

# Quick Notes on Map Projections in ArcGIS

- Minimal Distortion
- Distortion is moderate for most of the area
- \* Distortion is minimal in certain directions or at particular points

Adapted from USGS Map Projections poster.

November 2019



Projection	Type	Properties							Suitable Extent				Location			Orientation				General Purpose							
		Conformal	Equal Area	Compromise	Equidistant*	True Direction*	Straight Rhumbs	Interrupted	Shows the entire world	World	Hemisphere	Continent/Ocean	Region/Sea	Large Scale	Equatorial	Midlatitude	Polar/Circular	North/South	East/West	Equal/square	Oblique	Topographic	Thematic	Presentation	Navigation	National agencies	
Adams square II	Modified azimuthal	●						●	●														●				
Aitoff	Modified azimuthal			●				●	●															●			
Albers equal area conic	Conic		●					●			●	●	●		●			●					●			●	
Aspect-adaptive cylindrical	Cylindrical			●				●	●															●			
Azimuthal equidistant	Azimuthal				●	●		●	○	●	●	●	●	●	●	●			●	●		●		●	●	●	
Behrmann equal area cylindrical	Cylindrical		●					●	●															○			
Berghaus Star	Faceted					○		●	●	●													●				
Bonne	Pseudoconic		●					●			●	●			○		○				○	○	○				
Cassini	Cylindrical (transverse)				●							●	●	●		●					●						
Compact Miller	Cylindrical			●				●	●															●			
Craster parabolic	Pseudocylindrical		●					●														●					
Cube	Faceted						●	●	○															●			
Cylindrical equal area	Cylindrical		●					●				●	●	●	●			○				●		○			
Double stereographic	Azimuthal	●				●					●	●	●	●	●	●			●	●	●						●
Eckert I	Pseudocylindrical			●				●	○															○			
Eckert II	Pseudocylindrical		●					●	○															○			
Eckert III	Pseudocylindrical			●				●	●															○			
Eckert IV	Pseudocylindrical		●					●	●													●	●				
Eckert V	Pseudocylindrical			●				●	○															○			
Eckert VI	Pseudocylindrical		●					●	○													●	○				
Eckert-Greifendorff	Modified azimuthal		●					●	○													●	○				
Equal Earth	Pseudocylindrical		●					●	●													●	●				
Equidistant conic	Conic				●			●			○	●	●	●	●			●									
Equidistant cylindrical	Cylindrical				●			●				●	●	●				○									●
Fuller	Faceted						●	●	○													●	●				
Gall's stereographic	Cylindrical			●				●	○															○			
Gauss-Krüger	Cylindrical (transverse)	●										●	●	●	●		●		●		●			●	●	●	●
Geostationary satellite	Azimuthal									●	●	●		●	●	●	●	●	●								●
Gnomonic	Azimuthal					●						○	○	●	●	●			●				●	●			●
Goode homolosine	Pseudocylindrical		●					●	●	○												●	●				
Hammer	Modified azimuthal		●					●	●													●	●				
Hotine oblique Mercator	Cylindrical (oblique)	●										●	●	●	●					●	●						●
IGAC Plano Cartesiano	Modified azimuthal											●	●	●			●	●	●	●	●						●
Krovak	Conic (oblique)	●										●	●		○					●	●		●				●
Laborde oblique Mercator	Cylindrical (oblique)	●										●	●	●	●					●	●						●
Lambert azimuthal equal area	Azimuthal		●			●		●		●	●	●	●	●	●	●			●	●		●	●	●	●	●	●
Lambert conformal conic	Conic	●										●	●	●	●			●		●		●	●				●
Local Cartesian	Azimuthal											●	●	●	●		○	○	●	○							
Loximuthal	Pseudocylindrical			●			●	●	●															○	●		
McBryde-Thomas flat-polar quartic	Pseudocylindrical		●					●	○															○			
Mercator	Cylindrical	●				●	●					●	●	●				○				●			●	●	●
Miller cylindrical	Cylindrical			●				●	○															○			●
Mollweide	Pseudocylindrical		●					●	●														●	●			
Natural Earth	Pseudocylindrical			●				●	●															●			
Natural Earth II	Pseudocylindrical			●				●	●															●			
New Zealand Grid	Modified cylindrical	●										●										●	●				●
Ney modified conic	Modified conic	●										○	●	●		●			●	●	●						●
Orthographic	Azimuthal					●					●	●			●	●	●			●				●			
Patterson	Cylindrical			●				●	●															●			
Peirce quincuncial	Modified azimuthal	●						●	●	●														●			
Plate-Carrée	Cylindrical				●			●				●	●	●				○						○			
Polyconic	Polyconic			●	○			●					○		●		●				●						●
Quartic authalic	Pseudocylindrical		●					●	○														●				
Rectified skew orthomorphic	Cylindrical (oblique)	●										●									●	●					●
Robinson	Pseudocylindrical			●				●	●														●	●			
Sinusoidal	Pseudocylindrical		●		○			●	○		●			●			●					●	○				●
Stereographic	Azimuthal	●				●					●	●	●		●	●	●			●	●				●	●	●
Times	Pseudocylindrical			●				●	●													●	○				
Tobler cylindrical I	Cylindrical			●				●	●															●			
Tobler cylindrical II	Cylindrical			●				●	●															●			
Transverse cylindrical equal area	Cylindrical (transverse)		●					●				●	●	●	●		●					●					●
Transverse Mercator	Cylindrical (transverse)	●										●	●	●	●		●					●					●
Two-point equidistant	Modified azimuthal				●			●	○	○	●	●	●							●		●		○			
Van der Grinten I	Polyconic			●				●	○															○			●
Vertical near-side perspective	Azimuthal					●					●	●	●		●	●	●			●				●			
Wagner IV	Pseudocylindrical		●					●	●														●	●			
Wagner V	Pseudocylindrical			●				●	●															●			
Wagner VII	Modified azimuthal		●					●	●														●	●			
Winkel I	Pseudocylindrical			●				●	○															○			
Winkel II	Pseudocylindrical			●				●	●															○			
Winkel tripel	Modified azimuthal			●				●	●														●	●			