

# Cartopy: Around the world in 80 ways

**Repo:** <https://github.com/scitools/cartopy-tutorial>

## Glossary

**Projection:** a transformation from spherical to 2D cartesian coordinates

**Ellipsoid:** the modelled *shape* of the geoid

**Datum:** An ellipsoid *and* a spatial reference to locate the center of the ellipsoid with respect to Earth (often relative to a well defined datum, such as WGS84)

**Globe:** an encapsulation of the datum and/or ellipsoid in Cartopy

**Meridian:** a line of constant longitude

**Parallel:** a line of constant latitude

**Gridlines / Graticule:** a collection of meridians and parallels

**Cylindrical (projection):** a transformation for spherical to cartesian coordinates using a cylinder as the developable surface. Parallels cross meridians at right angles. The antimeridian is a straight line.

**Azimuthal (projection):** a transformation for spherical to cartesian coordinates using a plane as the developable surface. Parallels are complete circles. Great circles from central point are straight lines.

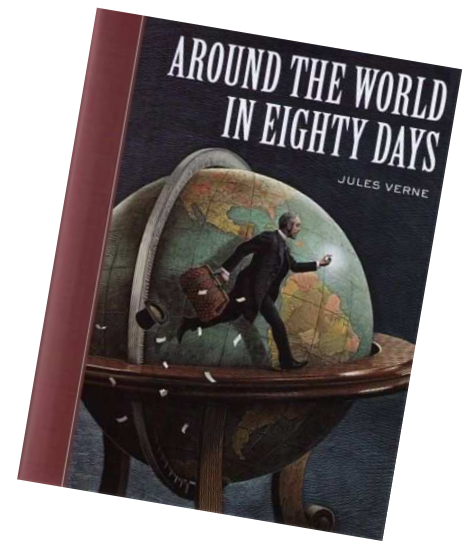
**Conic (projection):** a transformation for spherical to cartesian coordinates using a cone as the developable surface. Meridians are straight equally-spaced lines, parallels are circular arcs.

**Pseudocylindrical (projection):** Lines of latitude are parallel straight lines and meridians are curved lines

**Conformal:** preserving shape

**Equal-area:** preserving area

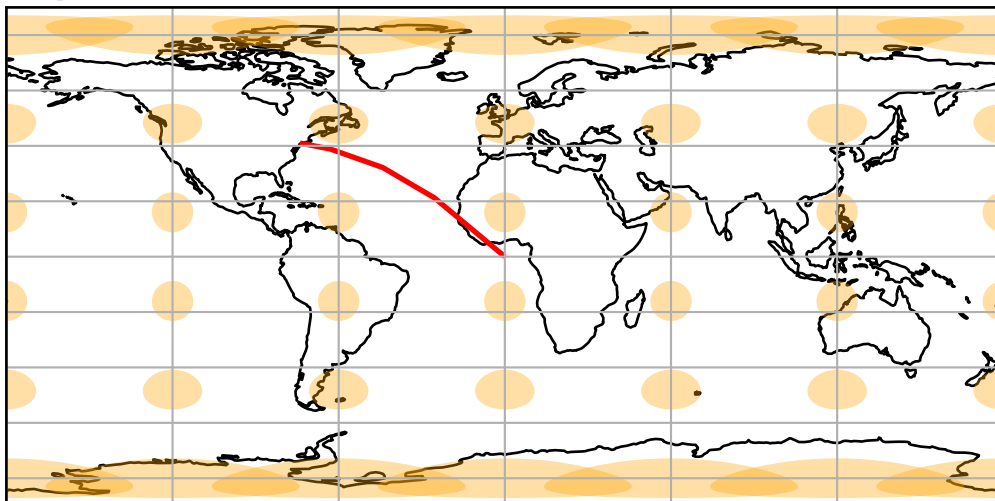
**Equidistant:** preserving distance from some standard point or line



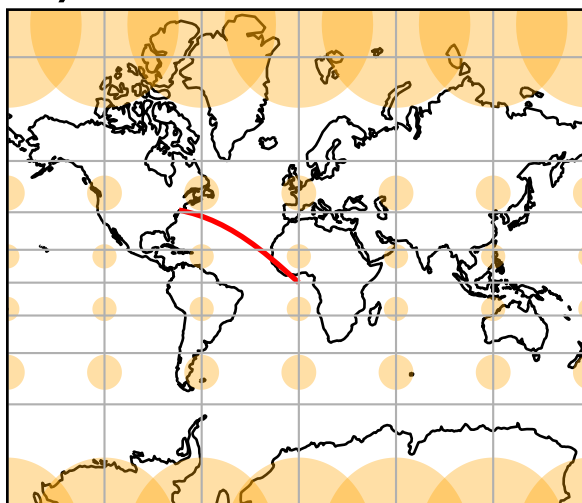
## Exercise 1

Map	Conformal	Equal-area	Equidistant (along meridians)	Cylindrical / Azimuthal / Conic / Other?	Projection name
A					
B					
C					
D					
E					
F					
G					
H					

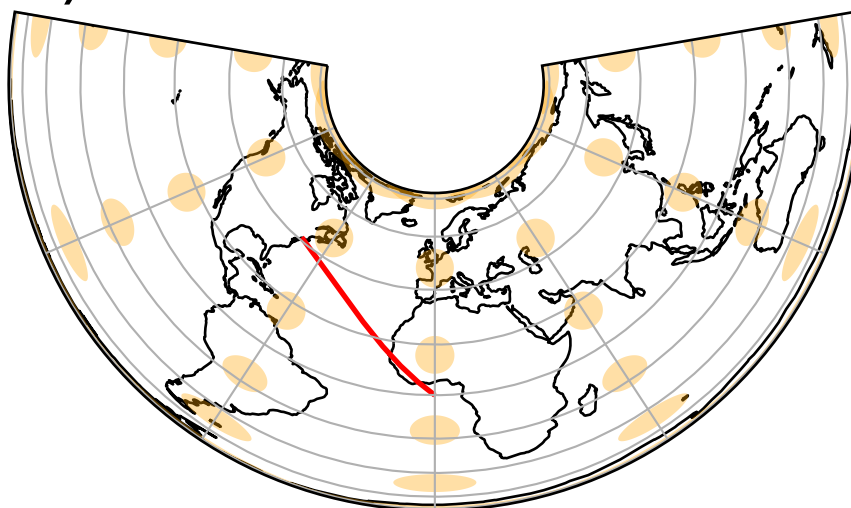
A)



B)



H)



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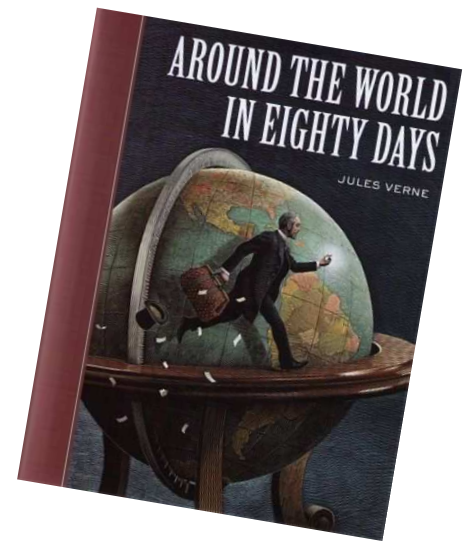
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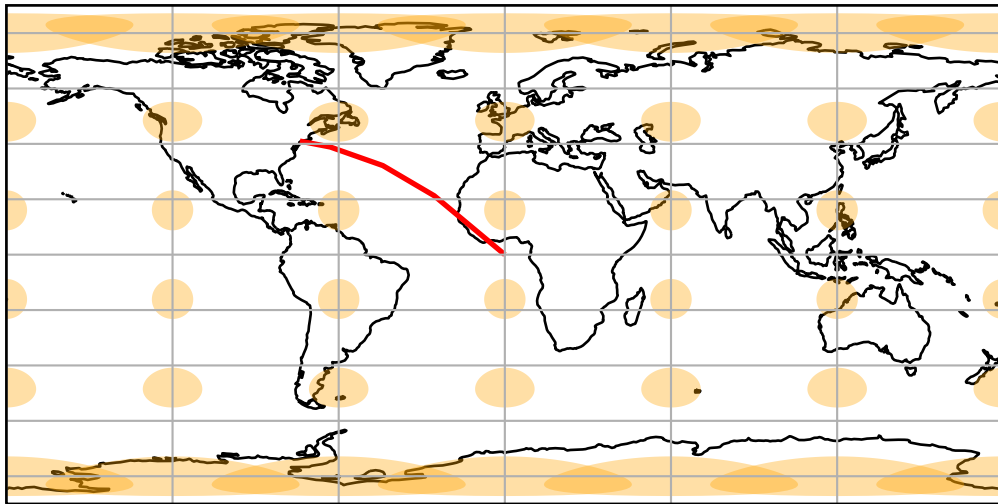
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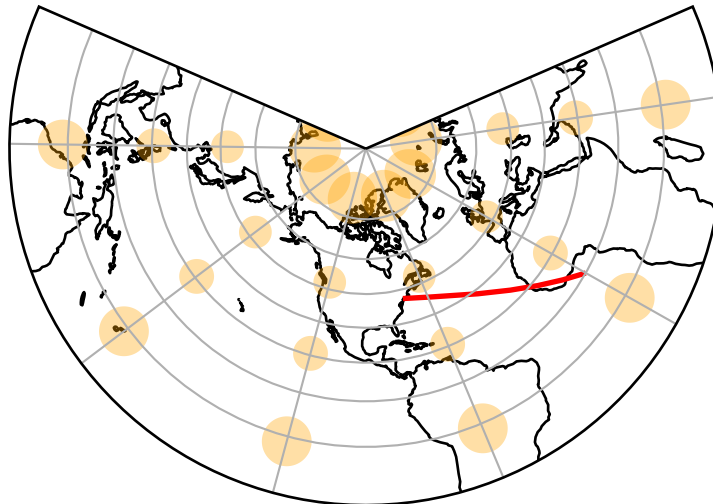
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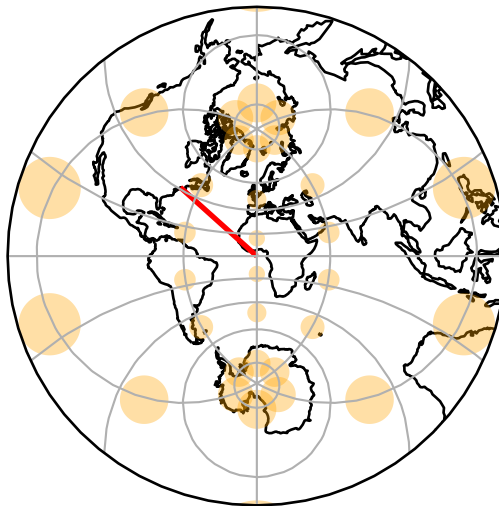
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C)



F)



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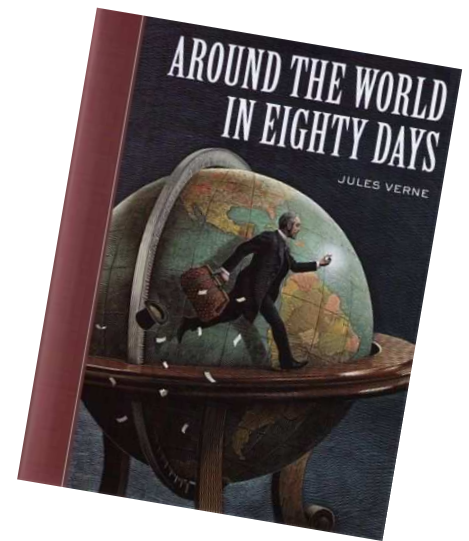
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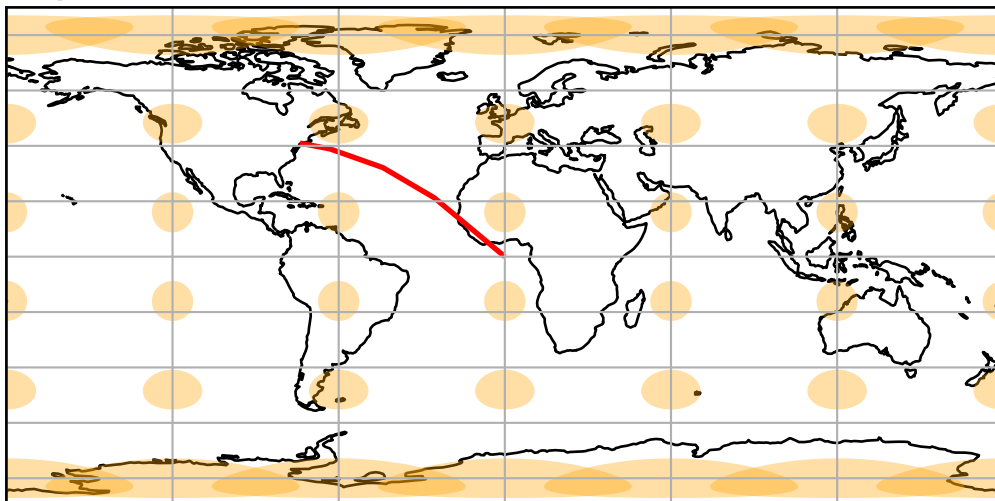
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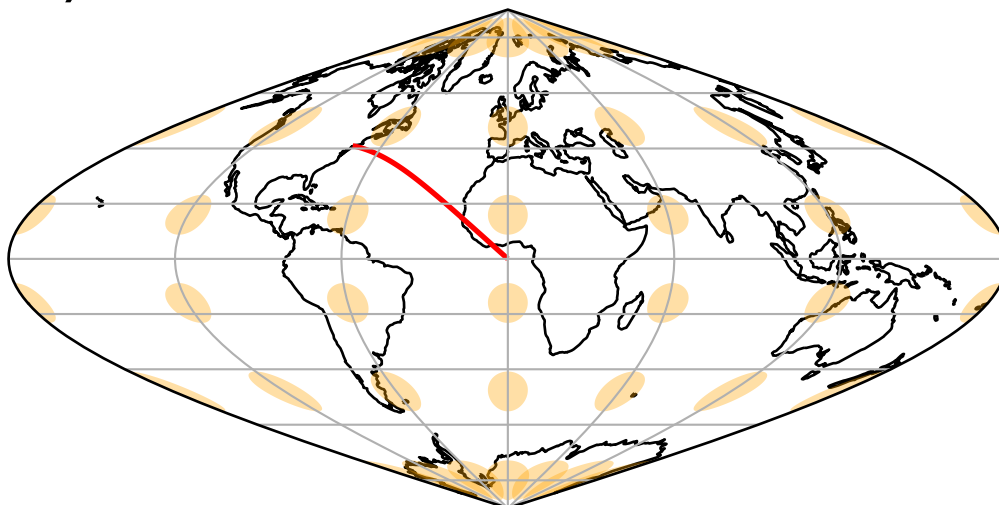
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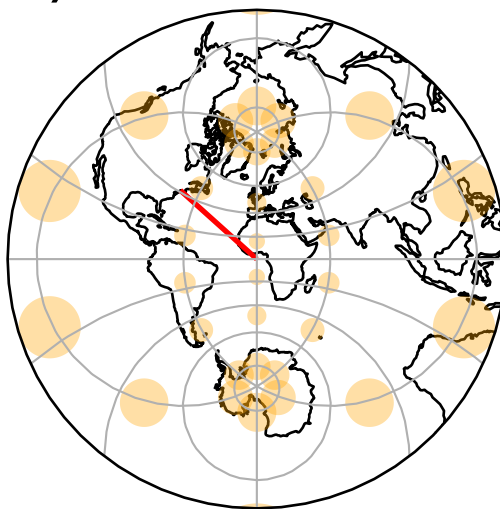
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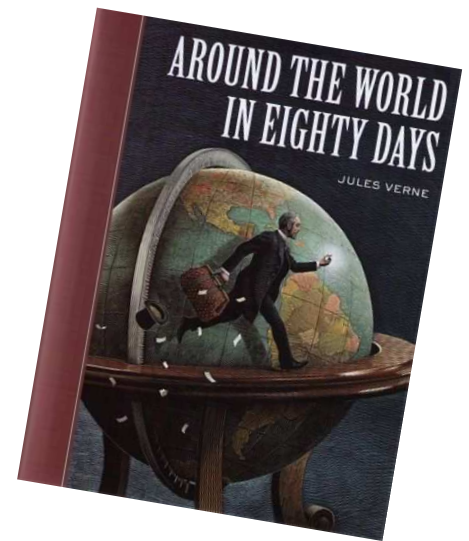
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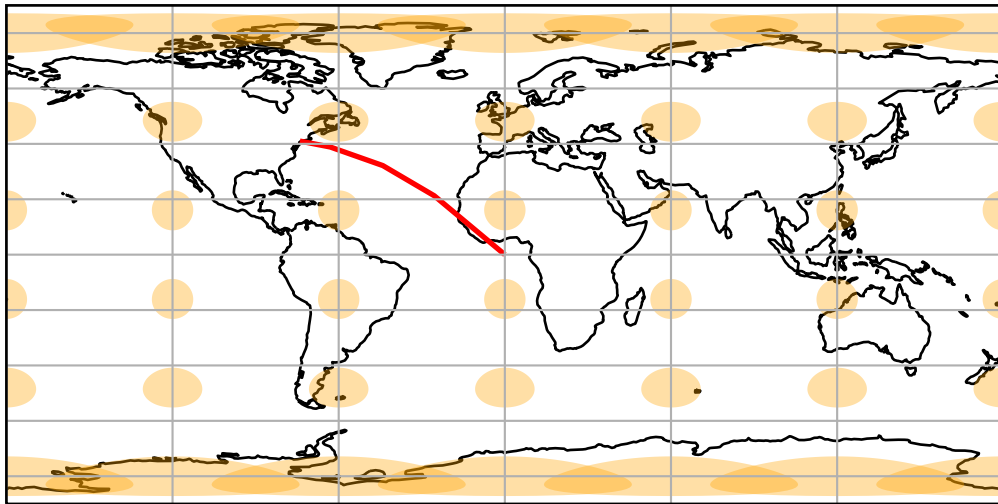


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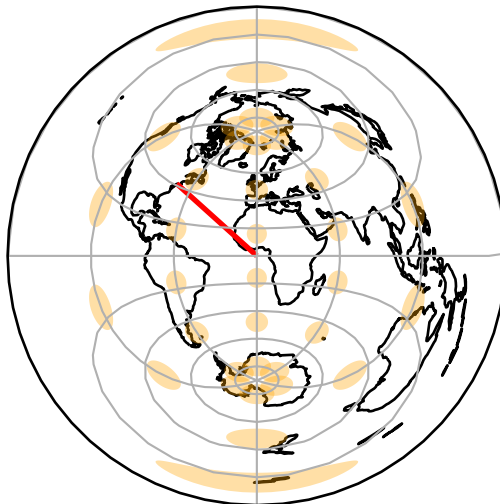
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E)



G)

