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.

Redlands, May 2020

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Projection	Type	Conformal	Equal Area	Compromise	Equidistant*	True Direction*	Straight Rhumbs	Interrupted	Shows the entire world	Perspective	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	●							●		●	●													●		
Perspective cylindrical	Cylindrical						●		○	●	○														○		
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			●					●		●													●	●		