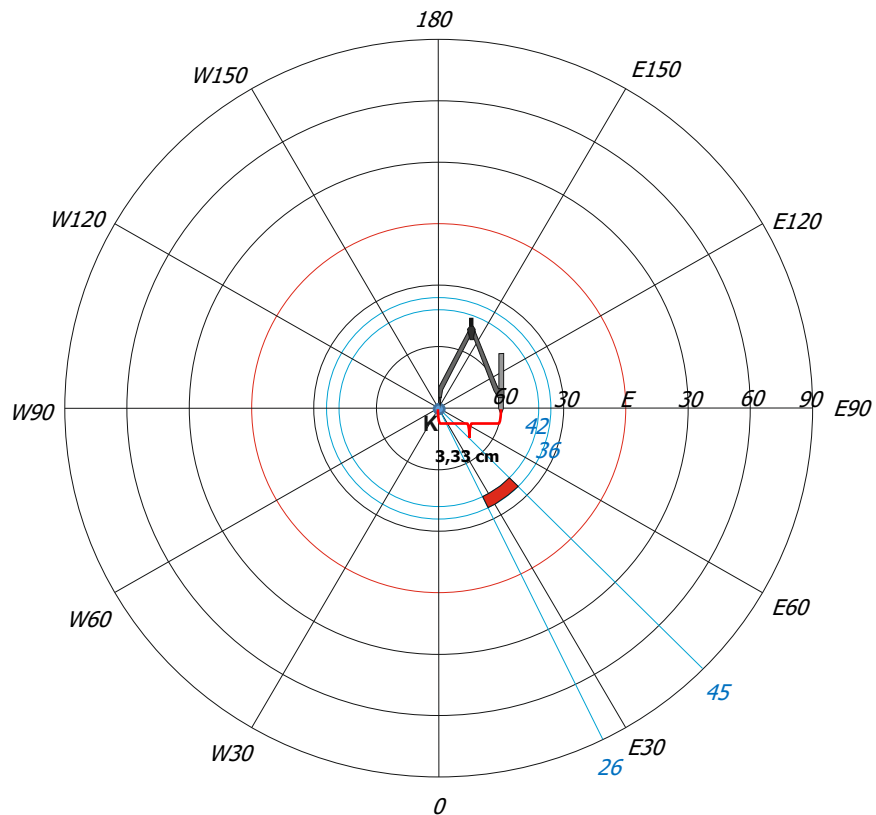


- **Planar Projections**

- 1. Equidistant Projection**
- 2. Gnostic Projection**
- 3. Orthographic Projection**
- 4. Stereographic Projection**
- 5. Lambert Projection**
- 6. Stab-Werner Projection**
- 7. Globular Projection**

# Equidistant Projection

Drawing of the graticule (grid network) of the Equidistant projection at a scale of 1/100,000,000 (Interval: 30 degree) and showing the location of Turkey.



Türkiye

$$\overline{NA'_{K36}} = \frac{2\pi R(90-36)}{360} = \frac{2 * 3,14 * 6,37 * 54}{360} = 6$$

$$\overline{NA'_{K42}} = \frac{2\pi R(90-42)}{360} = \frac{2 * 3,14 * 6,37 * 48}{360} = 5,33$$

$$\overline{NA'_{K60}} = \frac{2\pi R(90-60)}{360} = \frac{2 * 3,14 * 6,37 * 30}{360} = 3,33$$

$$\overline{NB'_{K30}} = \frac{2\pi R(90-30)}{360} = \frac{2 * 3,14 * 6,37 * 60}{360} = 6,66$$

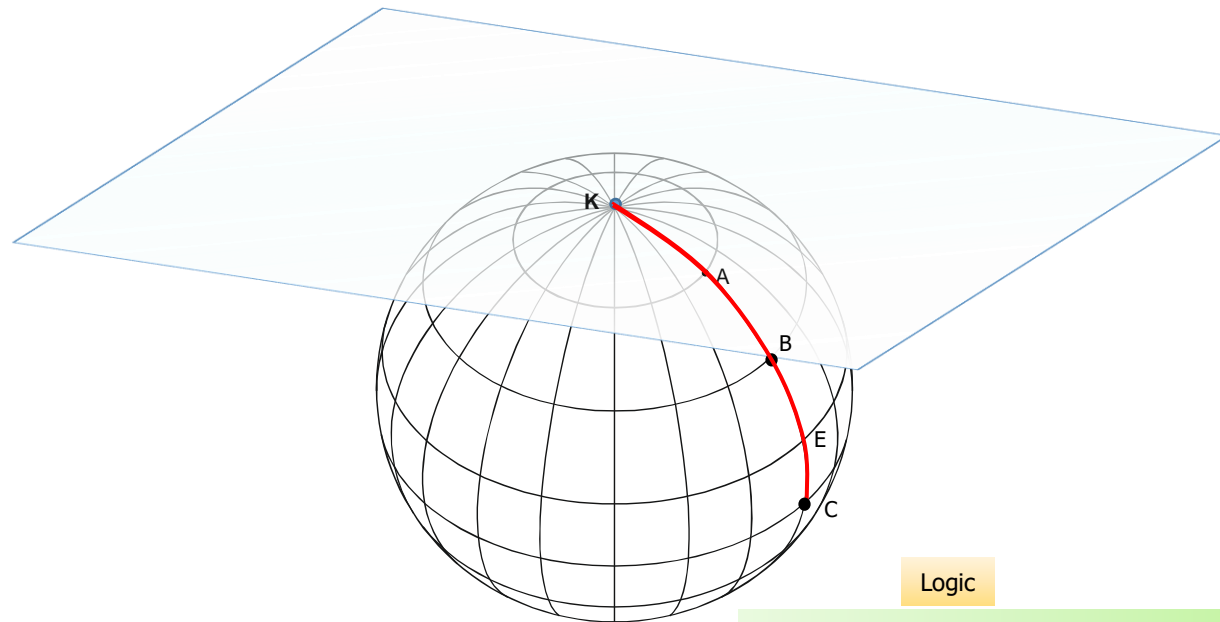
$$\overline{NE'_{K0}} = \frac{2\pi R(90-0)}{360} = \frac{2 * 3,14 * 6,37 * 90}{360} = 10$$

$$\overline{NC'_{G30}} = \frac{2\pi R(90+30)}{360} = \frac{2 * 3,14 * 6,37 * 120}{360} = 13,33$$

$$\overline{ND'_{G60}} = \frac{2\pi R(90+60)}{360} = \frac{2 * 3,14 * 6,37 * 150}{360} = 16,66$$

$$\overline{NS'_{G90}} = \frac{2\pi R(90+90)}{360} = \frac{2 * 3,14 * 6,37 * 180}{360} = 20$$

0 2000 km



Logic

The radius of the parallel passing through a point, It is the distance from the point to the tangent point.

Circle = 360°

$$360^\circ = 2\pi R$$

$$\pi = 3,14$$

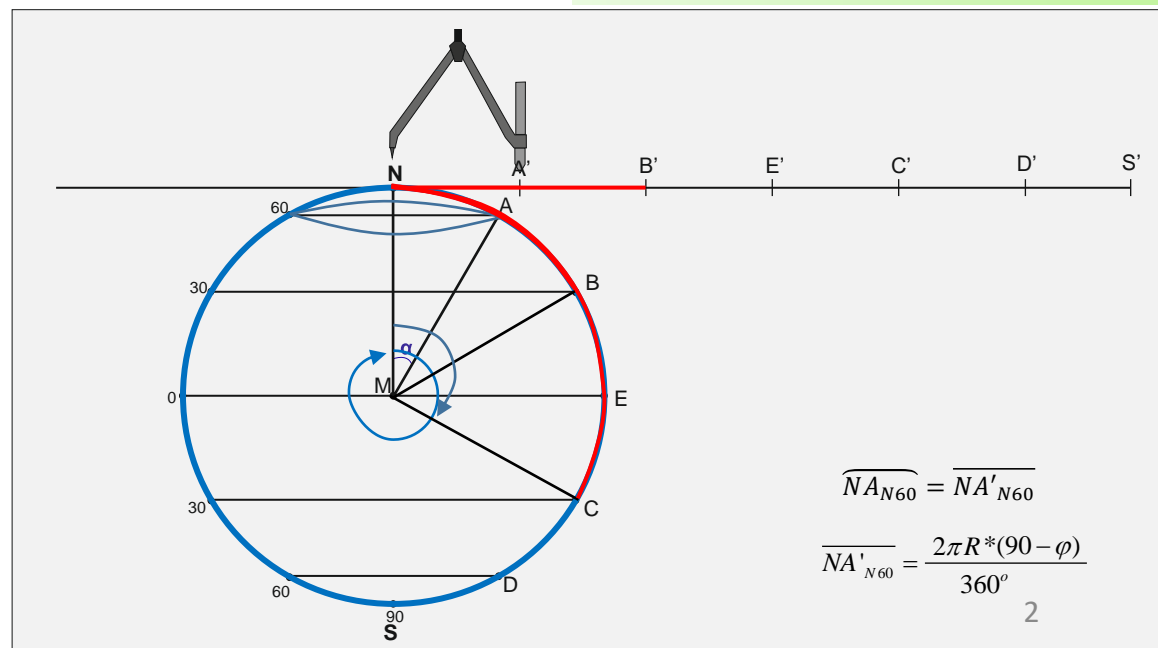
$$R = 6,37 \text{ cm}$$

$$\alpha = 90 - \varphi_A$$

$$\alpha = 90 - \varphi$$

$$\alpha = 90 + \varphi$$

$$\overline{NA'} = \frac{2\pi R(90 \pm \varphi)}{360}$$

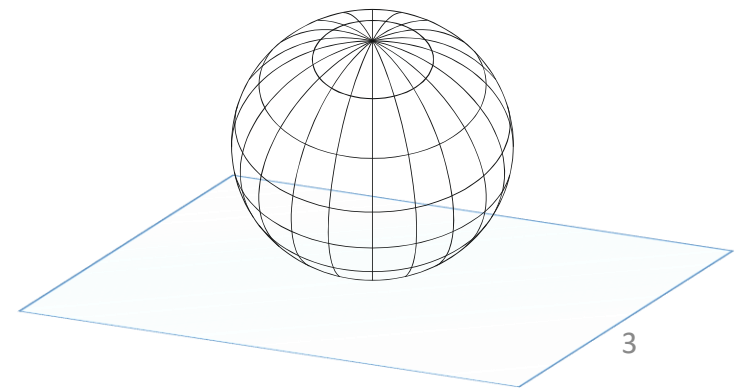
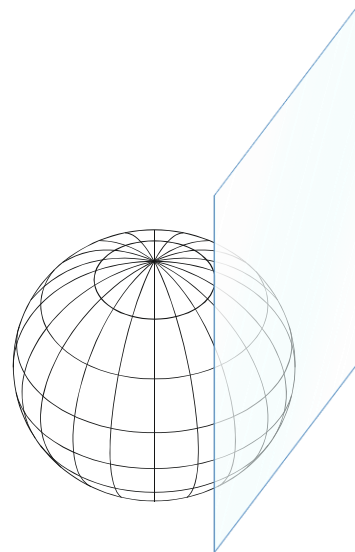
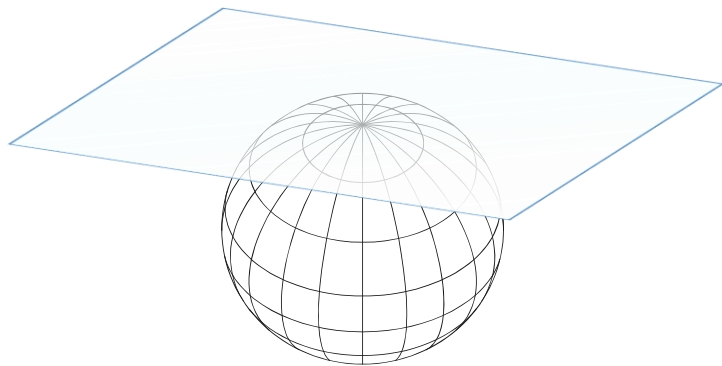
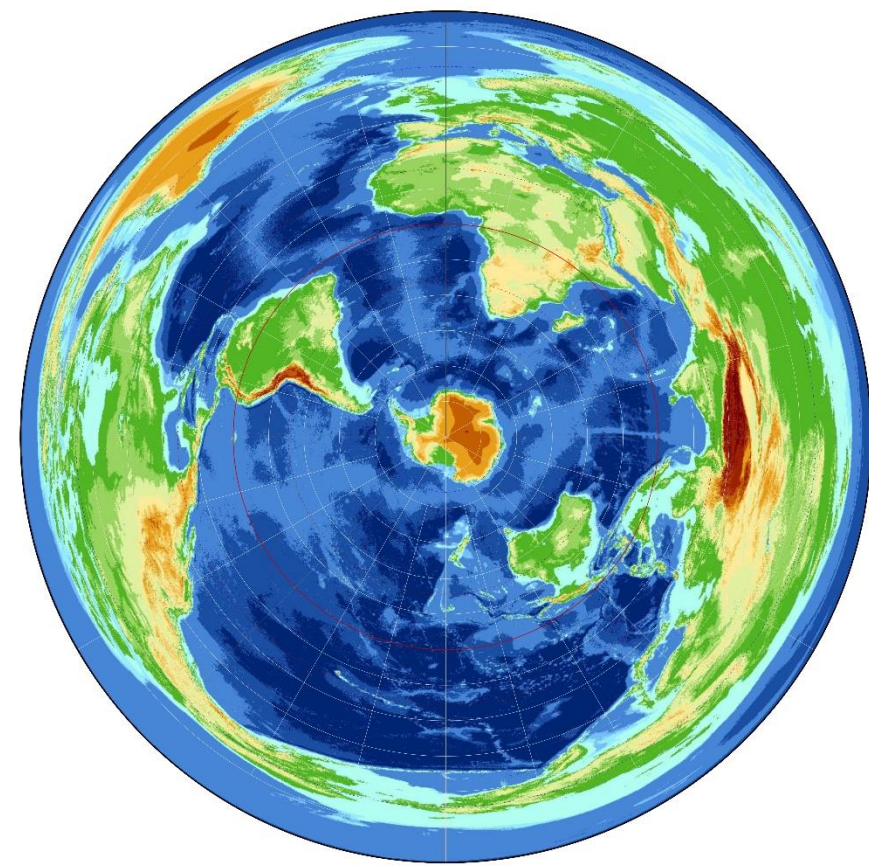
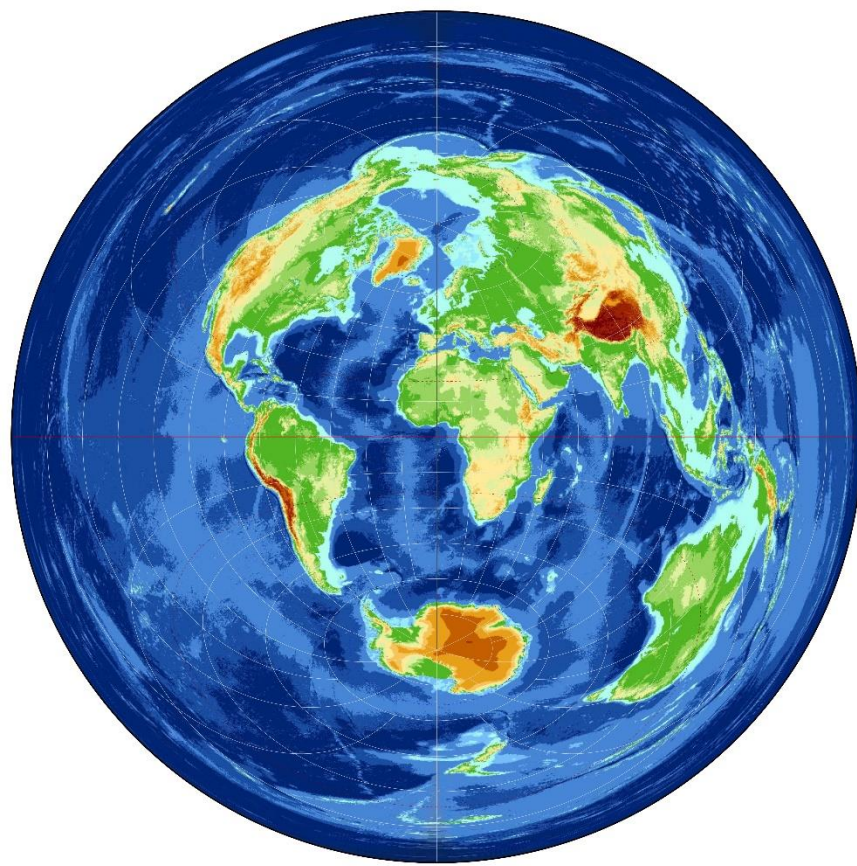
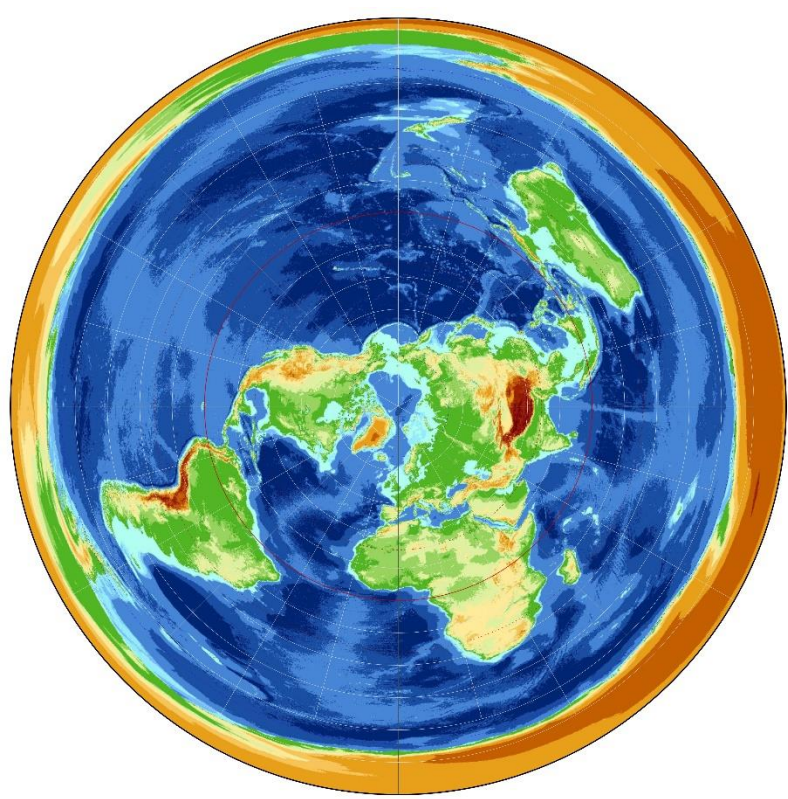


$$\overline{NA_{N60}} = \overline{NA'_{N60}}$$

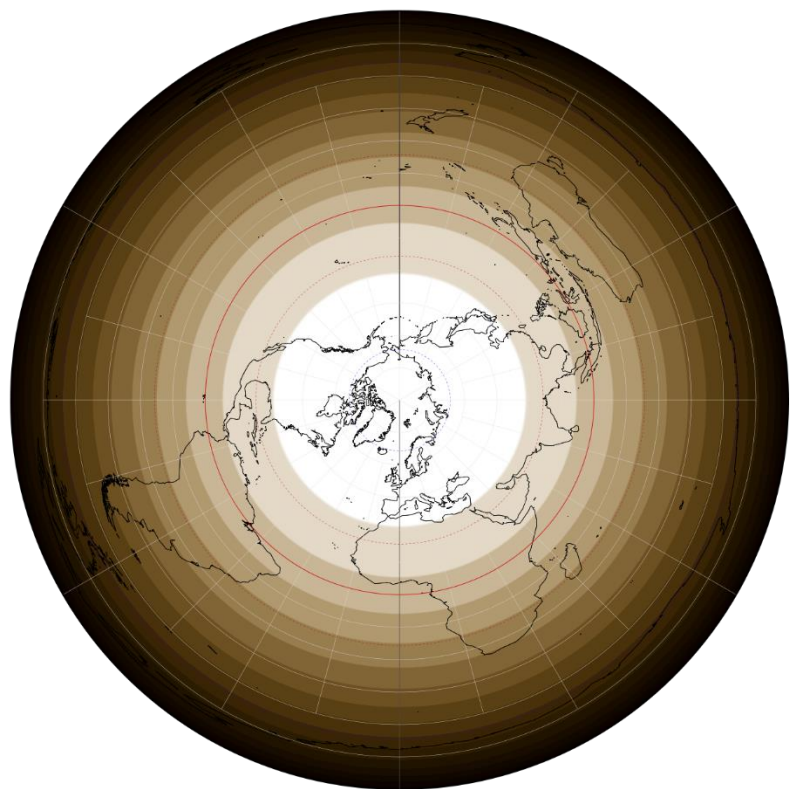
$$\overline{NA'_{N60}} = \frac{2\pi R * (90 - \varphi)}{360^\circ}$$

2

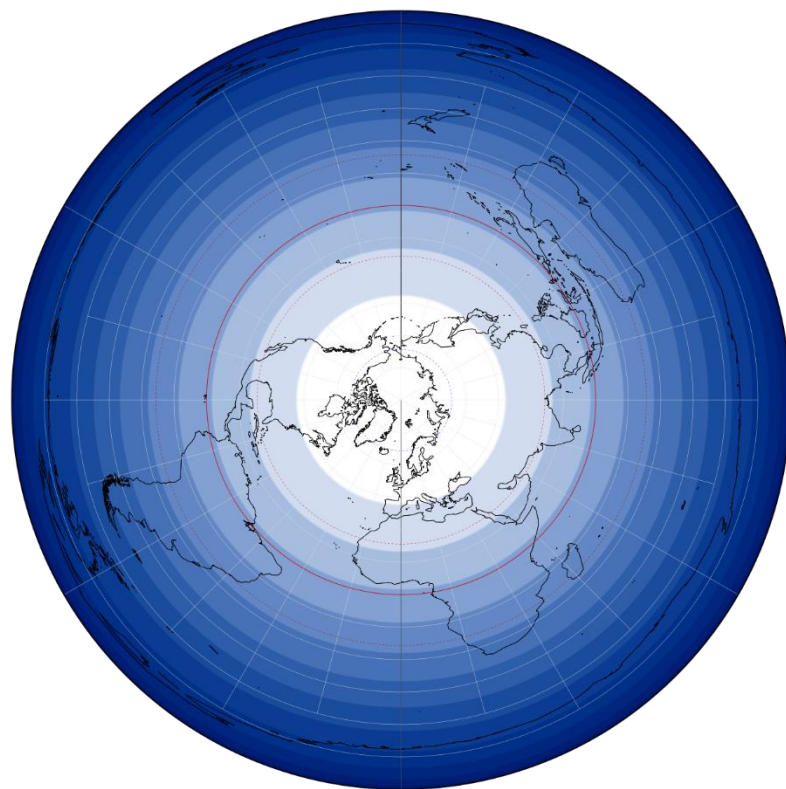




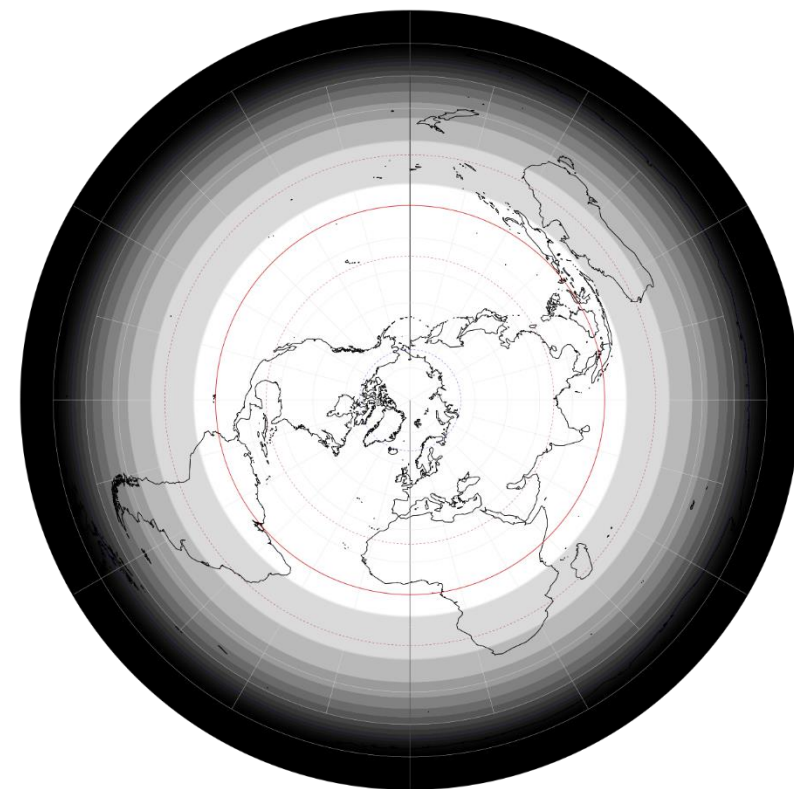




Angle Distortion

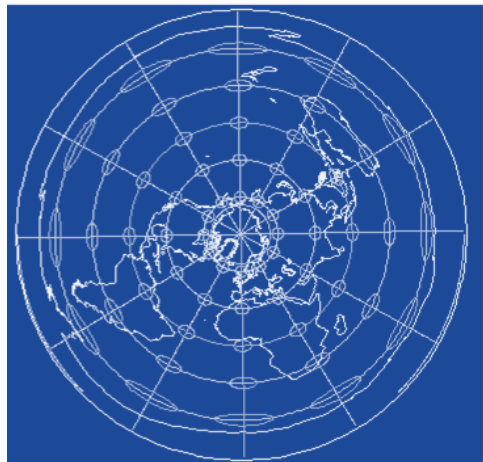
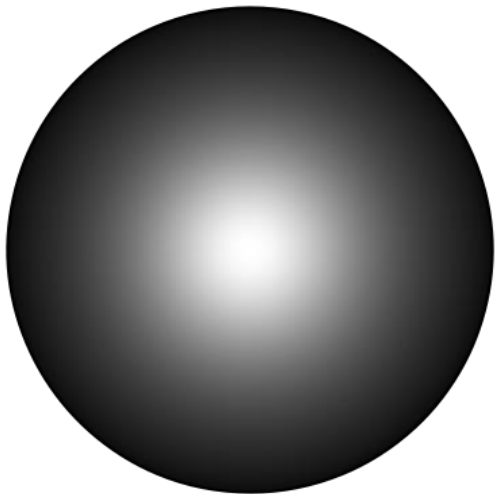


Area Distortion

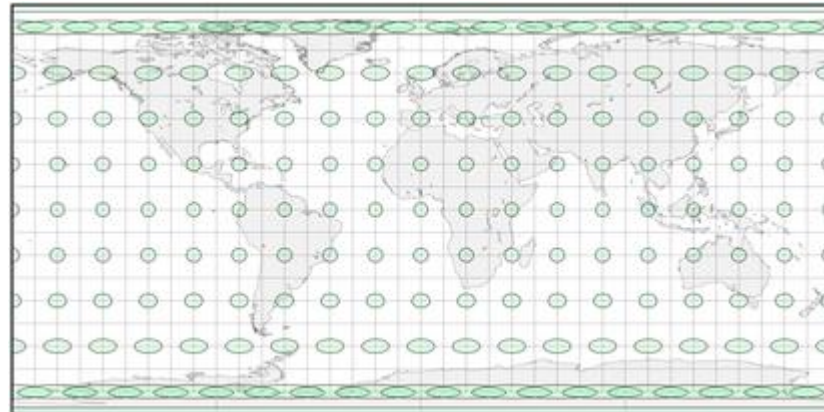
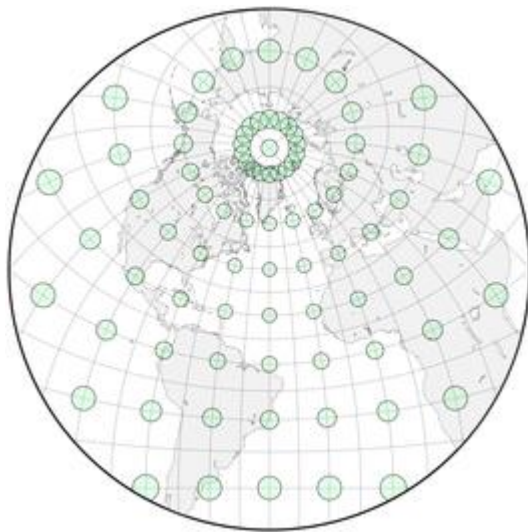


Distance Distortion

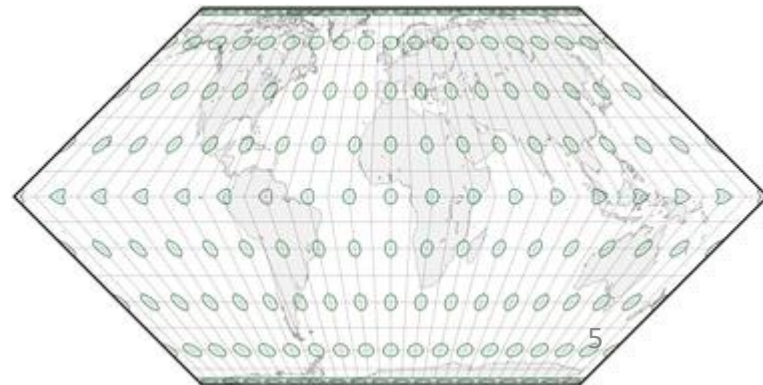
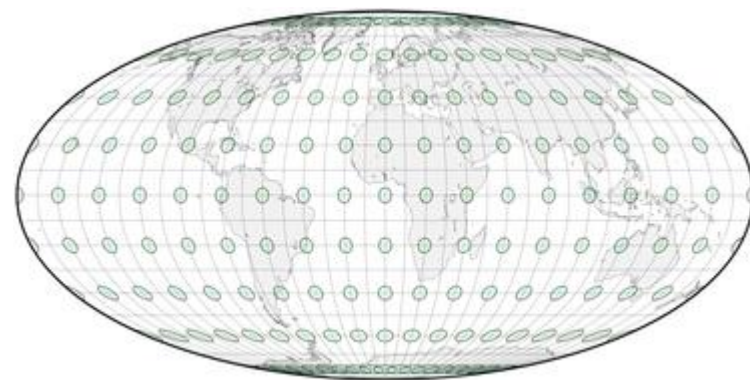
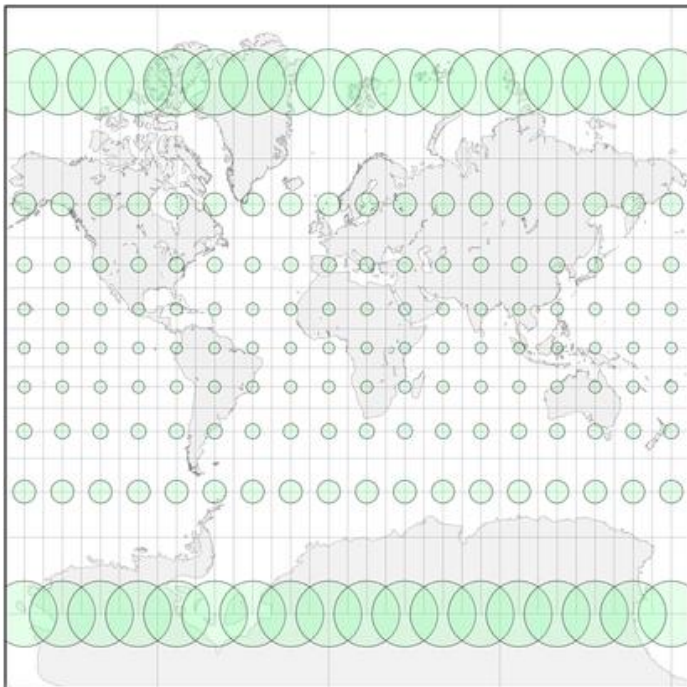
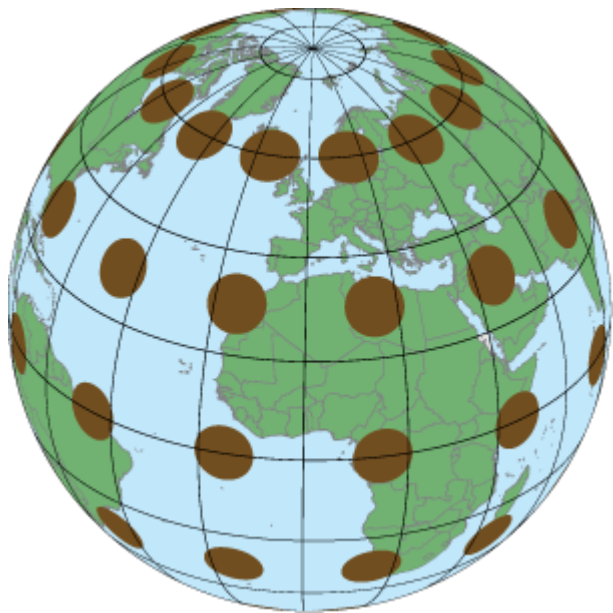




<http://www.progonos.com/furuti/MapProj/Normal/CartProp/Distort/distort.html>



Distortions

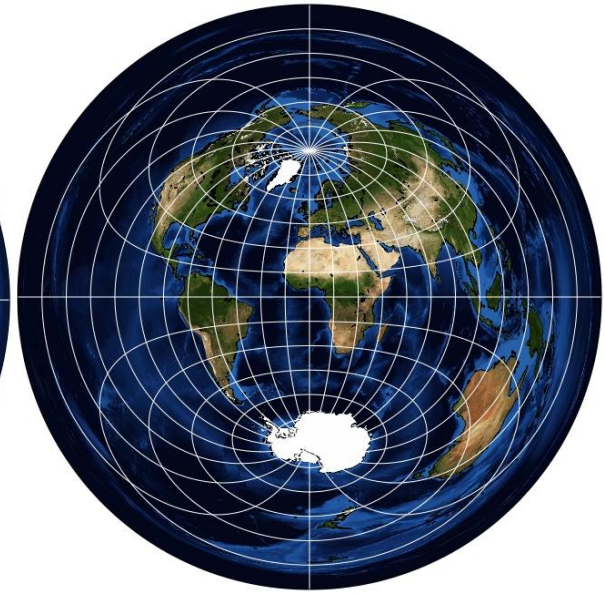
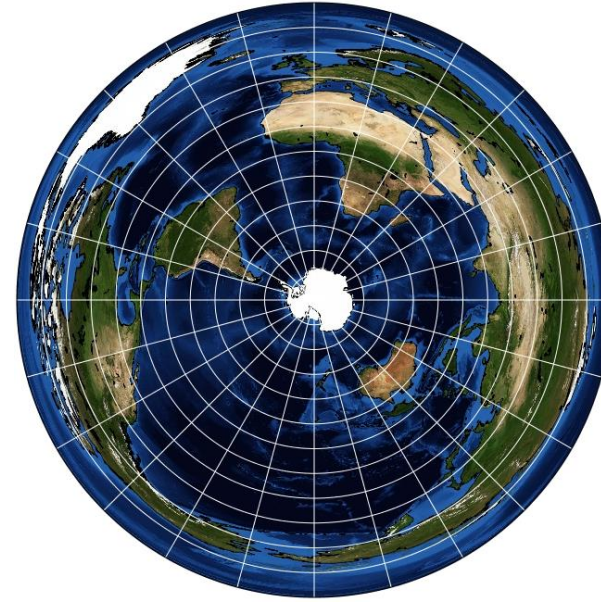
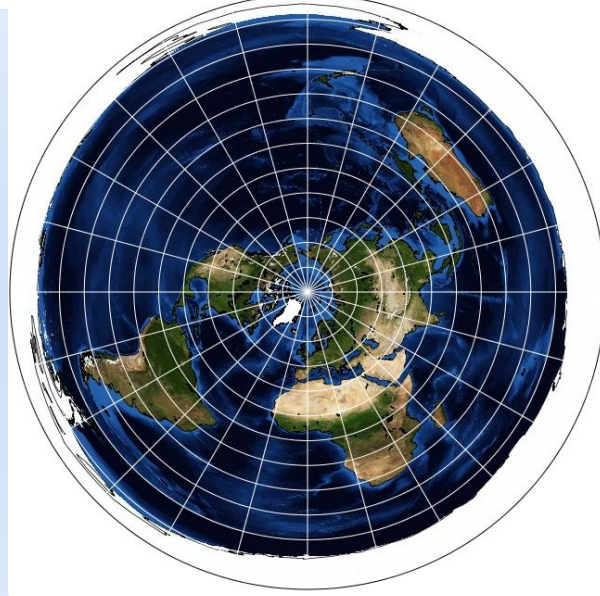


<http://cartonerd.blogspot.com.tr/2014/08/web-mercator-and-comparisons.html>

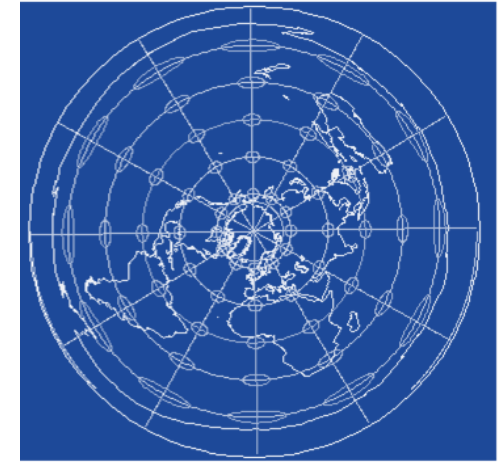
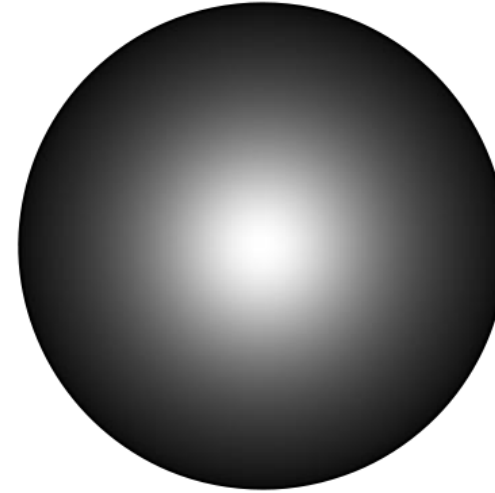
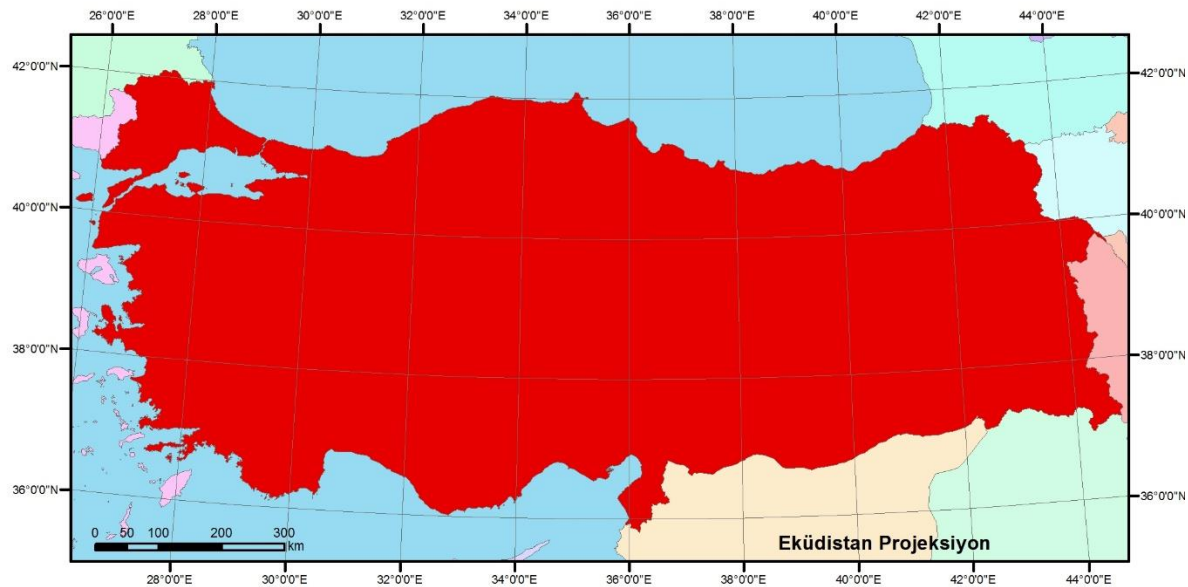


## Properties of Projection (Polar Type)

- It shows the whole world.
- Maintains length along meridians. Parallels are circles.
- Distance are equal between consecutive parallels.
- Meridians are radial.
- **The lengths of the meridians are equal to their lengths on earth.**
- The least error is around the tangent point.
- Distortion rates increase as you move away from the tangent point.
- At the antipode of the tangent point (the point symmetrical with respect to the center), the distortions are infinite.



## Azimuthal Equidistant Zenithal Equidistant



Distortions sphere and Tissot's indicatrix

## Usage

- It is used in drawing maps aimed at maintaining length along the meridians.
- It is used in the making of polar maps.