



Unconventional Cylindrical Projections

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Abstract

In references to map projections, the usual definition of normal aspect cylindrical projection is that meridians of longitude are depicted as equally spaced parallel lines and parallels of latitude as parallel lines perpendicular to the meridian images. These are conventional cylindrical projections. In this presentation, general cylindrical projections, which differ from conventional ones, are investigated, since no equal distance between the displayed meridians is required. These are unconventional cylindrical projections.

It is shown that there are no equidistant cylindrical projections along the parallel, that equal-area and conformal cylindrical projections are always conventional, and that cylindrical projections that are equidistant along the meridians can be conventional and unconventional. Examples of different unconventional cylindrical projections are given.

Most maps are designed to display regions with as little relative distortion as possible, considering the various problems of map projection. However, there also are requirements for maps focusing on a region of interest but including surrounding areas to provide a setting for the central region. The beginnings of research into such maps date back to the middle of the 20th century, and their application reached its peak in the early 21st century. They may be called area cartograms, anamorphic maps, variable-scale maps, focal or multi-focal maps, magnifying-glass maps or fish-eye fashion maps. They can also be produced in unconventional cylindrical projections.

Keywords: map projection, cylindrical projection, conventional cylindrical projection, unconventional cylindrical projection