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**Mapping Mount Kōya, one of Japan's Most Revered Pilgrimage Sites**

P. 4-17

Gabor Lukacs

**Abstract**

This paper describes the earliest surviving hand-coloured manuscript maps as well as later printed maps of Mount Kōya, (高野山, Kōyasan in Japanese), a UNESCO World Heritage site and one of Japan's most revered pilgrimage sites with several hundreds of temples. It was founded 1200 years ago in 816 by the famous Buddhist monk Kūkai, 空海, 774–835, also known as Kōbō Daishi, 弘法大師. Several exhibitions were held recently in Japan and many books published to commemorate the anniversary.

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**Cartographic Style in the First Urban Maps of Cadiz, Spain: A Technique in Transition**

P. 18-41

Gabriel Granado-Castro & Joaquín Aguilar-Camacho

**Abstract**

This article deals with the cartometric analysis of various seventeenth-century urban maps of the city of Cadiz (Spain), from among which the so-called Vista Arámburu and the map belonging to the atlas of the Marquis of Heliche, discovered in the Krigsarkivet (Military Archive) of Stockholm, stand out for their uniqueness. These hitherto relatively unknown documents present evidence of an evolution of cartographic style towards greater topographic accuracy and hence cannot just be considered as simple drawings. In this seventeenth-century period of transition, the cartography of the city evolved from sixteenth-century aerial-view perspectives to the exhaustive planimetric maps of the eighteenth century, made by Spanish and French Military Corps of Engineers. These documents hold great historical value, not only due to the importance of Cadiz during the Modern Age but also because these maps constitute a graphic testimony of the fortification and growth of the city in this period.

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**Smart Cartographic Background Symbolization for Map Mashups in Geoportals:  
A Proof of Concept by Example of Landuse Representation**

P. 42-58

Nadia H. Panchaud & Lorenz Hurni

**Abstract**

Geospatial data are now widely available to the general public thanks to geoportals and online mapping platforms. However, creating a map involves more than just combining data layers. Thus we develop cartographic functions for geoportals to support better visual hierarchy in user map mashups. This includes a couple of preparatory steps followed by a smart cartographic background symbolization derived from the original layer style. We evaluate different approaches to background symbolization: greyscale, desaturation, and smart background. The different background symbolization methods are analysed with two concrete map examples and evaluated with a survey. The smart background symbolization developed in this work improves the visual hierarchy of the map mashup by reducing the visual importance of the background layers.

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**Abstract**

Crisis maps and visualizations utilized routinely by international agencies, humanitarian organizations, and non-governmental organizations for aid and relief activities commonly require complex sets of map symbols. However, effective map symbology for humanitarian relief purposes entails several challenges, including consideration of the following: (1) taxonomy development, (2) symbol design issues, (3) promulgation and sharing of map symbols, and (4) standardization of symbols within and among organizations. This paper discusses these key challenges to the design and use of crisis map symbology through a review of the cartographic literature as well as results collected from a survey targeted at humanitarian organizations from around the world. The survey was designed to gather information on current symbology design and use practices in order to understand common challenges. Survey results confirm agreement in the persistence of these four primary symbology challenges, especially the importance of intuitive symbol design. Respondents disagreed most about the adequacy of current crisis map symbology standards as well as the ease in which standards may be implemented within and across organizations. Survey results suggest the need for expert systems designed specifically for symbology design to support humanitarian relief activities.

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**Abstract**

This paper reports on the results of an empirical evaluation that aimed to define the effectiveness and efficiency of different visual variables in depicting the Space–Time Cube's (STC) content. Existing STC applications demonstrate that the most used visual variables are size and colour hue. Less is known, however, about their usability metrics. The research sets design criteria for STC contents, such as space–time paths, based on the cartographic design theory. The visual variables colour hue, colour value, colour saturation, size and orientation have been applied in two different use case studies. Besides, to support the three-dimensional visual environment, depth cues such as shading and transparency were considered too. User tests have been executed based on real-world problems with particular attention for the visualization strategy and data complexity. The outcomes revealed the most efficient and effective visual variables to represent data of various complexities in the STC.

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