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Abstract
The geometry of Adriatic Sea basin renderings on 12 portolan charts made from the late thirteenth to the late sixteenth century was compared to a modern map by applying Helmert transformation in order to preserve their initial geometry and by using the same 40 identical points per chart. In the first stage of the research, the geometry of the portolan charts was compared to six selected map projections in order to determine the geometrical 'best fit'. In the second stage, networks of lines plotted on charts were divided regionally and functionally and compared to the 'best fit' map projection to determine their geometric patterns in more detail. The research results showed that Adriatic Sea basin renderings on portolan charts were probably the result of a deliberately applied map projection which was geometrically most similar to the modern conformal cylindrical (Mercator) projection.

Abstract
The final position of the Norwegian–Swedish border was determined in 1751, after challenging negotiations. This paper focuses on central parts of Scandinavia and investigates the role of cartography in the border positioning process. The examination of a wide variety of historical maps before and after the border treaty provides insight into the differing opinions on the border region's shifting affiliation. Other factors that helped to shape the borderline were a turbulent political situation with shifting sovereignty over the area in question, as well as conflicts over valuable resources. The findings indicate that cartographic evidence had an important role in the position of the Norwegian–Swedish border in central Scandinavia. The paper adds to our understanding of maps as a political tool as well as of the role of resources in border processes, and provides new knowledge on how cartography influenced a national border between two countries fighting for land, resources and hegemony.

Abstract
This research upholds the designer's mediatory role in the representation of places and hand drawing as a privileged tool. Given the current technological capacity for an automatic representation of the territory and landscape, one can question if the hand that draws the map is now anachronistic. The hypothesis of hybridism between the landscape observational drawing and the cartographic code is proposed, supported by the historical analysis of maps from the sixteenth century. The resultant anachronistic techniques are systematized as a design strategy, available for use by other authors,

elsewhere. The techniques were tested by drawing landscapes and producing maps of places. It is concluded that the transference of anachronistic techniques is relevant in contemporary maps intended for touristic, cultural and commercial contexts, when wayfinding skills are not essential. As an open source, other authors may use the same strategy, applying different anachronistic techniques, based on their own subjectivity.

Decoupling Slope and Aspect Vectors to Generalize Relief Shading P. 136-149

Patrick J. Kennelly

Abstract

Relief shading is designed to vary the brightness of terrain elements on a two-dimensional map to create a three-dimensional effect. One concern is how this layer can be generalized for use in multi-scale mapping. We propose a methodology that calculates relief shading from slope and aspect vectors, as these layers allow map users to recognize characteristics of the terrain and show consistent trends in spatial autocorrelation with generalization. We adjust the orientation of surface vectors with a mean filter to preserve the structural terrain elements while eliminating landforms of finer detail. To demonstrate its use, we show two examples of generalizing detailed relief shading and compare results to relief shading of the next coarser scale of DEM data available. The generalized maps remove or smooth out minor landforms while preserving more prominent landforms and eliminate issues of data gaps or interpolated data in lower resolution datasets.

A Review of Maps in PhDs: Is Your Map Worth a Thousand Words? P. 150-164

Serena Coetzee, Sanet Carow & Lourens Snyman

Abstract

Maps are useful for providing location context and for graphically presenting spatial relationships. They are often used in PhD dissertations to show the location of a study area or to present scientific results. These maps have to tell their story without the PhD candidate being present. We searched for maps in 575 PhD dissertations, and reviewed 192 maps in 65 of these: 38% were created by PhD candidates, 48% were inserted and 14% were adapted from other sources. Maps prepared by PhD candidates had more design shortcomings than other maps. Nevertheless, the number of problems with maps from other sources suggests that guidelines for including them in a dissertation could be useful. Our results suggest that PhD candidates use GIS software to design maps, but that there is room for improvement to guide users towards appropriate design choices. The results will help to plan support services for PhD candidates at universities.