

## THE CARTOGRAPHIC VISUALIZATION OF URBAN SOUNDS

by Anna-Lena Kornfeld, 2008

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Although acoustic emission and exposure on city dwellers are ubiquitous in modern cities nowadays, urban sounds are highly neglected in spatial scientific analyses and in graphic presentations of our built environment until now. It is a matter of common knowledge that noise exposure strongly increased in the last decades and became a well-known ecological, social and medical problem in metropolitan areas. Talking about disturbance of our ecological system, encouragement of social segregation and medical surveys documenting serious damages to the human body in cities with high noise levels, it is remarkable that beyond technical measurements and public noise guidelines the qualitative influence, correlation and interaction of acoustic parameters and our urban environment have been practically disregarded, yet.

The awareness of this survey is to attach importance and attention to the acoustic geography of cities and to analyze the spatial reference of acoustics in urban phenomena. In this context it is necessary to create an appropriate and effective instrument to document and communicate the spatial component and reference of urban sounds. To accentuate and display the spatiality of city acoustics, methods of traditional, digital and multimedia cartography as well as the integration of characteristic audio sequences in common 3D city models (auralization) are intended to be incorporated into the concept of an urban sound cartography, underlying the overall idea of an audio cartography. Some of these prototype concepts and visualization layouts will be introduced during the workshop.

Urban sound cartography is based on both subjectively interpreted acoustic phenomena and technically measured acoustic data. Furthermore, socioeconomic and geographic information are taken into account and are correlated with the acoustic occurrences. The input data for the cartographic visualizations range from sound source differentiation, distance, dominance, distribution, etc. as well as population density and meteorological data. All these acoustic and non-acoustic variables shape directly or indirectly our urban environment and are therefore to be considered as an essential part of the Digital City. Nevertheless, the incompatibility of senses challenges traditional cartography and geovisualization in representing our sonic environment in the cities and this research project is still an ongoing work in progress.

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