

Cartographic aspects of processing, visualization and publication of emotional mapping data

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Abstract:

Emotional mapping has become an important tool for capturing subjective spatial perceptions and supporting inclusive urban planning. However, despite its growing adoption, significant cartographic and methodological challenges persist in transforming heterogeneous, perception-based inputs into structured, interoperable, and reusable spatial datasets. This paper addresses these challenges by focusing on the cartographic aspects of processing, visualizing, and publishing emotional mapping data.

Building on long-term empirical experience with participatory mapping projects in the Czech Republic, including case studies from Prague (Pánek et al., 2021), Ostrava (Pánek et al., 2019; Pánek et al., 2025), and Olomouc (Pánek, 2019; Květoňová et al., 2025), the study draws on datasets comprising tens of thousands of spatial records collected through both digital and analogue approaches. These data represent subjective and often ambiguous spatial expressions (points, lines, polygons, and textual comments), which require careful harmonization, classification, and generalization before they can be meaningfully visualized and shared.

The research identifies key cartographic challenges across three main phases: (1) data processing, including the standardization of diverse geometries and semantic categories; (2) geovisualization, focusing on appropriate symbolization, aggregation methods, and the representation of uncertainty in emotional data; and (3) publication, addressing issues of interoperability, metadata, and integration into open data infrastructures such as municipal geoportals. Particular attention is paid to the risk of oversimplification when visualizing subjective phenomena and to the need for cartographic techniques that preserve data richness while ensuring usability.

The paper demonstrates that the effective transformation of emotional mapping outputs into open spatial data requires not only technical solutions but also deliberate cartographic design decisions. By proposing a structured workflow and highlighting best practices, it contributes to bridging the gap between participatory data collection and its long-term reuse in planning and governance. Ultimately, it argues that cartography plays a crucial role in enabling emotional mapping data to become a sustainable component of spatial data infrastructures and evidence-based urban decision-making.

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