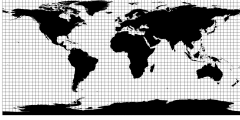


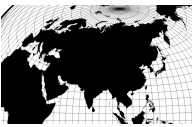




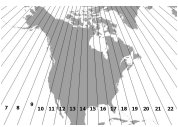



## Common Coordinate Systems

Projection	Properties	Uses
<b>Geographic</b> 	Unprojected data, rather than a projection. Direction is true; all other properties are significantly distorted.	Represents locations on a sphere using degrees of latitude and longitude displayed as Cartesian coordinates. Used for storing unprojected data; not recommended for maps.
<b>Equidistant Conic</b> 	Distance is true along standard parallels and meridians. Other properties are true along standard parallels, but distortion increases away from parallels.	Regional mapping of east-west-oriented areas in the middle latitudes; used for atlas maps of small countries. Best for areas smaller than 30 degrees latitude.
<b>Albers Equal Area Conic</b> 	Areas are proportionally true; shape and distance are distorted with distance from the standard parallels; direction is locally true along parallels.	Regional mapping of countries in the middle latitudes with east-west extents; often used for maps of the conterminous United States. Best for areas smaller than 30 degrees latitude.
<b>Lambert Azimuthal Equal Area</b> 	Areas are true, and shapes are minimally distorted. Direction is true radiating from the center point; distance distortion increases from center.	Large area maps up to a hemisphere in size; useful for maps of continents and large countries.
<b>Lambert Conformal Conic</b> 	Similar to Albers Equal Area, but there is better preservation of shape with minimal area distortion. Local angles are preserved; distance is true along parallels.	Regional mapping of states and smaller countries in the middle latitudes; used for State Plane Coordinate System and many USGS maps. Limited to areas smaller than 30 degrees latitude.
<b>Mercator</b> 	Cylindrical projection. Shapes and local angles are preserved; compass directions are true. Area and distance are increasingly distorted with distance from the equator.	Navigational maps and other maps requiring true directions such as currents or wind directions. Continental and world map applications requiring conformal properties.
<b>Robinson</b> 	Compromise projection with moderate distortion in all properties.	Developed for displaying general and thematic world maps. Only used for world maps.
<b>Web Mercator Auxiliary Sphere</b> 	Shapes and local angles are true; area and distance are increasingly distorted away from the equator.	Commonly used for web maps and data because it fits the world into a square area of $256 \times 256$ tiles. Uses the WGS 1984 datum for ArcGIS Online, Google Maps, and Bing Maps applications.
<b>Universal Transverse Mercator</b> 	A family of coordinate systems optimized for 60 north-south zones around the globe. Minimal distortion within a single zone.	Used for local mapping and large-scale maps within a single zone. Used for USGS topographic maps and by many countries. Also used for some State Plane zones.
<b>State Plane Coordinate System</b> 	Minimal distortion of area, direction, distance, and shape within a State Plane zone.	A family of coordinate systems dividing states into zones and choosing the best projection to minimize distortions. Used primarily for USGS topographic maps and for federal, state, and local regional large-scale mapping.