Projected Coordinate System: Conical Projection

Interact with the Earth projected on a cone tangent at the latitude of 45° N

Watch the animation of the Earth projected on a cone and its unwrapping

The world map created with conical projection
Projected Coordinate System: Conical Projection

Interact with the Earth projected on a cone tangent at $30^\circ$ N latitude

Watch the animation of the Earth projected on a cone and its unwrapping

The world map created with conical projection

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Mathematics behind conical projection
(For details, including inverse equations as well as equations for ellipsoids, see Snyder 1987, OGP 2011, and Weisstein 2011)
For the spherical earth

\[ x = \csc(\sec^{-1} h + \phi) \cos \phi \sin \left( \frac{\lambda}{\sqrt{h^2 - 1}} \right) \]

\[ y = \csc(\sec^{-1} h + \phi) \cos \phi \cos \left( \frac{\lambda}{\sqrt{h^2 - 1}} \right) \]

Where \( x \) and \( y \) are the rectangular coordinates, \( \phi \) is the latitude, \( \lambda \) is the longitude, and \( h \) is the height of the cone.