Transverse Cylindrical Equal Area Projection

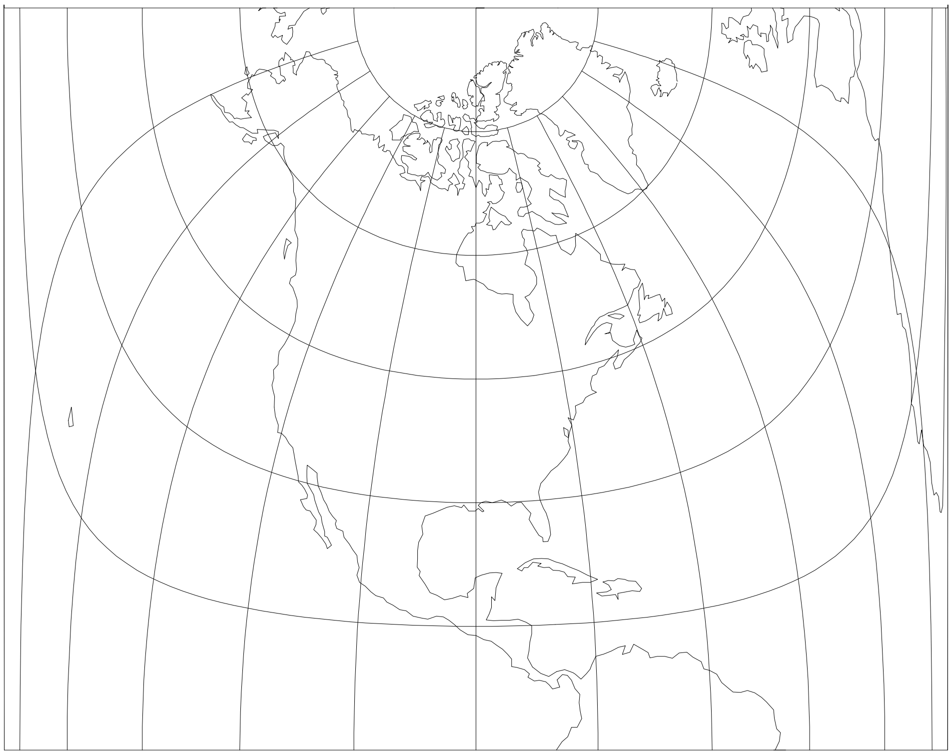

Figure 10: Transverse Cylindrical Equal Area projection, Western hemisphere with shorelines and 15° graticule. Central meridian 90° W (`+proj=tcea +lon_0=90w`).

Classifications: Cylindrical. Equal area.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=tcea +lat_0=` ϕ_0 `+k=`k_0

The parameter k_0 is the scale factor at the central meridian which has a value of 1. when `+k` is not specified.

Equidistant Cylindrical Projection

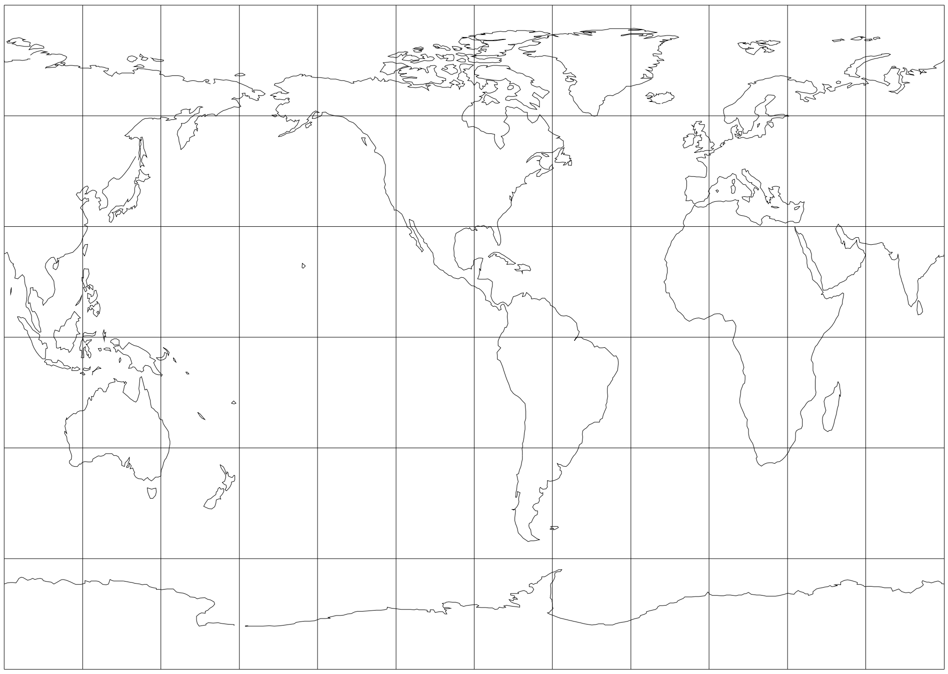

Figure 11: Equidistant Cylindrical projection, with shorelines and 30° graticule. Central meridian 90° W and $\phi_s = 45°$ (`+proj=eqc +lon_0=90w`).

Classifications: Cylindrical. Neither conformal nor equal area.

Aliases: Plate Carée.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=eqc +lat_ts=`ϕ_s

The latitude of true scale, ϕ_s, is assumed to be 0° if not specified by `lat_ts` (figure 11). The Plate Carée designation only applies when $\phi_s = 0$ (figure 12).

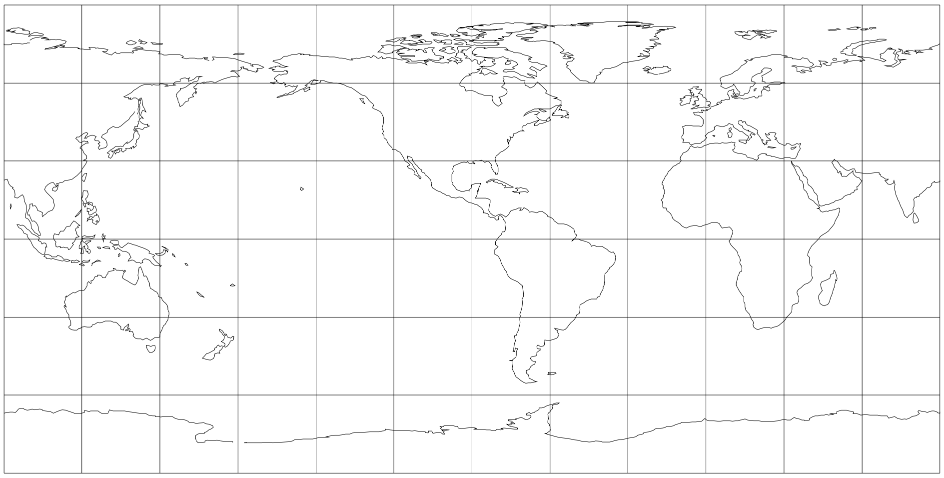

Figure 12: Plate Carée projection, with shorelines and 30° graticule. Central meridian 90° W (`+proj=eqc +lon_0=90w +lat_ts=30`).

Cassini Projection

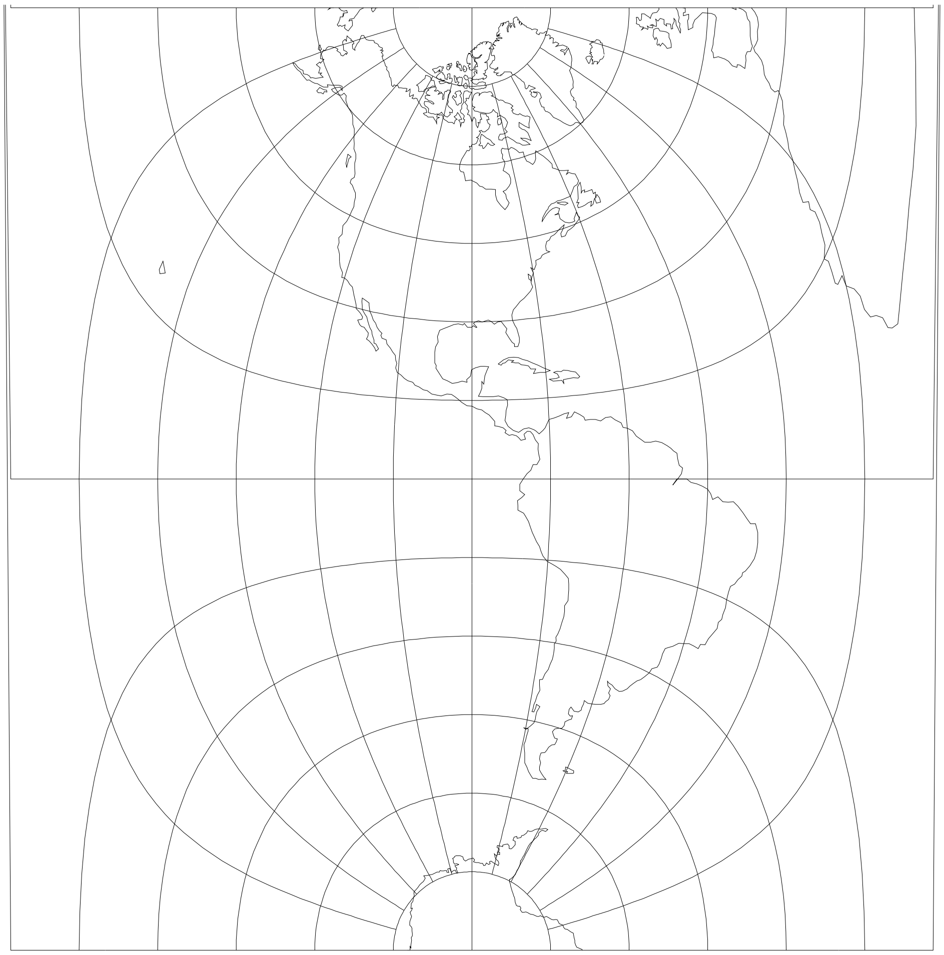

Figure 13: Cassini projection, Western hemisphere with shorelines and 15° graticule. Central meridian 90° W (`+proj=cass +lon_0=90w`).

Classifications: Transverse cylindrical. Neither conformal nor equal area.
Available forms: Forward and inverse, spherical and elliptical projection.
Usage and options: `+proj=cass +lat_0=`ϕ_0

Transverse form of the Plate Carée projection.

Pseudocylindrical Projections

The defining quality of the pseudocylindrical projections is that the parallels of latitude are parallel, as with the normal cylindrical projections, but meridians, other than the central meridian, always converge to the polar ends of the central meridian. Typically, the convergence of the meridians is a smooth arc but some novelty projections (Eckert I and II and Collignon) use straight lines. Several of the pseudocylindical projections equal area but none are conformal.

The principle usage of these projections is for small scale, global maps, and frequently in an interupted form.

Sinusoidal Projection

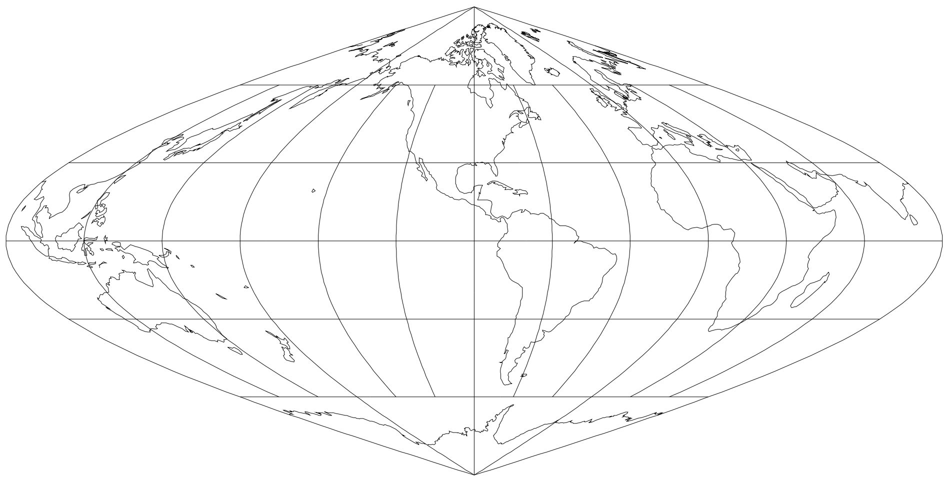

Figure 14: Sinusoidal projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=sinu +lon_0=90w`).

Classifications: Pseudocylindrical. Equal area.

Aliases: Sanson-Flamsteed, Mercator Equal-Area.

Available forms: Forward and inverse, spherical and elliptical projection.

Usage and options: `+proj=sinu`

Because this projection is useful for large scale applications it is frequently employed in transverse and oblique aspects.

Mollweide Projection

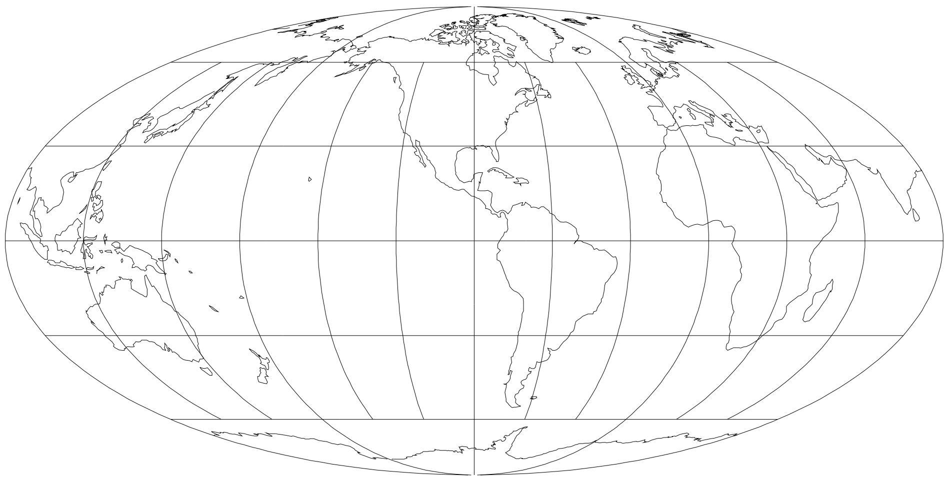

Figure 15: Mollweide projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=moll +lon_0=90w`).

Classifications: Pseudocylindrical. Equal area.

Aliases: Homolographic, Homalographic, Babinet, Elliptical.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=moll`

Robinson Projection

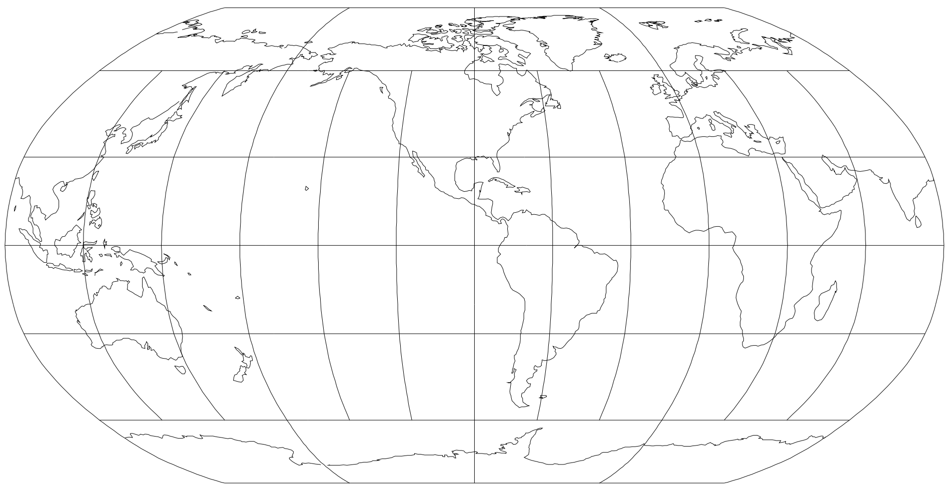

Figure 16: Robinson projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=robin +lon_0=90w`).

Classifications: Miscellaneous conformal.

Aliases: Orthophanic.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=robin`

Eckert I Projection

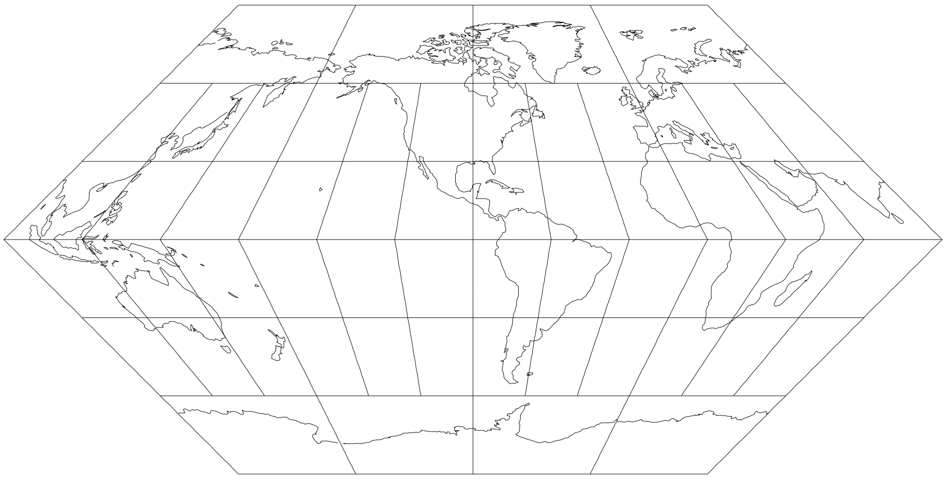

Figure 17: Eckert I projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=eck1 +lon_0=90w`).

Classifications: Pseudocylindrical. Neither conformal nor equal area.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=eck1`

Eckert II Projection

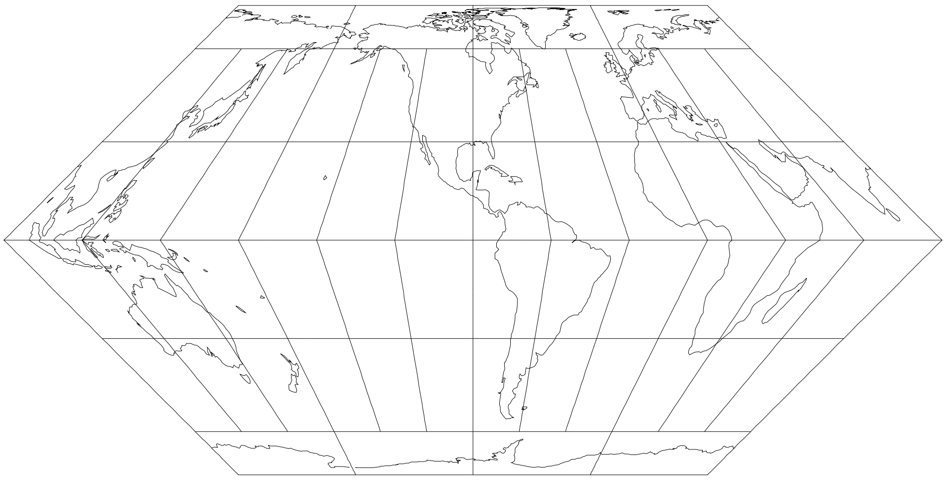

Figure 18: Eckert II projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=eck2 +lon_0=90w`).

Classifications: Pseudocylindrical, equal area.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=eck2`

Eckert III Projection

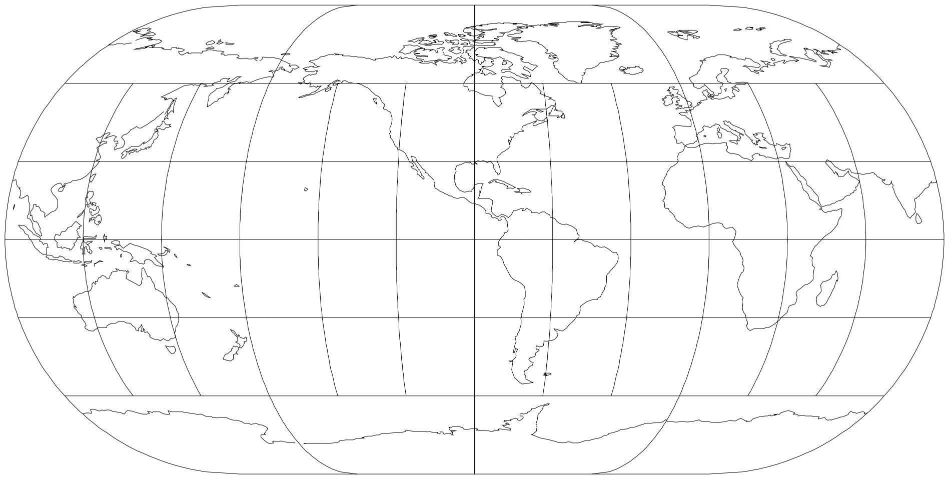

Figure 19: Eckert III projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=eck3 +lon_0=90w`).

Classifications: Pseudocylindrical. Neither conformal nor equal area.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=eck3`

Eckert IV Projection

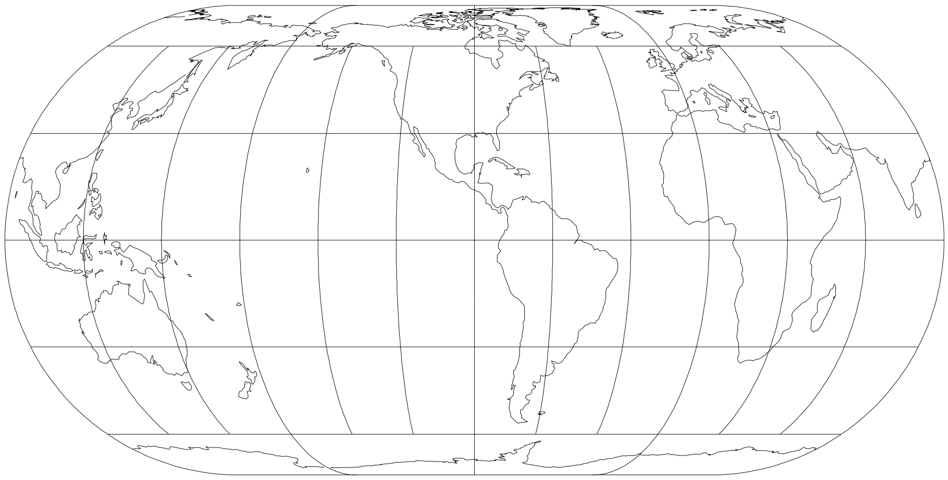

Figure 20: Eckert IV projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=eck4 +lon_0=90w`).

Classifications: Pseudocylindrical, equal area.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=eck4`

Eckert V Projection

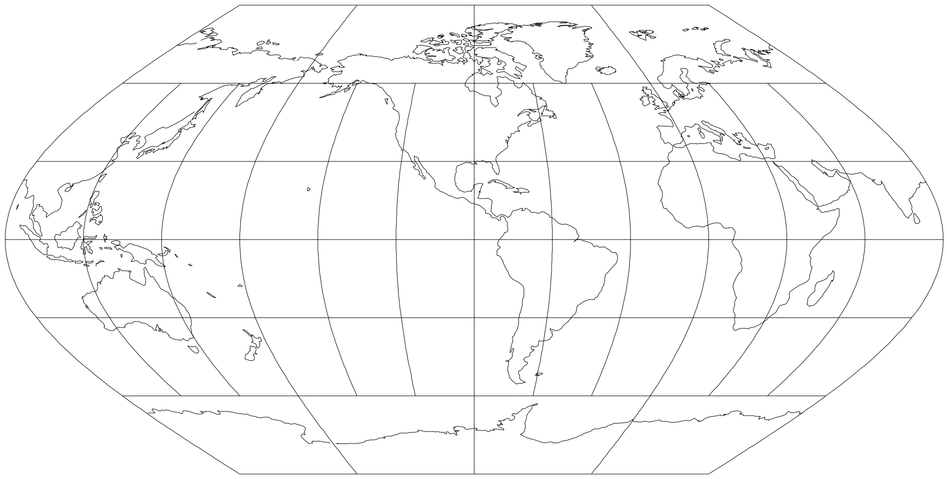

Figure 21: Eckert V projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=eck5 +lon_0=90w`).

Classifications: Pseudocylindrical. Neither conformal nor equal area.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=eck5`

Eckert VI Projection

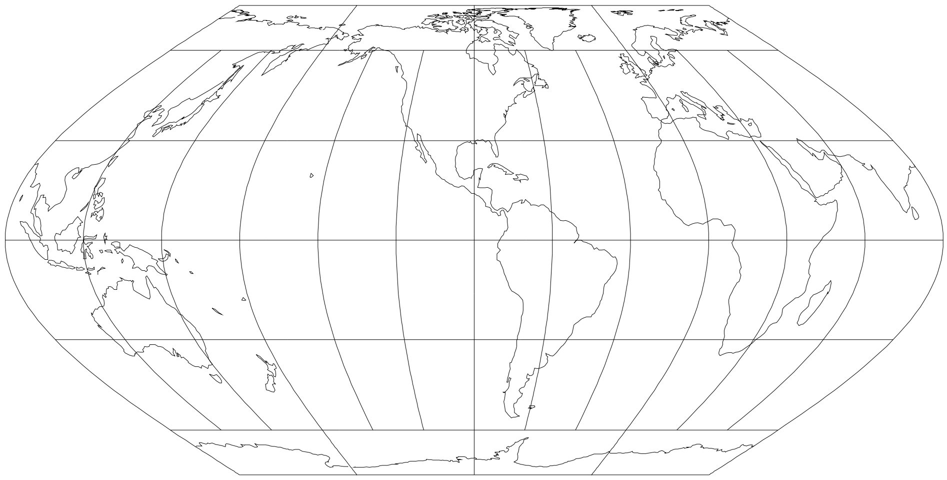

Figure 22: Eckert VI projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=eck6 +lon_0=90w`).

Classifications: Pseudocylindrical, equal area.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=eck6`

Goode Homolosine Projection

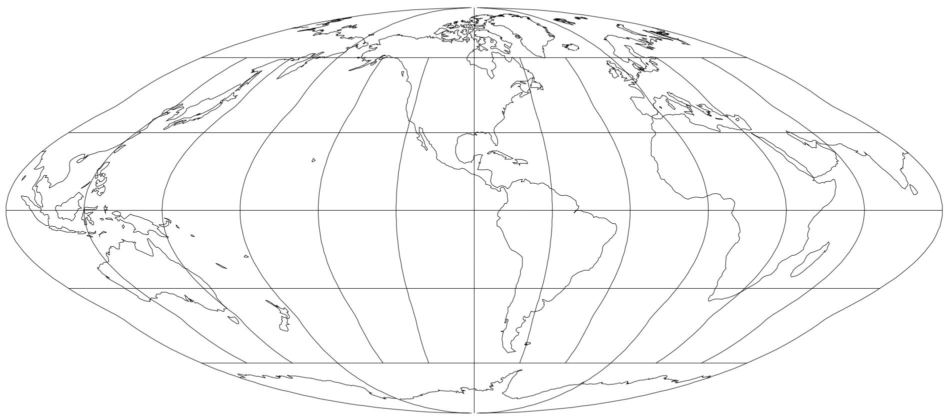

Figure 23: Goode Homolosine projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=goode +lon_0=90w`).

Classifications: Pseudocylindrical. Equal area.

Aliases: Homolosine.

Available forms: Forward spherical projection.

Usage and options: `+proj=goode`

This projection is often used in interupted form and it is a composite projection using Sinusoidal for $|\phi| < 40°44'$ and Mollweide for $|\phi| \geq 40°44'$.

Hatano Asymmetrical Equal-Area Projection

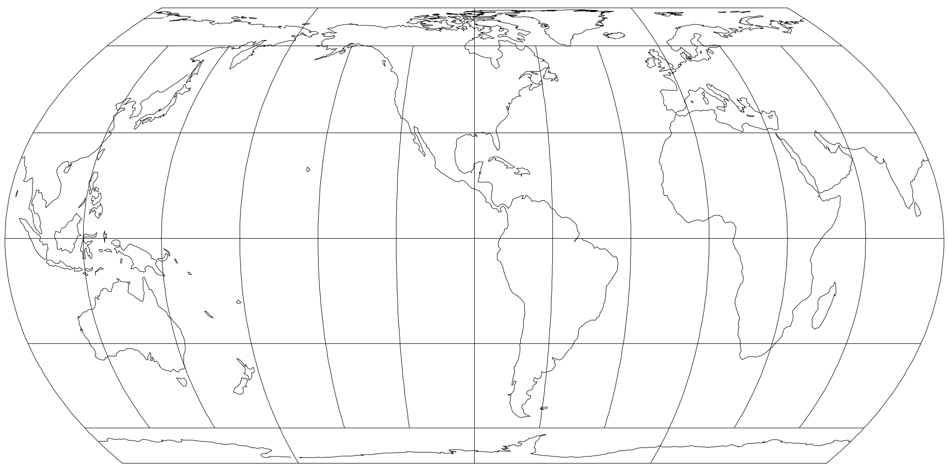

Figure 24: Hatano Asymmetrical Equal-Area projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=hataea +lon_0=90w`).

Classifications: Pseudocylindrical, equal area.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=hataea`

Loximuthal Projection

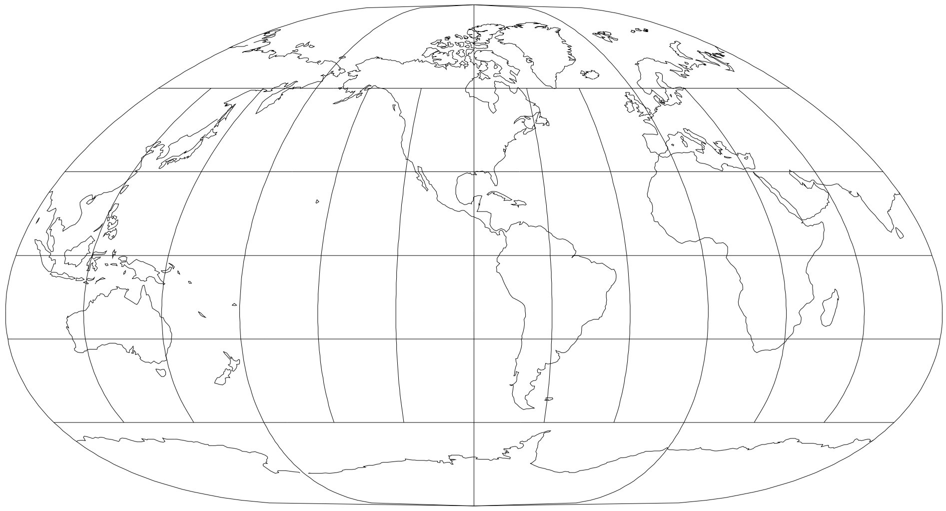

Figure 25: Loximuthal projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=loxim +lon_0=90w +lat_1=40n`).

Classifications: Pseudocylindrical. Neither conformal nor equal area.

Available forms: Forward spherical projection.

Usage and options: `+proj=loxim +lat_1=`ϕ_1

Loxodromes (rhumb lines) from the central point, (λ_0, ϕ_1), are true to scale from this point and have proper azimuth at this point.

McBryde-Thomas Flat-Polar Parabolic Projection

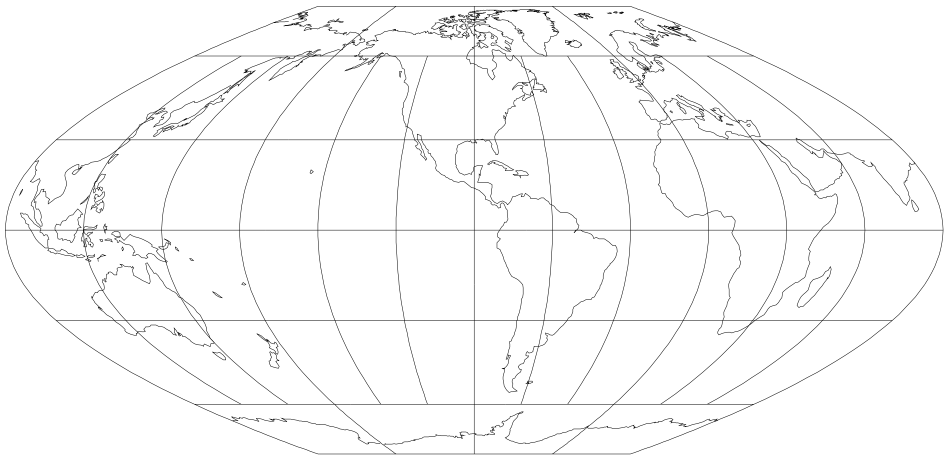

Figure 26: McBryde-Thomas Flat-Polar Parabolic projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=mbtfpp +lon_0=90w`).

Classifications: Pseudocylindrical. Equal area.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=mbtfpp`

McBryde-Thomas Flat-Polar Quartic Projection

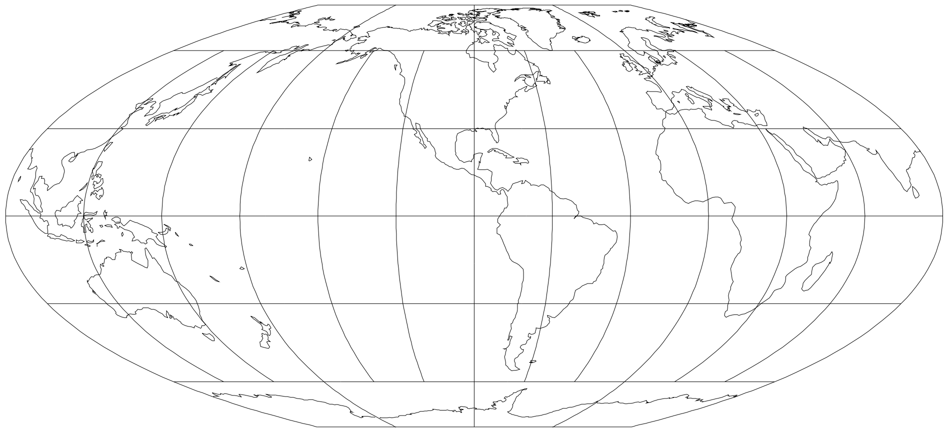

Figure 27: McBryde-Thomas Flat-Polar Quartic projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=mbtfpq +lon_0=90w`).

Classifications: Pseudocylindrical. Equal area.
Aliases: Flat-Polar Quartic.
Available forms: Forward and inverse, spherical projection.
Usage and options: `+proj=mbtfpq`

McBryde-Thomas Flat-Polar Sinusoidal Projection

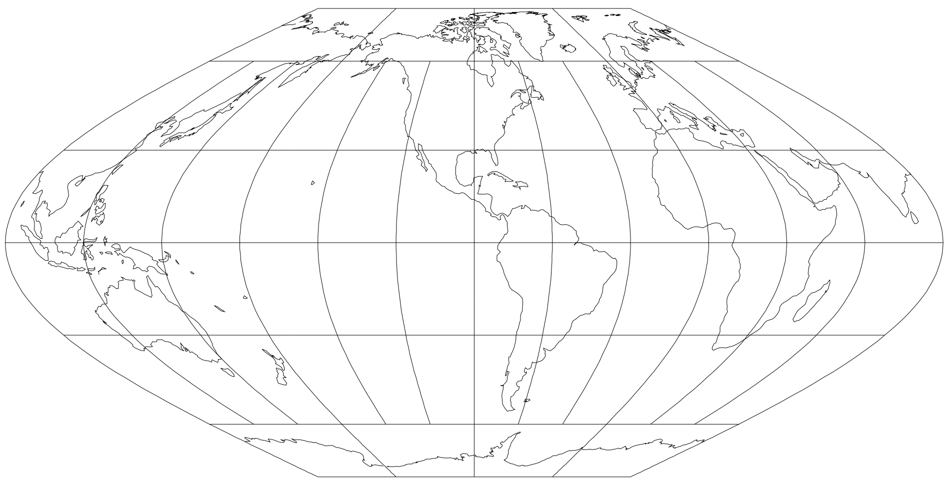

Figure 28: McBryde-Thomas Flat-Polar Sinusoidal projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=mbtfps +lon_0=90w`).

Classifications: Pseudocylindrical. Equal area.
Available forms: Forward and inverse, spherical projection.
Usage and options: `+proj=mbtfps`

Putniņš P'_2 Projection

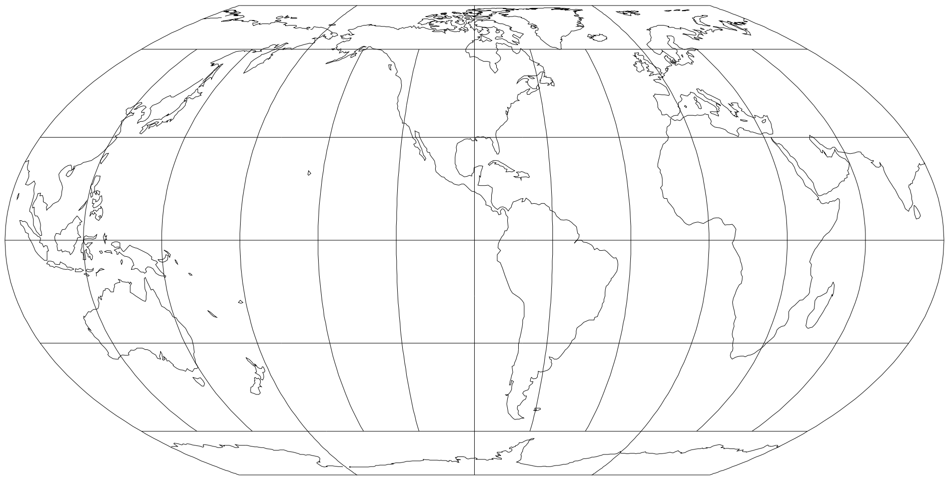

Figure 29: Putniņš P'_2 projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=putp2 +lon_0=90w`).

Classifications: Pseudocylindrical. Equal area.
Available forms: Forward and inverse, spherical projection.
Usage and options: `+proj=putp2`

Putniņš P_5 Projection

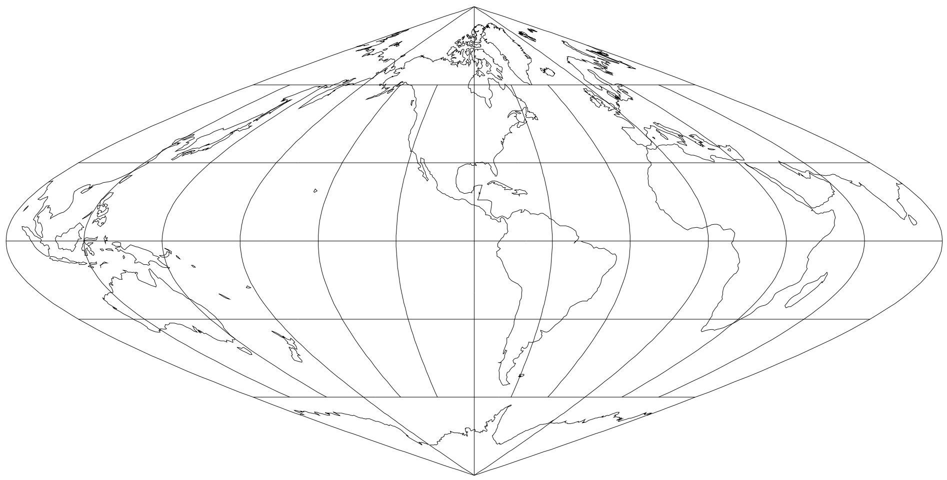

Figure 30: Putniņš P_5 projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=putp5 +lon_0=90w`).

Classifications: Pseudocylindrical. Neither conformal nor equal area.
Available forms: Forward and inverse, spherical projection.
Usage and options: `+proj=putp5`

Quartic Authalic Projection

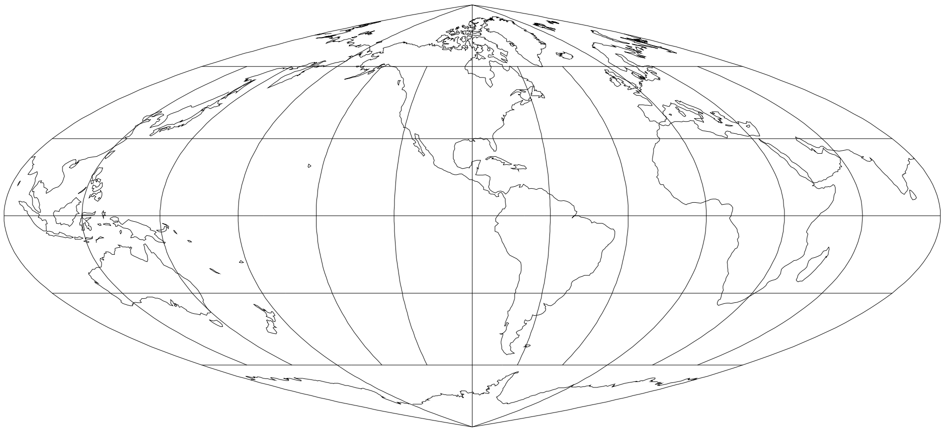

Figure 31: Quartic Authalic projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=quau +lon_0=90w`).

Classifications: Pseudocylindrical. Equal area.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=quau`

Winkel I Projection

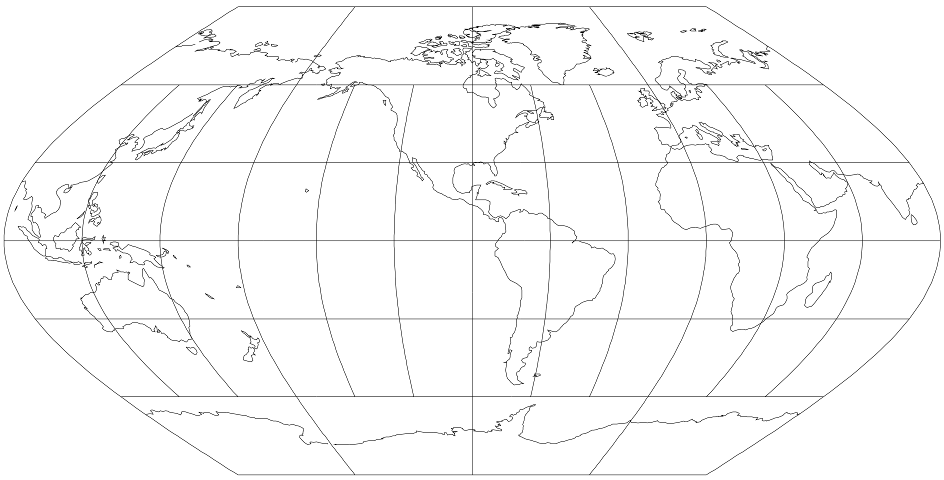

Figure 32: Winkel I projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=wink1 +lon_0=90w`).

Classifications: Pseudocylindrical. Neither conformal nor equal area.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=wink1`

Boggs Eumorphic Projection

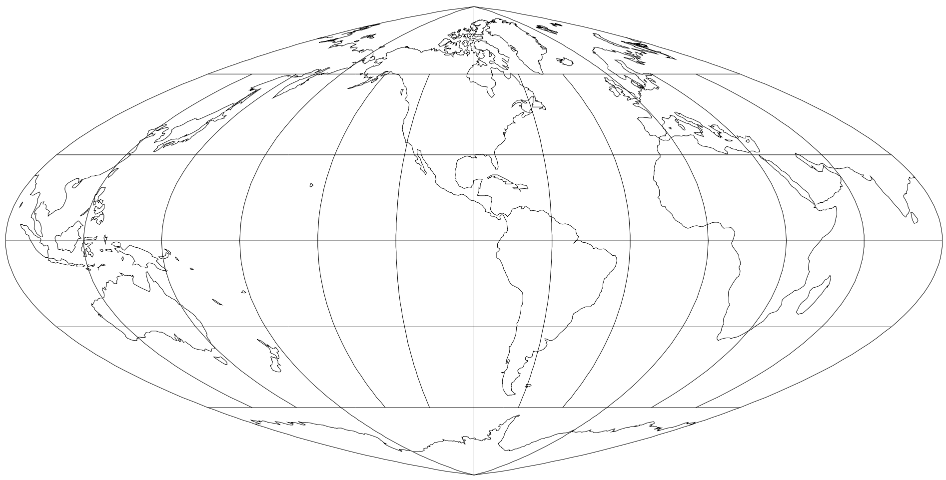

Figure 33: Boggs Eumorphic projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=boggs +lon_0=90w`).

Classifications: Pseudocylindrical, equal area.

Available forms: Forward spherical projection.

Usage and options: `+proj=boggs`

Collignon Projection

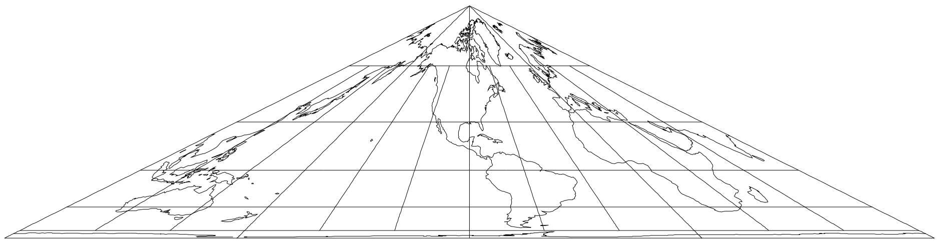

Figure 34: Collignon projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=collg +lon_0=90w`).

Classifications: Pseudocylindrical. Equal area.

Available forms: Forward and inverse, spherical projection.

Usage and options: `+proj=collg`

Denoyer Semi-Elliptical Projection

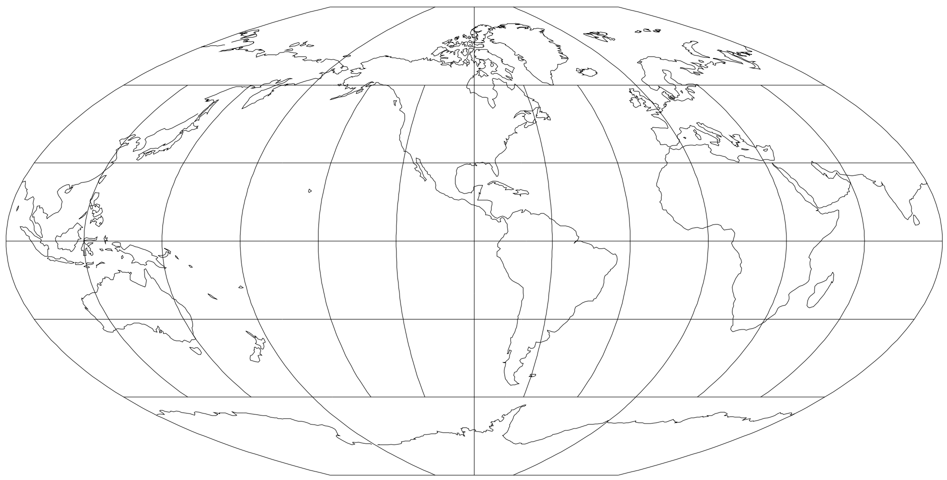

Figure 35: Denoyer Semi-Elliptical projection approximation, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=dense +lon_0=90w`).

Classifications: Pseudocylindrical. Neither conformal nor equal area.
Available forms: Forward spherical projection.
Usage and options: `+proj=dense`

Craster Parabolic Projection

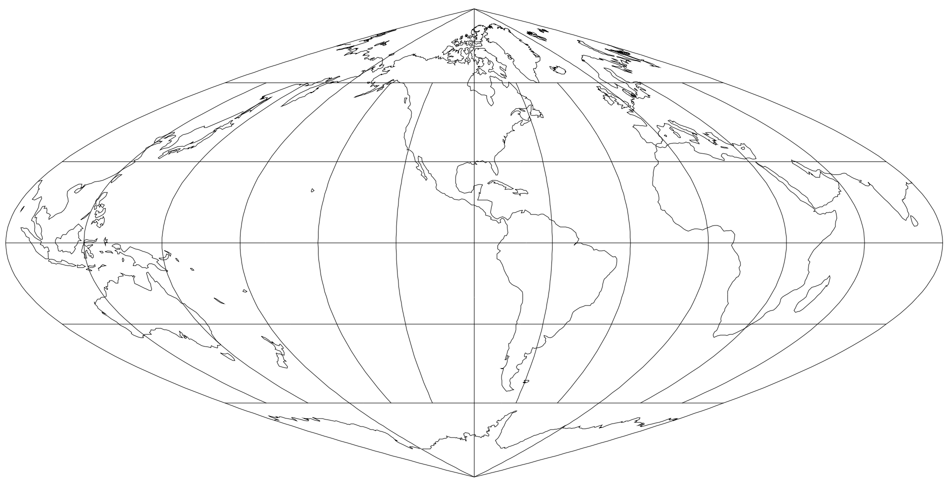

Figure 36: Craster Parabolic projection, with shorelines and 30° graticule. Central Meridian 90° W (`+proj=parab +lon_0=90w`).

Classifications: Pseudocylindrical. Equal area.
Available forms: Forward and inverse, spherical projection.
Usage and options: `+proj=parab`