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# Representing ambiance: Practices of sound mapping as potential models

Conor McCAFFERTY

Recomposing the City Research Group – Queen’s University Belfast, Northern Ireland, cmccafferty06@qub.ac.uk

**Abstract.** *This paper explores collaborative, co-created urban sound maps from three cities: Belfast, Northern Ireland (the Belfast Sound Map), Montréal, Canada (the Montréal Sound Map) and Stockholm, Sweden (the Oljud Sthlm sound map). The paper explores a method of analysing sound maps in terms of the spatial attributes and typologies they represent. Suggestions are made as to how the participatory model of sound maps might be useful in the context of representing ambiance.*

**Keywords:** *participation, representation, sound mapping, web mapping*

## Introduction

Sound mapping projects based on field recording have proven popular in recent years, produced by academic institutions, museums and independent enthusiasts alike (Carlyle 2014, Ouzounian 2014, Waldock 2011). Perhaps due to sound maps’ heterogeneity and unpredictability, their application in urban analytical contexts is under-explored. In my research, I am interested in how sound maps change our understanding of architectural and urban space. How are different types of urban and architectural space represented in sound maps? How might structuring concepts such as Peter Cusack’s ‘sonic places’ be represented in sound maps? (Cusack describes a ‘sonic place’ as a ‘small sonic locality in a city that is sonically coherent enough to be studied as such’ – see Lappin and Ouzounian, 2015.) In this paper, I present an analysis of three sound maps, examining some of the spatial attributes of their contents, and exploring how established sound mapping practices might provide useful models for participatory research into urban ambiances. I will first briefly discuss some contextual aspects of sound mapping, and then introduce a method and a selection of results for three sound map case studies, with some discussion. I will conclude with some discussion of analytical applications of sound maps and their pertinence for ambiance research.

## Sound Mapping: Context

Sound maps are heterogeneous in format and scope. Several web-based sound maps are global in reach, such as *radio aporee* (Noll, 2006-ongoing). Others, like *Favourite Sounds* (Cusack, 1998-ongoing), have sub-projects in different cities, while many are dedicated to particular individual cities, including the three projects under discussion in this paper. In their openness to interpretation and the range of their content, sound maps offer a creative counterpoint to quantitative, statistically generated

noise maps. Many sound maps, including those discussed here, enable and elicit participatory engagement in urban sound environments, encouraging reflection and discourse on everyday sonic urban experience.

Sound mapping is not unproblematic. Sound maps present a mono-sensory engagement with environments, and are thus simplified representations of complex environments. As Signorelli notes, they do not adequately 'highlight the immersive and multimodal experience of the urban environment' (Signorelli 2014, p. 158). Since the content of most web-based sound maps is drawn to the map using static markers, the traversal of sequences of space is not easily illustrated in this mode of representation. The aims and methodologies of sound maps are often ambiguous, and content is not consistent or easily replicable.

Yet, sound maps prioritise actual auditory experience, in contrast to quantitative, objectifying practices of noise mapping (EU 2002). Sound maps are sites of critical listening – though we must remember that there is not one 'listening'. Listening intersects with, and is deeply influenced by, cultural and socio-political concerns (see, for instance, Birdsell 2012 and Thompson 2002). Nelson proposes an 'ecological' paradigm of sound and listening: 'sounds are not just there for the taking, they have to be identified – constructed even – in an interplay between the phenomenon of the sound and the phenomenon of the listening' (2014, p. 15). In this way, sound maps construct, or afford the construction of, complex representations of urban space and sound.

It is also important to recognise the dynamics of web-based social engagement driving these sound mapping projects. Sound maps provide a participatory mechanism for examining urban sound on the basis of collective contributions. While many sound maps are the work of individuals or small collectives, the three projects under discussion here offer open access for anyone who wants to participate, regardless of experience or ability. The geographers Elwood and Leszczynski find that such openness is common among new spatial media projects, prioritising 'a politics of witnessing' over 'scientific or officially authorised modes of legitimation' (2013, p. 555). Sound maps rarely specify any particular preconceived output (other than audio recordings); they do not exhibit any particular (visual) analytical framework. With this in mind, what kinds of urban spatial knowledge do sound maps present?

## Case study method

The case studies for this paper are based on the artifacts (i.e., the geotagged, time-stamped audio recordings plus related data, such as text descriptions and photography) from three sound maps. The data were collected on 25th April 2016. The *Belfast Sound Map* (Rebelo et al., 2012 – ongoing) contains 217 artifacts from 115 contributors; the *Montréal Sound Map* (Stein and Stein, 2008 – ongoing) contains 383 artifacts from 119 contributors; and the *Oljud Sthlm* map, a sound map of Stockholm (Franzen and Lidbo, 2008 – ongoing) contains 57 artifacts from 24 contributors. Artifacts reference mobile soundwalks as well as stationary fixed-point recordings. In order to examine how urban (sound) spaces are represented in these

sound maps, it is necessary to reclassify the data with respect to basic spatial attributes typically not included in uploads by contributors. Reviewing the audio material and associated metadata, I have coded each artifact based on: (1) whether it depicts exterior or interior space, or both, (2) the open space/building type or types represented and (3) the time of day represented, organised by day, evening and night. The open space typology used is based on a Scottish typological framework (see Scottish Government 2008), while the building typology is self-developed.

## Mapping sound spaces

Reclassifying the data from sound maps as described above<sup>1</sup>, we find that the *Belfast Sound Map* features 24 types of open space and 23 building types. In the case of *Oljud Sthlm*, there are 12 open space types and 13 building types. The *Montréal Sound Map* features 37 open space types and 25 building types. The majority of recordings in all three sound maps are from daytime (7 am-7 pm): in Montréal, there were 257 daytime artifacts, 61 evening artifacts and 65 night artifacts. In Belfast, these figures are, respectively, 172, 20 and 25; and in Stockholm, 46, 7 and 4.

**The street** is the single most commonly featured typology, appearing in 55 artifacts on the Belfast map, 156 on the Montréal map and 20 on the Stockholm map. These artifacts range from busy city centre pedestrian thoroughfares recorded in daytime, to quiet suburban residential streets at night, with a large variation between. The sound maps bear witness to public and private lives playing out on the street. Commonly, recordings are made from inside a house, simply listening to the street outside in silence. On the sound maps, the street appears as an extension of home for many people, or as a route to significant places, or as the stage for flâneurs and soundwalkers; it figures as an important site of performance and of protest.

Public parks, natural greenspaces and sources/bodies of water feature frequently in all three maps combine: **green and blue spaces** form the most commonly contributed spatial typologies overall. In Belfast, for example, the ‘green corridor’ along the River Lagan develops from a natural greenspace in the south of the city into a set of hard landscaped civic spaces in the city centre. It is a sonically diverse route, with several recordings marking the river towpath and urban waterfront along the map.

Urban **transport networks** hold a fascination for contributors to all three sound maps. Artifacts document not only trains passing on railway tracks and the interior spaces of railway stations, bus stations and metro stations (the most common interior space on both the Montréal and Stockholm maps), but also the insides of moving buses, subway trains and trams. Background traffic noise is a perennial presence in urban recordings, but is only the particular subject of a small number of artifacts.

The effects of **seasonal weather** feature prominently in Montréal: the onset of winter draws curious recordists and betrays the ‘always summer’ effect of Google

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1. See my blog at <https://mapsandmicrophones.wordpress.com/> for detailed datasets.

Map imagery (see Elwood and Mitchell, 2015, p. 148). We can hear several instances of snowplows on streets. Ice crunches under the weight of footsteps. Public parks (which appear green on the map and in the satellite imagery) are converted to ice rinks for skating and hockey games. Sound mappers also bear witness to urban sites in **moments of change**: a construction site is presented in audio recordings and photographs, dated some years back, while the Google Map, moving in step with urban transformation, already displays satellite imagery of the newly completed building.

There are peculiar **vantage points**, stumbled upon by chance: a recordist stops to listen in leftover spaces by the intersection, or in an abandoned factory. On the street, sounds emerge from a factory, or from an open apartment window as a violinist practices. We find interior spaces coloured by the exterior: the tunnel whose particular acoustic is activated only when a train passes along the tracks overhead. It is possible to find oneself listening to the everyday atmospheres of theatres, churches, apartments and office stairwells. Or, thanks to recordists' ingenuity, we can listen from inside postboxes, sewers, discarded pieces of piping and other generally inaccessible elements of the urban environment.

We hear many **musical events** on sound maps, whether intentionally performed or effected by natural energies: the gurling of water under bridges, the whistling of wind through fences. Both the Stockholm and Montréal maps feature numerous recordings of the complex rhythms of subway station escalators. Yet the meaning of some artifacts is only revealed when read in combination with imagery. A 39-second sound recording from Oljud Sthlm, for example, seems to depict something like white noise: it becomes vastly richer when accompanied by an image from the same location, a large decorative fountain in the centre of the Karlaplan urban park.

## Sound Mapping: Problematics and Potentials

While it is difficult to generalise from such a heterogeneous dataset, a number of themes do emerge when considering these data.

Sound maps prize **representation and participation above comprehensiveness**: plural perspectives are brought to our attention and we are immersed in the particularities of everyday urban space, as witnessed by others. Sound map artifacts range in focus from 'typical' urban sound environments to micro-scale, intangible sonic events that are difficult to consider or account for in urban planning. Taken as combined pieces, sound maps allow us to move rapidly between rural and urban space, tranquil and chaotic soundworlds, anthroponic and biophonon sound sources, between high velocity moving vehicles and stationary objects. Through our own listening interaction, we can build a complex – if incomplete – portrait of the city. Stored within these sound maps are immersive listening opportunities: while the map steadfastly retains a static top-down perspective, our encounter with urban sound space is at the human scale, at 'ear level': below, beside, atop, within, between, in motion or still.

Sound maps are built through an accumulation of independent user contributions, and thus, there remains a task of analysis to piece together **comprehensive representations**. For one thing, which sound spaces or sonic places are under-represented or still missing from the maps? For which times of the day or year do we lack artifacts? As well as identifying exteriors, interiors and typologies, as in this study, we must also consider spatial boundaries and thresholds. We can suggest three particularities of sound mapping which may prove useful in contexts of representing ambiance:

1. **Attentiveness to everyday detail:** Each artifact on these sound maps represents a moment of creative attentiveness through listening and recording. Long after the moment passes, we can continue to pay attention, listening again, listening critically.
2. **Immersion at the human scale:** In the case of participatory sound mapping, the common usage of the all-seeing map for a concise overview is turned on its head. The power of these maps lies, instead, in their presentation of an unconnected mass of geotagged, subjective artifacts. They remind us that urban space must be perceived and understood at a human scale, at 'ear level'.
3. **Openness to chance and change:** Sound maps do not strictly categorise spatial typologies or sound spaces – nor, we can assume, ambient spaces. Instead they are open to chance, presenting a range of materials from various perspectives. They remain open to urban transformations in time and to the ongoing processes of urbanisation.

## Conclusion

In seeking to bring sound maps into dialogue with architectural research and practice, the need for standardisation, replicability and practical rigour seems, at first glance, essential. Yet, it is important not to dismiss out of hand the value of these open, flexible sound mapping projects. By eliciting and enabling participation from the general public, sound maps have allowed unique co-created documents of urban space to emerge, where multiple versions of urban space are catalogued. The accretion of detailed artifacts in sound map archives allows us to identify sonic patterns across time and space. In their use of non-standard creative techniques and their attentiveness to otherwise overlooked elements of everyday space, there is potential for these sound maps to complicate and challenge representative norms, and to enhance our sensory understanding of urban space.

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## Authors

Conor McCafferty is carrying out PhD research into urban sound mapping, based in Sonic Arts and Architecture. Conor's research interests include participatory urbanism, urban sound environments and urban pedagogy. He previously worked as Creative Producer with PLACE, a not-for-profit architecture centre in Belfast. His own creative practice revolves around sound, music and film. Twitter: @comccaff.