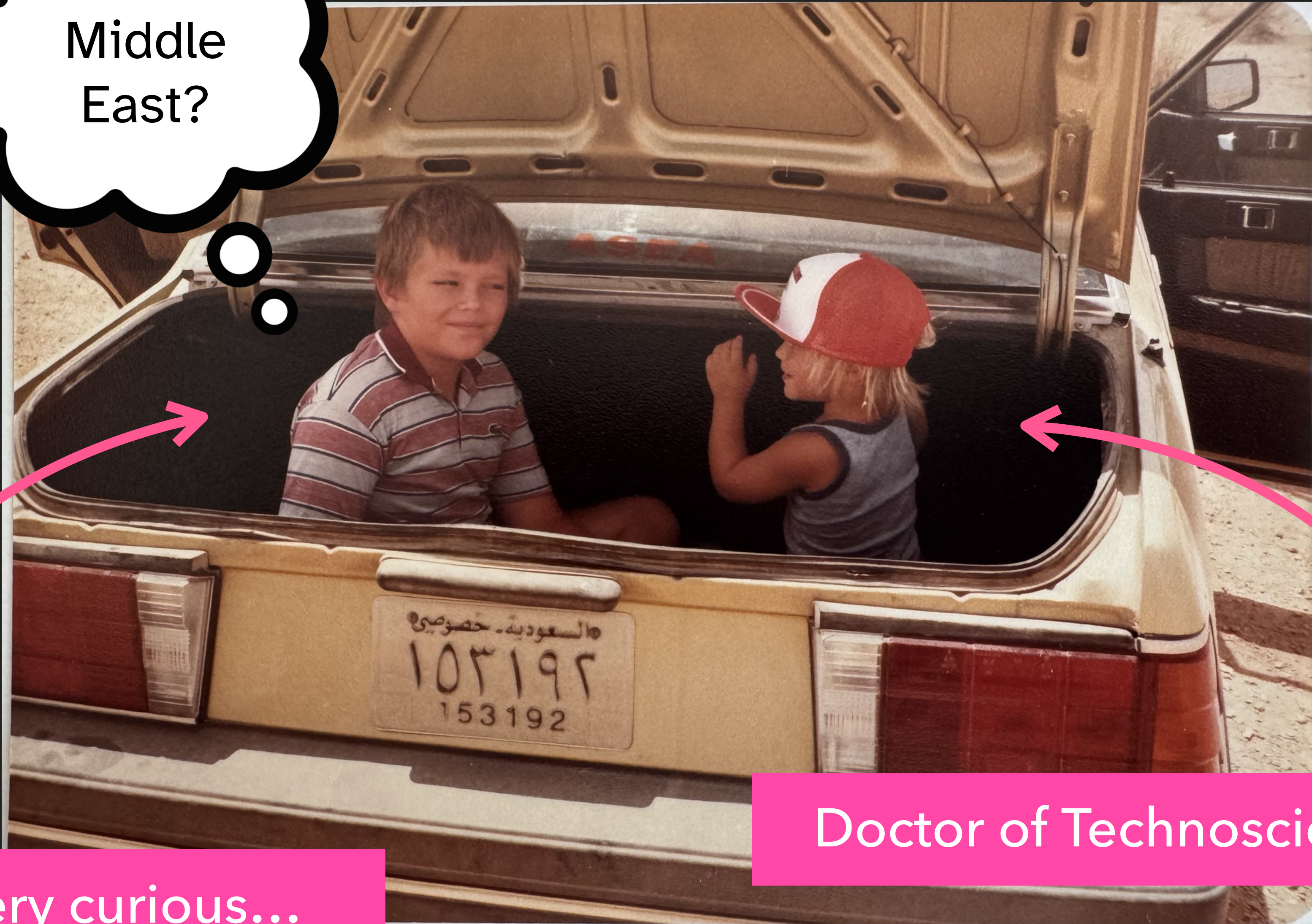


just very, very curious...

Doctor of Technoscience Studies

Middle East

Middle
East?



Doctor of Technoscience Studies

just very, very curious...

Geographically, there's very little 'east' in the Middle East.

The region known as 'the Middle East' actually encompasses some of the most northern parts of Africa and South-West Asia.





[illegible]

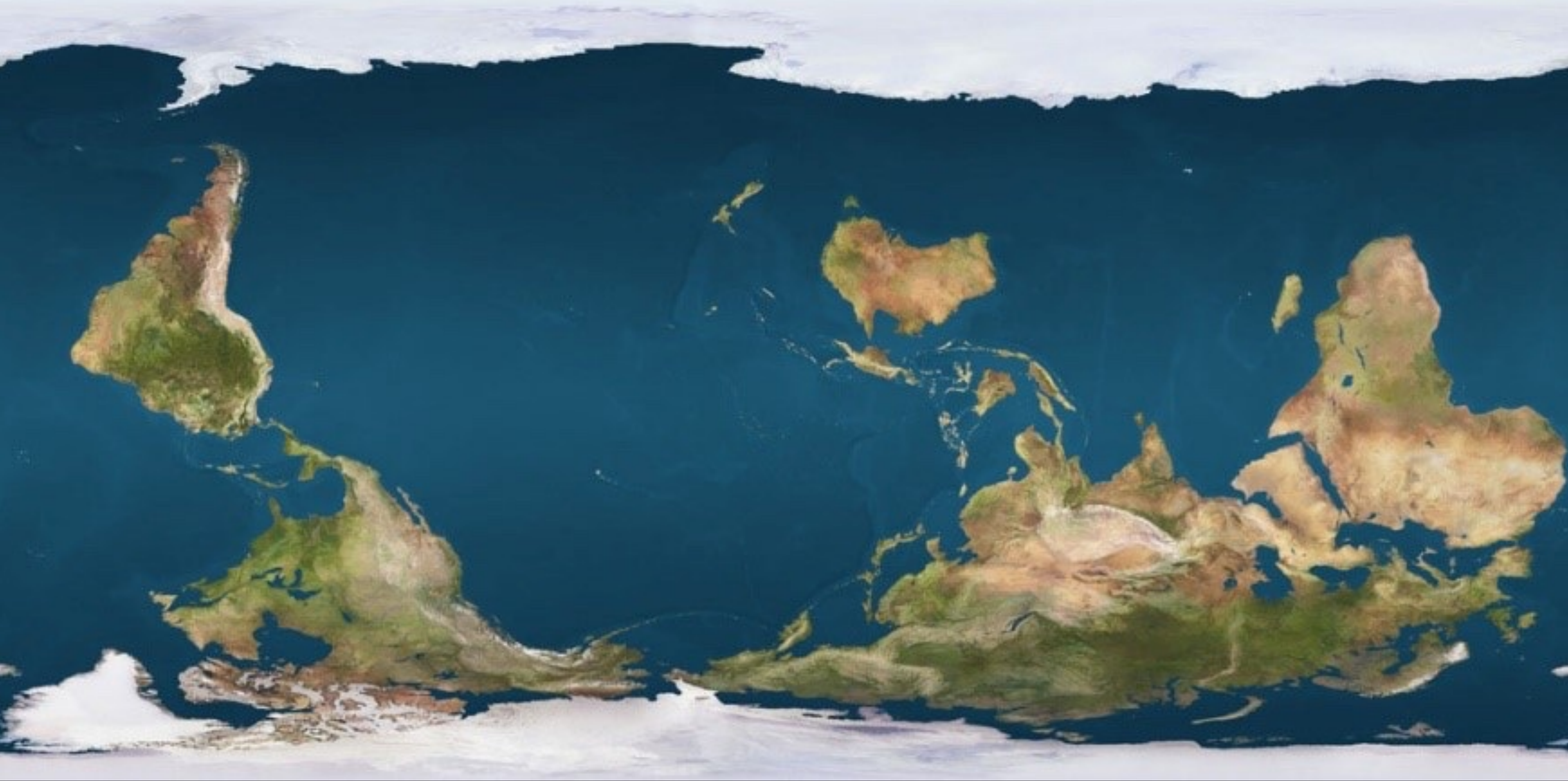
地 球 萬 國 方 圖



大 阪 朝 日 新 聞 社 特 撰
最 新 東 亞 大 地 圖



文部省圖書館
贈海軍溫先生校閱



“Really interesting
visual information is a
little bit like a puzzle.
You’re solving it.”

Rebecca Solnit

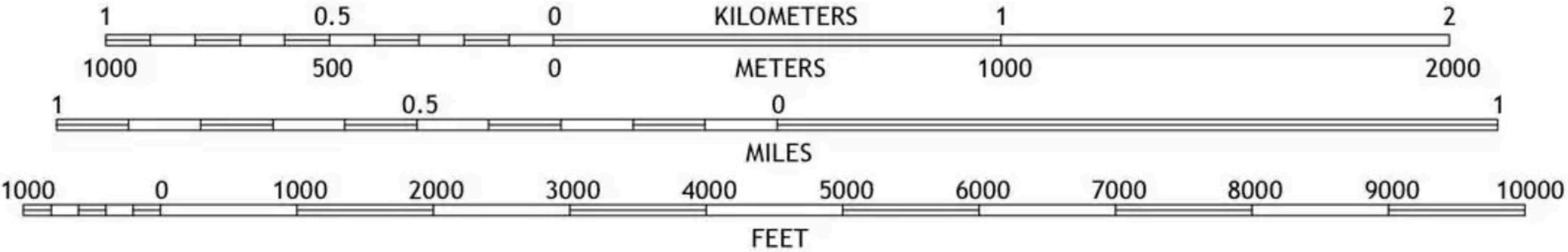
– Author of “*Infinite City: A San
Francisco Atlas.*”

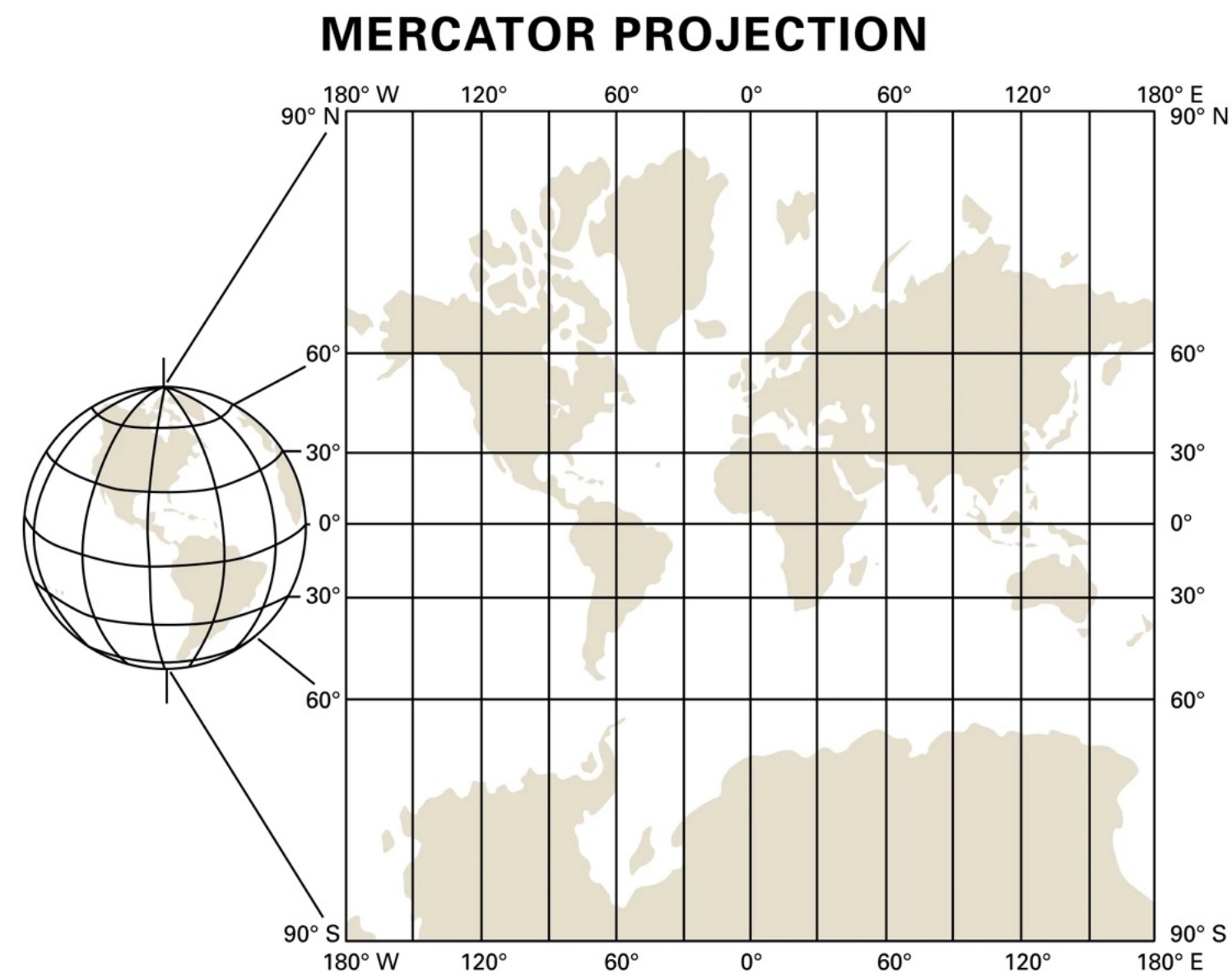


But are you solving it correctly?

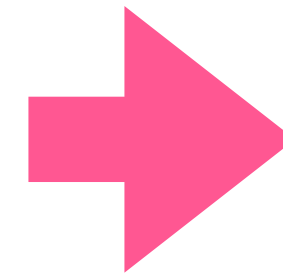
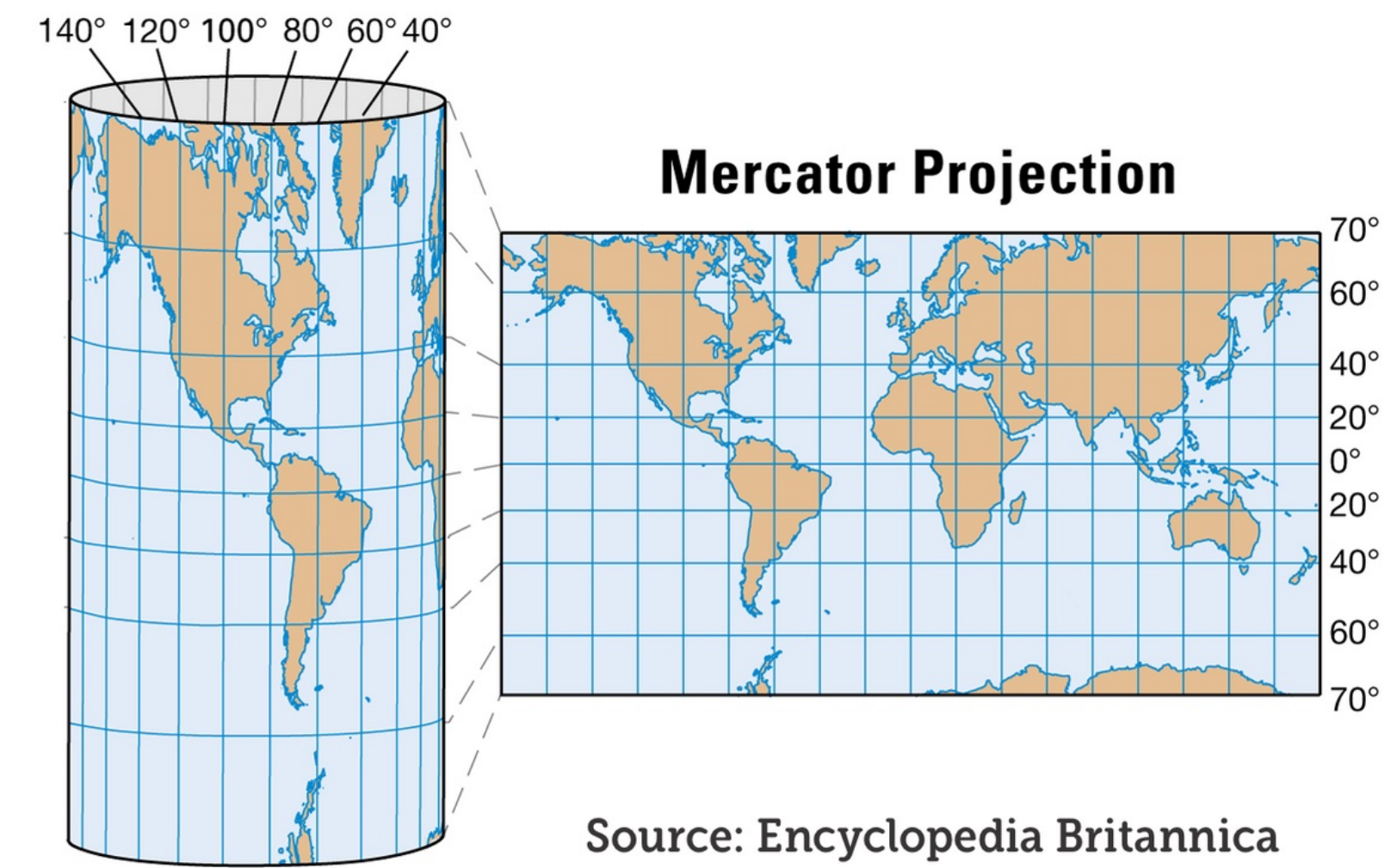


SCALE 1:24 000





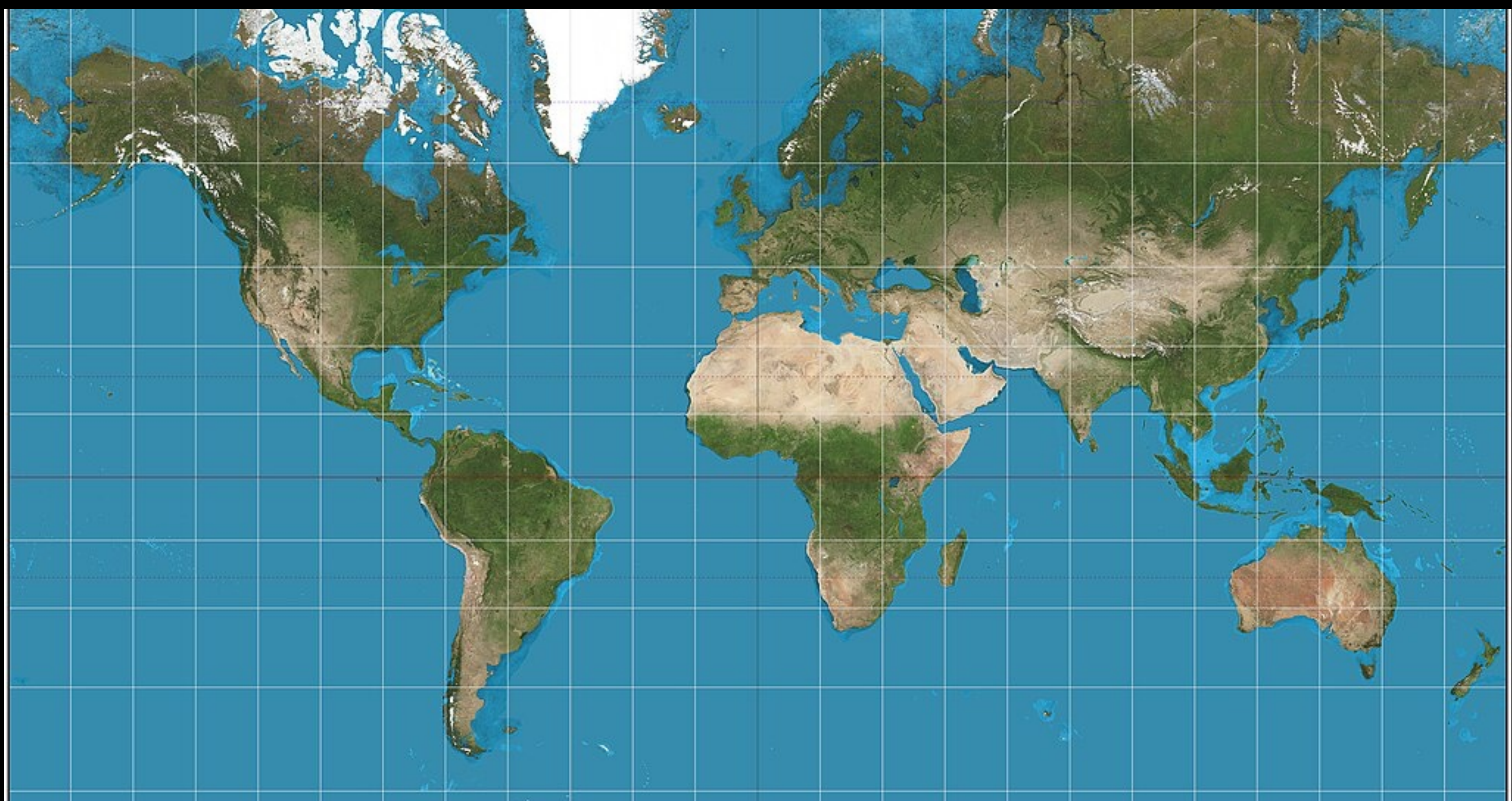
© Encyclopædia Britannica, Inc.

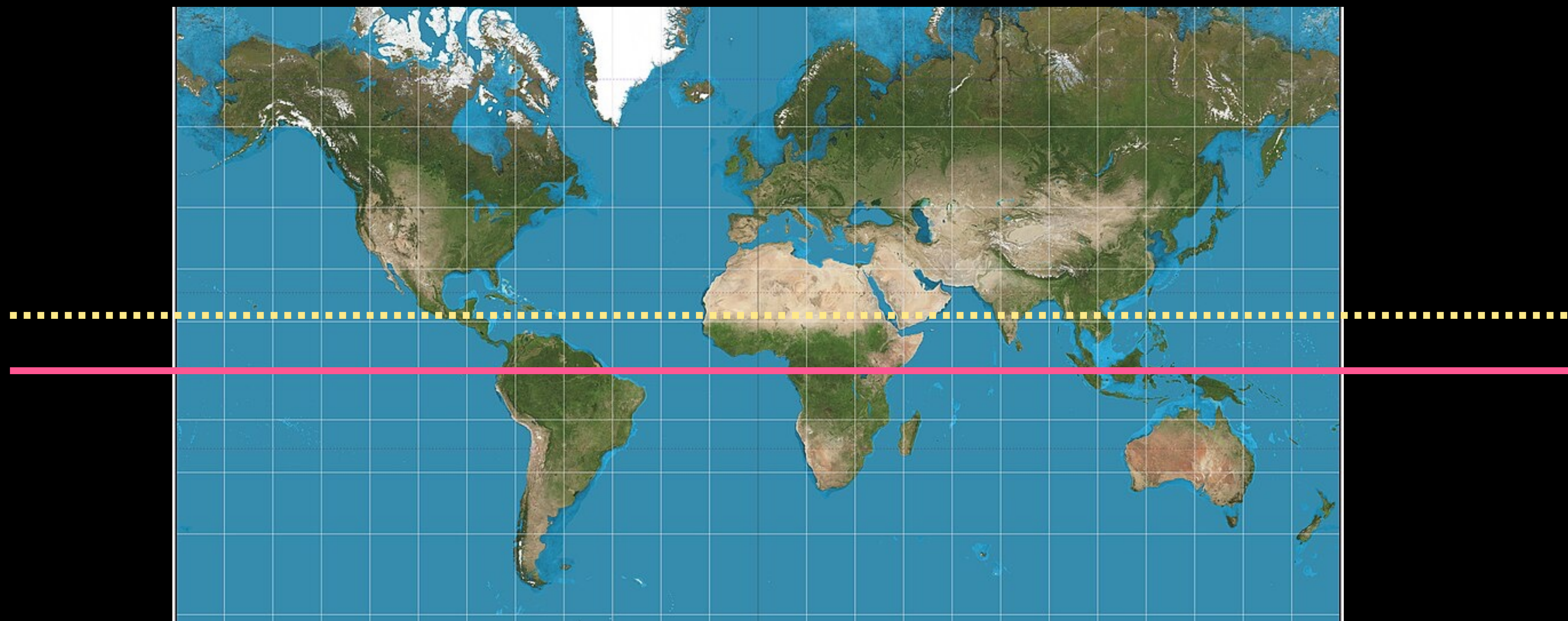


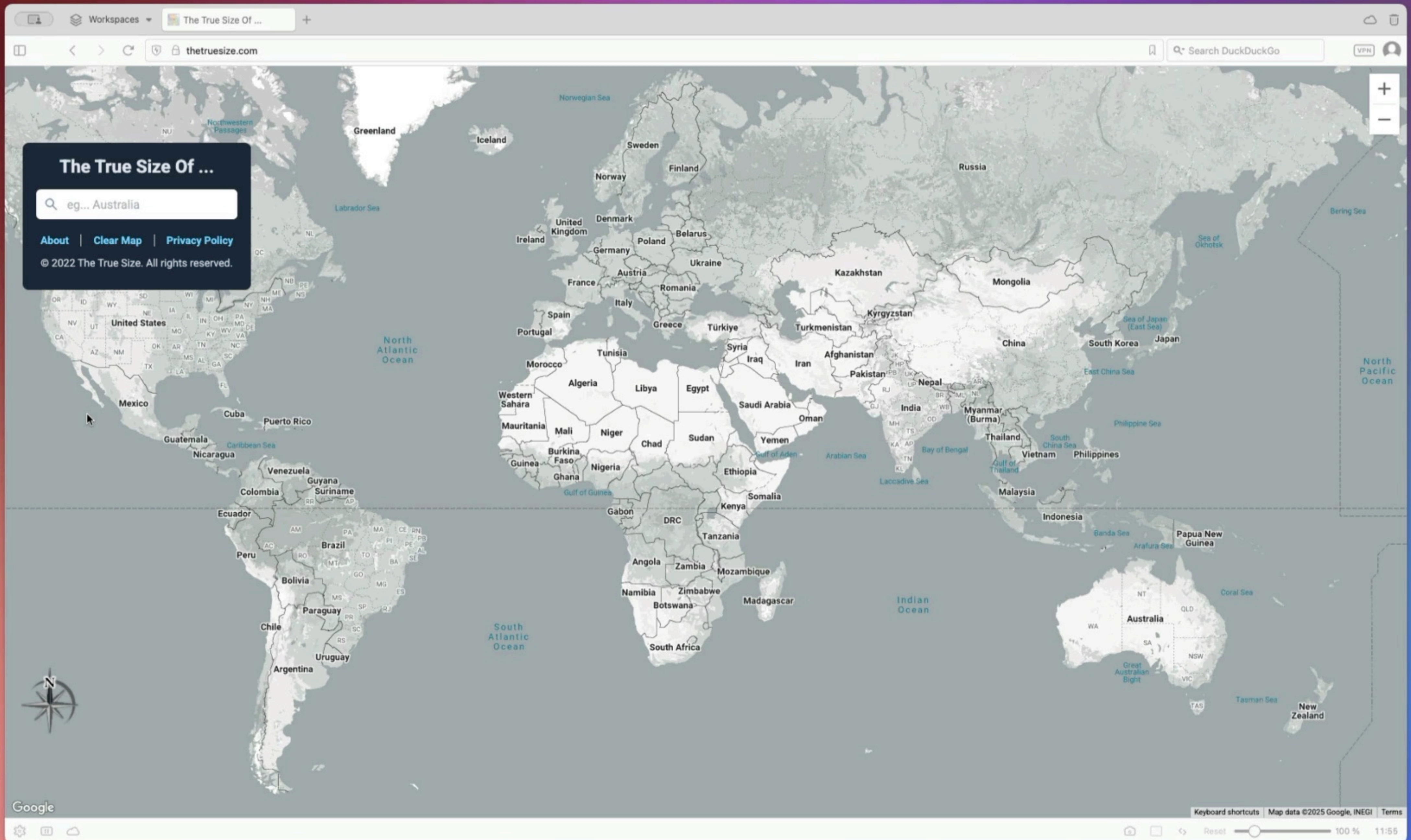
Source: Encyclopedia Britannica

Cylindrical map projection











**If this happens to
size, what then
happens to distance?**





Tomas Pueyo ✓

@tomaspueyo

Subscribe



Here it is, comparing the most disadvantaged with the most advantaged.
Africa is *wider than Russia*!

Source: axbom.com/world-map/

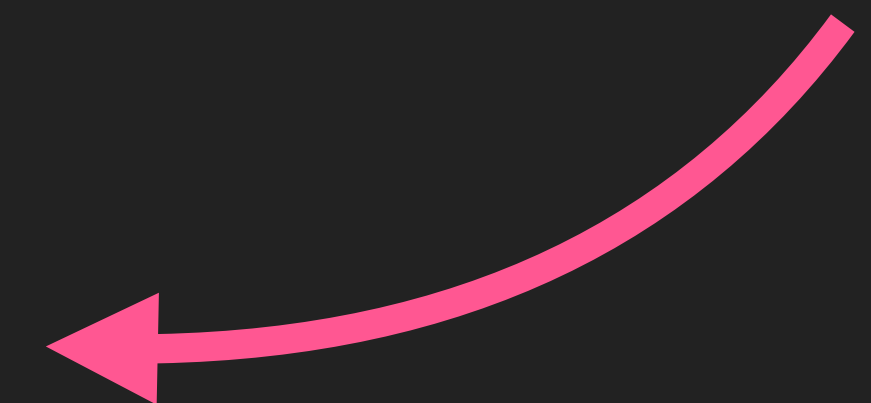


Readers added context they thought people might want to know

False. Russia is east-west 5,600 miles (9,000 km) north-south 1,500 to 2,500 miles (2,500 to 4,000 km). Africa is east-west 4,600 miles (7,400 km) north-south 5,000 miles (8,000 km). [britannica.com/place/Africa](https://www.britannica.com/place/Africa)
[britannica.com/place/Russia](https://www.britannica.com/place/Russia)

Do you find this helpful?

Rate it



ScafidiTravels @ScafidiTravels · Apr 17, 2023

My first interaction with Community Notes...& they're incorrect! Although the [@Britannica](#) entry does say Russia is 9,000km wide, I can find no way of measuring it that wide using [@googleearth](#), even if you go from Kaliningrad to Cape Dezhnyov, or Lavry to the Kuril Islands...

× Note

Tomas Pueyo @tomaspueyo · Apr 15



Here it is, comparing the most disadvantaged with the most advantaged. Africa is *wider than Russia*!
Source: [axbom.com/world-map/](#)
[Show this thread](#)

★ Currently rated helpful · Shown on Twitter · Apr 16

Directly addresses the Tweet's claim · Cites high-quality sources

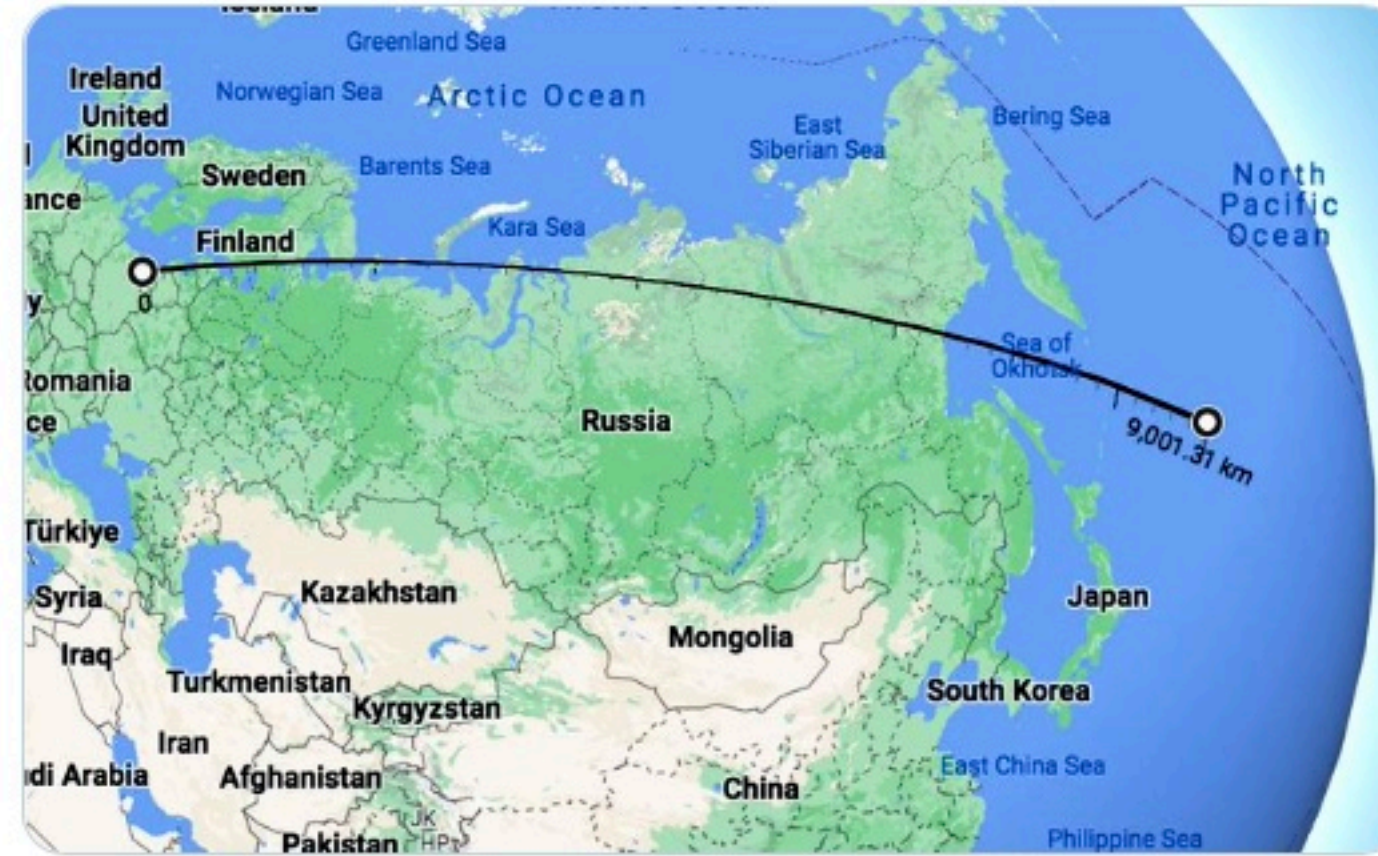
False. Russia is east-west 5,600 miles (9,000 km) north-south 1,500 to 2,500 miles (2,500 to 4,000 km). Africa is east-west 4,600 miles (7,400 km) north-south 5,000 miles (8,000 km).

<https://www.britannica.com/place/Africa>
<https://www.britannica.com/place/Russia>

✓ You rated this note as **Not Helpful**.

ScafidiTravels @ScafidiTravels · Apr 17, 2023

Here is what happens if we head 9000km east from Kaliningrad:



1 1 279

ScafidiTravels @ScafidiTravels · Apr 17, 2023

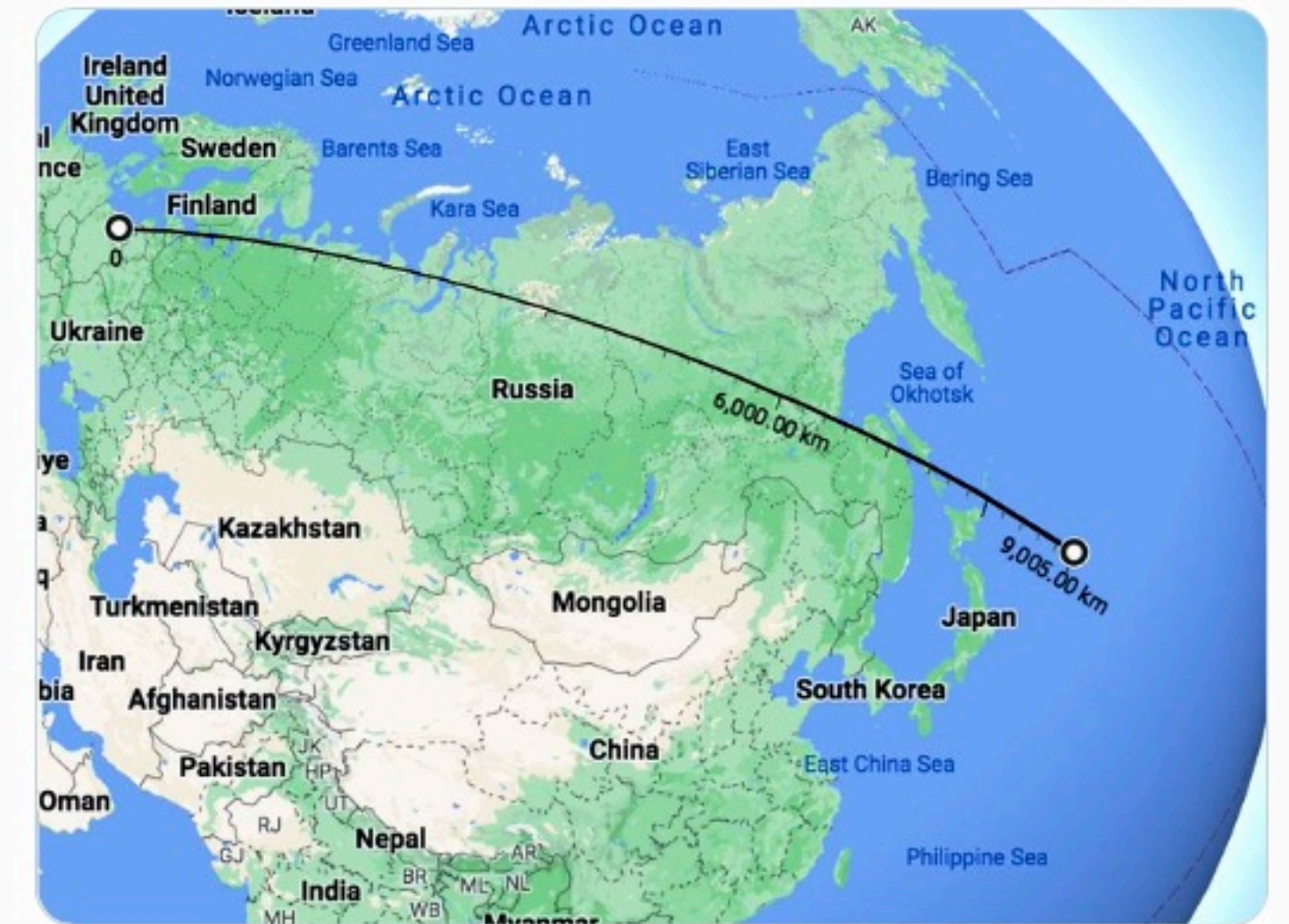
Here is what happens if you head east from Kaliningrad to Cape Dezhnyov, and continue to 9000km...



1 240

ScafidiTravels @ScafidiTravels · Apr 17, 2023

And here is what happens if we head 9000km from Kaliningrad to the Kuril Islands, and continue to 9000km...



1 245

ScafidiTravels @ScafidiTravels · Apr 17, 2023

[2/2] But if those are the new rules, then I'm measuring Africa as 10,500km wide, starting in Cabo Verde (an African country and member of [@AfricanUnion](#)) and ending on the Mauritian island of Rodrigues, the easternmost point of Africa. 🌍



2 1 4 334



**What is the
spectacular
lie in this
map?**



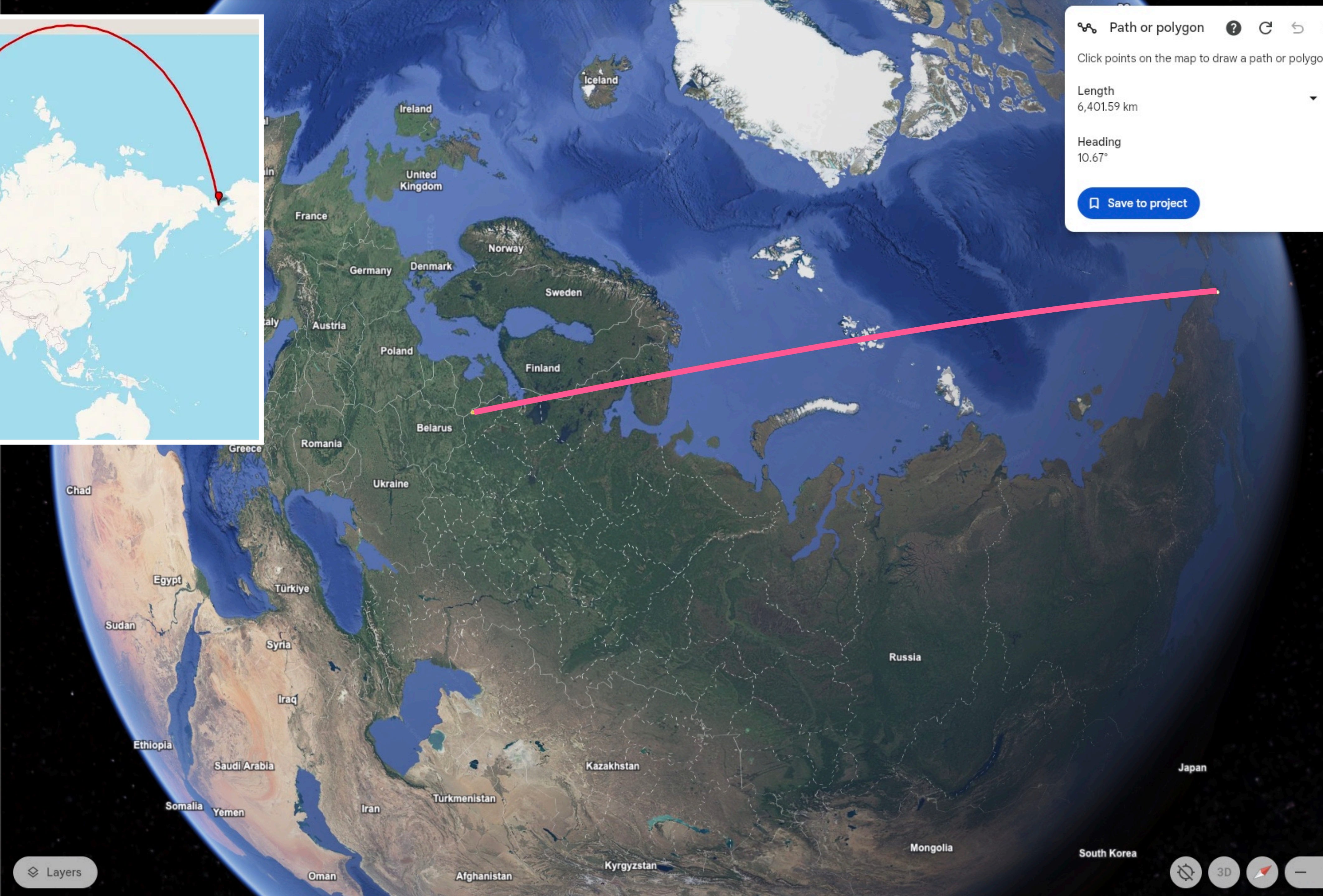
Path or polygon ? ↺ ↻

Click points on the map to draw a path or polygon

Length
6,401.59 km

Heading
10.67°

Save to project



Layers

3D

Compass icon

Map controls icons

The True Size Of ...

eg... Germany

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Arctic Ocean

Barents Sea

Kara Sea

East Siberian Sea

Russia

Greenland

Iceland

Sweden

Finland

Norway

Denmark

United Kingdom

Ireland

Germany

Poland

Belarus

Ukraine

France

Austria

Romania

Italy

Spain

Portugal

Morocco

Tunisia

Libya

Egypt

Saudi Arabia

Oman

Yemen

Gulf of Aden

Arabian Sea

India

Pakistan

Afghanistan

Turkmenistan

Kazakhstan

Mongolia

China

South Korea

Japan

Sea of Japan (East Sea)

Sea of Okhotsk

Bering Sea

Canada

North Atlantic Ocean

North Pacific Ocean

Philippine Sea

East China Sea

South China Sea

Philippines

Vietnam

Thailand

Myanmar (Burma)

Nepal

Malaysia

Indonesia

Banda Sea

Arafura Sea

Papua New Guinea

Coral Sea

Indian Ocean

Madagascar

Mozambique

Zimbabwe

Botswana

Namibia

Angola

Zambia

Tanzania

Kenya

Somalia

Ethiopia

Sudan

Chad

Niger

Mali

Nigeria

Ghana

Guinea

Burkina Faso

Mauritania

Western Sahara

Algeria

Libya

Tunisia

Egypt

Saudi Arabia

Oman

Yemen

Gulf of Aden

Arabian Sea

India

Pakistan

Afghanistan

Turkmenistan

Kazakhstan

Mongolia

China

South Korea

Japan

Sea of Japan (East Sea)

Sea of Okhotsk

Bering Sea

Canada

North Atlantic Ocean

North Pacific Ocean

Philippine Sea

East China Sea

South China Sea

Philippines

Vietnam

Thailand

Myanmar (Burma)

Nepal

Malaysia

Indonesia

Banda Sea

Arafura Sea

Papua New Guinea

Coral Sea

Indian Ocean

Madagascar

Mozambique

Zimbabwe

Botswana

Namibia

Angola

Zambia

Tanzania

Kenya

Somalia

Ethiopia

Sudan

Chad

Niger

Mali

Nigeria

Ghana

Guinea

Burkina Faso

Mauritania

Western Sahara

Algeria

Libya

Tunisia

Egypt

Saudi Arabia

Oman

Yemen

Gulf of Aden

Arabian Sea

India

Pakistan

Afghanistan

Turkmenistan

Kazakhstan

Mongolia

China

South Korea

Japan

Sea of Japan (East Sea)

Sea of Okhotsk

Bering Sea

Canada

North Atlantic Ocean

North Pacific Ocean

Philippine Sea

East China Sea

South China Sea

Philippines

Vietnam

Thailand

Myanmar (Burma)

Nepal

Malaysia

Indonesia

Banda Sea

Arafura Sea

Papua New Guinea

Coral Sea

Indian Ocean

Madagascar

Mozambique

Zimbabwe

Botswana

Namibia

Angola

Zambia

Tanzania

Kenya

Somalia

Ethiopia

Sudan

Chad

Niger

Mali

Nigeria

Ghana

Guinea

Burkina Faso

Mauritania

Western Sahara

Algeria

Libya

Tunisia

Egypt

Saudi Arabia

Oman

Yemen

Gulf of Aden

Arabian Sea

India

Pakistan

Afghanistan

Turkmenistan

Kazakhstan

Mongolia

China

South Korea

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Sea of Japan (East Sea)

Sea of Okhotsk

Bering Sea

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South China Sea

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Thailand

Myanmar (Burma)

Nepal

Malaysia

Indonesia

Banda Sea

Arafura Sea

Papua New Guinea

Coral Sea

Indian Ocean

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Mozambique

Zimbabwe

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Namibia

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Somalia

Ethiopia

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Nigeria

Ghana

Guinea

Burkina Faso

Mauritania

Western Sahara

Algeria

Libya

Tunisia

Egypt

Saudi Arabia

Oman

Yemen

Gulf of Aden

Arabian Sea

India

Pakistan

Afghanistan

Turkmenistan

Kazakhstan

Mongolia

China

South Korea

Japan

Sea of Japan (East Sea)

Sea of Okhotsk

Bering Sea

Canada

North Atlantic Ocean

North Pacific Ocean

Philippine Sea

East China Sea

South China Sea

Philippines

Vietnam

Thailand

Myanmar (Burma)

Nepal

Malaysia

Indonesia

Banda Sea

Arafura Sea

Papua New Guinea

Coral Sea

Indian Ocean

Madagascar

Mozambique

Zimbabwe

Botswana

Namibia

Angola

Zambia

Tanzania

Kenya

Somalia

Ethiopia

Sudan

Chad

Niger

Mali

Nigeria

Ghana

Guinea

Burkina Faso

Mauritania

Western Sahara

Algeria

Libya

Tunisia

Egypt

Saudi Arabia

Oman

Yemen

Gulf of Aden

Arabian Sea

India

Pakistan

Afghanistan

Turkmenistan

Kazakhstan

Mongolia

China

South Korea

Japan

Sea of Japan (East Sea)

Sea of Okhotsk

Bering Sea

Canada

North Atlantic Ocean

North Pacific Ocean

Philippine Sea

East China Sea

South China Sea

Philippines

Vietnam

Thailand

Myanmar (Burma)

Nepal

Malaysia

Indonesia

Banda Sea

Arafura Sea

Papua New Guinea

Coral Sea

Indian Ocean

Madagascar

Mozambique

Zimbabwe

Botswana

Namibia

Angola

Zambia

Tanzania

Kenya

Somalia

Ethiopia

Sudan

Chad

Niger

Mali

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Ghana

Guinea

Burkina Faso

Mauritania

Western Sahara

Algeria

Libya

Tunisia

Egypt

Saudi Arabia

Oman

Yemen

Gulf of Aden

Arabian Sea

India

Pakistan

Afghanistan

Turkmenistan

Kazakhstan

Mongolia

China

South Korea

Japan

Sea of Japan (East Sea)

Sea of Okhotsk

Bering Sea

Canada

North Atlantic Ocean

North Pacific Ocean

Philippine Sea

East China Sea

South China Sea

Philippines

Vietnam

Thailand

Myanmar (Burma)

Nepal

Malaysia

Indonesia

Banda Sea

Arafura Sea

Papua New Guinea

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Indian Ocean

Madagascar

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Zimbabwe

Botswana

Namibia

Angola

Zambia

Tanzania

Kenya

Somalia

Ethiopia

Sudan

Chad

Niger

Mali

Nigeria

Ghana

Guinea

Burkina Faso

Mauritania

Western Sahara

Algeria

Libya

Tunisia

Egypt

Saudi Arabia

Oman

Yemen

Gulf of Aden

Arabian Sea

India

Pakistan

Afghanistan

Turkmenistan

Kazakhstan

Mongolia

China

South Korea

Japan

Sea of Japan (East Sea)

Sea of Okhotsk

Bering Sea

Canada

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Nepal

Malaysia

Indonesia

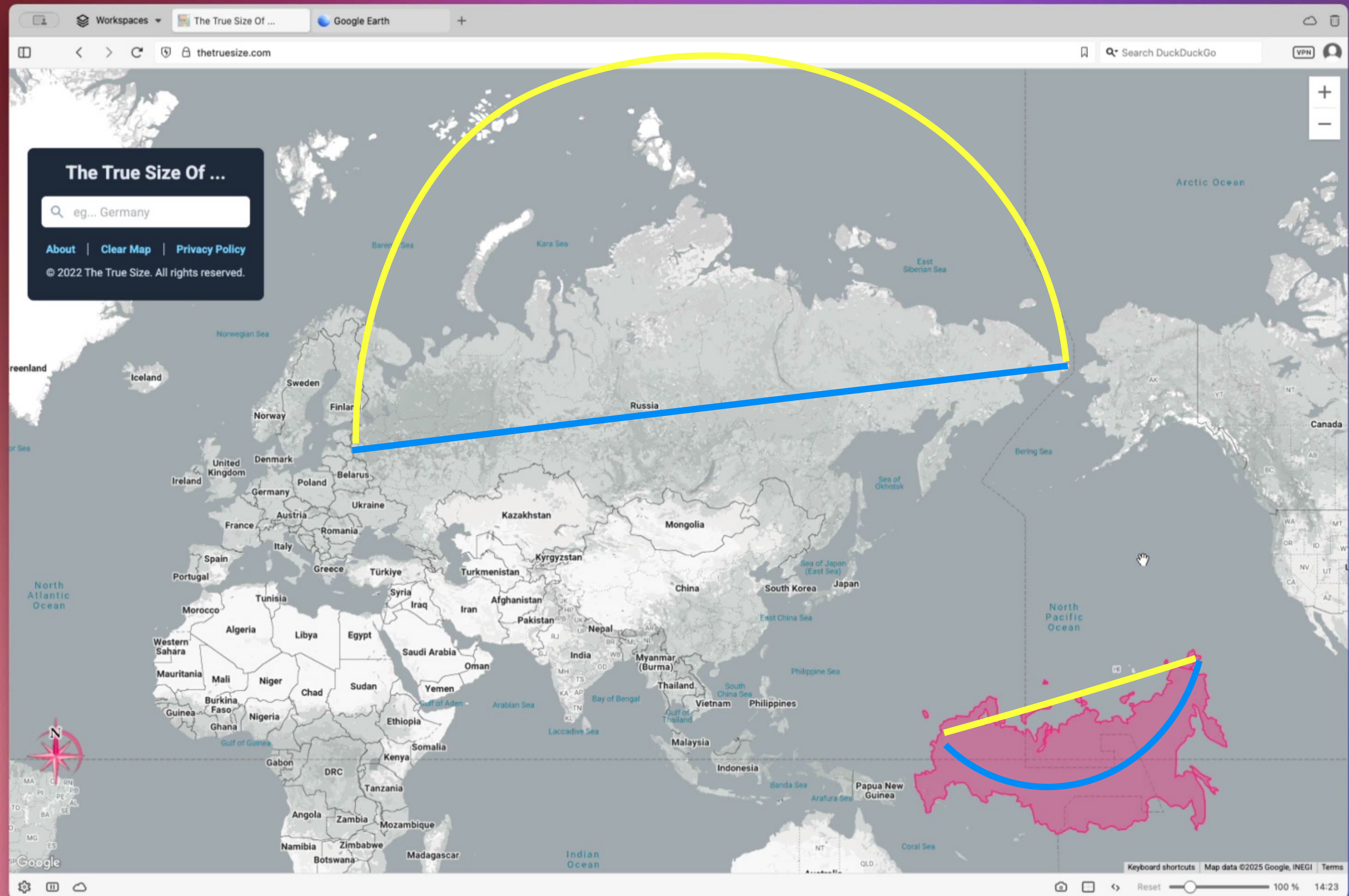
Banda Sea

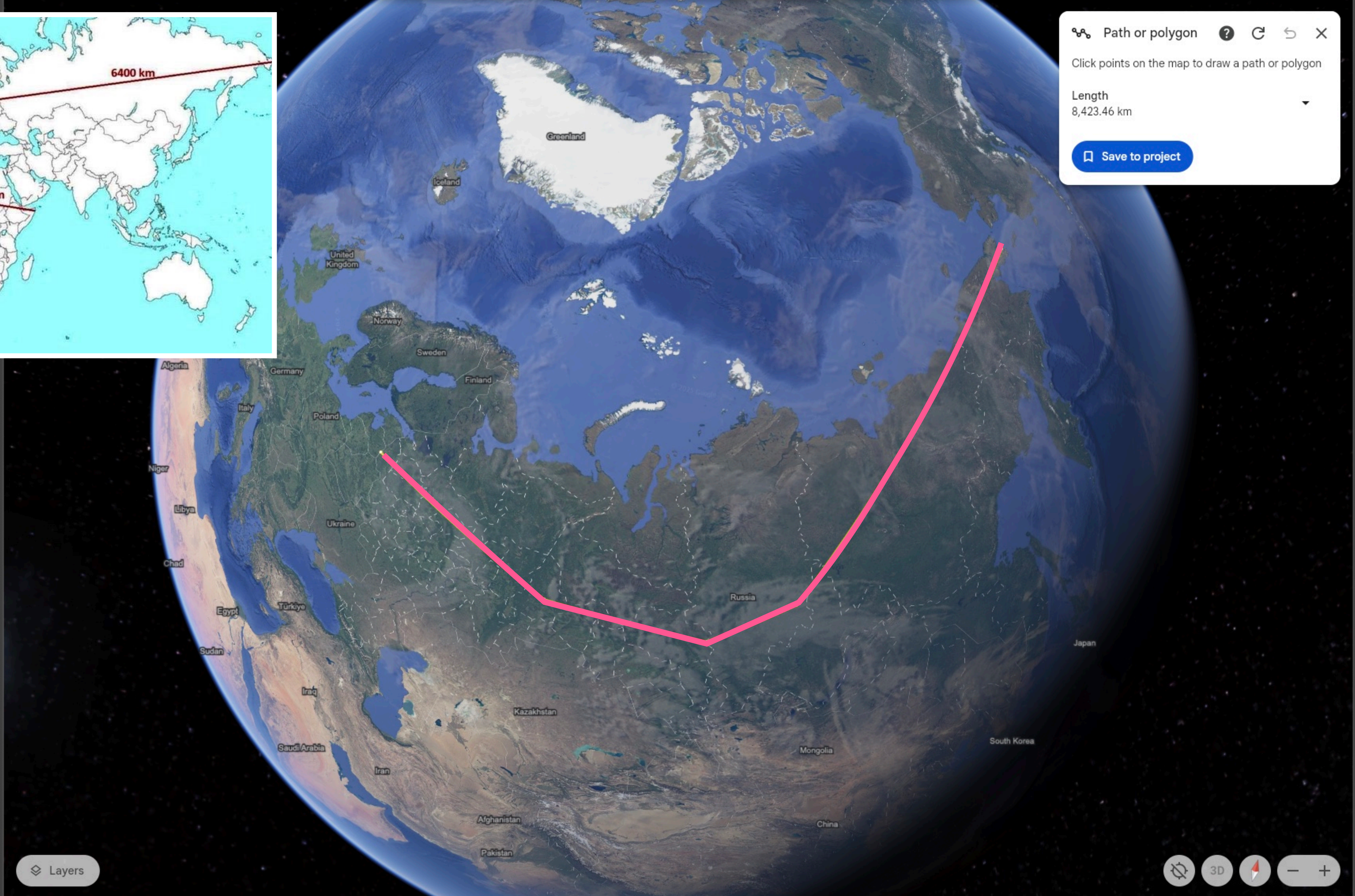
Arafura Sea

Papua New Guinea

Coral Sea

Indian Ocean





Path or polygon ? ↺ ↻ ✕

Click points on the map to draw a path or polygon

Length
8,423.46 km

Save to project





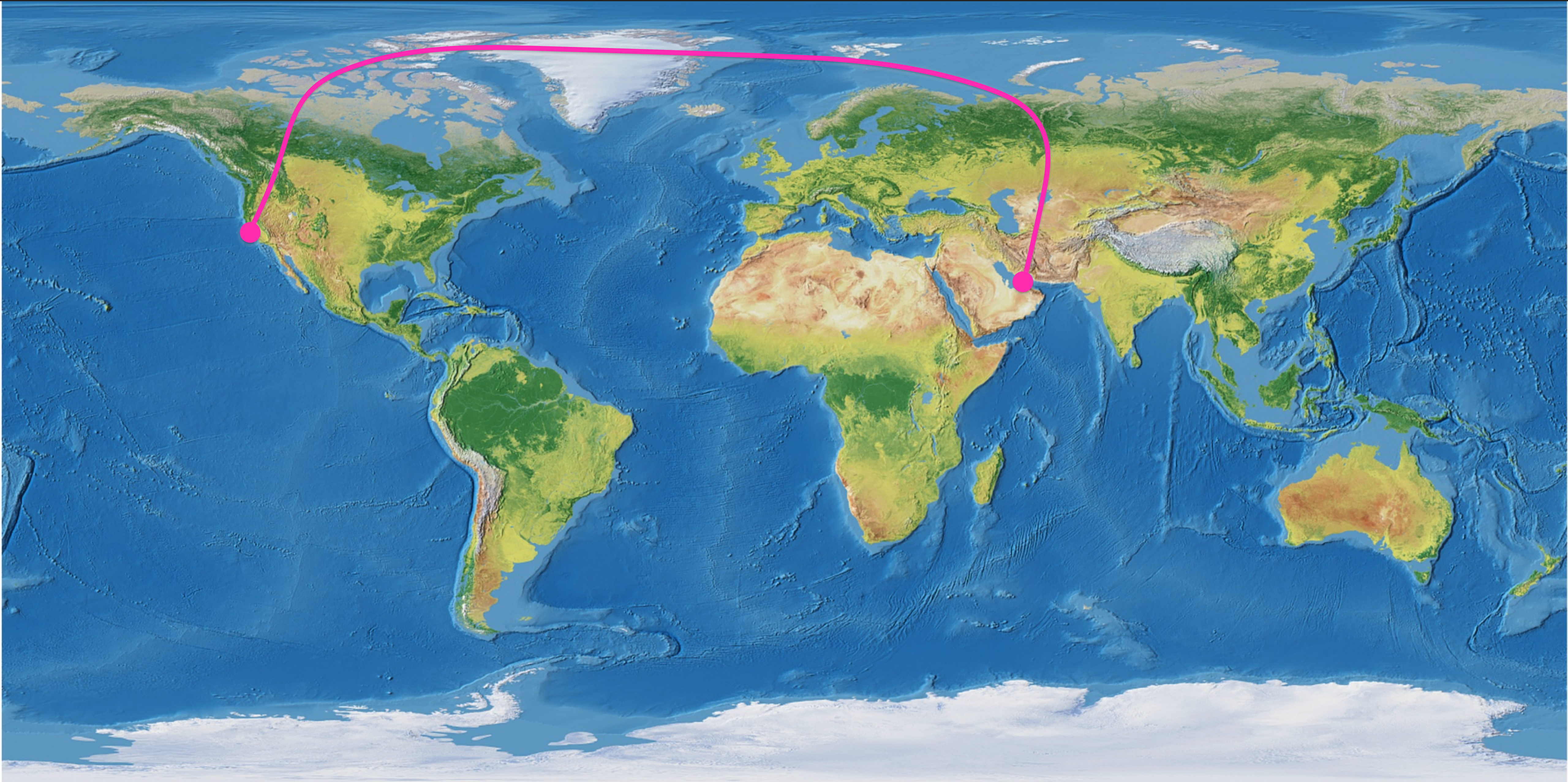




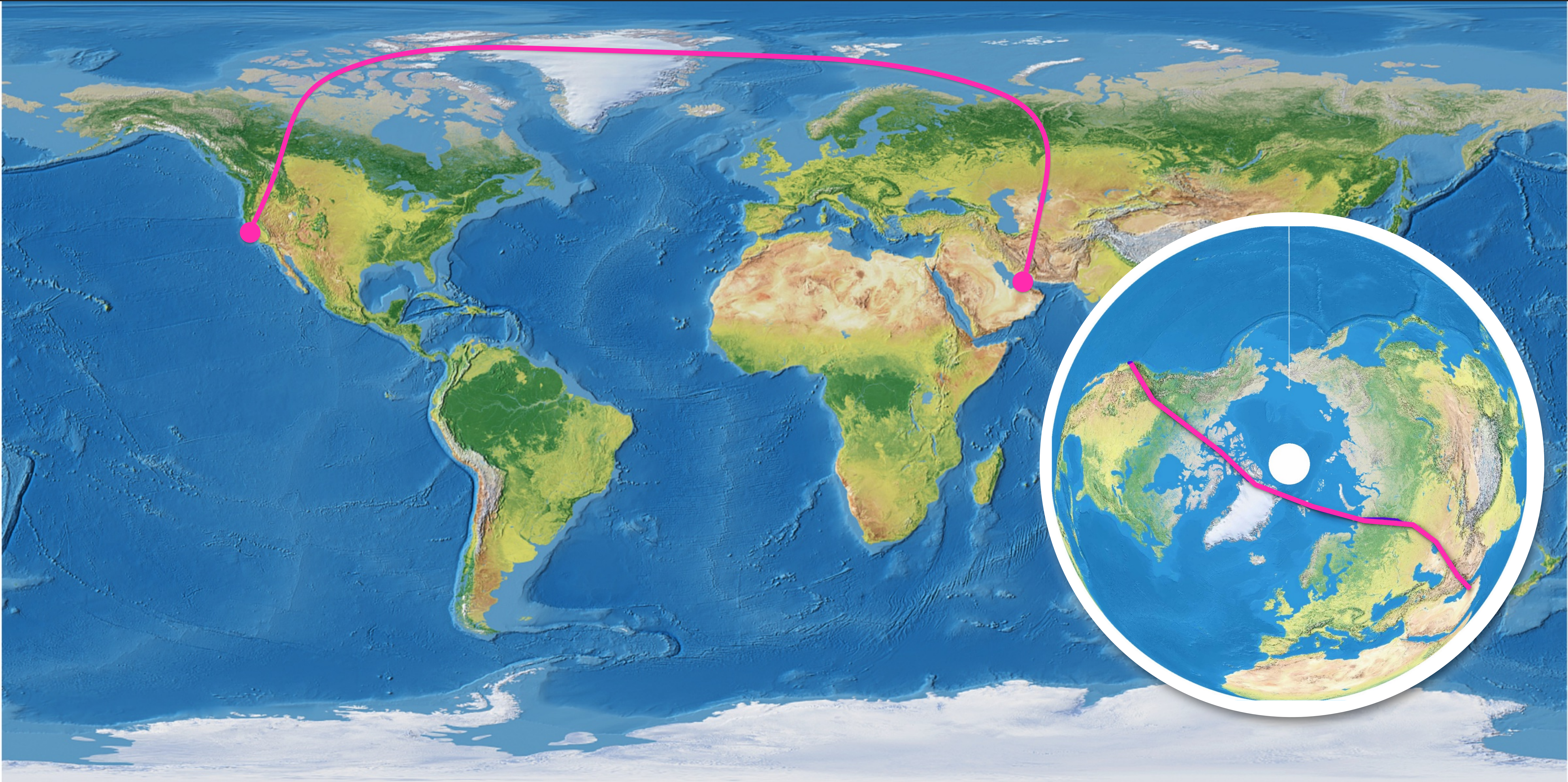
The route of Emirates flight EK225, Dubai to San Francisco



The route of Emirates flight EK225, Dubai to San Francisco



The route of Emirates flight EK225, Dubai to San Francisco

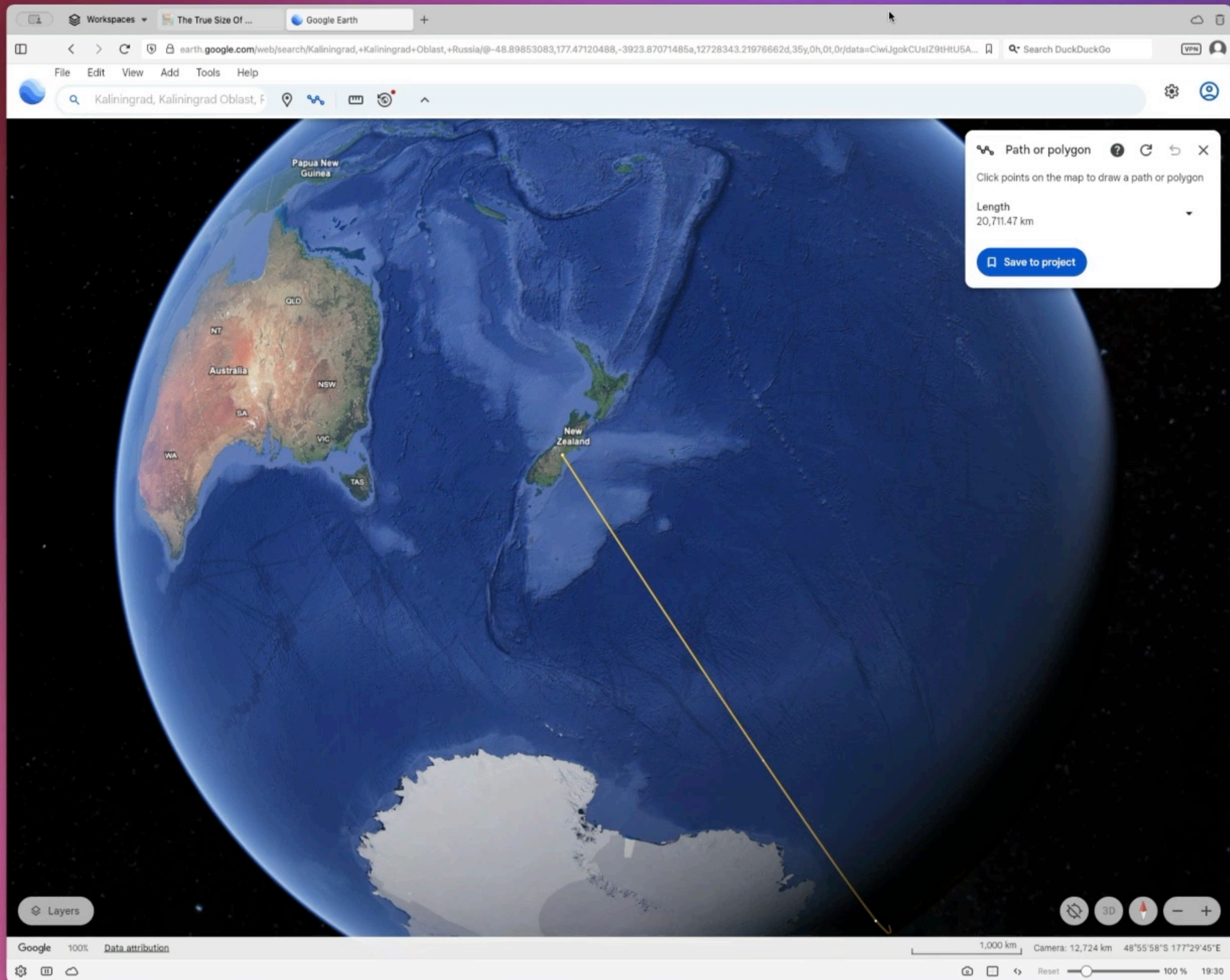


The route of Emirates flight EK225, Dubai to San Francisco





Image © 2012 TerraMetrics
© 2012 Cnes/Spot Image
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image IBCAO



Disclaimer.

“The problem was approached as a purely mathematical exercise. The authors do not recommend sailing along the found paths.”





Do try this at home.

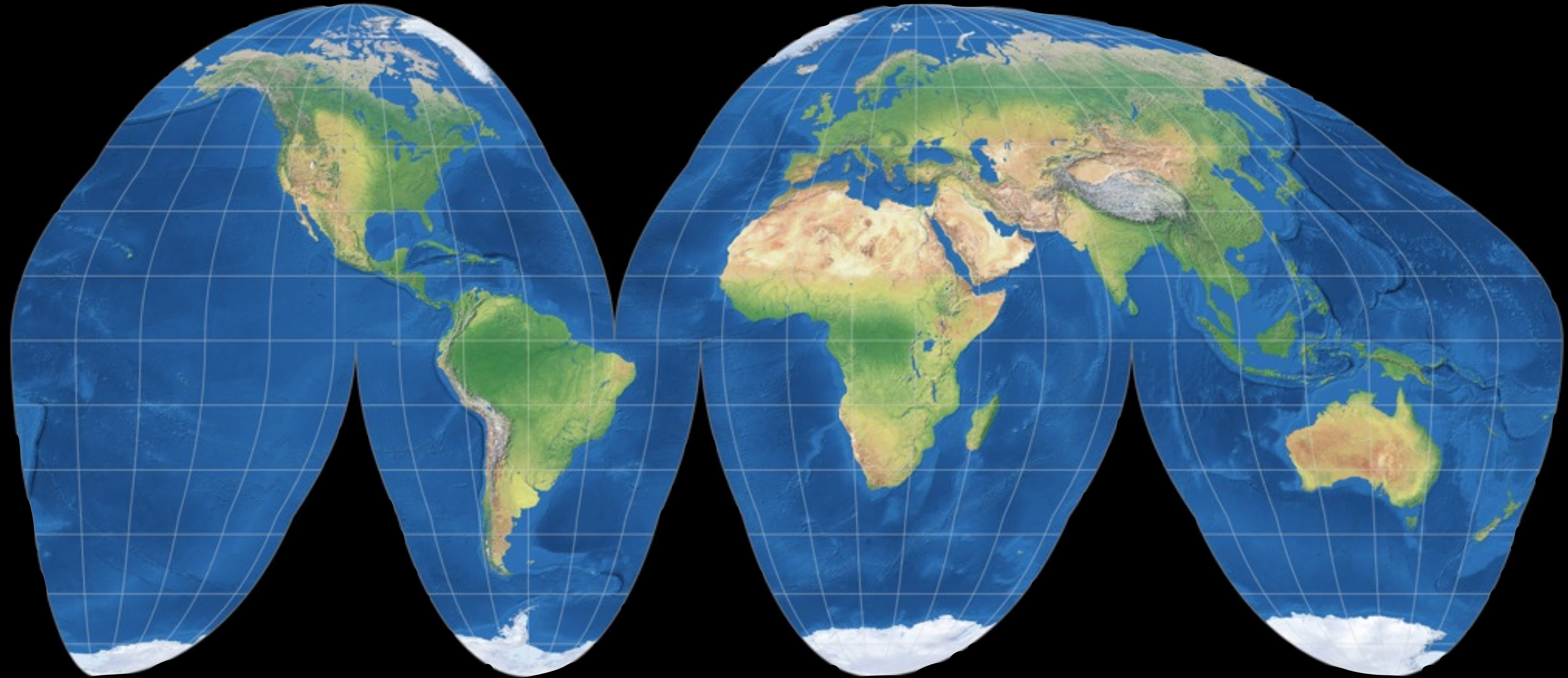


The video is without sound.
A Strange Map Projection (Euler Spiral) -
Numberphile, with Hannah Fry



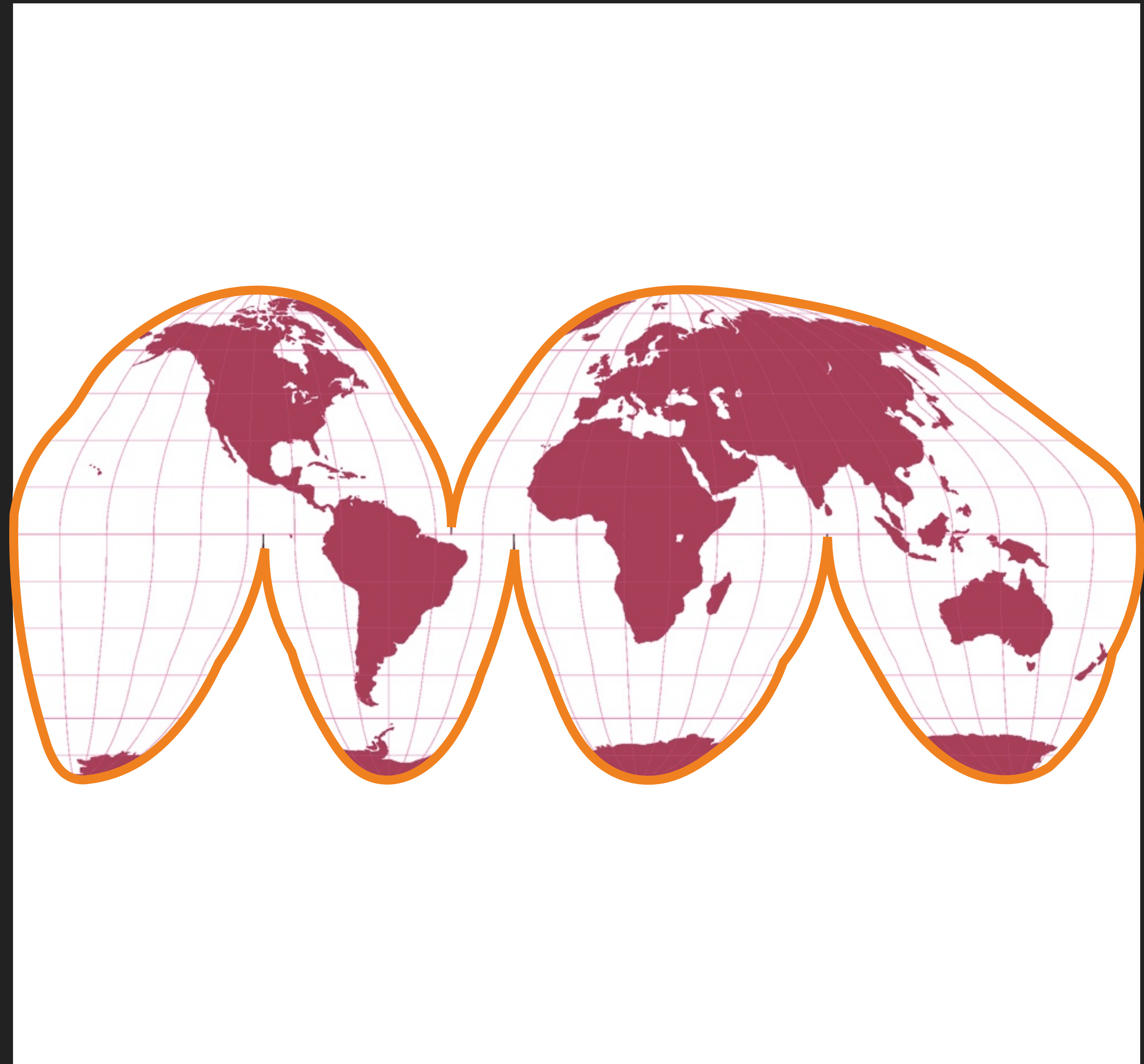
Goode homolosine projection

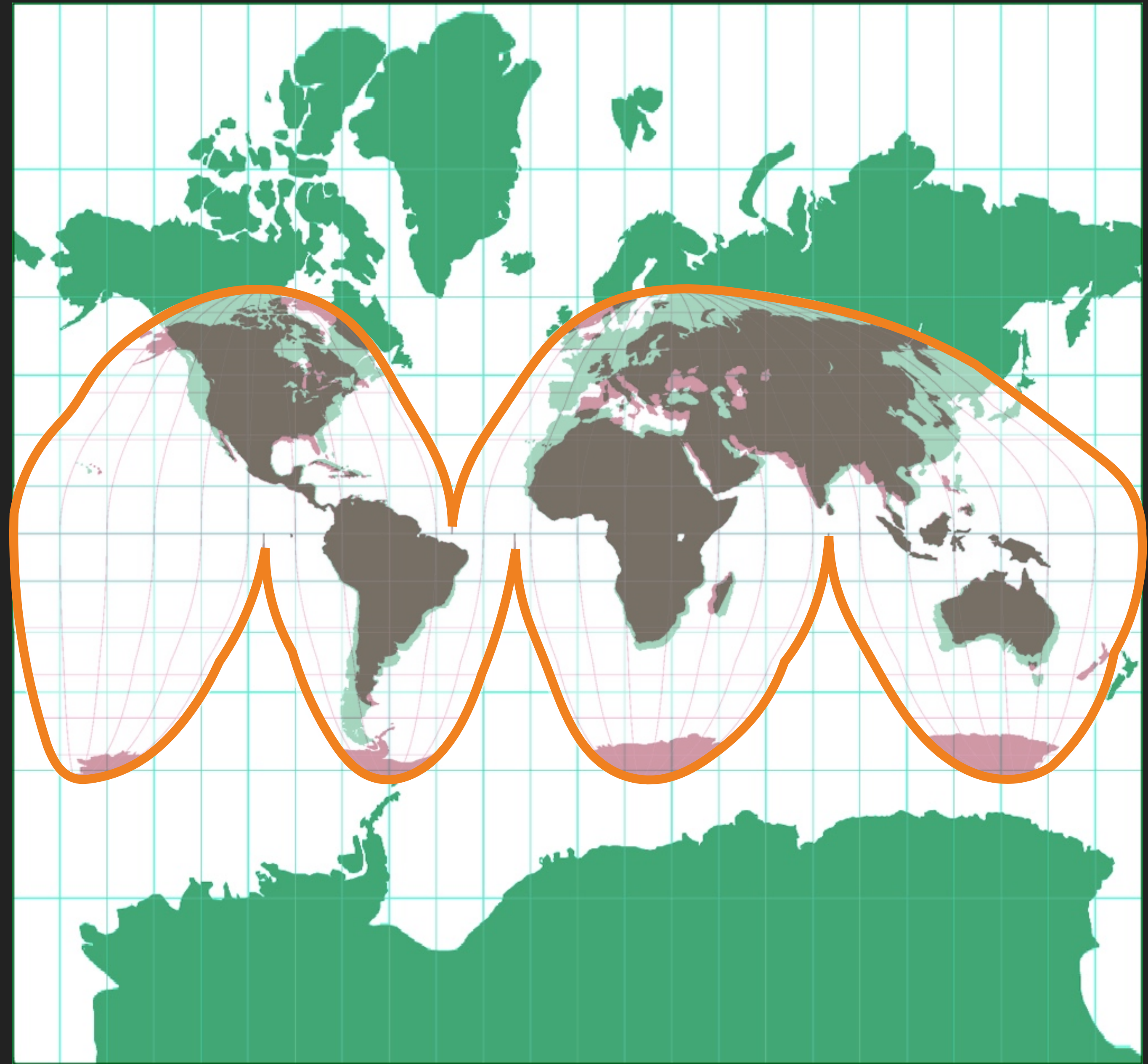
pseudocylindrical, equal-area



The orange-peel map







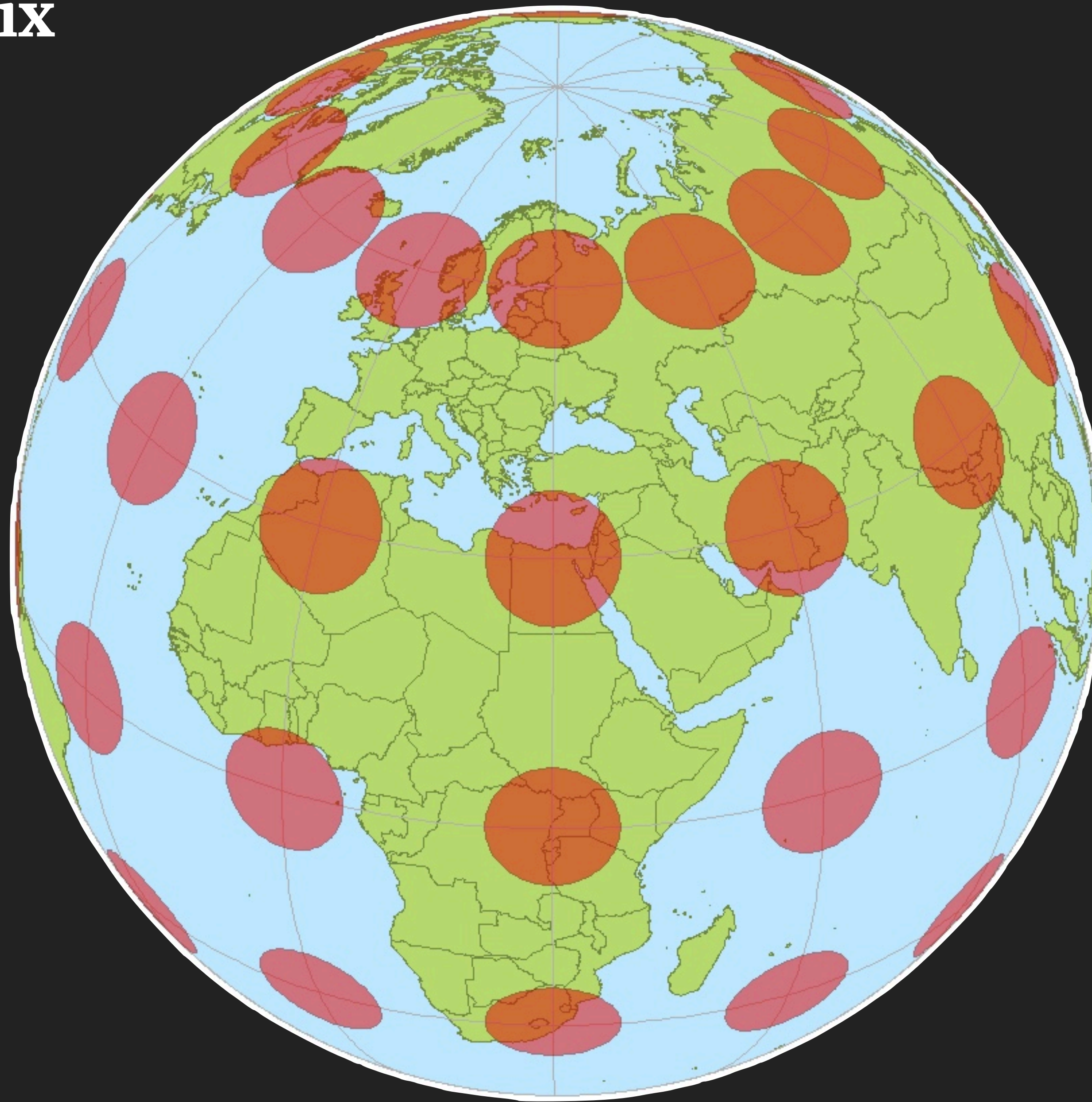
A close-up photograph of a car's side-view mirror. The mirror is rectangular with a black frame. The background is a blurred view of a road and other vehicles, tinted with a blueish-purple hue. Centered on the mirror is a white text label.

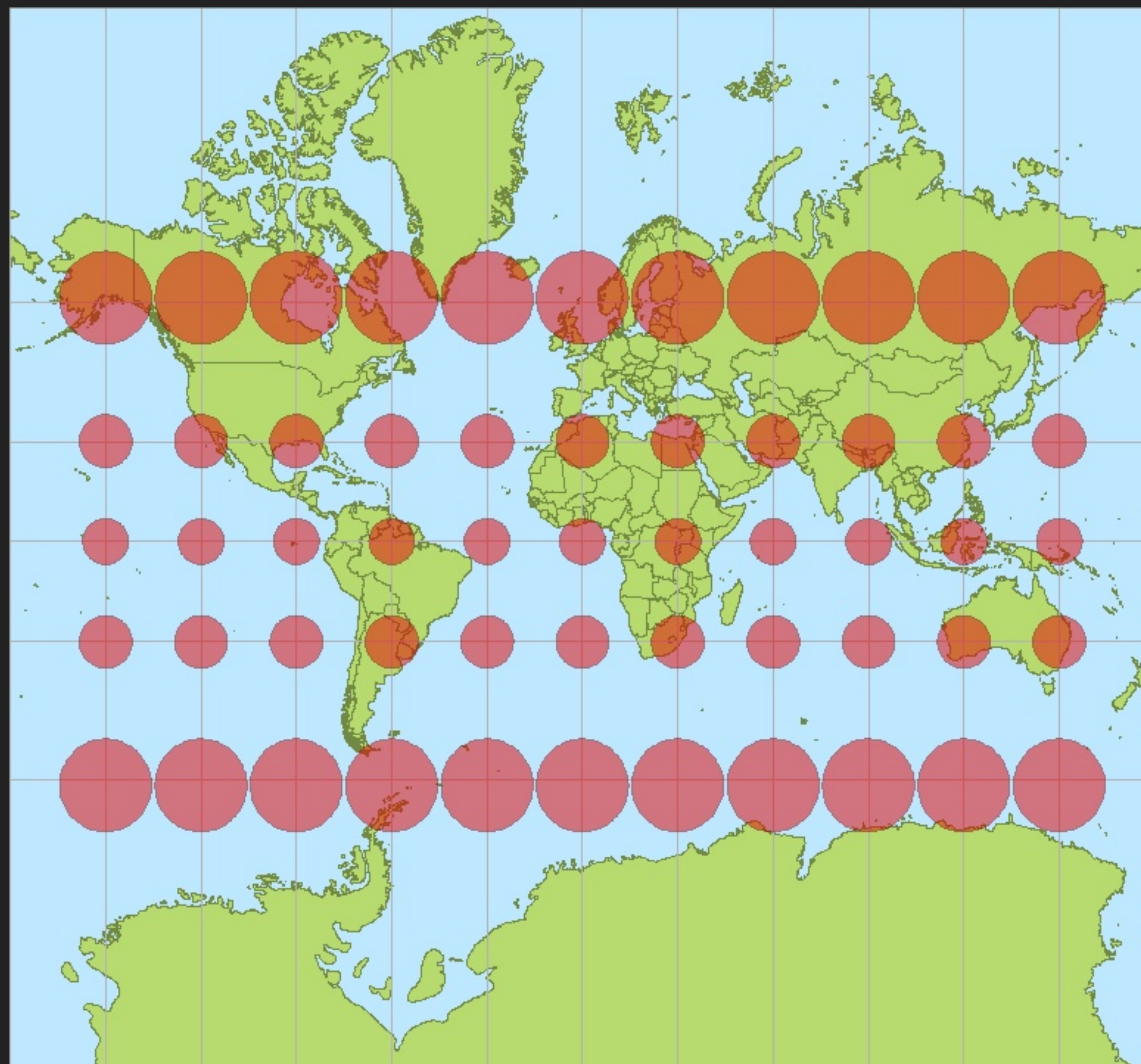
OBJECTS IN MIRROR ARE CLOSER
THAN THEY APPEAR

FREDERICKS.COM

Tissot's indicatrix

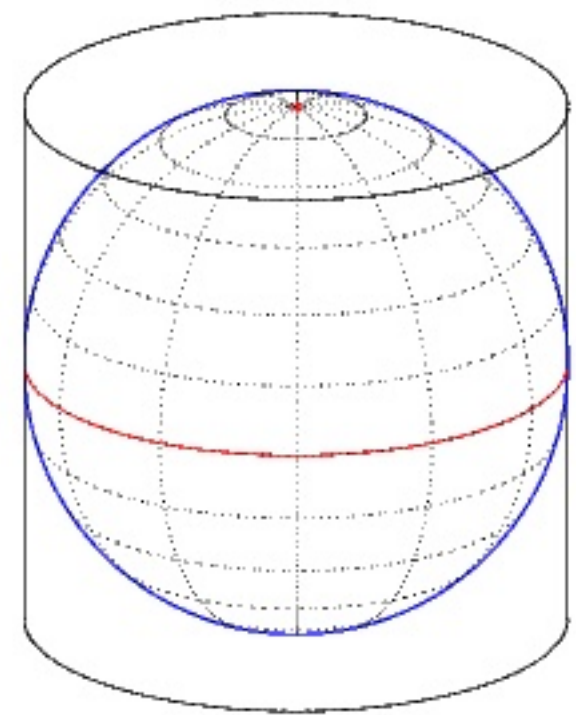
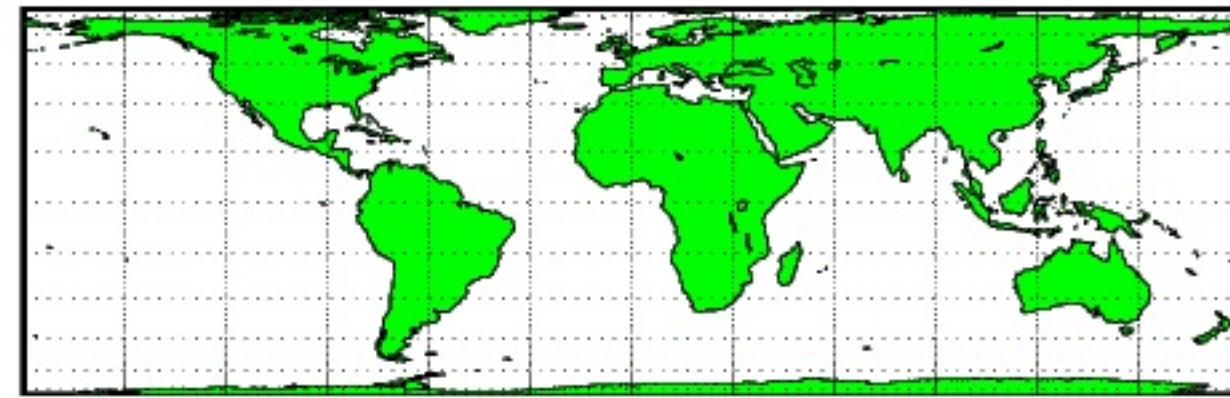
Globe



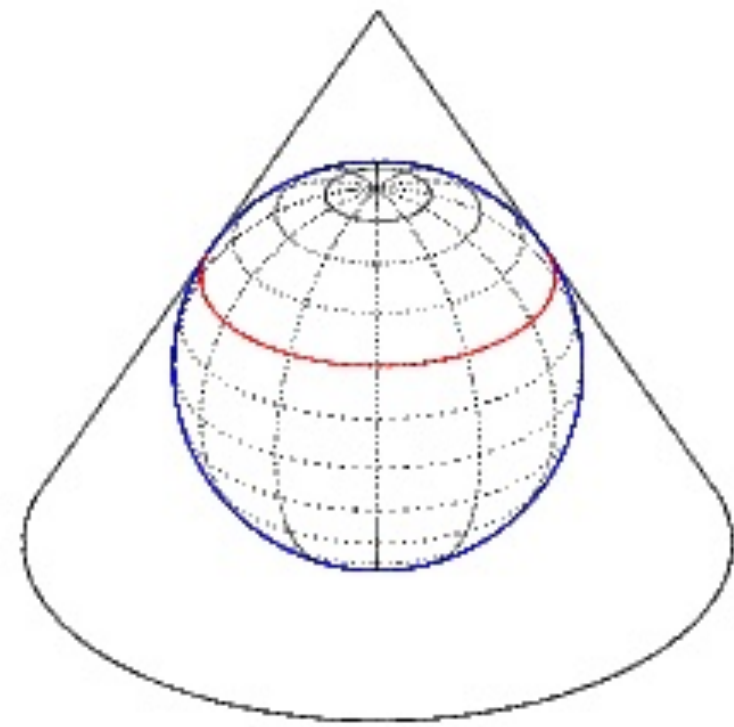
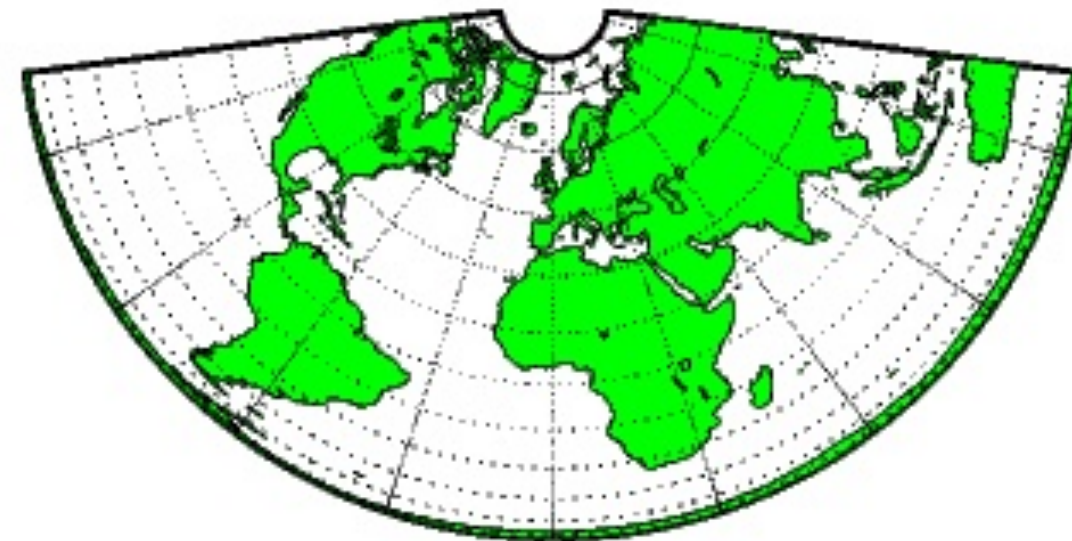


What are the options?

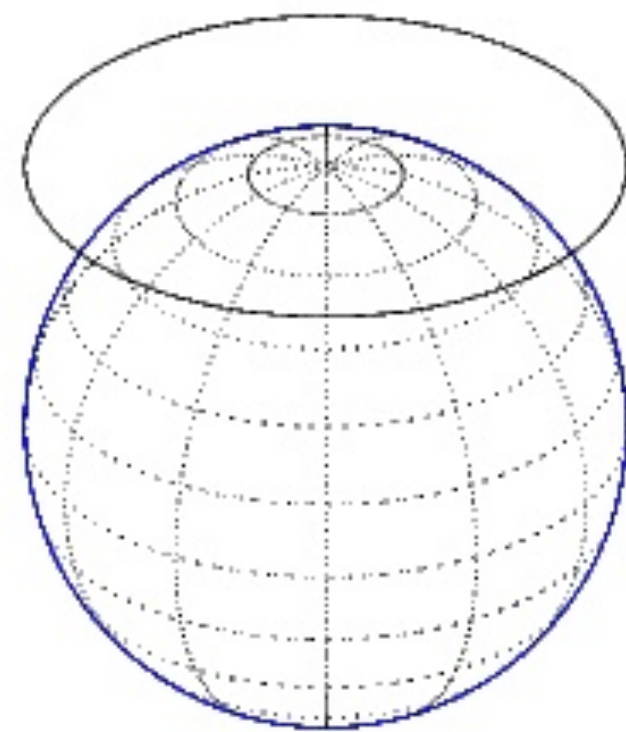
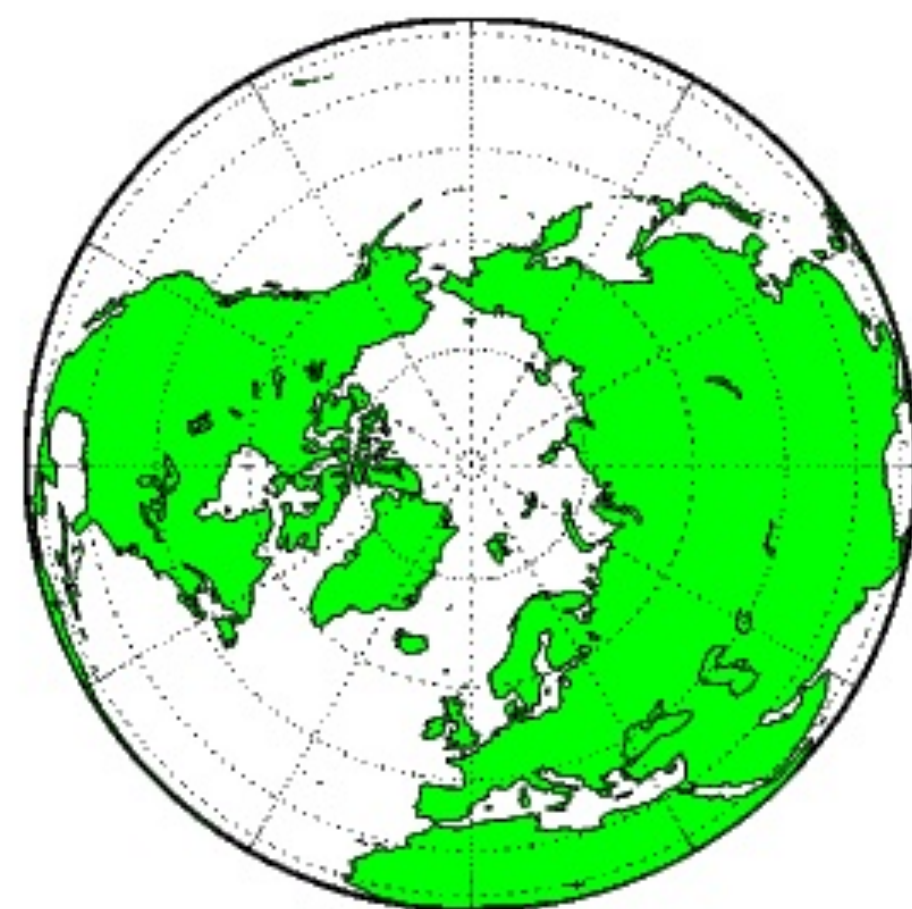




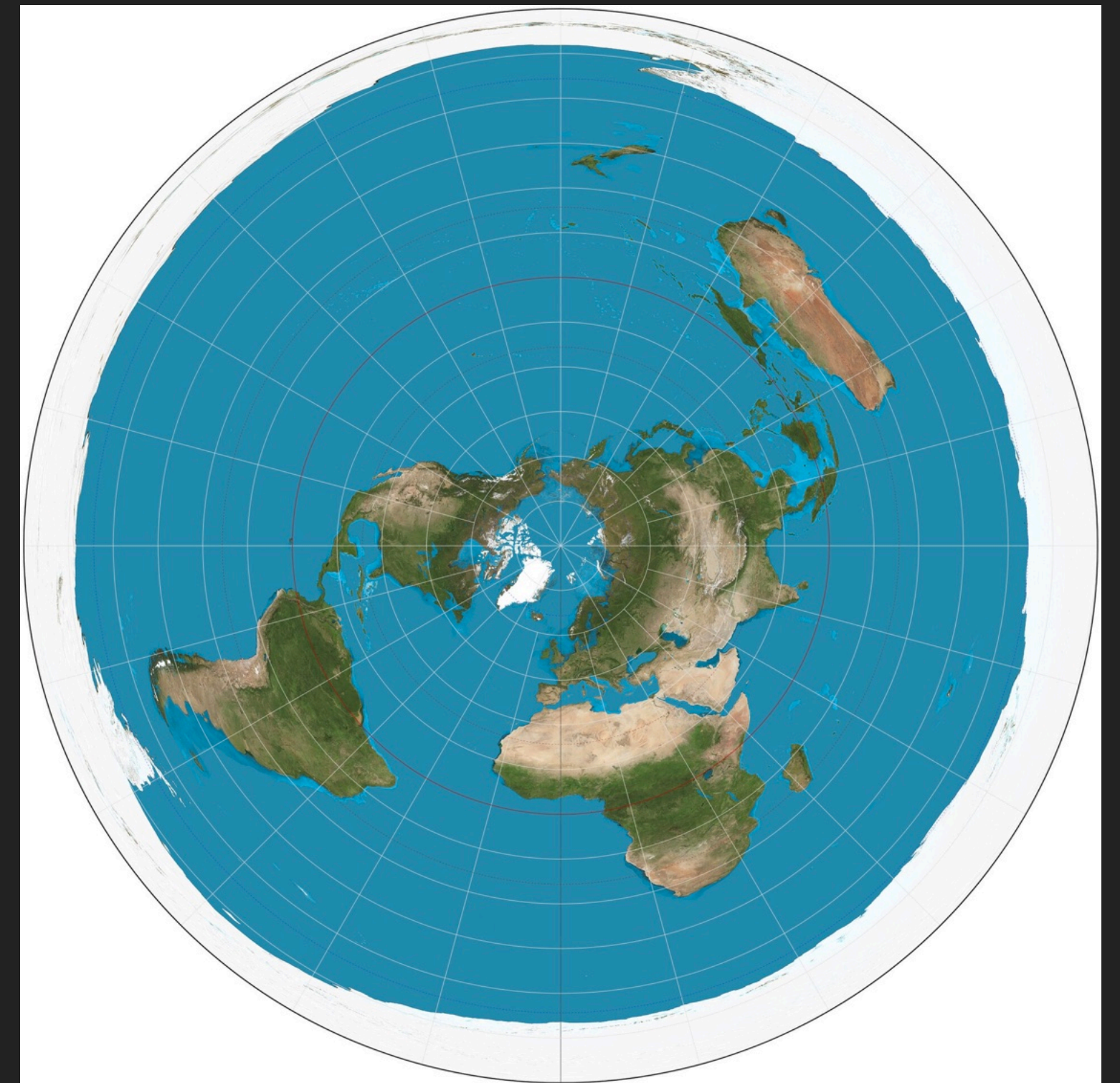
Cylindrical



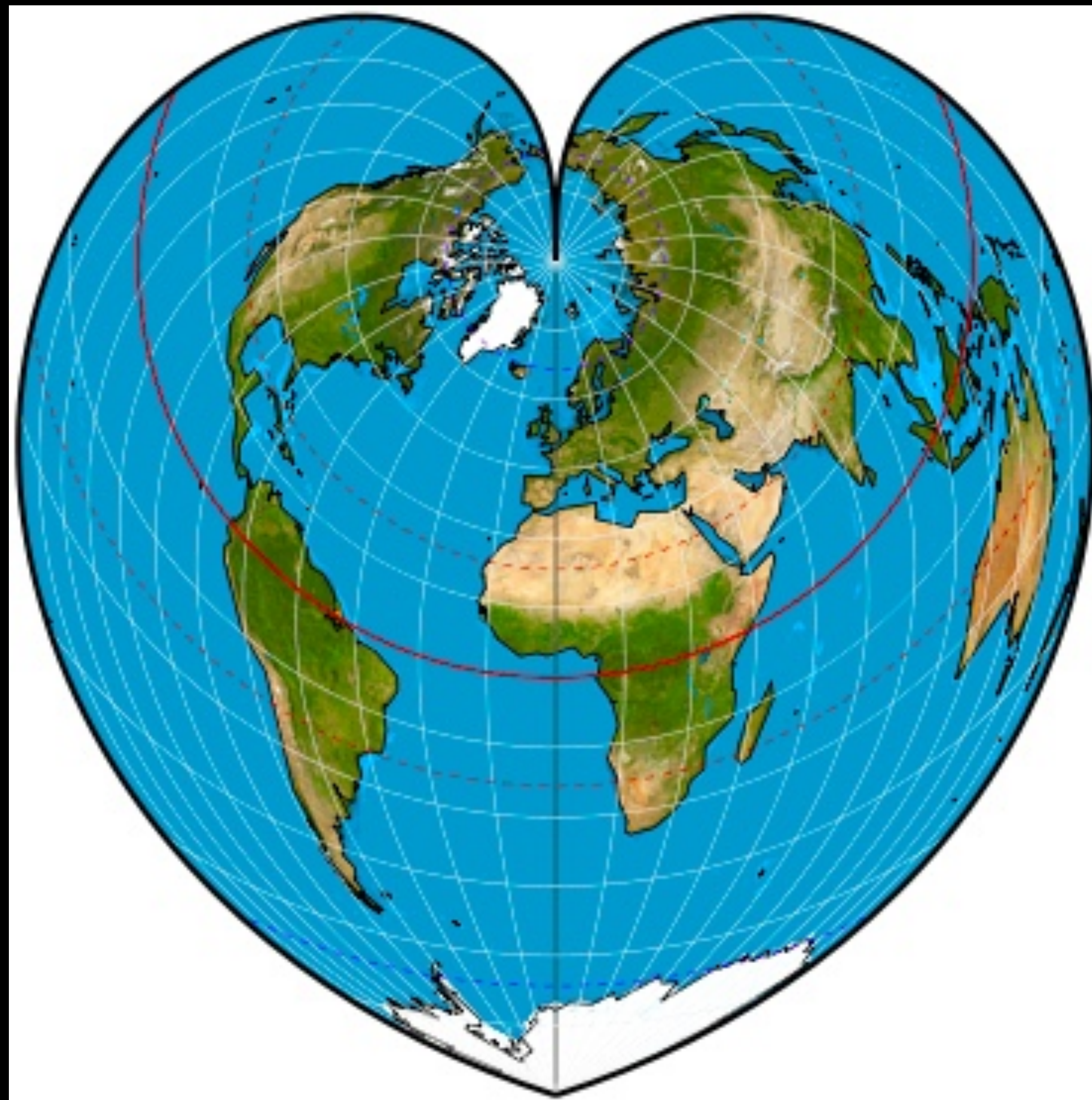
Conic



Azimuthal

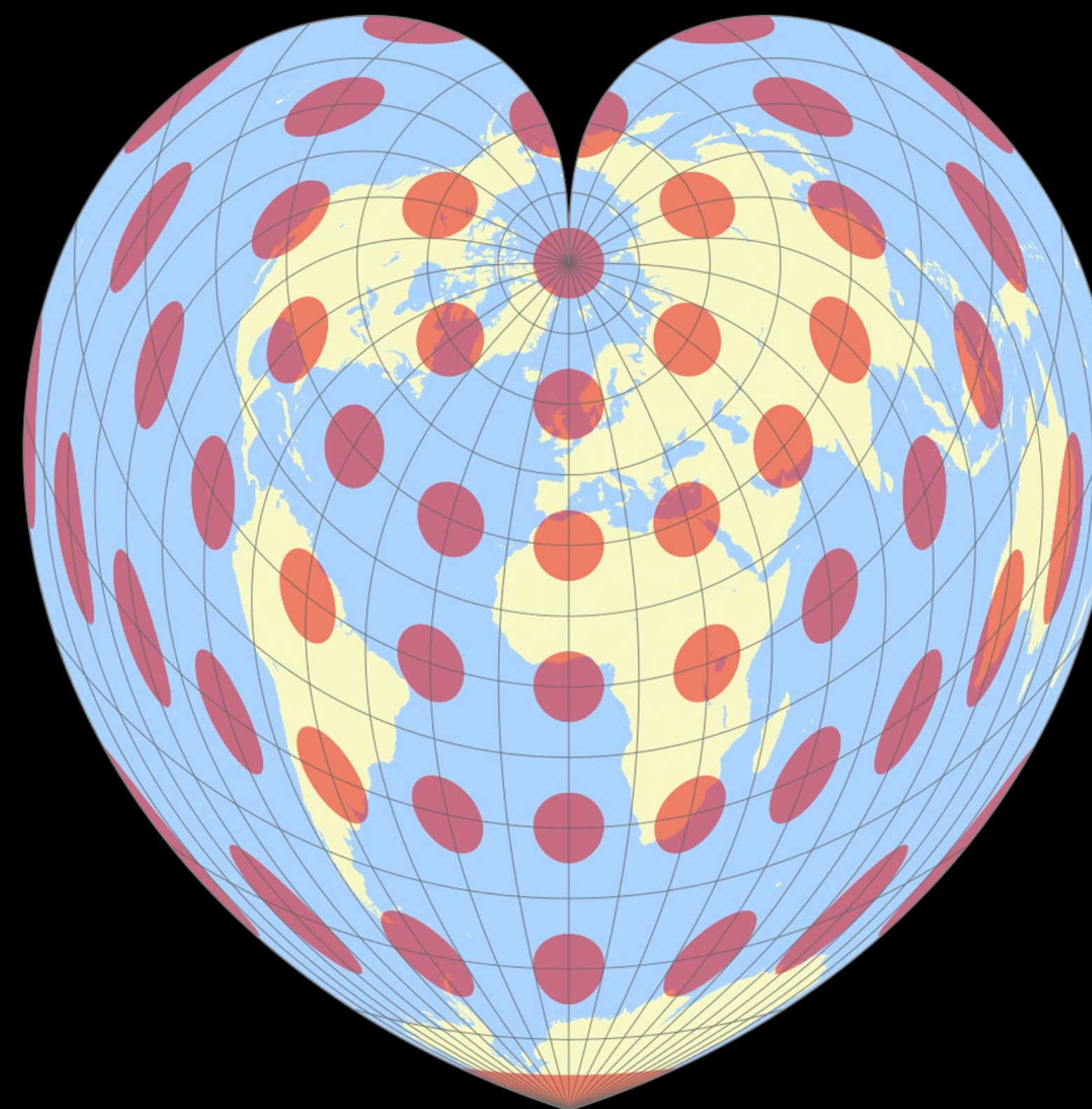


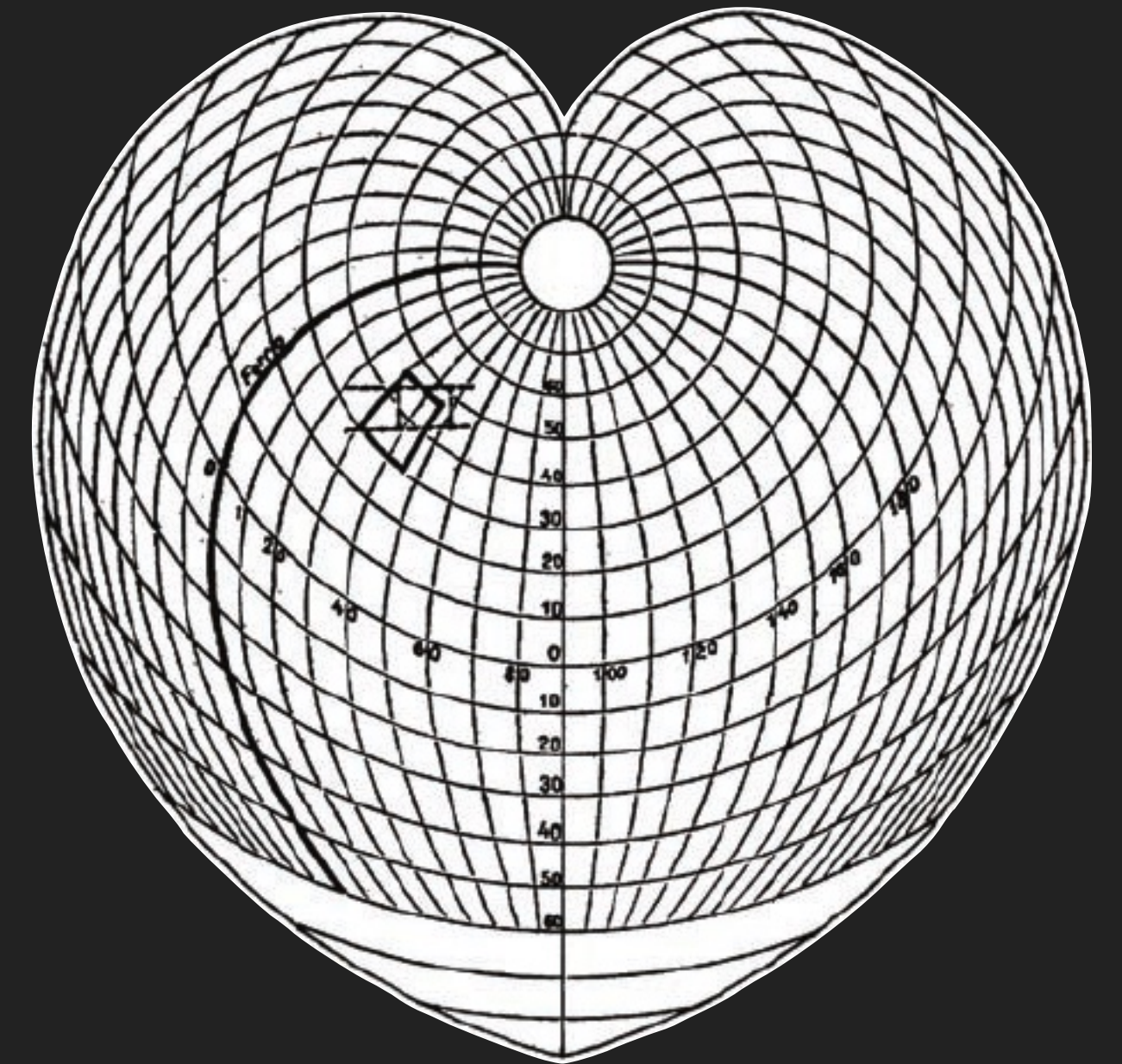
Azimuthal



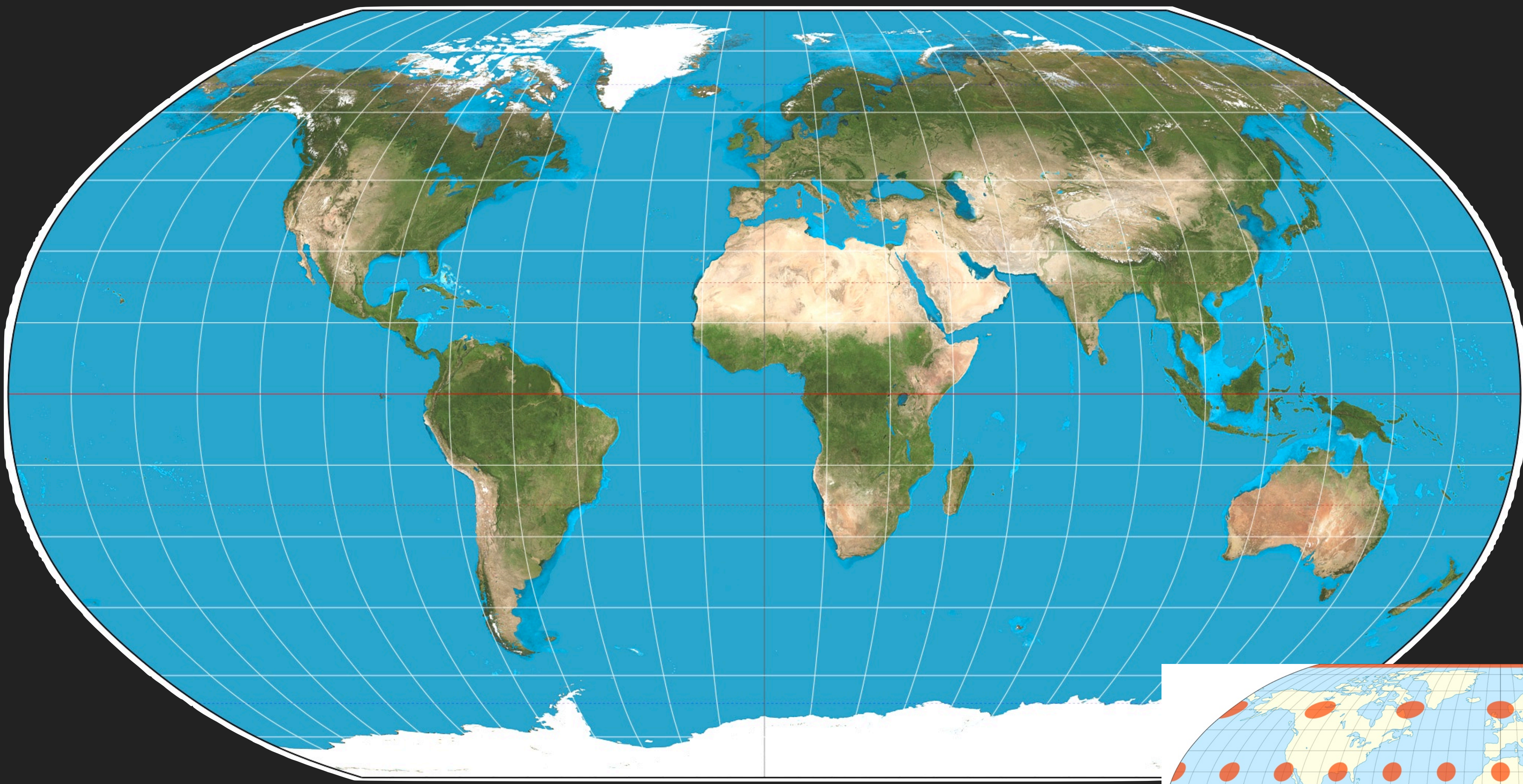
Stab-Werner projection
pseudoconic equal-area

Cordiform
'emotions'

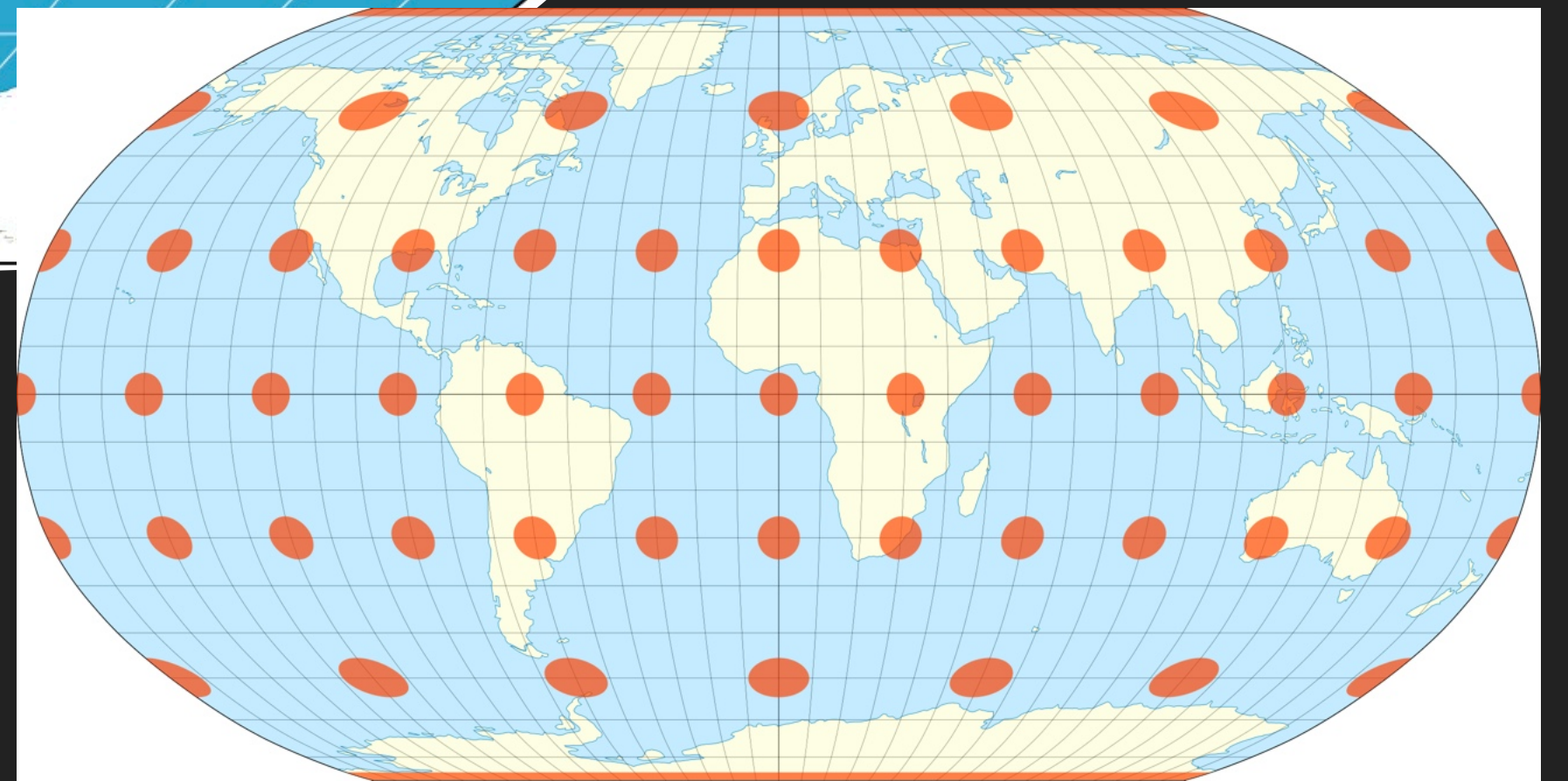






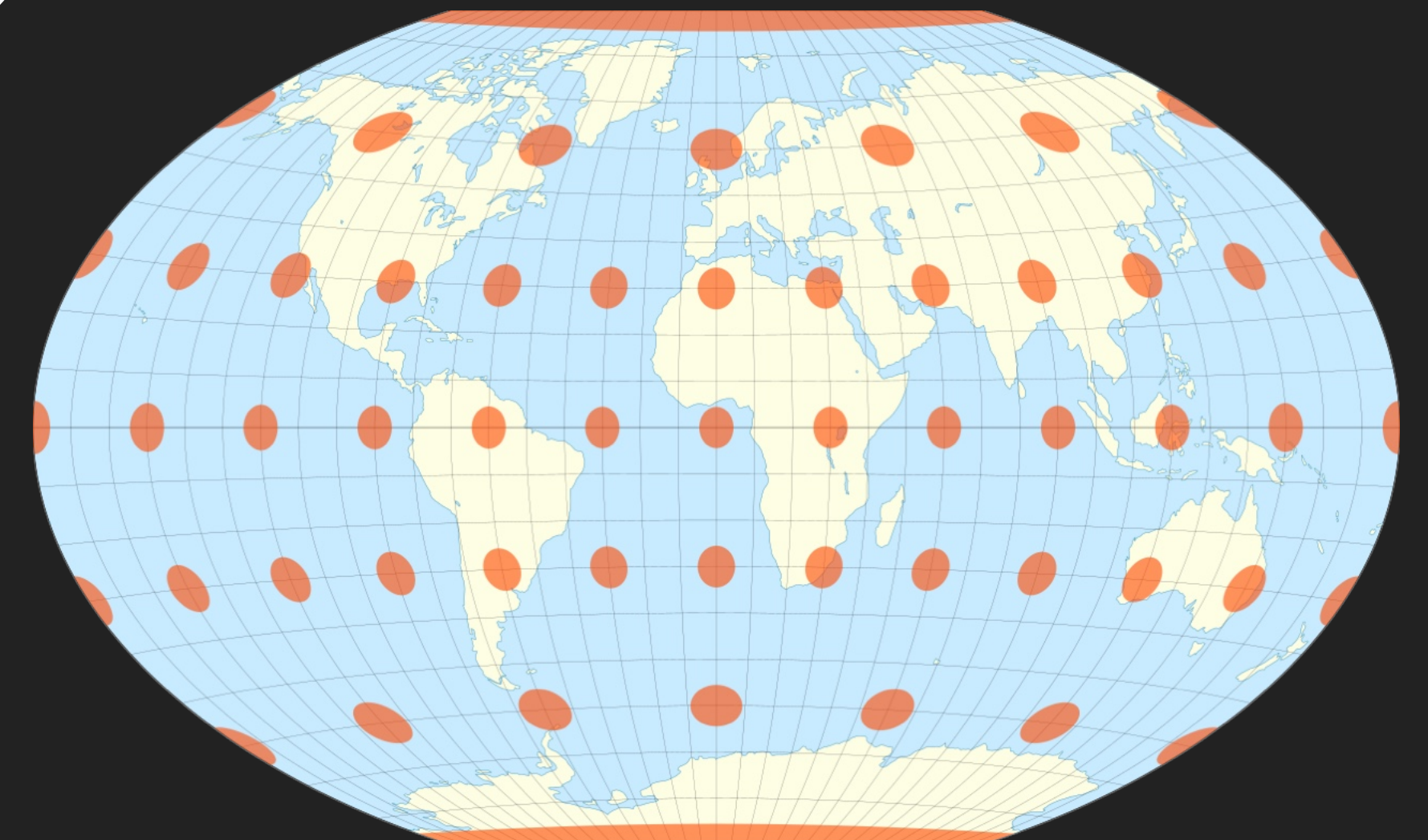


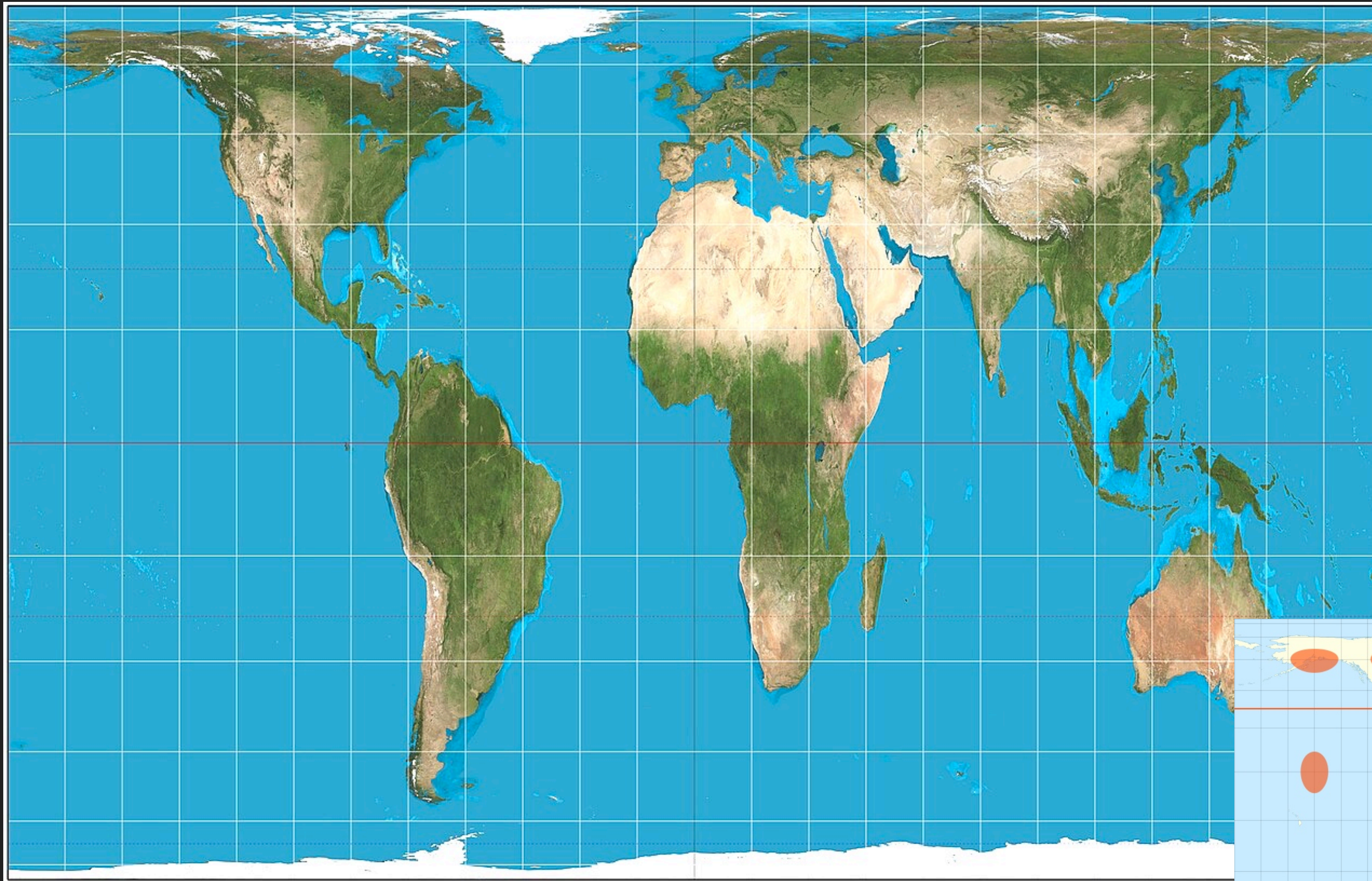
Robinson projection
neither equal-area nor conformal
(a compromise)



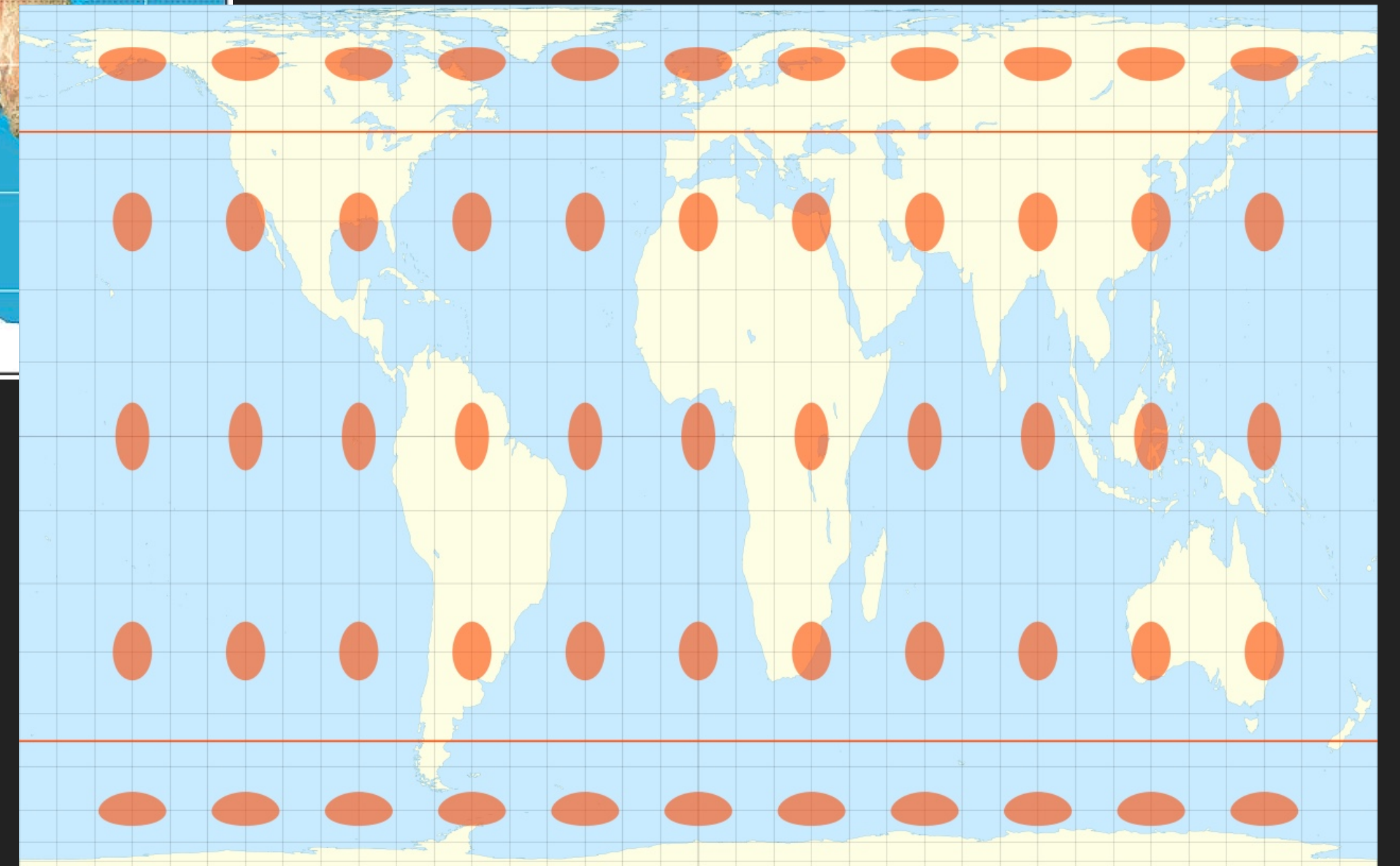


Winkel tripel projection
goal of minimizing three kinds of distortion:
area, direction, and distance





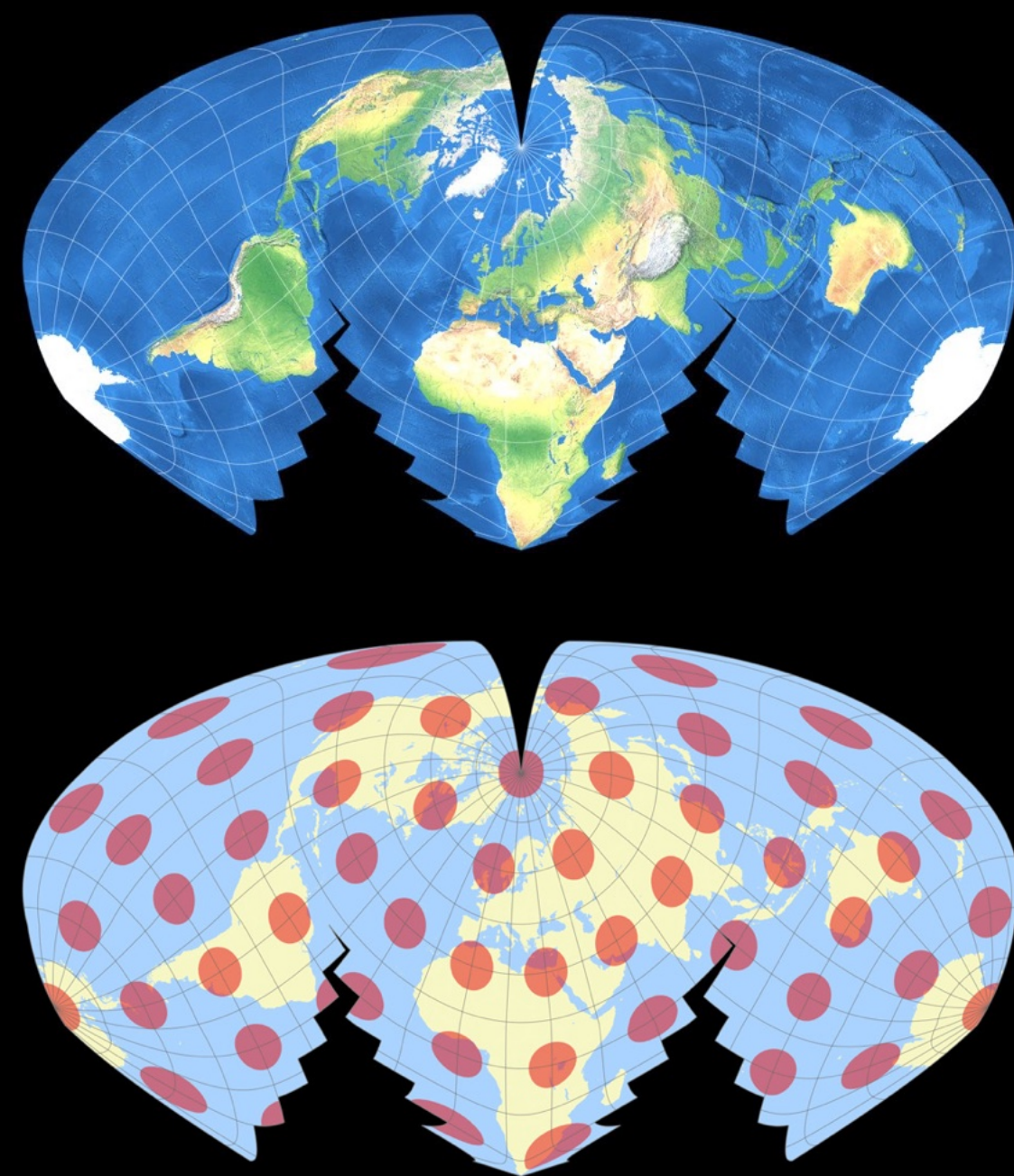
Gall-Peters projection
Cylindrical equal-area



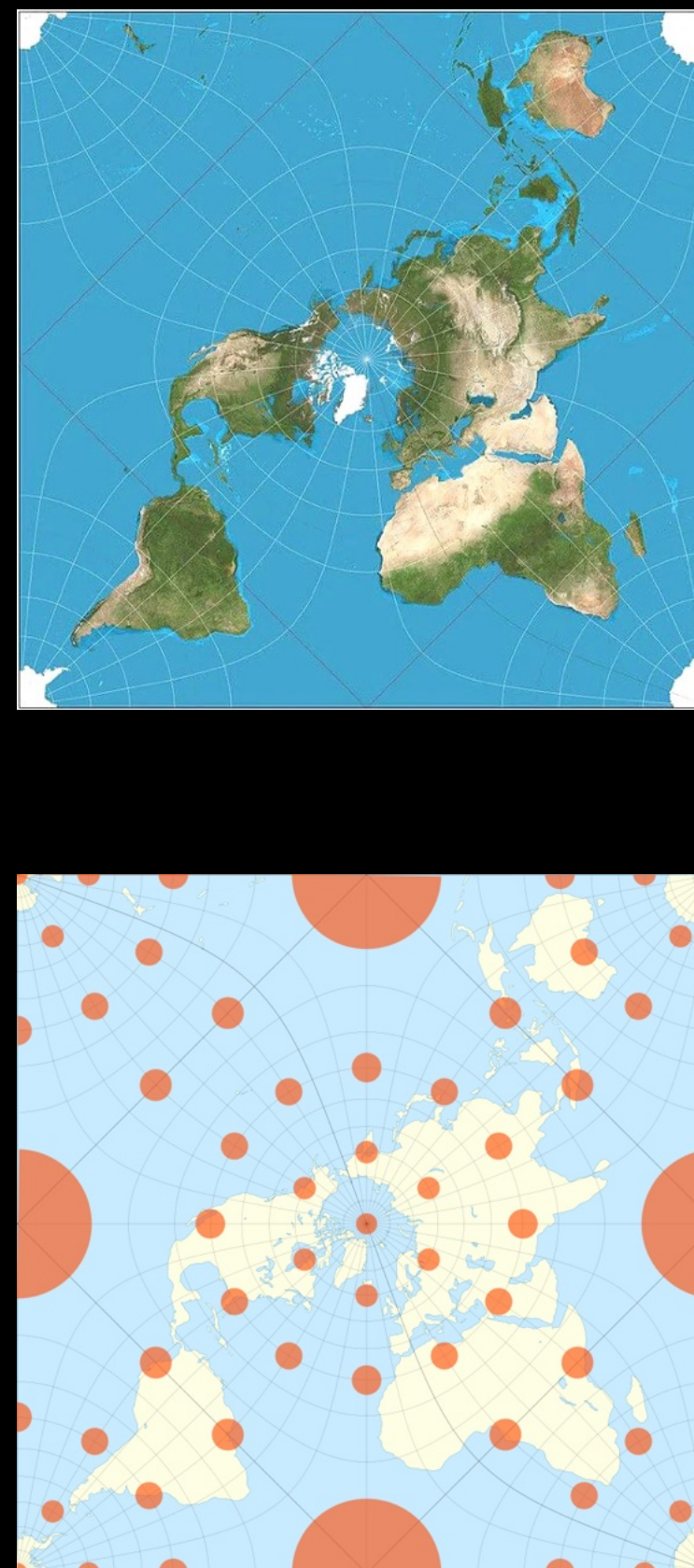
The Peters Projection.



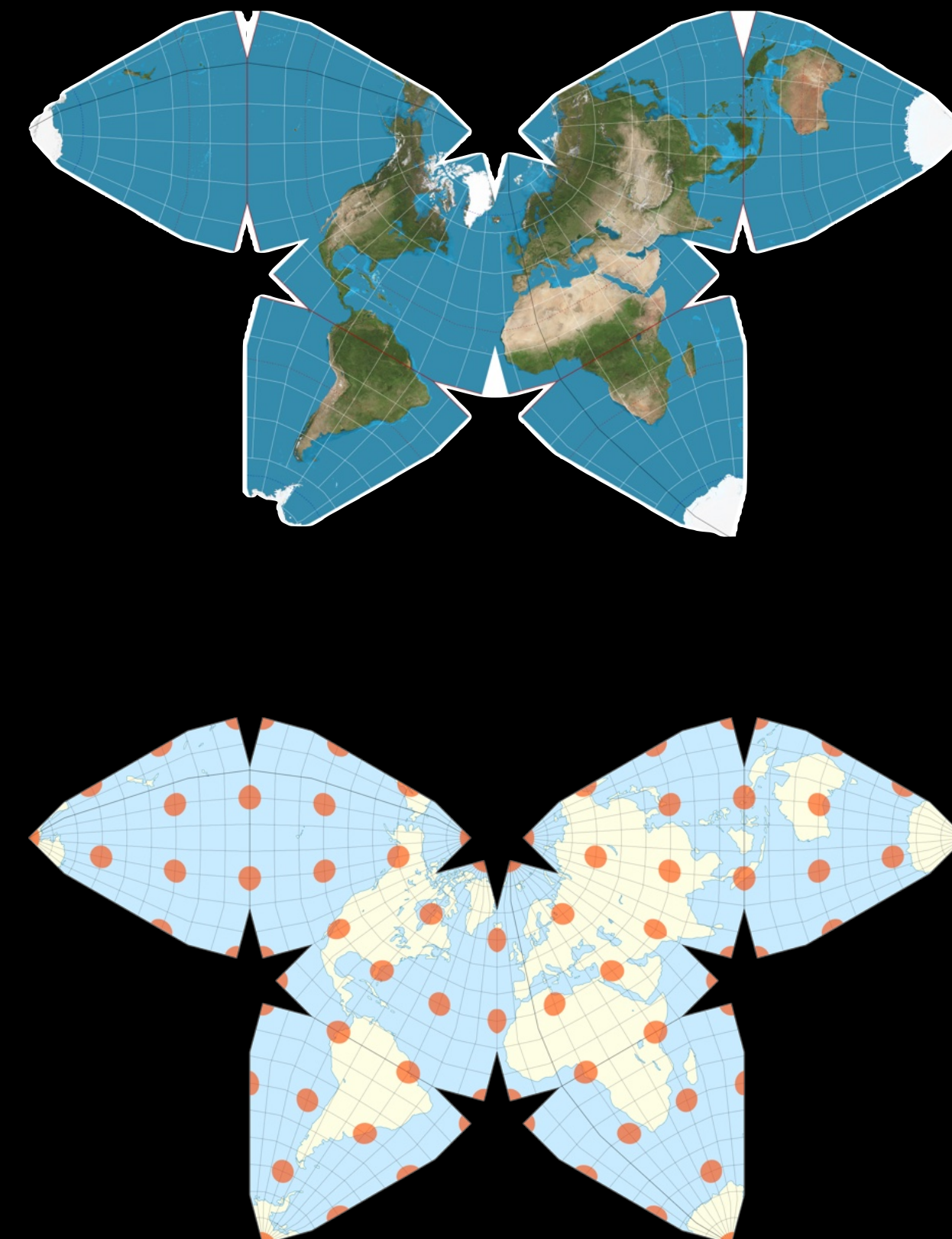
Sinu-Mollweide



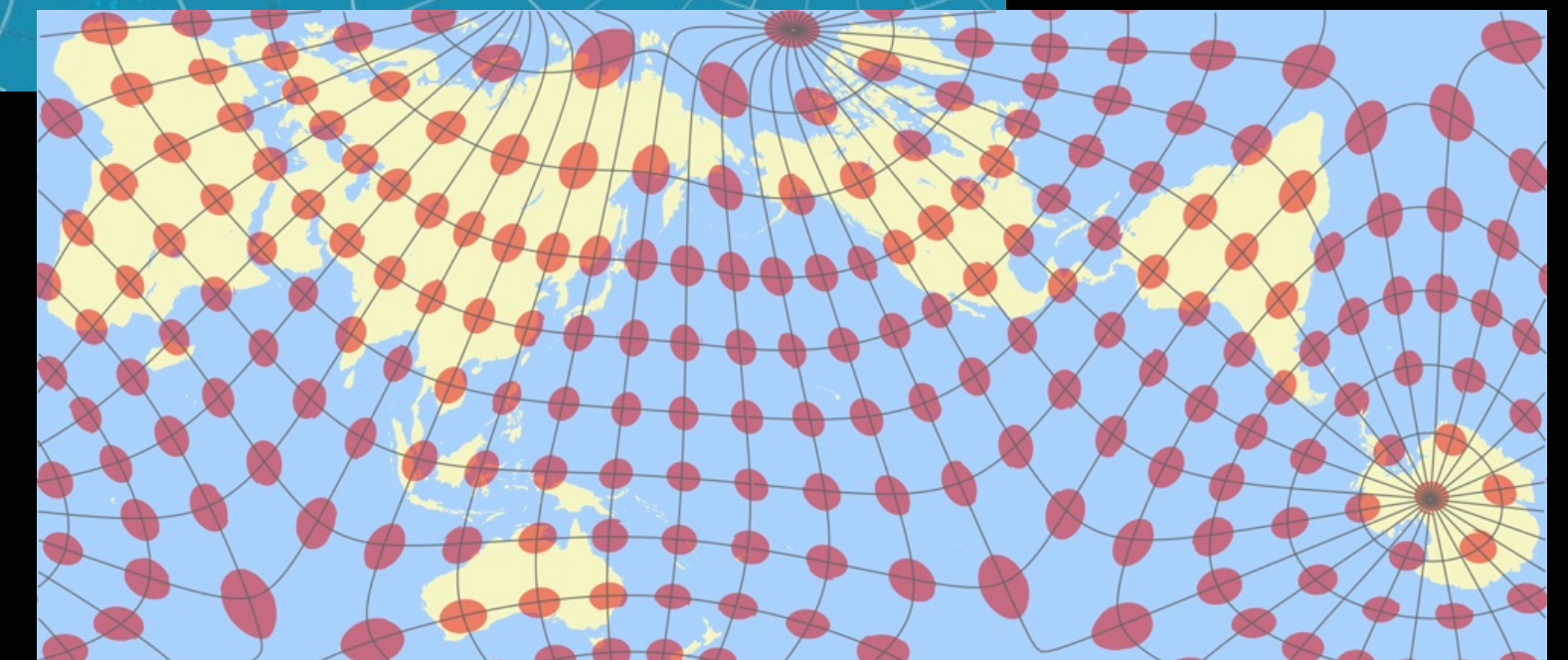
Peirce Quincuncial



Waterman butterfly



The Authagraph



made by equally dividing a spherical surface into 96 triangles, transferring it to a tetrahedron while maintaining area proportions, and unfolding it in the form of a rectangle: it is a polyhedral map projection

Hajime Narukawa worked for 6 years on this map, and won the 2016 Good Design Awards - Grand Award.

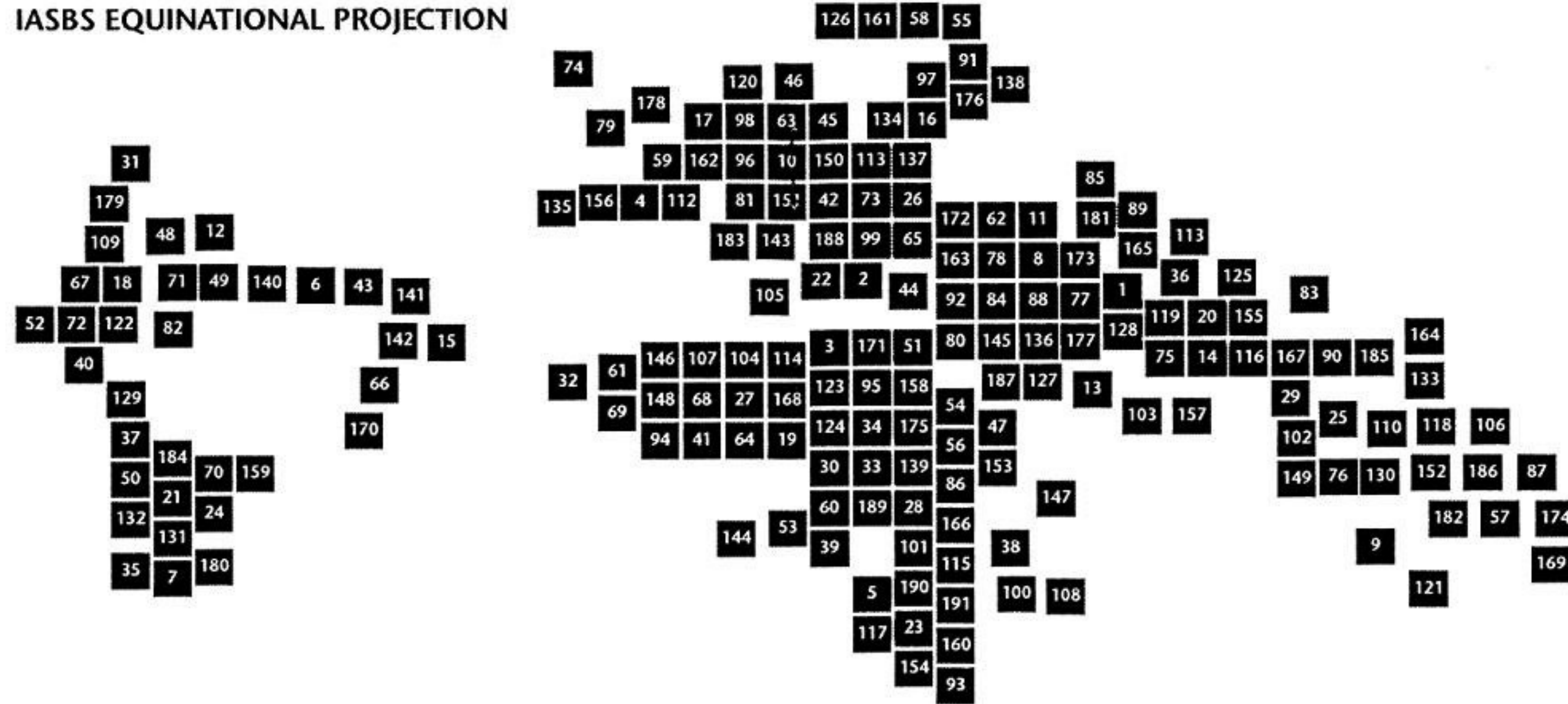
<https://curiosity.com/topics/the-authagraph-is-the-worlds-most-accurate-map-curiosity/>

The Authagraph map projection centered on Europe



Has been reverse engineered.

IASBS EQUINATIONAL PROJECTION



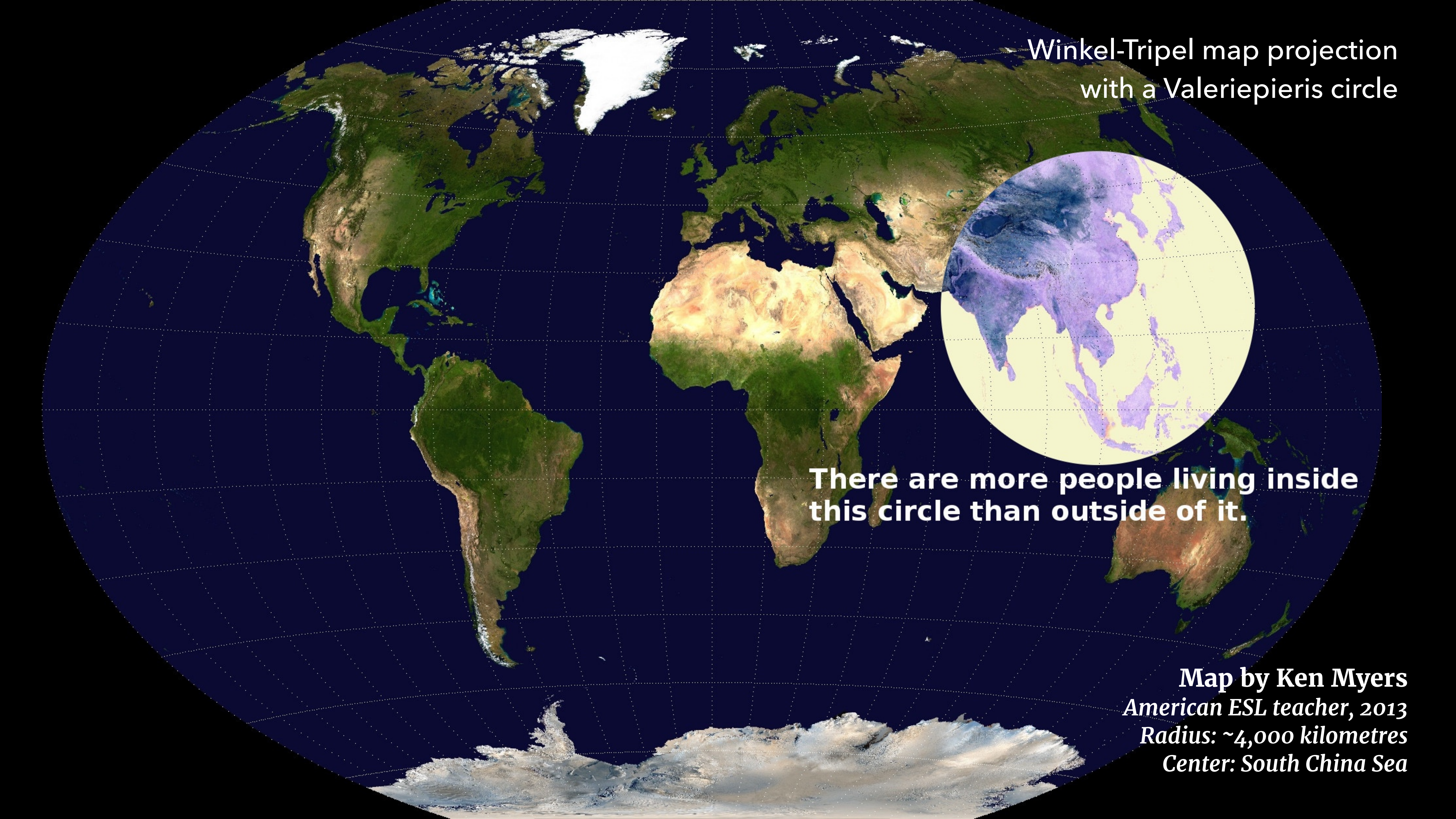
1 afghanistan	26 bulgaria	51 egypt	76 indonesia	101 malawi	126 norway	151 slovenia	176 ukraine
2 albania	27 burkina faso	52 el salvador	77 iran	102 malaysia	127 oman	152 solomon islands	177 united arab emirate
3 algeria	28 burundi	53 equatorial guinea	78 iraq	103 maldives	128 pakistan	153 somalia	178 united kingdom
4 andorra	29 cambodia	54 eritrea	79 ireland	104 mali	129 panama	154 south africa	179 united states
5 angola	30 cameroon	55 estonia	80 israel	105 malta	130 papua new guinea	155 south korea	180 uruguay
6 antigua + barbuda	31 canada	56 ethiopia	81 italy	106 marshall islands	131 paraguay	156 spain	181 uzbekistan
7 argentina	32 cape verde	57 fiji	82 jamaica	107 mauritania	132 peru	157 sri lanka	182 vanuatu
8 armenia	33 central african republic	58 finland	83 japan	108 mauritius	133 philippines	158 sudan	183 vatican city
9 australia	34 chad	59 france	84 jordan	109 mexico	134 poland	159 suriname	184 venezuela
10 austria	35 chile	60 gabon	85 kazakhstan	110 micronesia	135 portugal	160 swaziland	185 viet nam
11 azerbaijan	36 china	61 gambia	86 kenya	111 moldova	136 qatar	161 sweden	186 western samoa
12 bahamas	37 colombia	62 georgia	87 kiribati	112 monaco	137 romania	162 switzerland	187 yemen
13 bahrain	38 comoros	63 germany	88 kuwait	113 mongolia	138 russia	163 syria	188 yugoslavia
14 bangladesh	39 congo	64 ghana	89 kyrgyzstan	114 morocco	139 rwanda	164 taiwan	189 zaire
15 barbados	40 costa rica	65 greece	90 laos	115 mozambique	140 st. kitts + nevis	165 tajikistan	190 zambia
16 belarus	41 côte d'ivoire	66 grenada	91 latvia	116 myanmar	141 st. lucia	166 tanzania	191 zimbabwe
17 belgium	42 croatia	67 guatemala	92 lebanon	117 namibia	142 st. vincent + the grenadines	167 thailand	
18 belize	43 cuba	68 guinea	93 lesotho	118 nauru	143 san marino	168 togo	
19 benin	44 cyprus	69 guinea-bissau	94 liberia	119 nepal	144 sao tome + principe	169 tonga	
20 bhutan	45 czech republic	70 guyana	95 libya	120 netherlands	145 saudi arabia	170 trinidad + tobago	
21 bolivia	46 denmark	71 haiti	96 liechtenstein	121 new zealand	146 senegal	171 tunisia	
22 bosnia-herzegovina	47 djibouti	72 honduras	97 lithuania	122 nicaragua	147 seychelles	172 turkey	
23 botswana	48 dominica	73 hungary	98 luxembourg	123 niger	148 sierra leone	173 turkmenistan	
24 brazil	49 dominican republic	74 iceland	99 macedonia	124 nigeria	149 singapore	174 tuvalu	
25 brunei	50 ecuador	75 india	100 madagascar	125 north korea	150 slovakia	175 uganda	

Globehead!
Journal of extreme geography
Vol. 1 Thing 1 1994
© C. Reeves 1994

From the short-lived
Globehead! Journal of
Extreme Cartography:

Catherine Reeves'
Equinational Projection,
allocates each nation
the *exact same amount of
space* by reducing them
all, equally, to a simple
square.

The UK is 178
The US is 179

A Winkel-Tripel map projection of the world, showing the continents of North America, South America, Africa, Europe, Asia, and Australia. A large, semi-transparent circle is overlaid on the map, centered in the South China Sea. The circle is filled with a light blue and white pattern, representing a satellite image of the Earth's surface. The map is set against a dark blue background with a grid of white lines representing latitude and longitude.

Winkel-Tripel map projection
with a Valeriepieris circle

**There are more people living inside
this circle than outside of it.**

Map by Ken Myers
American ESL teacher, 2013
Radius: ~4,000 kilometres
Center: South China Sea

A Winkel-Tripel map projection of the world, showing the continents of North America, South America, Europe, Africa, Asia, and Australia. A large, semi-transparent circle is overlaid on the map, centered on the South China Sea. The circle is filled with a light blue and white pattern, representing the Valeriepieris circle. The map is set against a dark blue background with a grid of latitude and longitude lines.

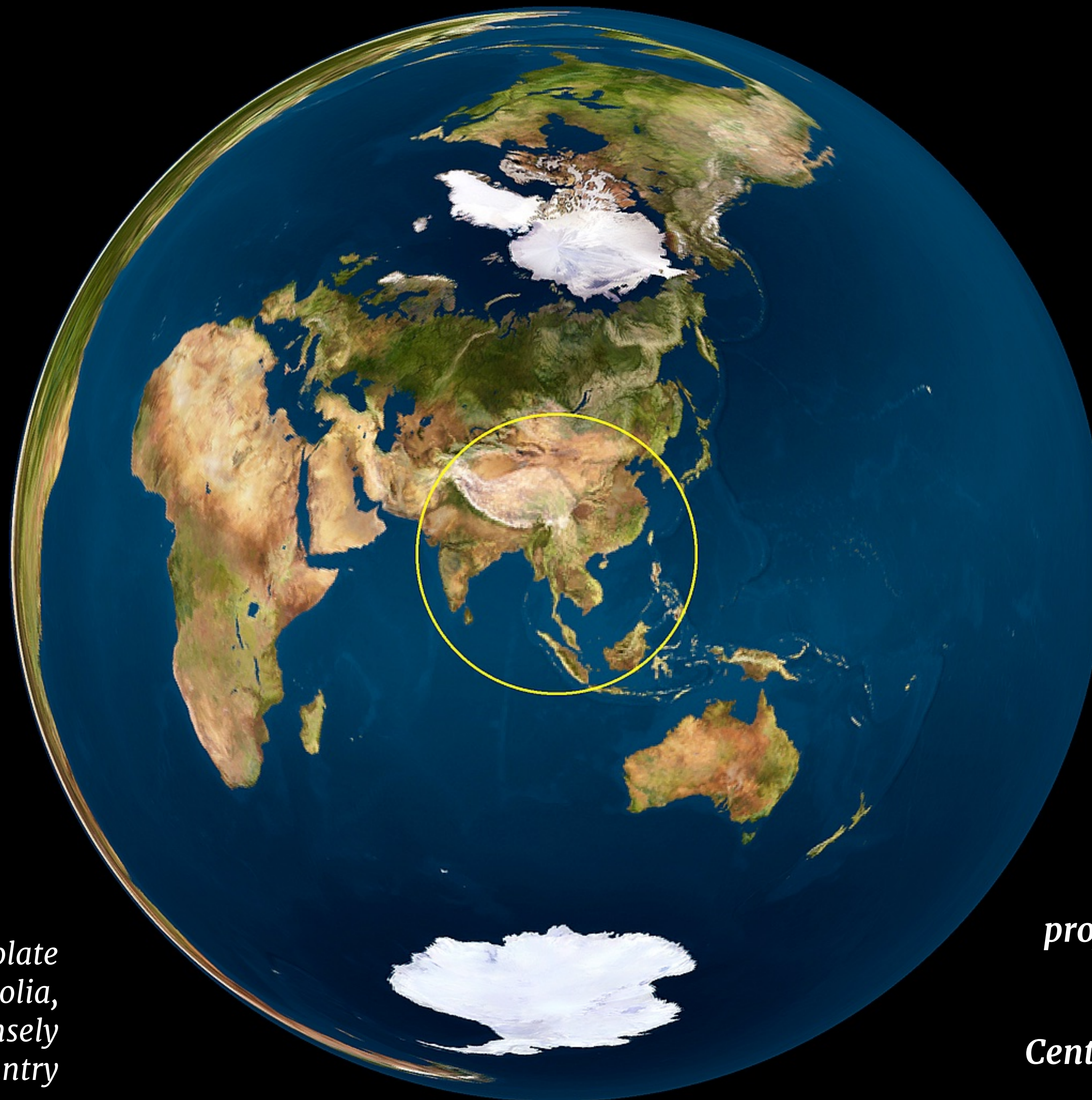
Winkel-Tripel map projection
with a Valeriepieris circle

**What is the
spectacular
lie in this
map?**

**There are more people living inside
this circle than outside of it.**

Map by Ken Myers
American ESL teacher, 2013
Radius: ~4,000 kilometres
Center: South China Sea

A proper circle.



*includes the Himalayas, desolate
regions of Siberia, and Mongolia,
the world's least densely
populated country*

Map by Riaz Shah
*professor at Hult International
Business School.*
Radius: ~3,300 kilometres
Center: Mong Khet in Myanmar

Some theories suggest
that Australia is in fact
Scooby-Doo



Resolution adopted by seven North American cartographic societies in 1989:

[W]e strongly urge book and map publishers, the media and government agencies to **cease using rectangular world maps** for general purposes or artistic displays.

Such maps promote serious, **erroneous conceptions** by severely distorting large sections of the world [...]"





**You won't
believe
what
happened
next.**

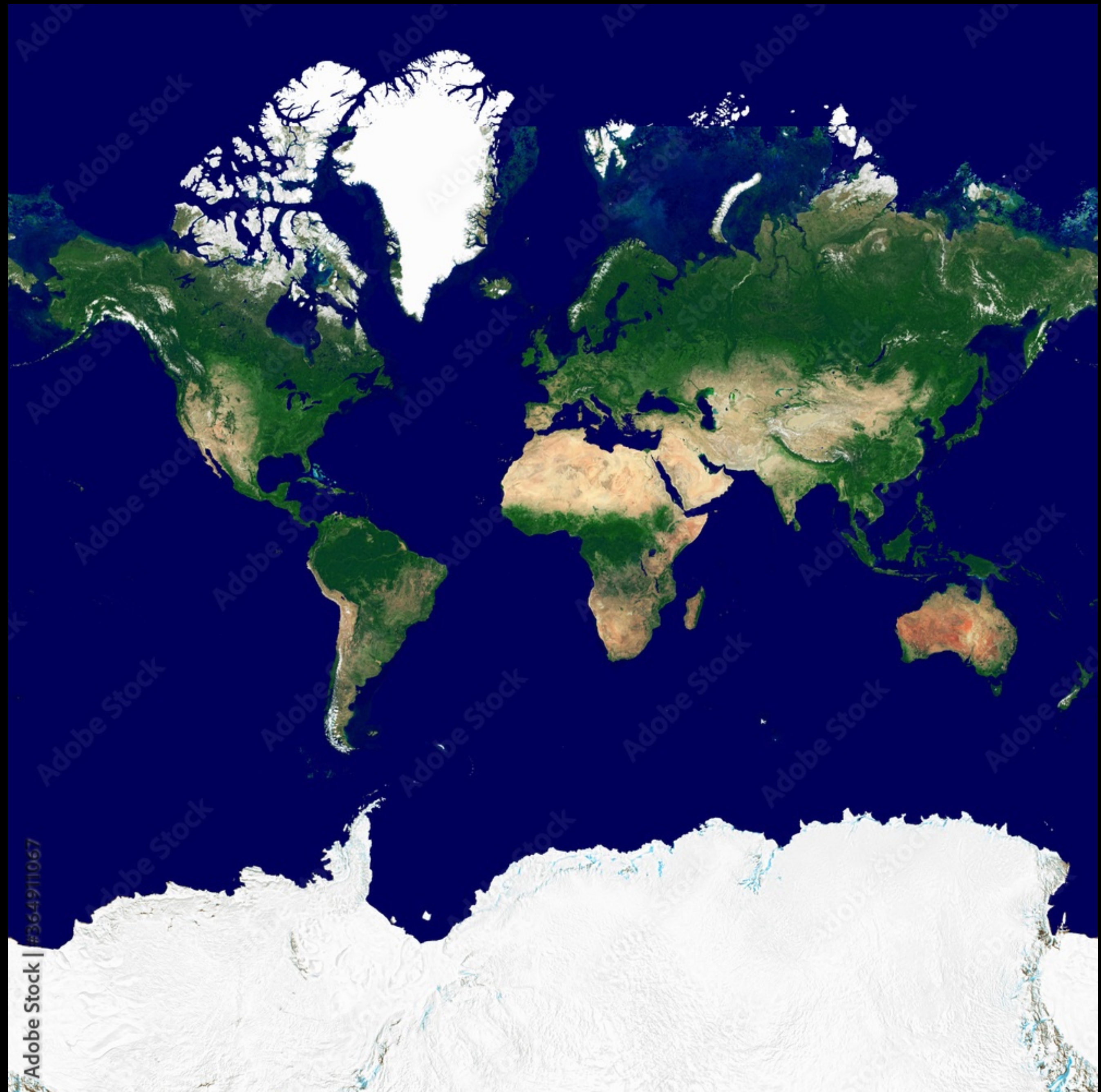
The Web Mercator

**adopted by Google
in 2005**

*also known as Google Web
Mercator, Spherical Mercator,
WGS 84 Web Mercator or
WGS 84/Pseudo-Mercator*

*Spatial systems: EPSG
900913, 3857, 3785, 3587*

*Used by virtually all major
online map providers*



Geographic coordinates (longitude/latitude) are defined on curved a 2D surface. This can be an ellipsoid (most data) or sphere (very rarely). Both projections can have an equation.

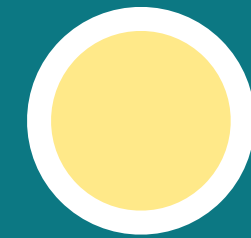
EARTH

PROJECTION/EQUATION



Globe

+



sphere

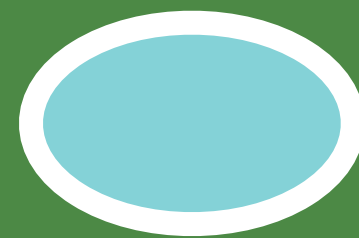
=

*Conformal
(correct angles)*



Ellipse

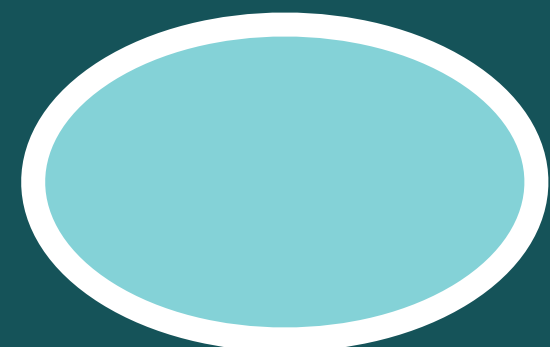
+



ellipsoid

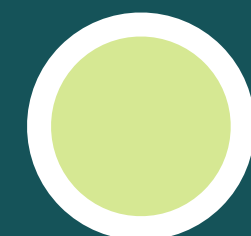
=

*Conformal
(correct angles)*



Ellipse

+



sphere

=

*Non-Conformal
(wrong)*

**“The Web Mercator is
a mistake that got out
of control.**

It distorts *everything.”**

– *Bojan Šavrič – cartographer, PhD
in geography, author of
projectionwizard.org*

**shapes, angles, areas, distances,
directions, rhumb lines, compass
bearings, etceteras...*



Misalignments in WGS 1984

Use Literally Anything but
Web Mercator [YouTube]



Not accepted by standardisation orgs

"We have reviewed the coordinate reference system used by Microsoft, Google, etc. and believe that it is **technically flawed**. **We will not devalue the EPSG dataset** by including such inappropriate geodesy and cartography."

*Geodesy subcommittee of the
OGP's Geomatics committee*





The unofficial
code **EPSG:900913**
came to be used.

*EPSG Geodetic Parameter Dataset
(also EPSG registry) is a public
registry of geodetic datums and
spatial reference systems.*

EPSG 1024-32767



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code **EPSG:900913**
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(also EPSG registry) is a public
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spatial reference systems.
EPSG 1024-32767*



The unofficial
code **EPSG:900913**
came to be used.

*GOOGLE
transliterated to
numbers*



“[I]magine if all of Google's data and programming ability was suddenly in the hands of a **Namibian agriculturalist**, a **Sahelian nomad** or a **Senegalese fisherwoman**

– the maps they would conjure up would be completely different.

They might well prioritise *soil types* over Starbucks, *wells* over Walmarts and the *state of land degradation* over panoramic street views of American towns.”

– James Wan, The Guardian





**With better ways to
visualize the world
humans are better
equipped to address
Earth's challenges.**

*What would it
take to do better?*



Please pay a LOT of
money to make the
“top” world look
smaller.

AND to confuse your
constituents.

It's a tough argument to make.

Would it be make maps more accurate?

Well yes



Would it be make maps more accurate?



Well yes

And no

A cartographer is also...
a designer.

with deadlines,
insufficient data,
cultural biases, a budget
– and an agenda.

Can be an agent of power.



For all maps, please ask...

**Who made this tool, why
and under what constraints?**

Whose power is being wielded?

**What is the data source and is it the
right one for the job?**

**What is being left out, added or
distorted?**

**What assumptions are
being made and/or conveyed?**

**Who stands to lose from
the use of this tool?**

For all ^{tools}~~maps~~, please ask...

**Who made this tool, why
and under what constraints?**

Whose power is being wielded?

**What is the data source and is it the
right one for the job?**

**What is being left out, added or
distorted?**

**What assumptions are
being made and/or conveyed?**

**Who stands to lose from
the use of this tool?**

What did we learn today?

- **Hera Hussain** – participatory design, how do we give people more power over the maps they use?
- **Matt Jukes** – working in the open, be a superhero fan
- **Alex Blandford & Katherine Wastell** – change is hard, but you have the tools to make it happen
- **Dr Zeynep Engin** – it's super important that we understand trustworthiness in human-machine collaborations
- **Ignacia Orellana & Clara Greo** – map the pain points to understand the costs
- **Claire Dellar** – imagine the potential of the 100% perspective to mapping!

**"We set out to explore the
moon and instead
discovered the Earth."**

William Anders

*– Astronaut who took the Earthrise photograph in 1968
together with Jim Lovell and Frank Borman*



The Earth is flat.



**I have acted as if the Earth is flat
when I have *underestimated* how
much flat maps distort the world.**



Maps need lines.

Maps need lines.

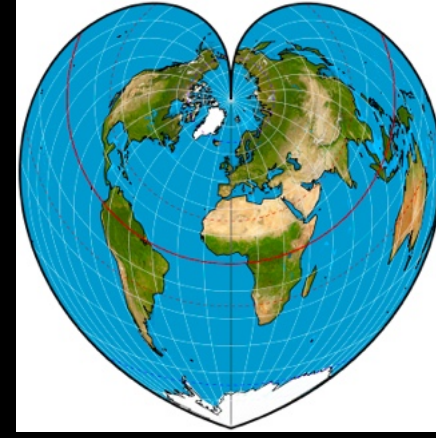
And you need to understand what the lines say.

**Understanding what the lines say will help
us all take better care of our home.**



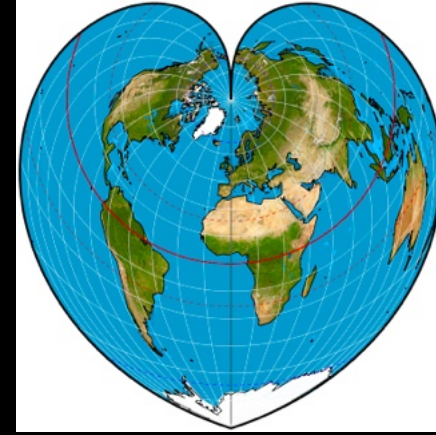
**Choosing new lines when you talk about the world
can help you talk about it differently.**





You can start changing the world today. Truly and literally.
Thank you.





You can start changing the world today. Truly and literally.
Thank you.



Slides, links, videos, references and more:
axbom.com/cdmaps