



Historical maps georeferencing and examination the development of Ljubljana

T. Podobnikar (1,2,3) and P. Lamovec (1)

(1) Scientific Research Centre of Slovenian Academy for Sciences and Arts, Institute of Anthropological and Spatial Studies, Ljubljana, Slovenia (tp@zrc-sazu.si), (2) School of Environmental Sciences, University of Nova Gorica, Nova Gorica, Slovenia, (3) Institute of Remote Sensing and Photogrammetry, Vienna University of Technology, Vienna, Austria

Historical maps comprise a lot of inherent information on natural environmental and anthropogenic changes. They are commonly the most important database for various spatial analyses of the land use as well as historical landscapes, urban development, influences of the economy development, toponyms changes, etc. Enhanced spatial oriented studies in geographical information system (GIS) require georeferenced data sets recorded in layers. This approach is commonly sufficiently applied to contemporary data, but more seldom for older spatial data.

Cartographical methods have varied widely in time and space. The most important and complex part for using historical spatial data is its acquisition, including homogenisation, and the analysis itself. Major drawbacks are uncommon map legends, different cartography techniques, and poor knowledge of projections used. Methods for effective georeferencing of the maps from 17th century are proposed and described, as well as quality control techniques for the urban area of Ljubljana, Slovenia case study.

The applicability of the georeferenced historical maps is explored with the principles of time series analysis in comparison to contemporary spatial data sets. The studied applications were changing of the river course of Ljubljanica River, and observing the changes due to developing of railways. The results show generally a high quality of the historical maps in contrast to contemporary data sets, and high value of their applicability for the urban studies. The proposed results can be used for a more effective planning and development of our society.