Combining digital technologies and traditional artistic procedures for the compilation of cartographic panoramas

Chrysoula Boutoura*, AngelikiTsorlini,*, Vasoula Nikolaidou***

* Aristotle University of Thessaloniki, Department of Cadastre, Photogrammetry and Cartography, School of Rural and Surveying Engineering - Thessaloniki, Greece
**ETH Zurich, Institute of Cartography and Geoinformation - Zurich, Switzerland

Extended Abstract. Apart from their scientific hypostasis, maps include a number of aesthetic elements, a number of embellishments which not only help for making the map particular and attractive, but also facilitate the very important function of reading and understanding. Every map helps the user to perceive space and the phenomena, geometric, physical or human relative with it, while it can be a piece of art, showing the changing consensus of people and cultures about the world.

Panoramic maps were always to be considered exactly at the line where the borders of cartography and art meet. Panoramas, from Leonardo Da Vinci's first approach (*Figure 1*) till now give a more realistic view of the third dimension (*Figure 2*). The development of technology gave new methods on producing 3d cartographic views, giving the opportunity of perceiving space better.

Greece and Mediterranean countries with several millennia of history and long beautiful and steep coastlines, where a lot of monuments of different historic periods like castles, monasteries and whole byzantine cities are settled, have always been favorite theme for panoramic maps by artists and cartographers through the ages (*Figure 3*).

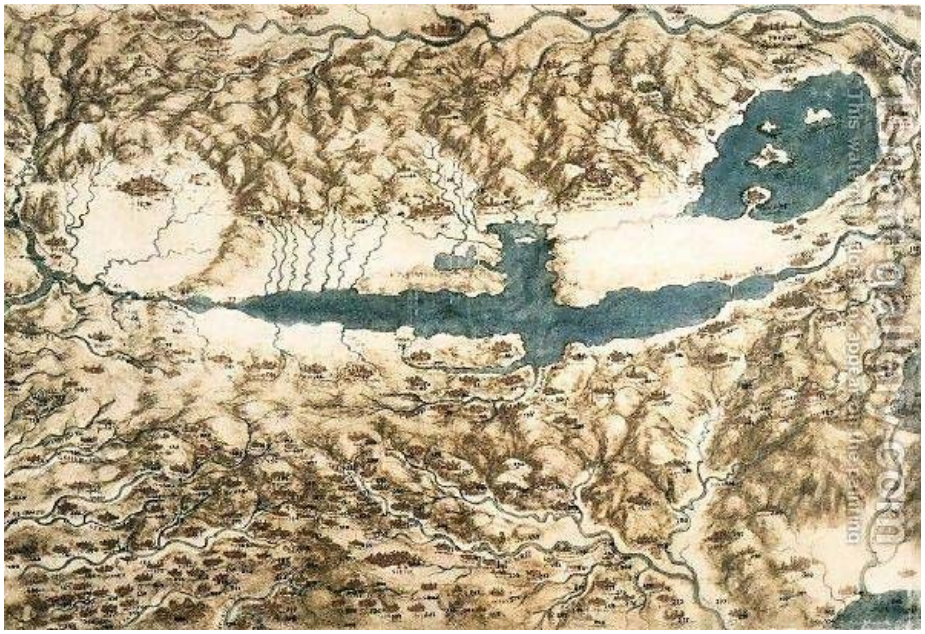

Figure 1. Map of Tuscany and the Chiana Valley, Leonardo da Vinci, 1502. (Source: Royal Library Windsor)

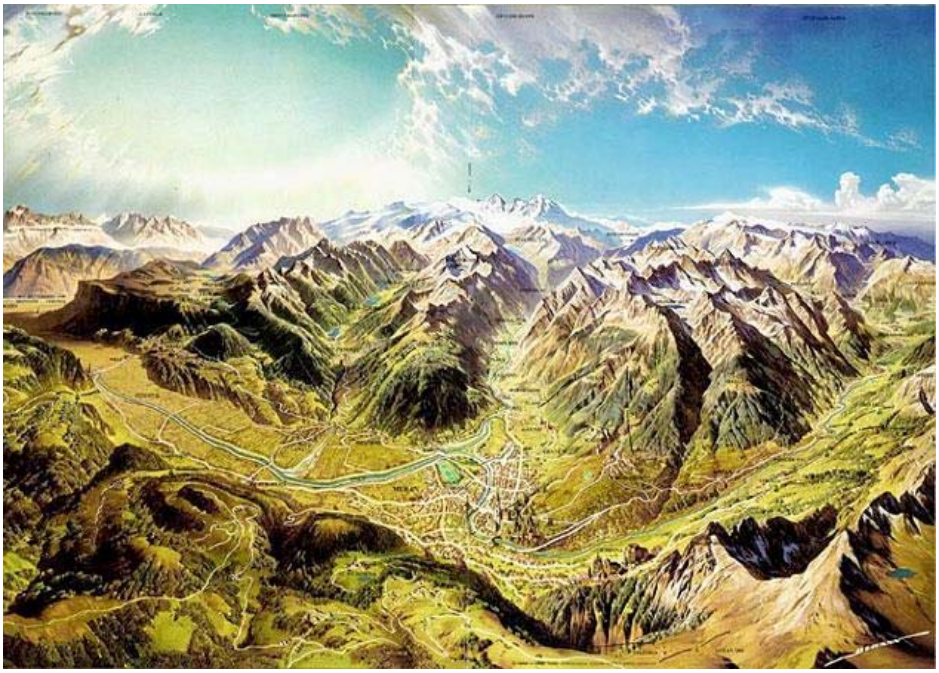

Figure 2. Panorama of Merano, H.C. Berann – hand painted panorama map. (Source: Cartography and Geovisualization Group, Oregon State University)

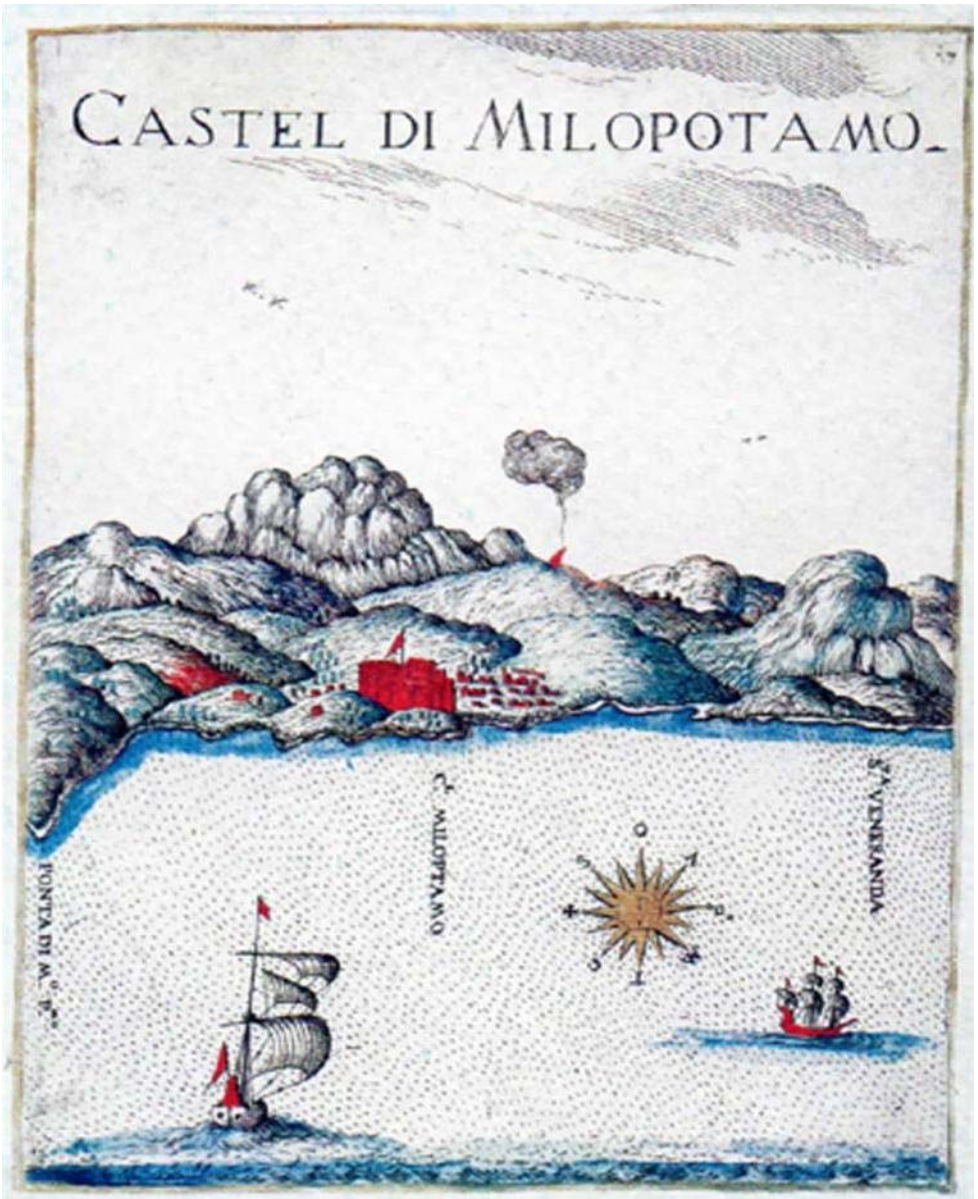

Figure 3. Castel di Milopotamo, Marco Boschini, 1651, Venezia. (Source: Gennadius Library)

Mount Athos, the Holly mountain, is depicted in many panoramic maps, where apart the geometric content always there is an artistic-religious component (*Figure 4, 5)*.

Figure 4. Map of Mount Athos, P. Belon, 1553. (Source: Gennadius Library)

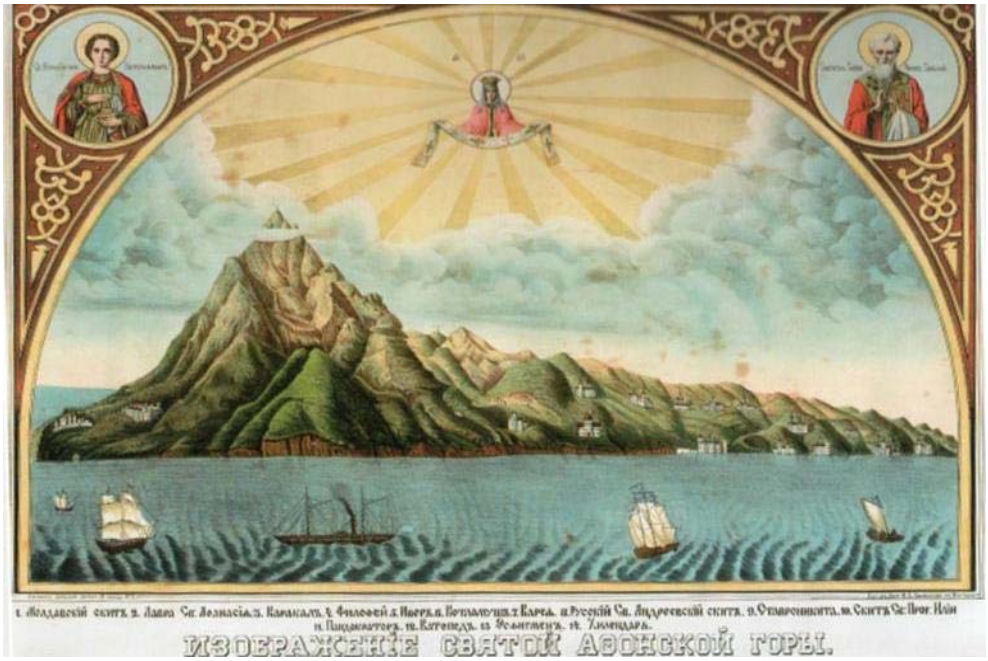

Figure 5. Panoramic map of Mount Athos and the monasteries, 1873, Odessa. (Source: Mount Athos Map Library)

The main concept of this work is to use fully digital cartographic technologies in order to produce accurate panoramic 3d views of the island of Cyprus and especially mount Troodos (*Figure 6*), experimenting digitally on parameters of shaded relief, such as sun height and azimuth, sun intensity and z-scale as well as color palettes for height variation, trying to have an artistic result (*Figure 7)*.

As a second approach, using the main 3d shaded relief depictions of mount Troodos in gray scale, an attempt to transform it to a painting artistic product by hand was made, using watercolors and the main rules of painting. The results are very interesting and can be a real good part of the concept of combining cartography and art, keeping the geometry and cartographic accuracy both in cooperation with basic artistic procedures, with a really impressive result (*Figure 8*).

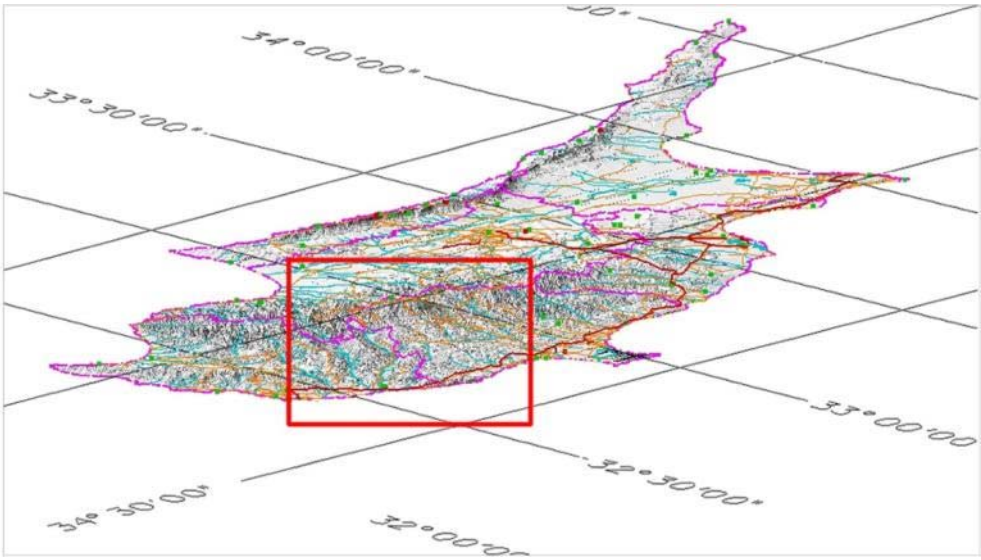

Figure 6. Cyprus, the southwest view of the island.

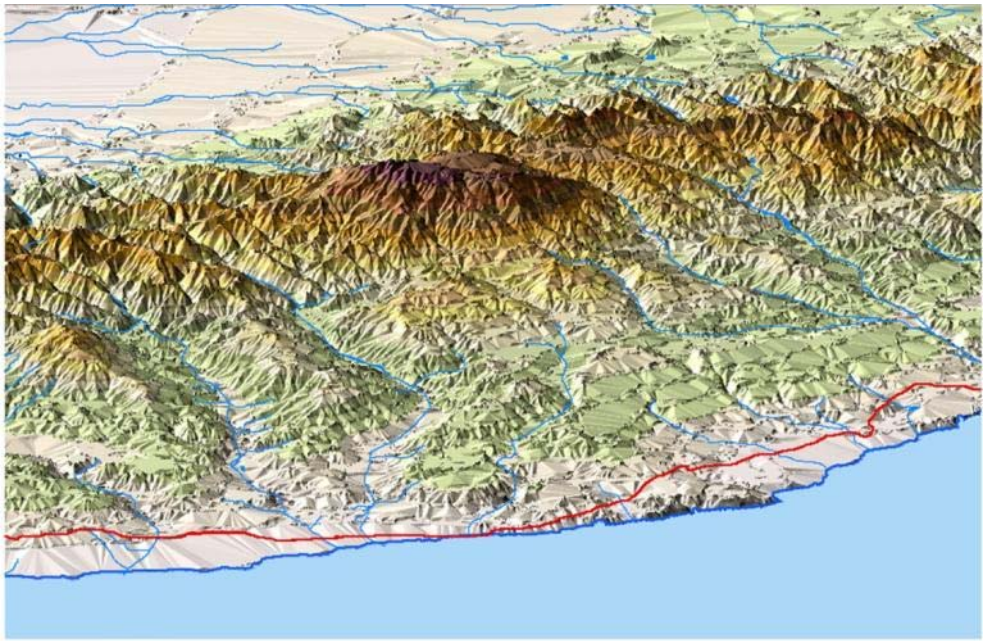

Figure 7. Mount Troodos, Cyprus - digital production using automated shaded relief mapping techniques.

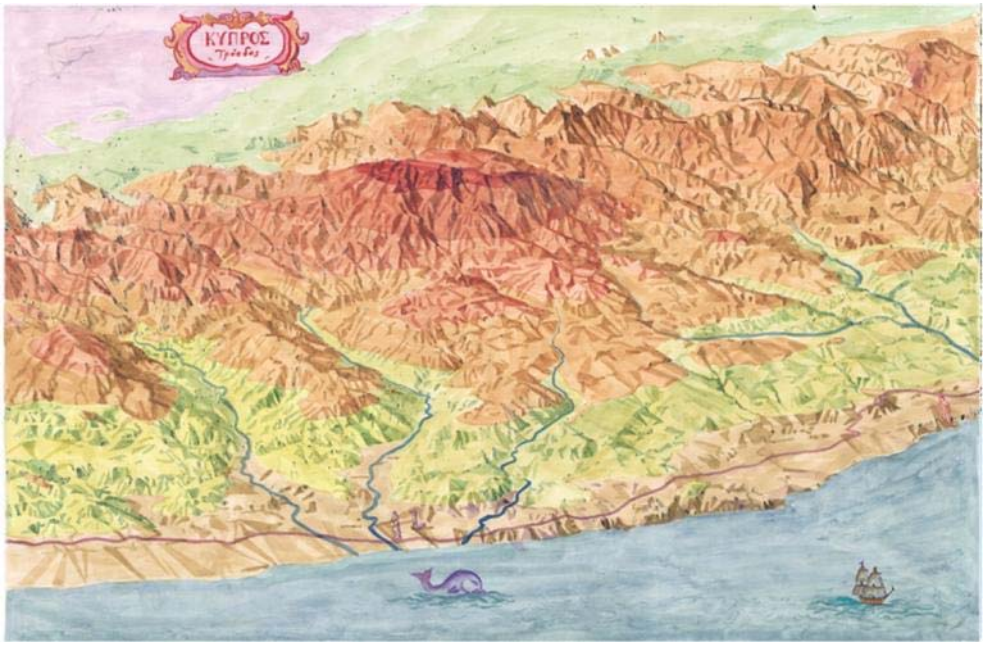

Figure 8. Mount Troodos, an artistic approach with manual painting over digital background.

Keywords: cartography, digital cartography, painting and color palette, panoramic map, shaded relief

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