

Requirements for Implementing Map Projections in GIS and Mapping Software

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Abstract:

Among other requirements, a map projection must have forward and inverse mapping equations for successful implementation and proper use in software. It is useful to have these equations developed for ellipsoidal Earth models, especially if certain properties are intended to be preserved, such as conformality, area equivalence, distance along meridians or parallels, or distance and azimuth from a central point.

This presentation will walk through the requirements for implementing map projections in software and discuss why they are necessary. As an example, we will showcase the redevelopment of the “Spilhaus projection” that was done to correctly implement the projection into ArcGIS products. This talk will be a call upon both creators of new map projections and reviewers of academic papers to ensure that newly published map projections meet these requirements. This will facilitate the implementation of new map projections into mapping and GIS software packages and allow the cartographers who design these projections to have their work recognized more widely.

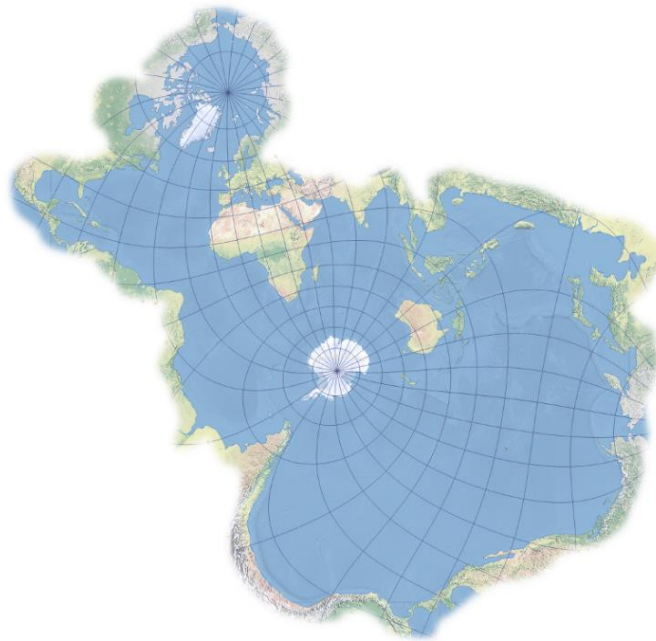


Figure 1. The Spilhaus world ocean map, also known as the "Spilhaus projection."