



Places and Regions in Human Geography

Map Library Session – February 2022



Contents

- What's a map?
- Technical features (scale, projection, orientation and centrality, coordinates)
- Relief representation (contours, hypsometric tints, bathymetry)
- Map types (topographic maps, thematic maps, cartographic images)
- Cartographic expression and symbols
- Critical reading of a map

What's a map?

- A map is a drawing of the earth's surface, or part of that surface, showing the shape and position of different countries, political borders, natural features such as rivers and mountains, and artificial features such as roads and buildings [Cambridge dictionary]
- A map is a symbolic depiction emphasizing relationships between elements of some space, such as objects, regions, or themes. [Wikipedia]
- A map is a drawing of a particular area such as a city, a country, or a continent, showing its main features as they would appear if you looked at them from above. [Collins dictionary]

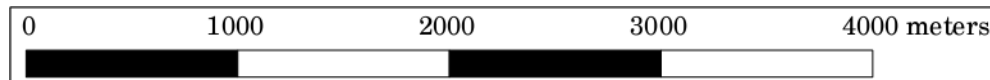
A map is a **selective, abstract** and **symbolic interpretation** of the landscape and its geographical distributions. [Pau Alegre, geography professor at UAB]

Technical features: Scale

The **scale** of a map is the ratio of a distance on the map to the corresponding distance on the ground.

There are two main forms of representing scales:

Bar scales:



Fraction: 1:10 000 (1 cm on the map =10 000 cm on the ground)

Classification of maps according to scale:

- Large scale maps (smaller area, more detail): larger than 1:25 000
- Medium scale maps: 1:50 000 – 1:100 000
- Small scale maps (larger area, less detail): less than 1:200 000

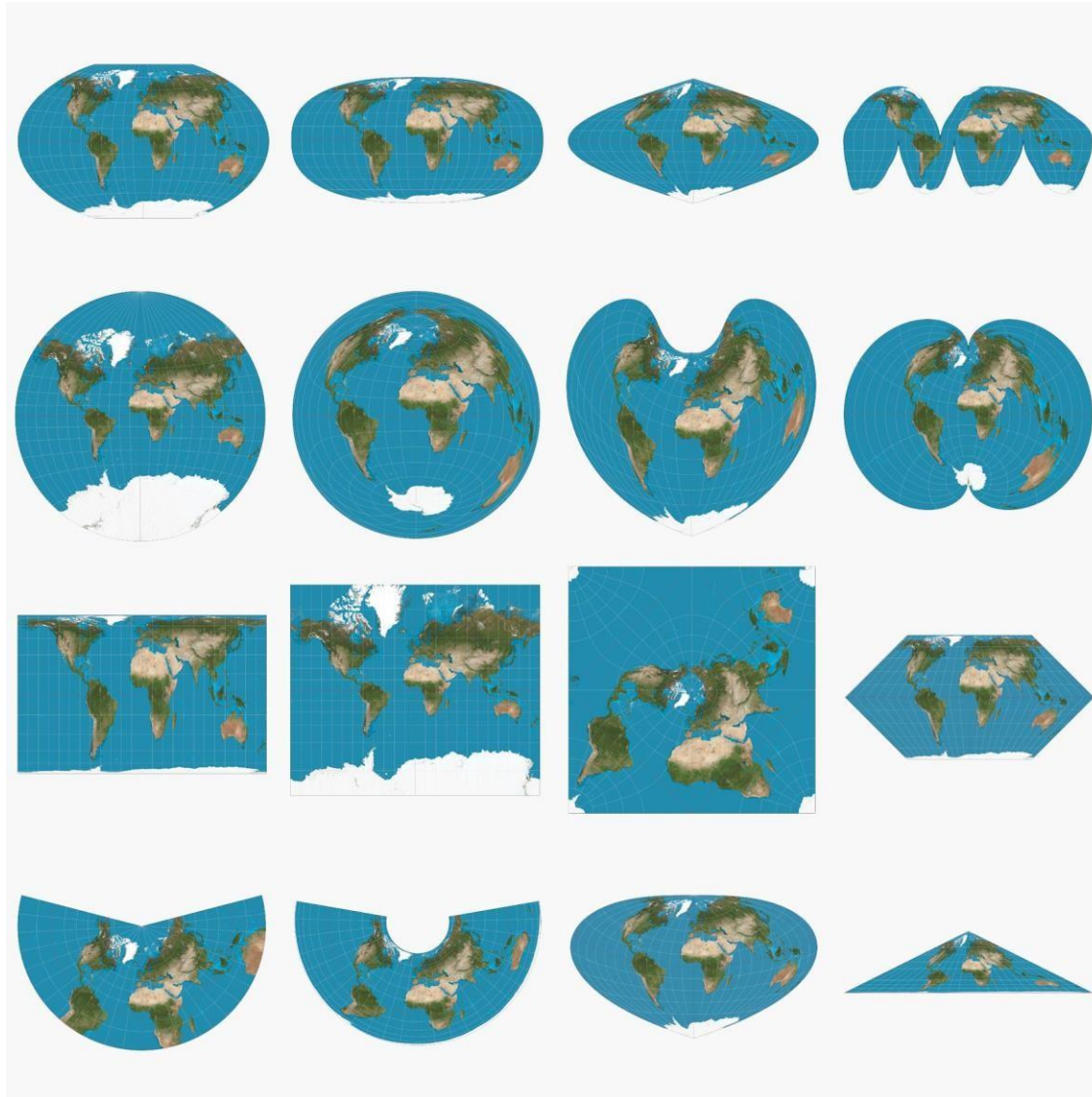
Technical features: Projection

A **map projection** is a way to flatten a globe's surface into a plane in order to make a map. This requires a systematic transformation of the latitudes and longitudes of locations from the surface of the globe into locations on a plane. All projections of a sphere on a plane necessarily distort the surface in some way and to some extent.

Projections by preservation of a metric property:

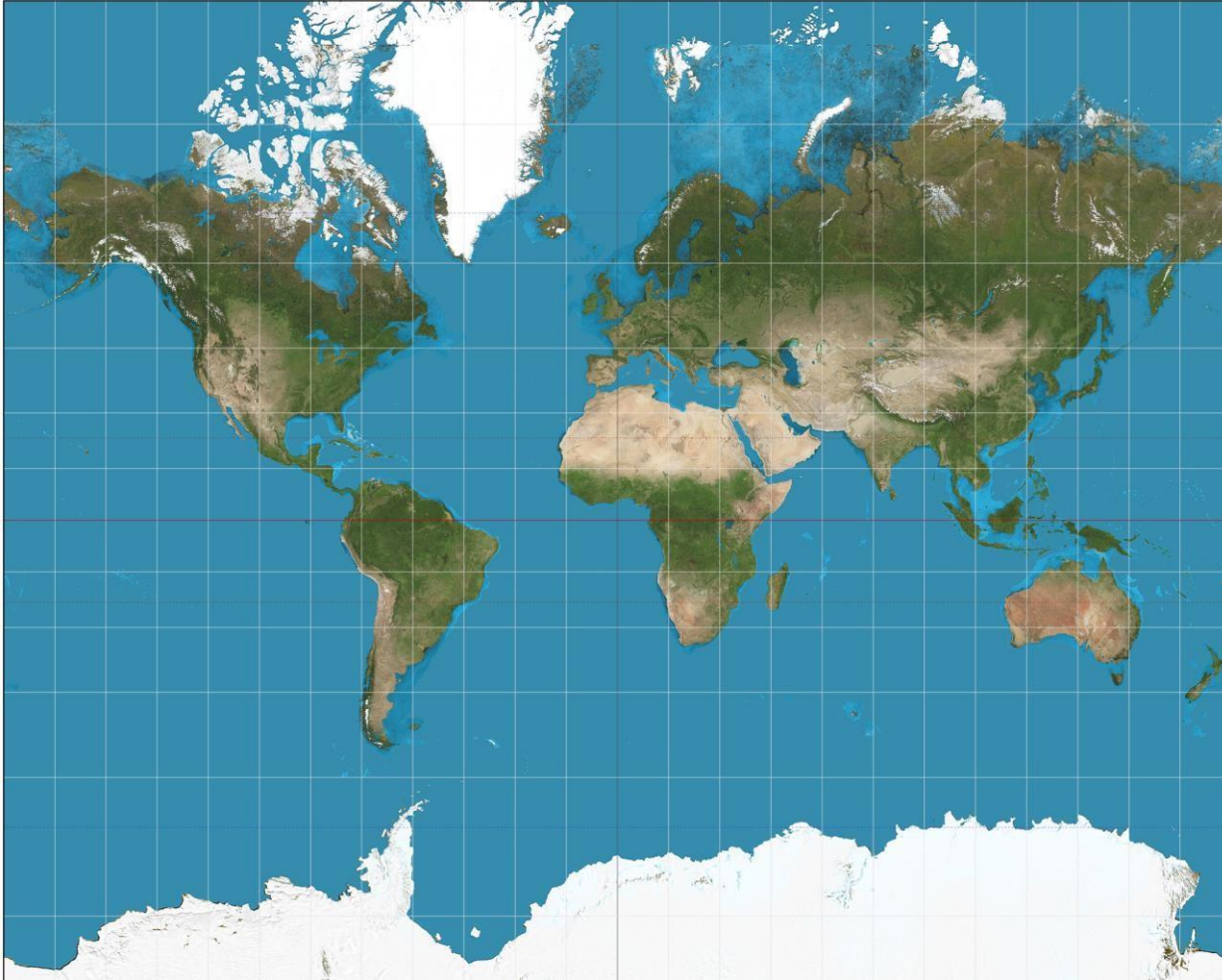
- Conformal: Conformal map projections preserve angles locally.
- Equivalent or Equal-area: Equivalent map projections preserve area measure, generally distorting shapes in order to do that.
- Equidistant: Equidistant map projections preserve distances.

Technical features: Projection



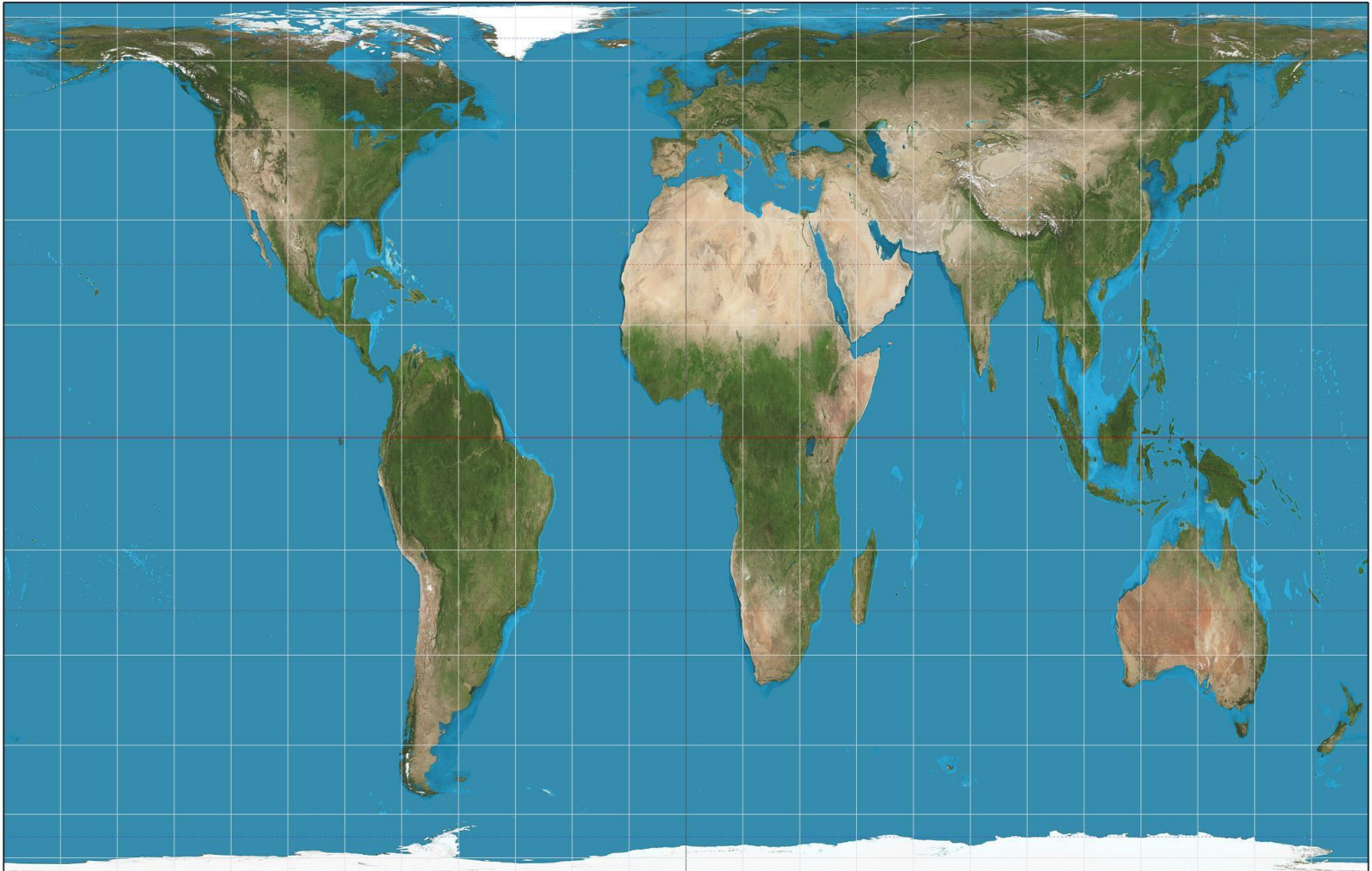
Technical features: Projection

Mercator projection (Conformal)



Technical features: Projection

Gall-Peters projection (Equivalent)



Technical features: Orientation and centrality

The **orientation** of a map is the relationship between the directions on the map and the corresponding compass directions in reality. The most common cartographic convention, is that north is at the top of a map.



Technical features: Orientation and centrality



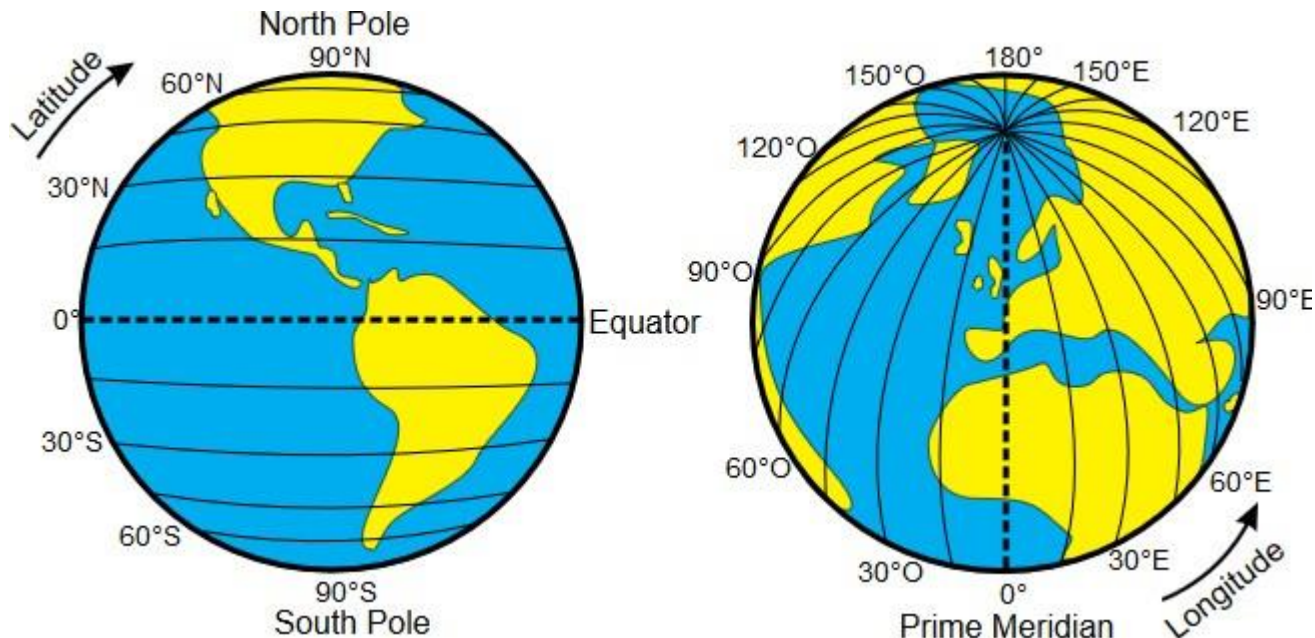
Technical features: Orientation and centrality



Technical features: Coordinates

A geographic coordinate system enables every location on Earth to be specified by a set of numbers, letters or symbols. The coordinates are often chosen such that one of the numbers represents a vertical position and two or three of the numbers represent a horizontal position.

A common choice of coordinates is latitude and longitude (expressed in degrees)



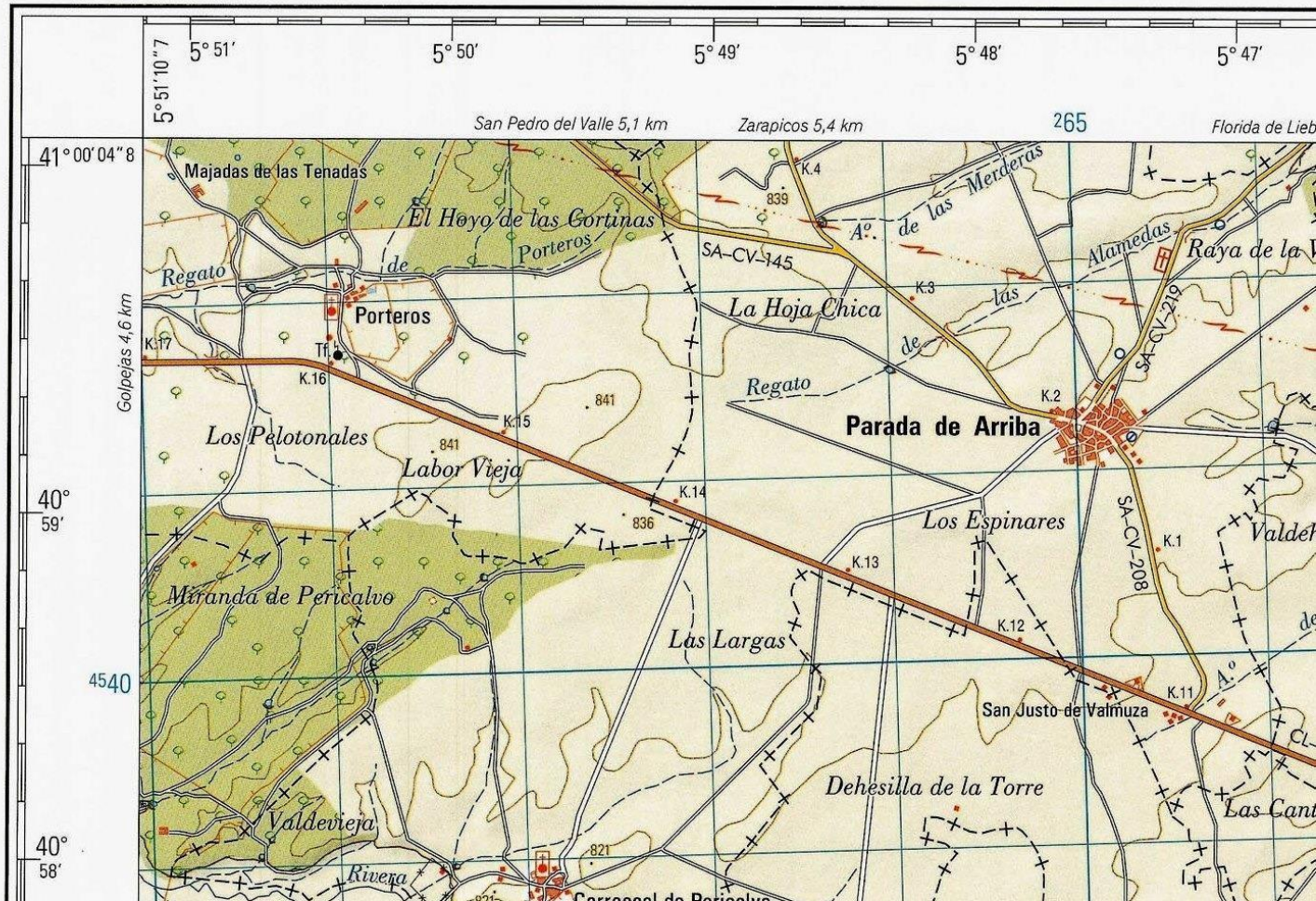
Technical features: Coordinates

Another common choice is UTM coordinate system. It divides Earth into 60 zones. Specifying a location means specifying the zone and the x, y coordinate inside the zone (expressed in kilometers).



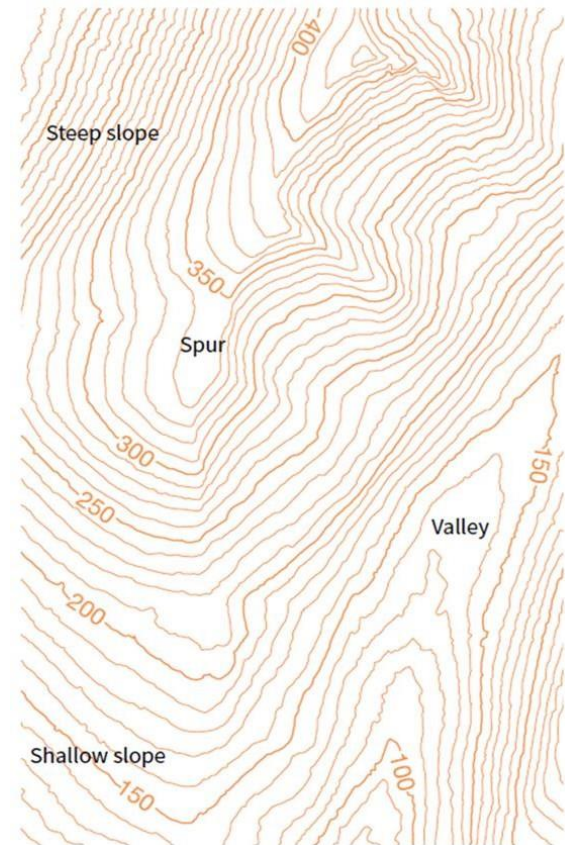
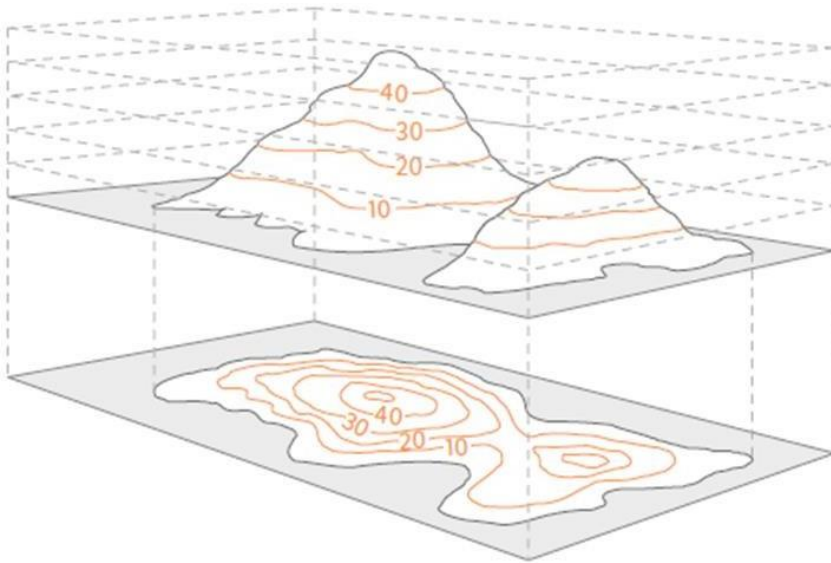
Technical features: Coordinates

Latitude / longitude coordinates and UTM coordinates



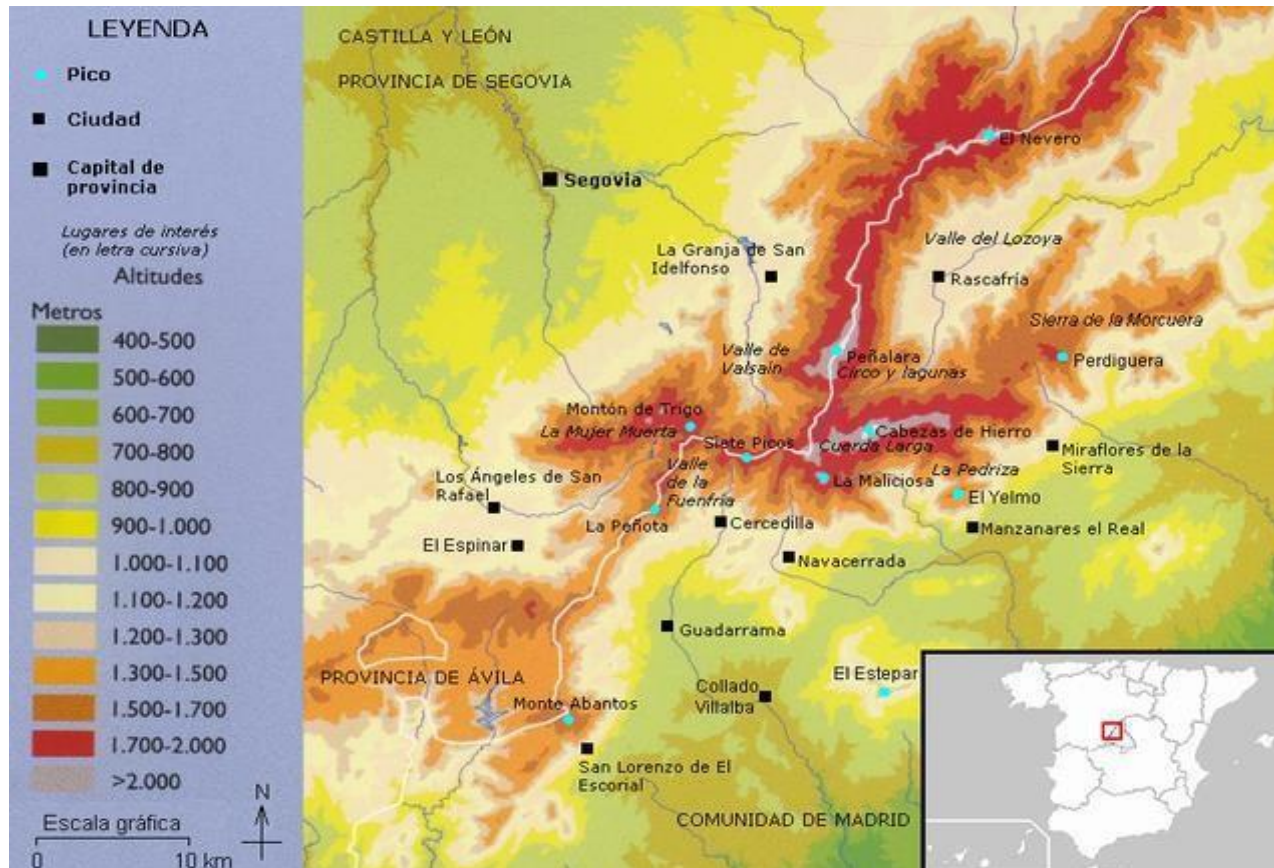
Relief representation: Contour lines

The height and shape of the land is shown on a map using '**contour lines**'. These lines appear as thin orange or brown lines with numbers on them. The number tells you the height above sea level of that line.



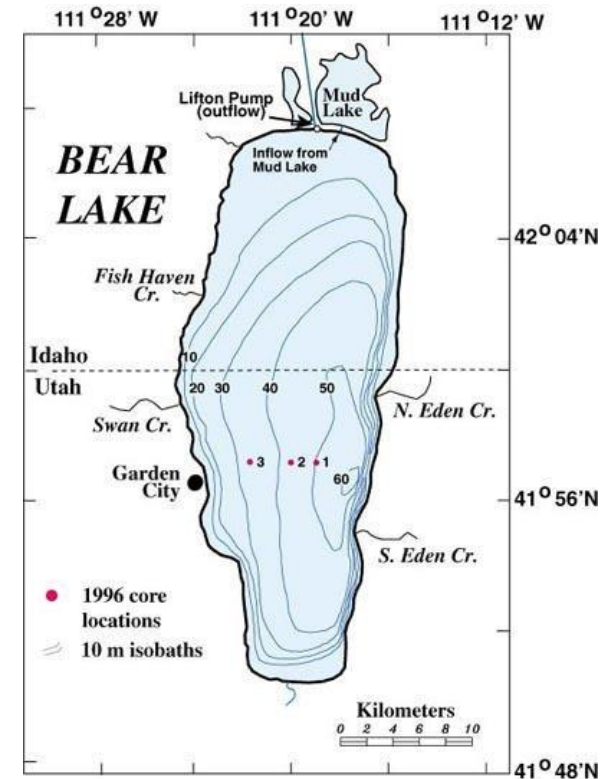
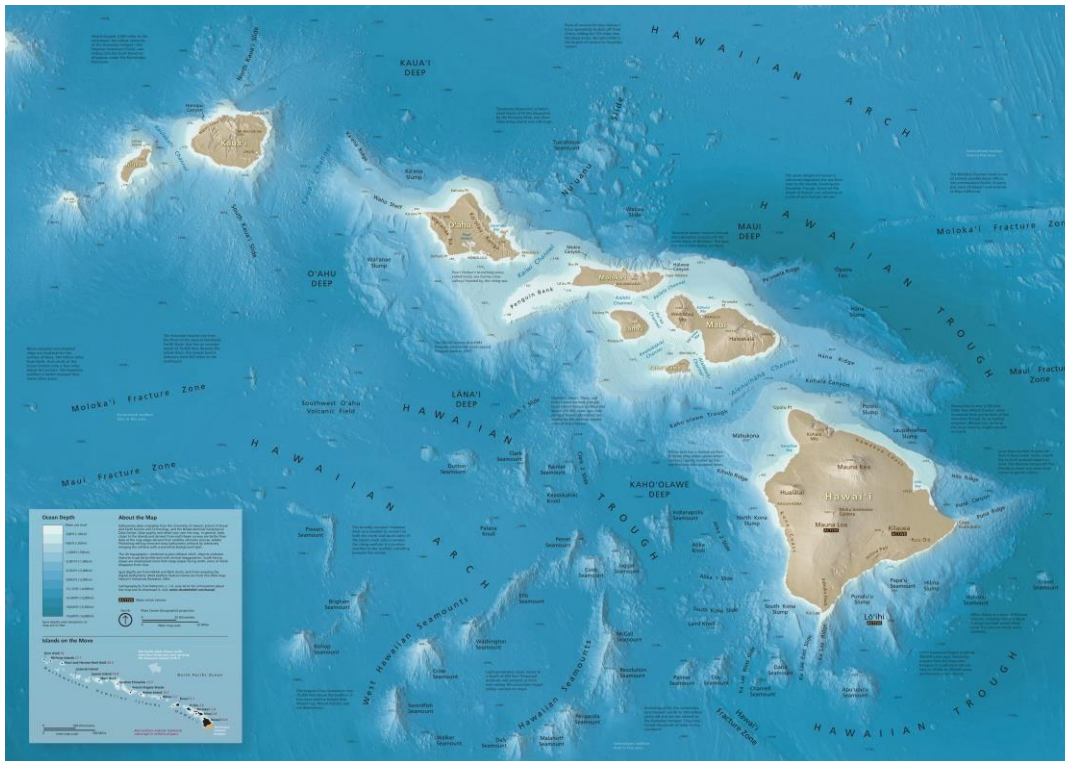
Relief representation: Hypsometric tints

Hypsometric tints are colors placed between contour lines to indicate elevation. These tints are shown as bands of color in a graduated scheme or as a color ramp applied to contour lines themselves.



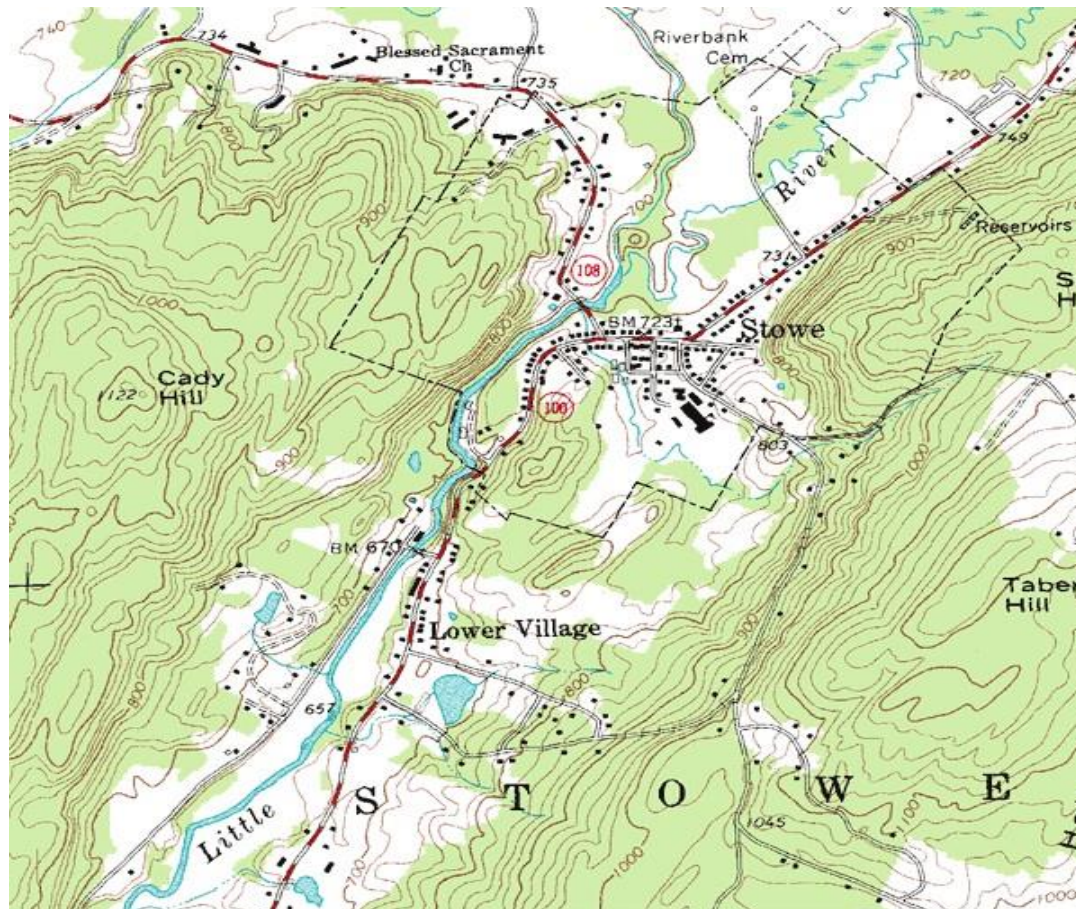
Relief representation: Bathymetry

Bathymetric maps show underwater depth of lake or ocean floors. In other words, bathymetry is the underwater equivalent to hypsometry or contours.



Map types: Topographic maps

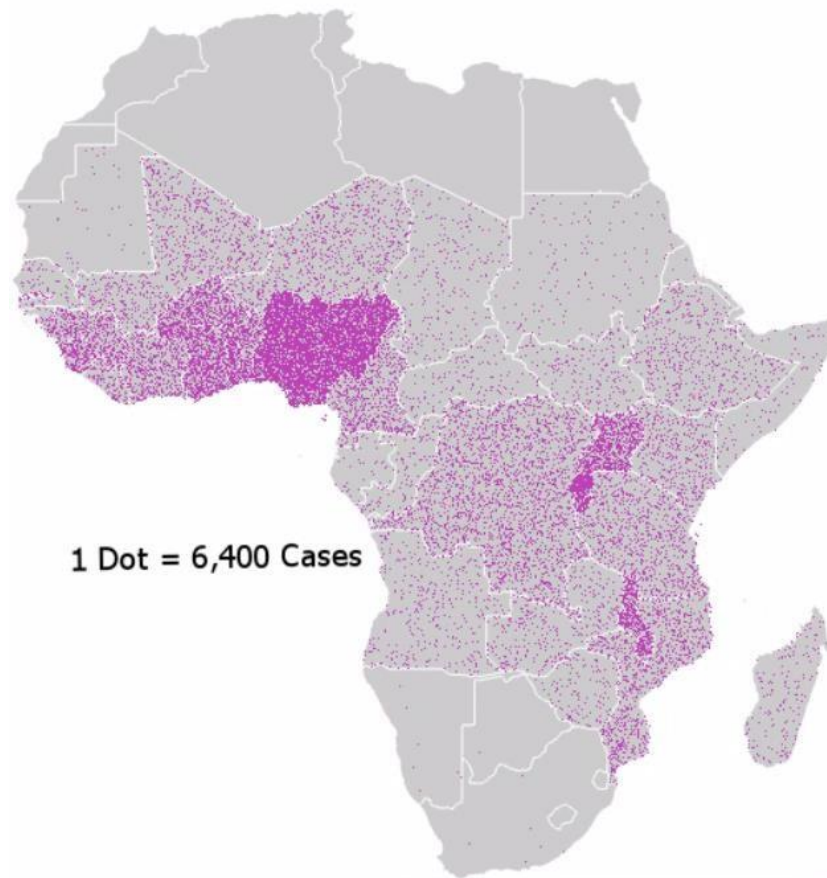
A topographic is a type of map characterized by large-scale detail and a representation of relief, usually using contour lines. Traditional definitions require a topographic map to show both natural and man-made features.



Map types: Thematic maps

A thematic map is a type of map specifically designed to show a particular theme connected with a specific geographic area.

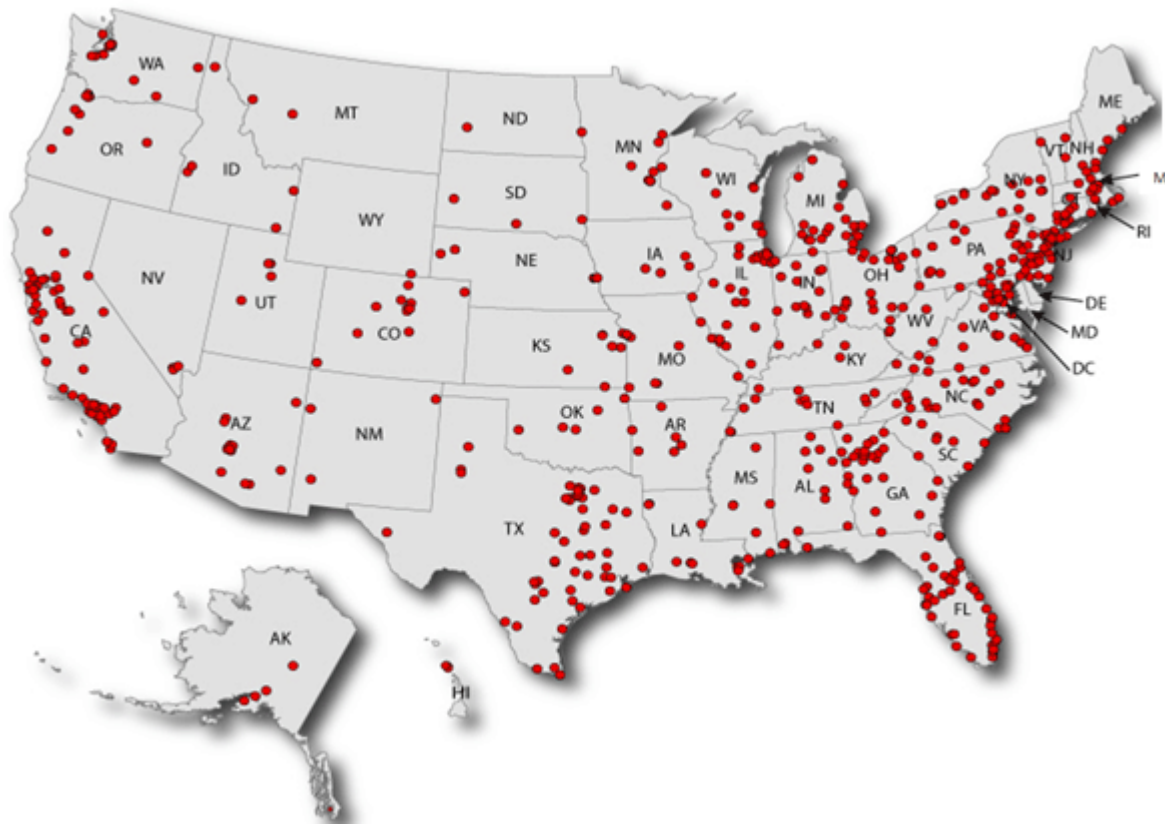
Malaria Cases in Africa



Map types: Thematic maps

Thematic maps usually categorize information using three types of representation: points, lines and areas.

Points:



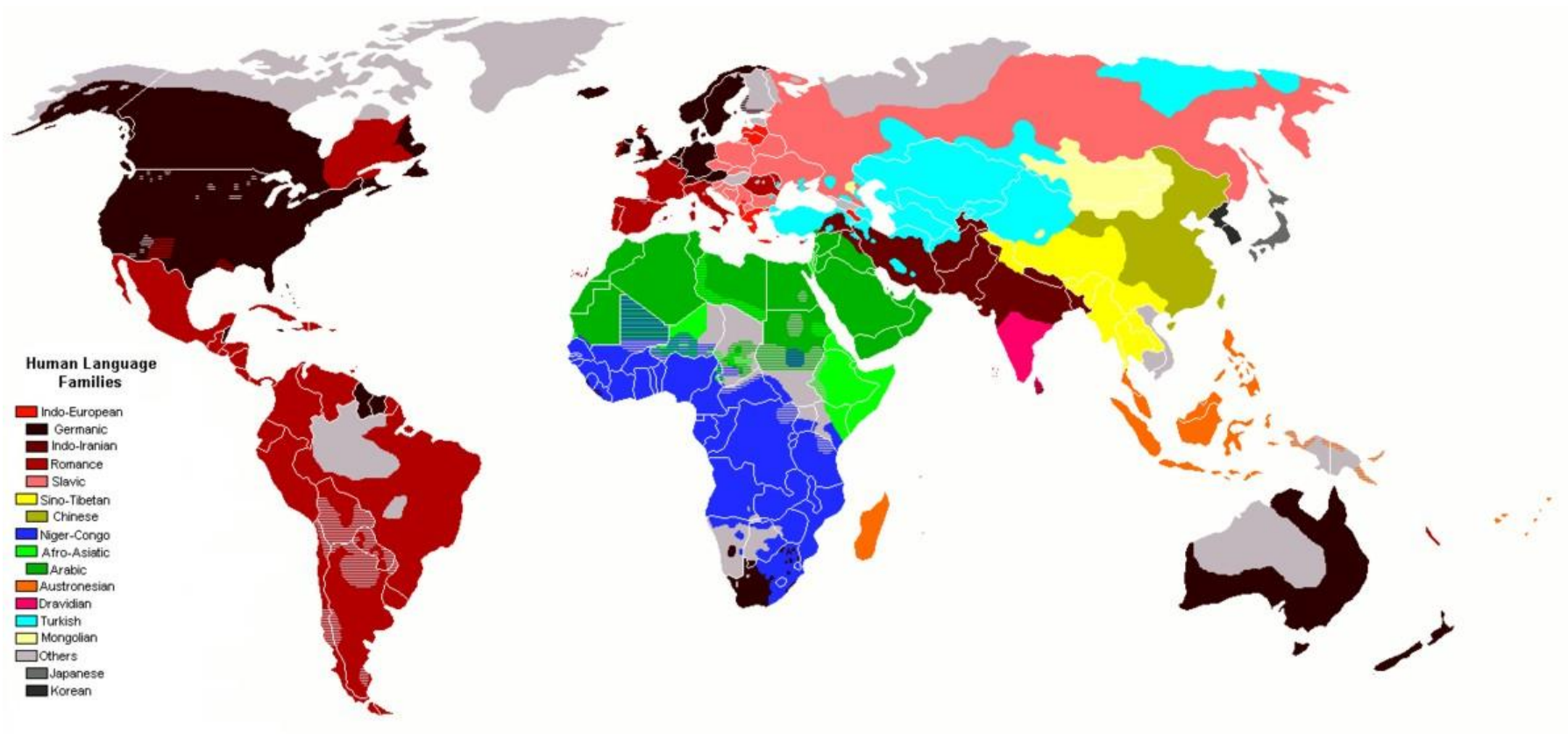
Map types: Thematic maps

Lines:



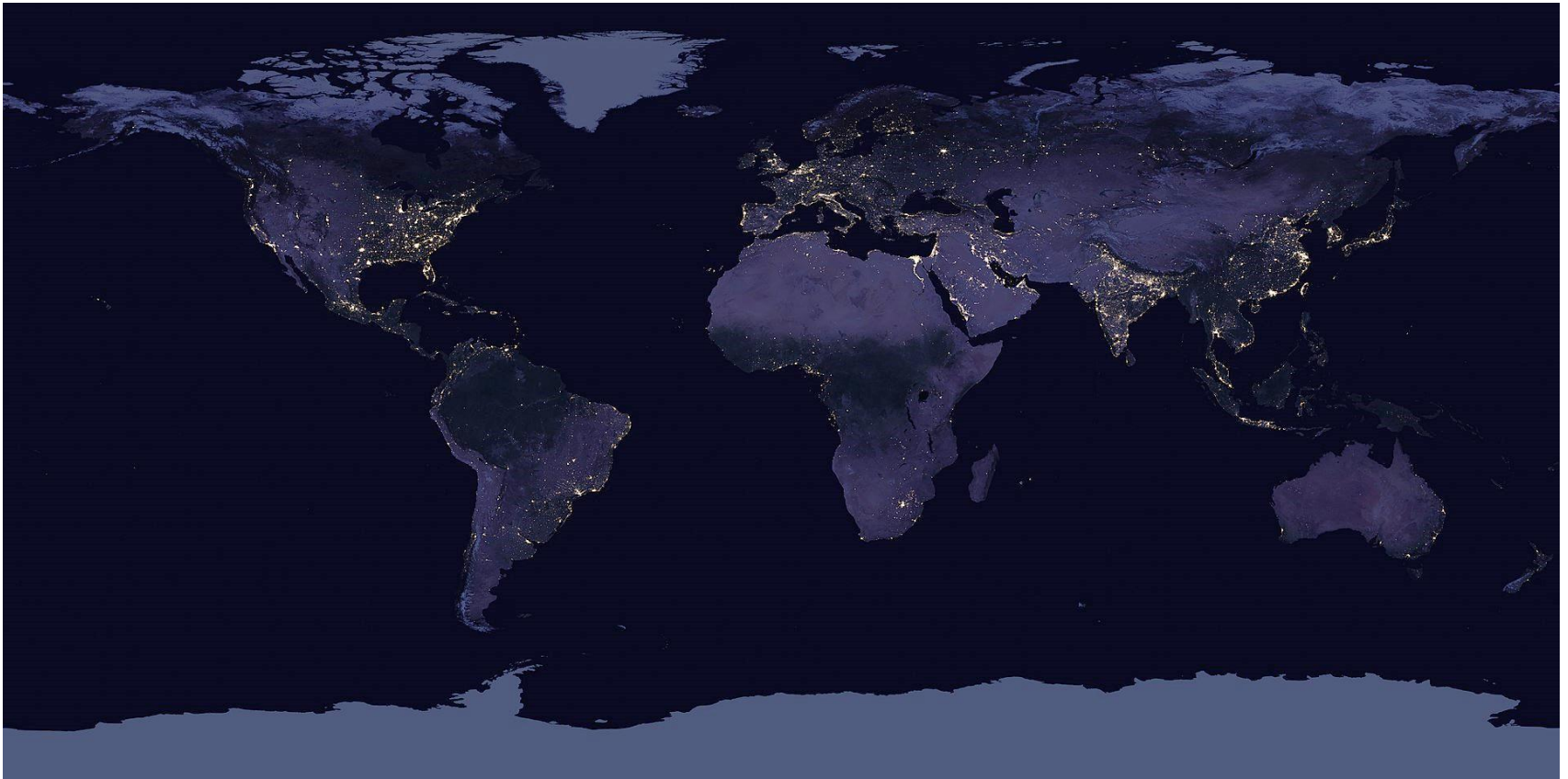
Map types: Thematic maps

Areas:



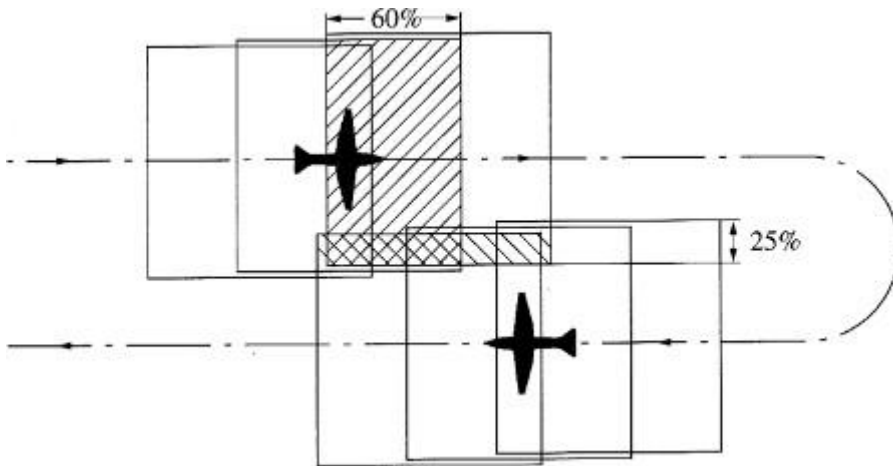
Map types: Cartographic images

Satellite images



Map types: Cartographic images

Aerial photography: image taken from an aircraft or other flying object.



Map types: Cartographic images

Orthophoto: An orthophoto is an aerial photograph or satellite imagery geometrically corrected ("orthorectified") such that the scale is uniform: the photo or image follows a given map projection.



Cartographic expression and symbols

A map has different symbols and text. The symbols are used for describing some part of the reality, while the text is used for a more detailed description of the object that are depicted in the map.

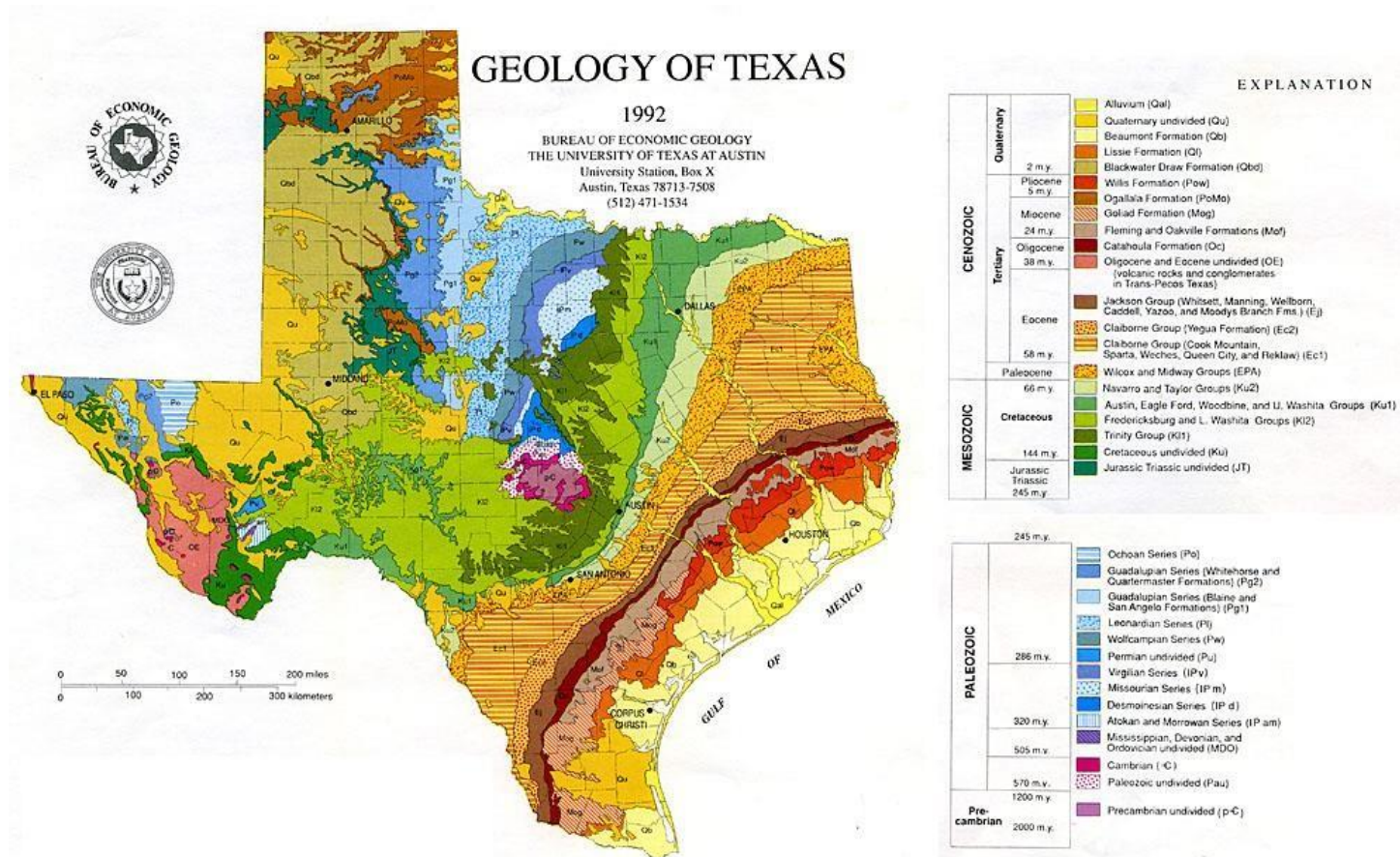
General Information

GENERAL FEATURES

	Gravel pit		Triangulation pillar
	Sand pit		Mast
	Other pit or quarry		Windmill with or without sails
	Landfill site or slag/spoil heap		Wind pump
	Electricity transmission line		Wind turbine
	Solar farm		Building; important building
	Slopes		Glasshouse
	Place of worship		Youth hostel
	Current or former place of worship; with tower		Bunkhouse, camping barn or other hostel
	with spire, minaret or dome		Bus or coach station
			Lighthouse; disused lighthouse
			Beacon

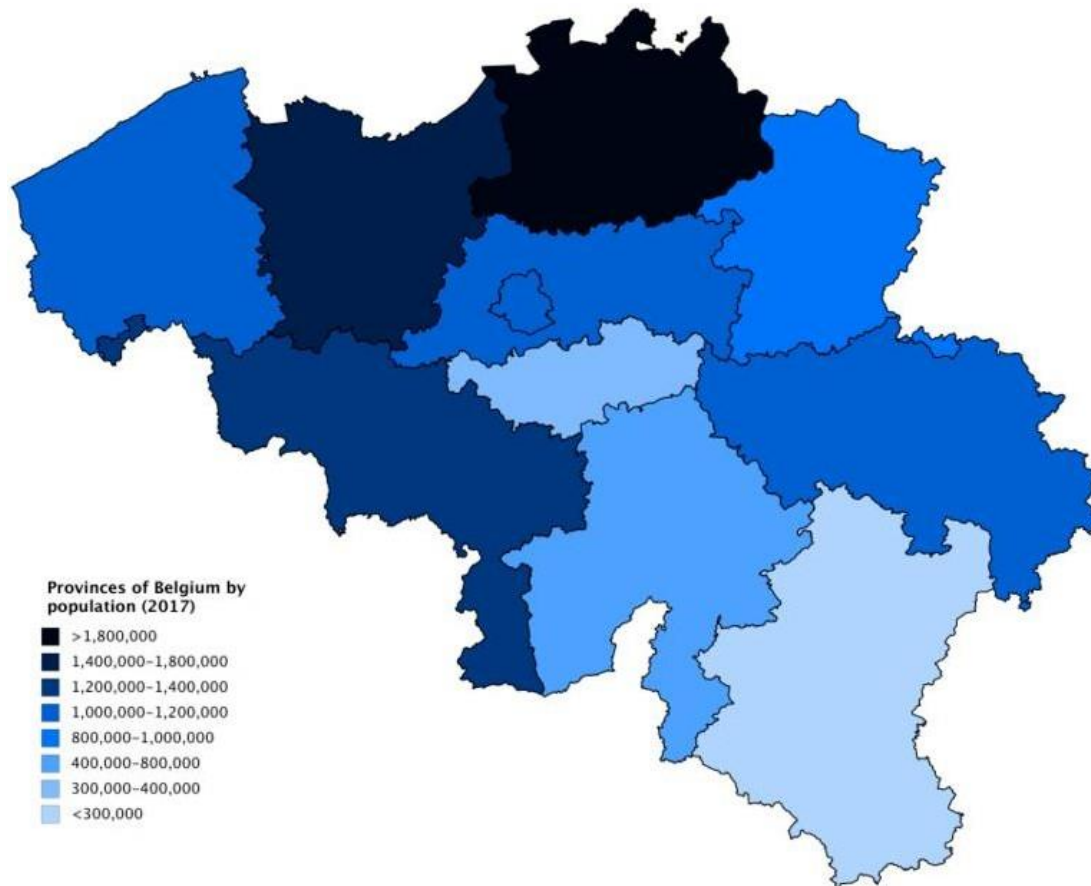
Cartographic expression and symbols

Color is a very useful attribute to depict different features on a map. Displaying the data in different hues can greatly affect the understanding or feel of the map. In many cultures, certain colors have connotations.



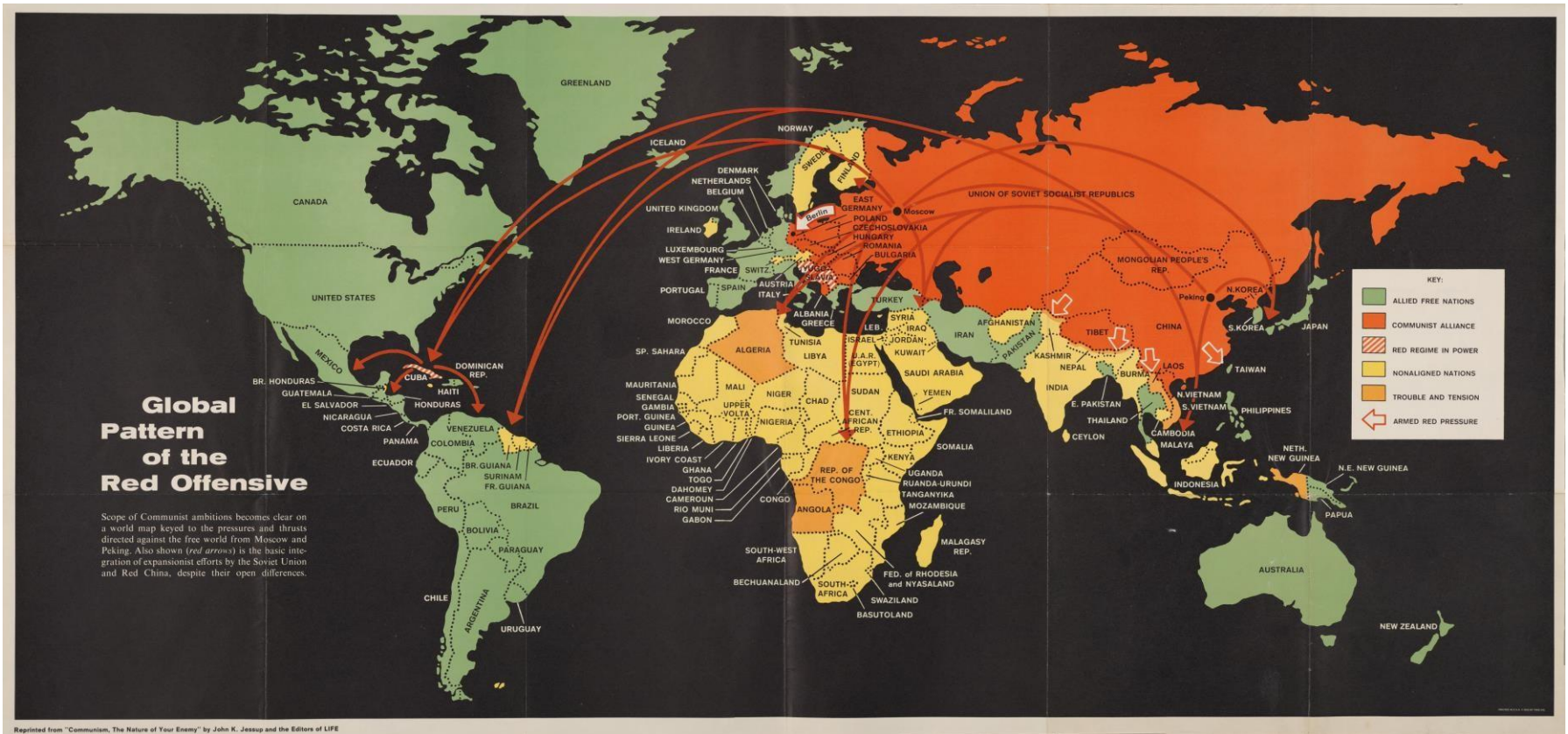
Cartographic expression and symbols

A choropleth map is a thematic map in which areas are colored differently to show the measurement of a statistical variable being displayed on the map.



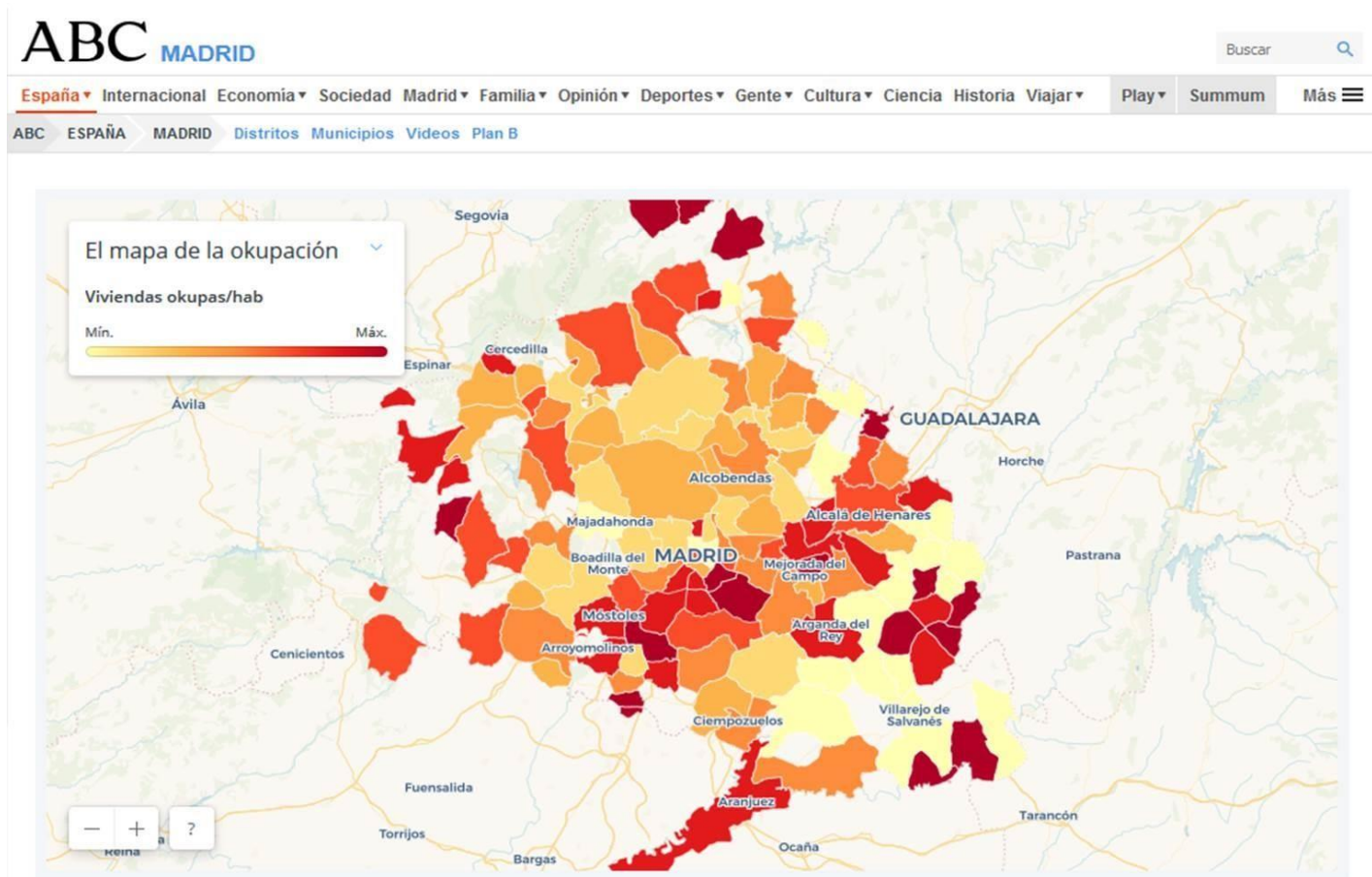
Critical reading of a map

Use of symbols and colors



Critical reading of a map

Use of symbols and colors



ESPECIAL INTERACTIVO

El mapa de las 4.000 viviendas okupadas en Madrid

Credits

- Slide 6: Projections image retrieved from: Wikipedia. "Proyección cartográfica". https://es.wikipedia.org/wiki/Proyecci%C3%B3n_cartogr%C3%A1fica
- Slide 7: World map Mercator projection retrieved from: Wikipedia. "Proyección de Mercator". https://es.wikipedia.org/wiki/Proyecci%C3%B3n_de_Mercator
- Slide 8: Mapamundi projecció Gall-Peters extret de: Wikipedia. "Proyección de Peters". https://es.wikipedia.org/wiki/Proyecci%C3%B3n_de_Peters
- Slides 10, 11 i 12: World maps published in U.S.A., Japan and Australia retrieved from: Geografía infinita. "El mapa del mundo es distinto para cada país". <https://www.geografiainfinita.com/2014/08/visiones-del-mundo-el-mapamundi-segun-cada-cultura/>
- Slides 13 and 14: Images of geographical coordinates and UTM coordinates retrieved from Wkipedia https://commons.wikimedia.org/wiki/Category:Geographic_coordinate_system and https://en.wikipedia.org/wiki/Universal_Transverse_Mercator_coordinate_system
- Slide 16 and 27: Images of countours and symbols retrieved from *Map Reading* brochure by [Ordnance Survey](https://www.ordnancesurvey.co.uk/documents/resources/map-reading.pdf). <https://www.ordnancesurvey.co.uk/documents/resources/map-reading.pdf>
- Slide 25: Aerial photography retrieved from Fototeca IGN. <https://fototeca.cnig.es/>

Credits

- Slide 33: *Global pattern of the red offensive* retrieved from “Persuasive Cartography: The PJ Mode Collection”. Cornell University Library. <https://persuasivemaps.library.cornell.edu/>
- Slide 34: “El mapa de las 4.000 viviendas okupadas en Madrid” retrieved from ABC Madrid, 21/09/2018. https://www.abc.es/espana/madrid/abci-mapa-4000-viviendas-okupadas-madrid-201710290205_noticia.html [Consultat el 2-11-2018]



Thanks!