

Figure 1
Evolution of a Map Projection

In some cases a geometric projection to a developable surface is involved, but usually the term cylindrical, conic, or azimuthal is used to classify a projection which only resembles such a case. The dashed arrow shows this possibility.

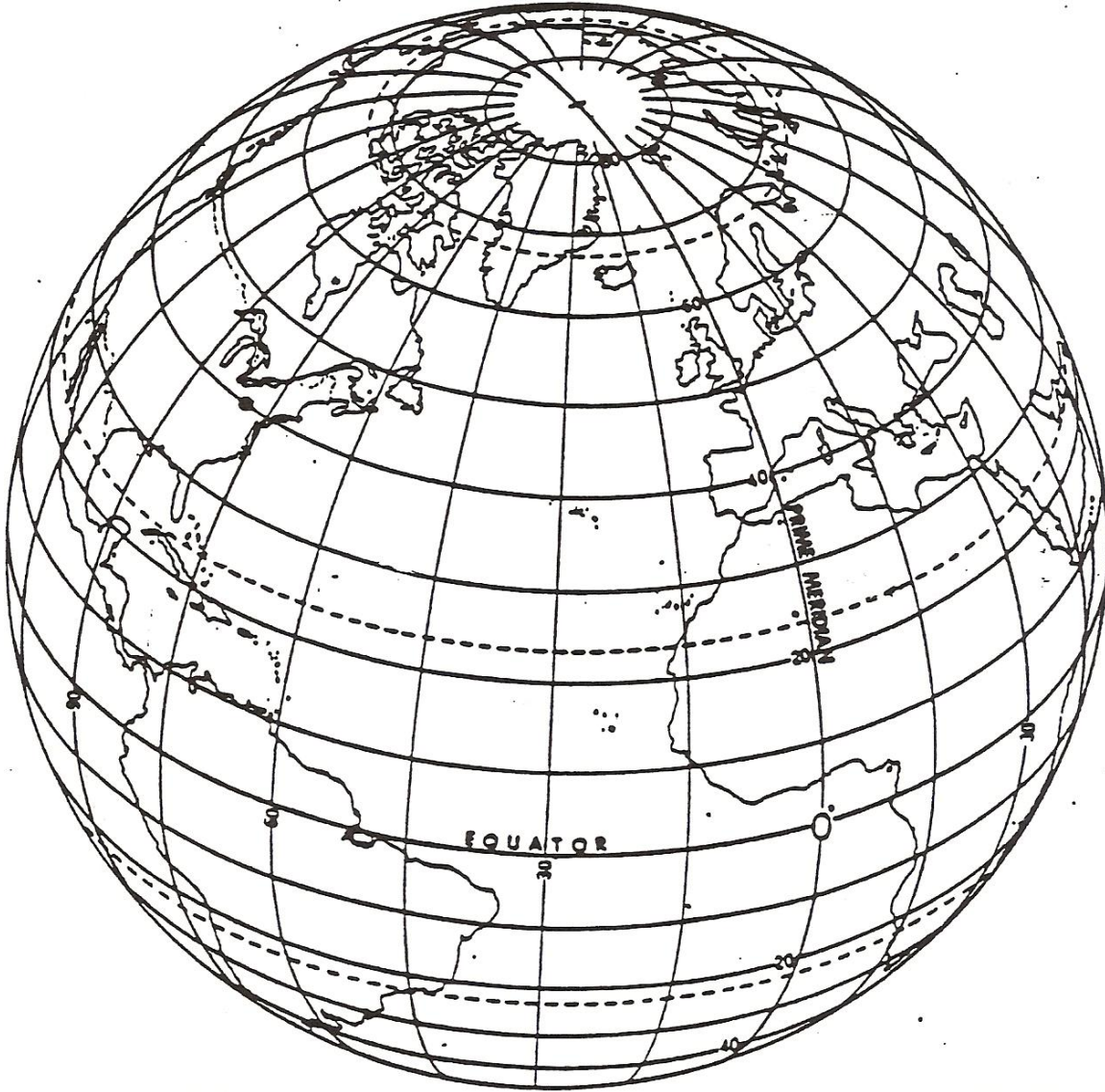


Figure 2
The Network of Meridians and Parallels
--- The Graticule ---

Pittsburg is located at $\phi = 40^{\circ}\text{N}$ and $\lambda = 80^{\circ}\text{W}$

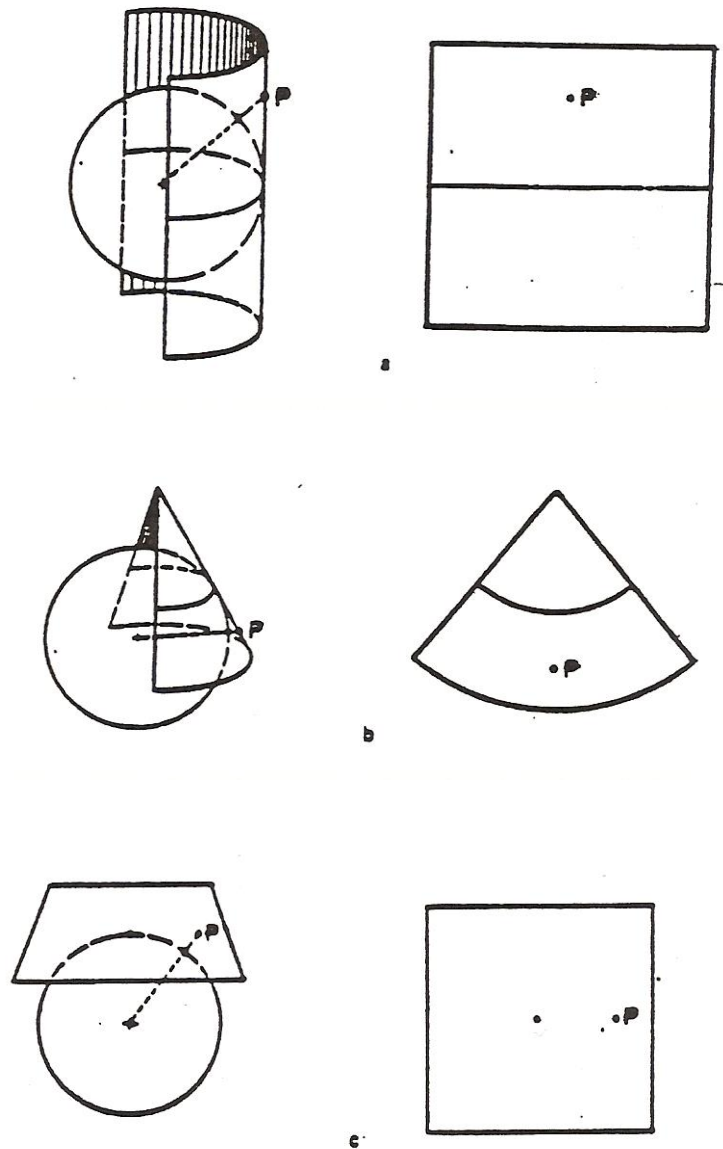


Figure 3
Developable Projection Surfaces

- a) Cylinder tangent to a globe at the Equator and developed or “unrolled” map.
- b) Cone tangent to a globe along a Parallel and developed or “unrolled” map.
- c) Plane tangent to a globe at the North Pole and part of the resulting map.

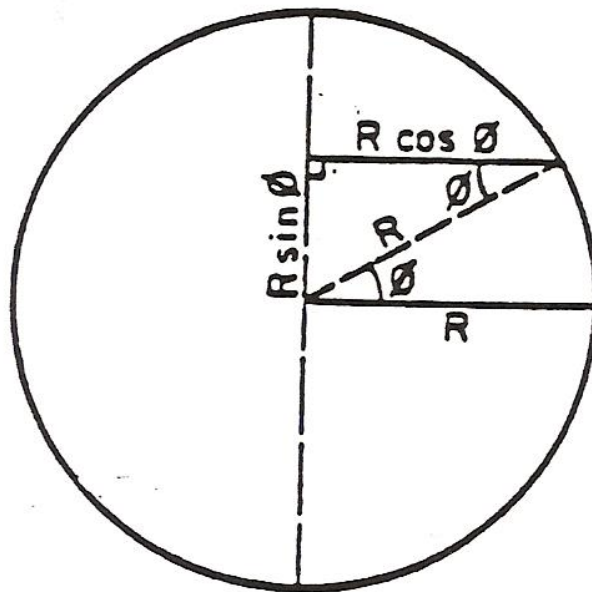


Figure 4
Cross Section of Globe

The radius of any parallel of latitude is $R \cos \phi$
The distance between its plane and that of the Equator is $R \sin \phi$.

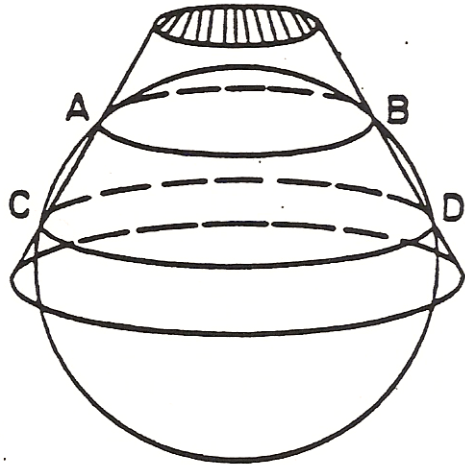


Figure 5-1a Conic Surface on Earth

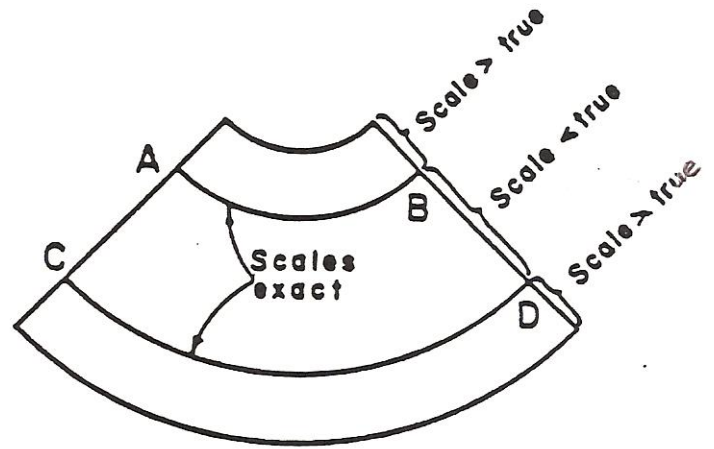


Figure 5-1b Developed

Cone

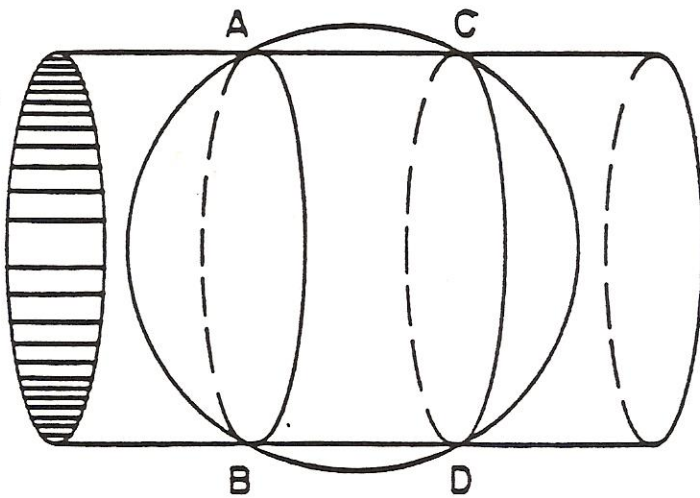


Figure 5-2a Transverse Cylinder on Earth

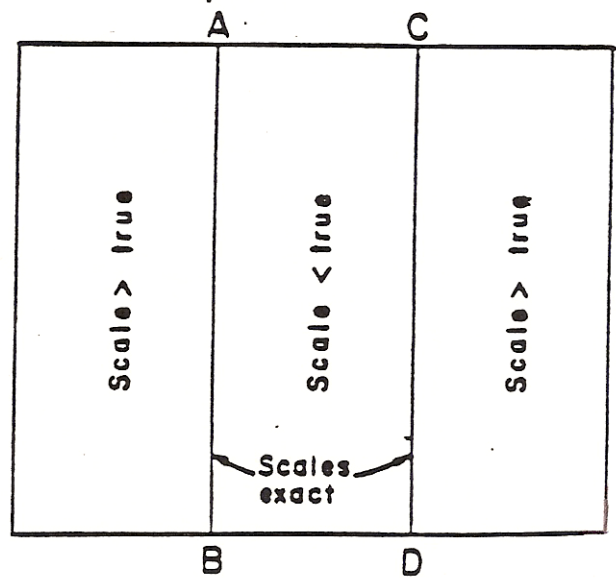


Figure 5-2b Developed

Cylinder

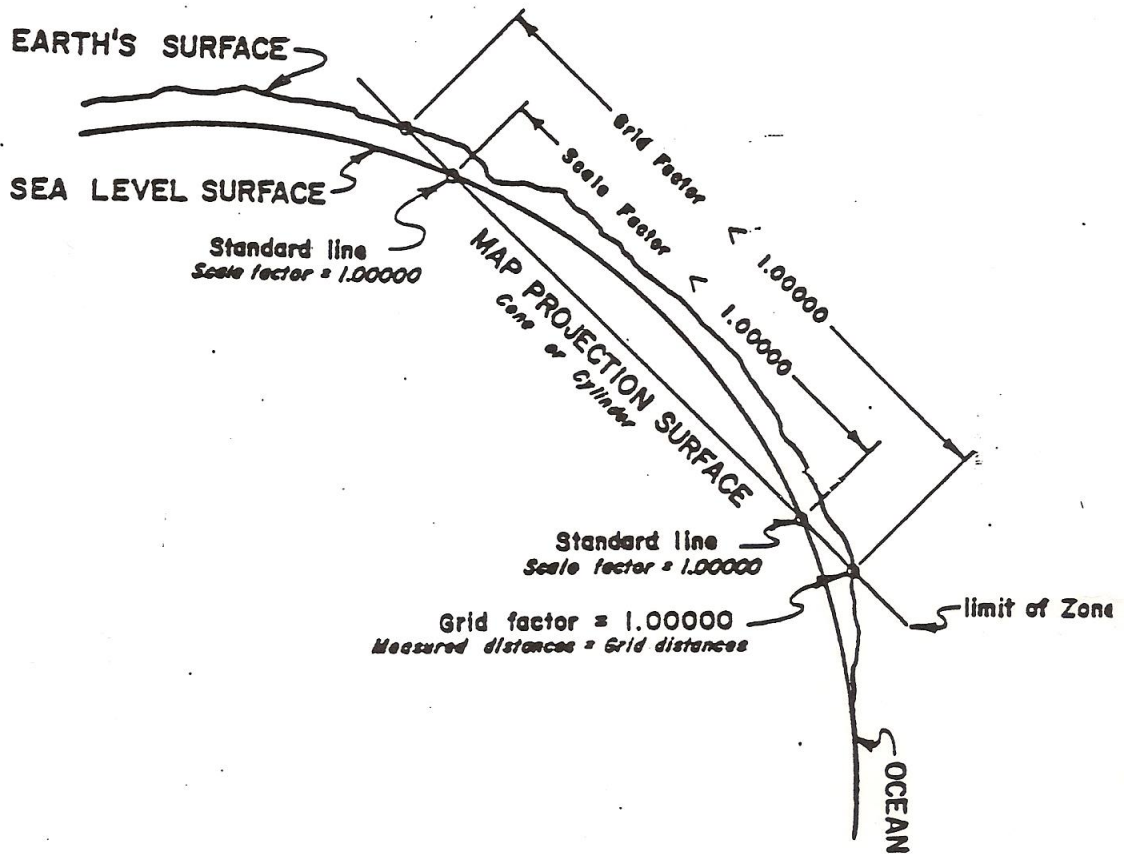


Figure 6
Cross-Section of a State Plane Coordinate Zone

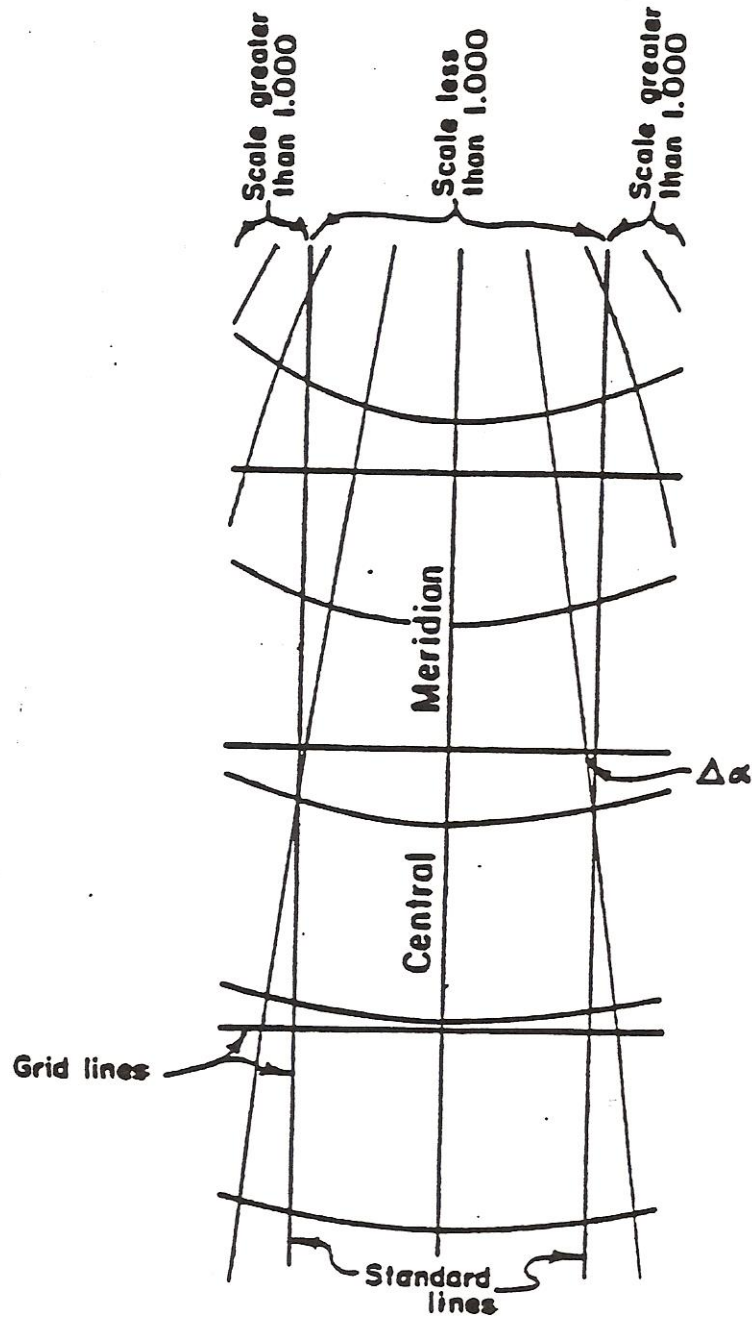


Figure 8
Parallels and Meridians on Transverse Mercator Grid

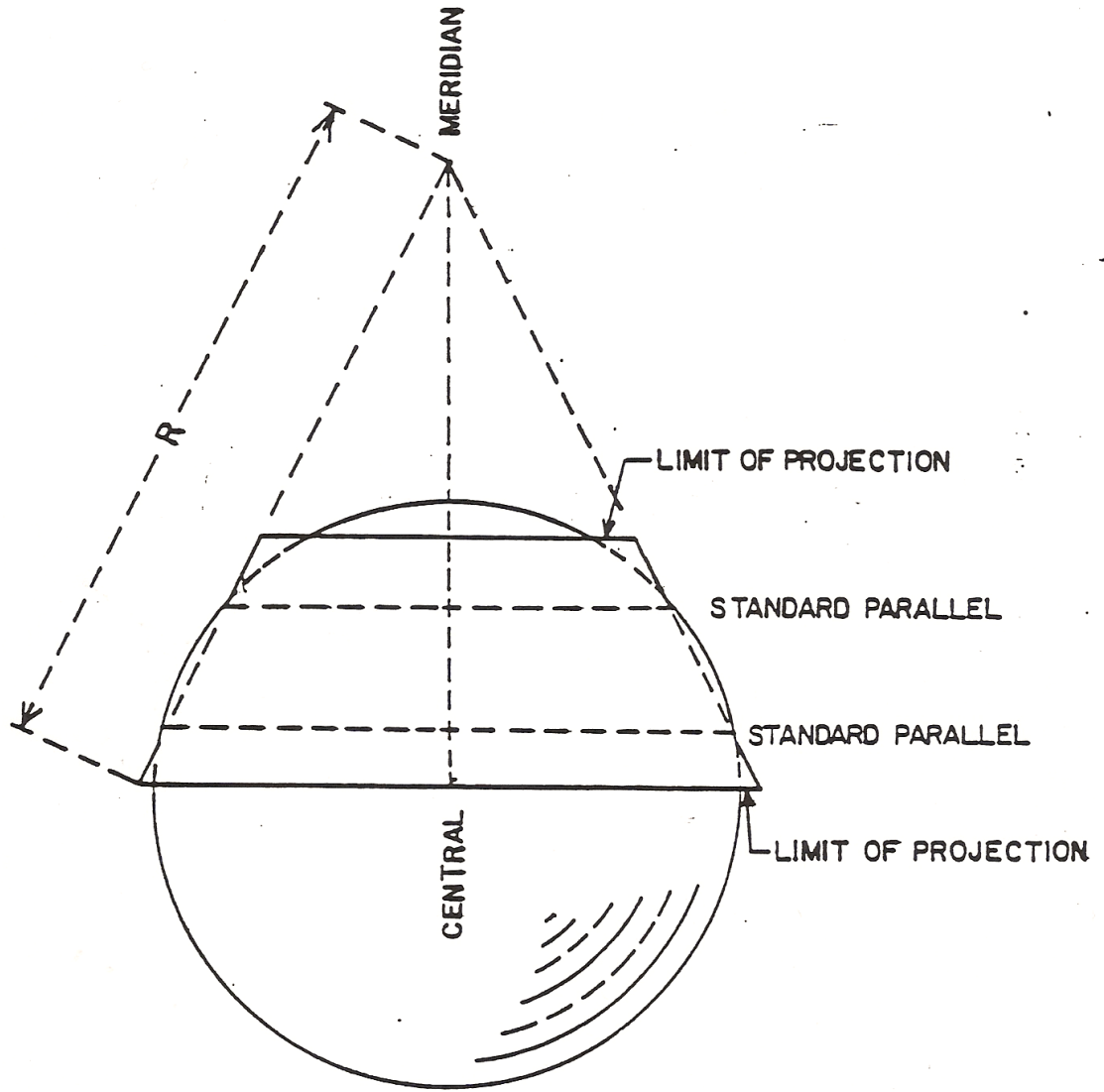


Figure 9
Lambert Conformal Conic Projection