
Plain cartography – web maps for visually impaired and elderly people

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Abstract:

Governmental services are being digitalized rapidly, and many European countries are currently implementing their eGovernance strategies. Although digitalization in general lowers the barriers between governance and citizens, there is also a significant risk that where a section of citizens is concerned, the barriers actually get higher. eGovernment services rely mostly on visual user interfaces, but globally approximately 1.3 billion people have some form of visual impairment. Furthermore, societies around the world will face the challenge of demographic transition, where most people are expected to live longer than 60 years and by 2080 almost 30% of the EU-28 population may be over the age of 65.

In our study, we propose a complementary approach to the Web Content Accessibility Guidelines 2.0 for accessible spatial communication, where the content of web maps is optimized for people with abnormal eyesight and possibly degraded cognition. By defining plain cartography, we set the design principles for simplified digital maps (Figure 1) by taking how maps are seen into account and how they are understood by these special groups.

We demonstrate the implementation of design principles in the Plain Map series produced by the National Land Survey of Finland and summarize the results of a usability test. Based on these results, the need of plain cartography for the visually impaired is high. In general, the feedback of the Plain Map series was very positive, and maps designed with increased clarity and high-contrast colors were seen much better than regular background maps. The implementation of the presented principles for generating plain map series is a small effort for National Mapping Authorities (NMAs), but it has an enormous impact through the improved accessibility of background maps in eGovernment services.

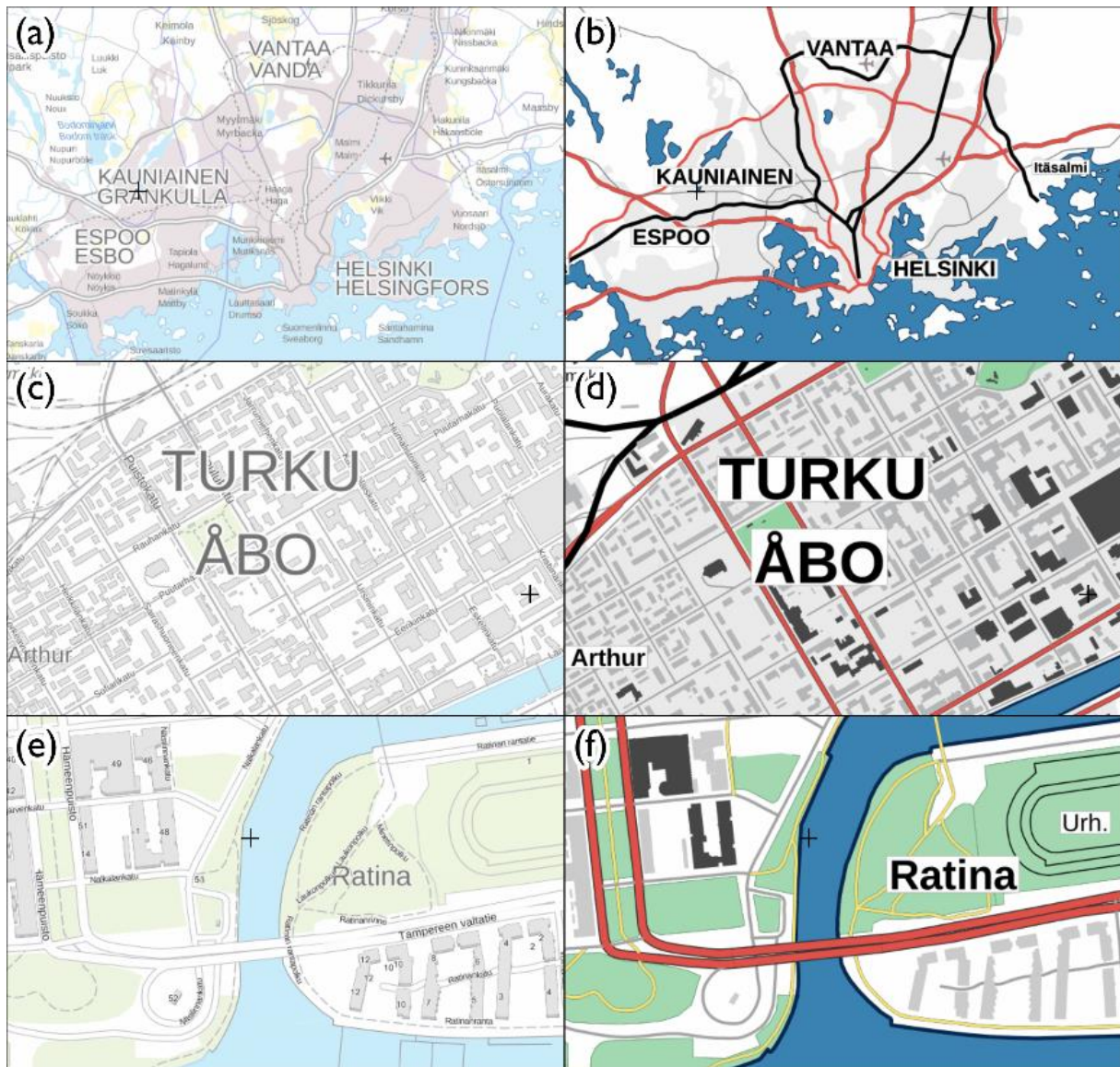


Figure 1. Examples of three scale levels of regular background maps (a, c, e) and corresponding plain maps (b, d, f) by the National Land Survey of Finland.