# SMELL OF CUBA STREET:

## MAPPING SMELLS TO UNDERSTAND A PLACE

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2019

## THESIS DECLARATION

# SMELL OF CUBA STREET:

## MAPPING SMELLS TO UNDERSTAND A PLACE

**A THESIS PRESENTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR A MASTER IN DESIGN AT MASSEY UNIVERSITY, WELLINGTON, NEW ZEALAND**

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# Abstract

Smell has a great influence on how we know places and how we feel and it helps us to have a complete understanding of the outside world. This project focuses on the visual mapping of smell, which provides a new perspective to view and review a place. Taking the iconic Cuba Street in Wellington as the object of investigation, this research explores how audiences can obtain an experience of a place through its smell. The maps are designed as visual representations of smells, which inspires people to know a specific place from the perspective of smell.

# Acknowledgements

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# Table of Contents


1. Introduction 1

1.1 Background and context 1

1.2 Research question and project aims 2

1.3 Overview of the paper 2

2. Theoretical platform 3

2.1 Map as a way of understanding place 3

2.2 Communicative value of map 4

2.3 Smell, a way to know and understand place 4

2.4 Design theory on regarding mapping conventions 5

3. Precedents review 6

3.1 Paris psychographic guides 6

3.2 Scents and the City 7

3.3 McLean's smell maps 8

3.4 What smell looks like 10

4. The project 11

4.1 Field trips 12

4.2 Methods of smell recording 13

4.2.1 Video and photo 13

4.2.2 Handwritten notes 14

4.2.3 Watercolor paintings 15

4.3 Symbols 20

4.3.1 The process of designing smell symbols 20

4.3.2 Smell dots 26

4.3.3 Prioritize information 26

4.4 Color 28

4.5 Final maps and legend 50

5. Conclusion 51

Bibliography 52

Image references 55

# 1. Introduction

## 1.1 Background and context

As a Chinese student studying in Wellington, I accumulate a certain understanding of this city from my life experience. Cuba Street, as one of the most famous places in the city, has aroused my interest. Its commercial, artistic and cultural atmosphere creates unique characteristics. This vibrant space is full of active and massive smells, and their mutual influence and relationship make me imagine smells, which I call smell landscape. Smell landscape includes not only smell, but also the smell experience and the relationship between us and smell (Thibaud, 2017). The "habituation effect" causes most of the odors in the daily life environment to be perceived only by newcomers (Porteous, 1985, p.358). This different experience, which only belongs to newcomers, inspired me to communicate and share my own understanding and smell experience of this place to others. People have been studying how we see and hear the city, but not much how we smell it (Quercia, Schifanella, Aiello, & McLean, 2015). Dodge, Kitchin and Perkins (2011) claim that map has an important influence on the organization of spatial knowledge, the storage of spatial data, and the construction of the relationship between people and space. Therefore, I decided to use Cuba Street as the prototype to map my understanding from the perspective of smell. A series of field trips were conducted to experience and record the smells of Cuba Street. Then the smell landscape was formed by the information and presented in maps. Finally, the influence of environment, time and human activities on smell landscape and the relationship among them were presented by the smell maps.

In Ways of Sensing (2014), Howes and Classen suggest that vision and hearing are the two most valued senses at the moment. Vision has a hegemonic position; hence people tend to ignore other senses in daily life (Howes & Classen, 2014). However, Bloomer and Moore (1977) put forward that when people experience the outside world, they get the original experience and basic information through touch at the beginning, and the visual image comes from the later development. Therefore, vision and hearing are not the only ways for us to understand the world. Moreover, smell is at the bottom of the pyramid. It is partially because of the difficult in visualization and differences of individual senses (Lipps & Lupton, 2018). However, smell is an important sense, because it is primarily a basic, emotional, awakening sensation, unlike vision or sound, often involving cognition (Porteous, 1985). The focus on smell is refreshing and inspiring, giving us a new understanding of the relationships between individual and places (McLean, 2017a). Smells evoke our imaginations and uncover hidden worlds in a way that is different from sight and sound (Aftel, 2001). The connections between smells and place make a huge contribution to our understanding of the outside world (Feuer-Cotter, 2017). Smells make our understanding of the outside world more diverse and complete.

This project attempts to help audiences see invisible smells through maps. In other words, mapping is considered as a process of visualizing smells. We need a new direction to explore "the spatial location of odours and their function to particular notions of place"(Drobnick, 2002, p.33). Drobnick (2017) claims that smell design has been tried by some people, but at art, literature and other cultural forms. In exploring, I was inspired and influenced by Mclean's work on smell maps, her creations are "artistic practice maps smell …… that investigates 'relationships between urban smellscapes and city experiences and perceptions'" (McLean, 2017b, p.69). Different from her practices, I regarded the important of smell and mapping as a way of understanding and communicating the qualities of place.

## 1.2 Research question and project aims

The research question of this project is: “How to express the understanding of a place through smells based on visual mapping strategy ?”

Cartography is a scientific document about art, science, and technology of making maps. Dodge, Kitchin and Perkins (2009a) assert that cartography was the most authentic, objective expression and communication theories of geomorphological features. The way people recognize and draw maps is changing, with the constant exploration of technology and space and the transformation of people's perception of them (Dodge, Kitchin & Perkins, 2009b). We can express our feelings and aesthetics about the place to explain what is the map. In this project, maps are used as visual representations (real and fictional) of place from the smell perspective. Map is a suitable platform for this project to display the smell information and understanding of Cuba Street. My exploration of smell map is also a different attempt of map making and practice. It offers a way of understanding place through the sense of smell. The purpose is not to define mapping, but to achieved the function about the inspired, metaphorical and rhetorical capacity through mapping. The use of these capacities has made people receive and convey smell information through maps.

Map can not only convey physical and geographical information of mountains and rivers but also can be used to represent daily activities and construct the real world (Dodge, Kitchin, & Perkins, 2011). For this project, mapping is a process of visualizing and conveying the smell information. However, it is not only mere visual tool. It is a suggestive method, the meaning is to inspire rather than conclude. It provides the possibility of inspiring people to understand places through smell information.

In the process of getting to know the outside world, thoughts, experience and the sense of smell are the indispensable parts. This project attempts to incorporate the concept of smell into the map design and communicate with audiences. One particular aspect of this project is the recognition of subjectivity. Whether this project is collecting smell, mapping smell or designing map, it shows the subjectivity unreservedly to reflect the context of smell experiences. The subjective distortion contained in the map is unavoidable and it is generated for the needs and purposes of the map. The significance of this project is its contribution to understanding a place through smell, instead of the accurate geographic data. This research explores how map can be used to help people appreciate invisible smells, thereby reminding audiences of the importance of smell in understanding a place and try to experience places from different perspective.This project's aim is to help people, who are unfamiliar with Cuba Street, to feel and understand it by mapping the smell. For those who are familiar with the street, this project reminds them of the importance of smell and gives them a different way to experience the area they are familiar with.

The main purpose of communication design is not to create graphical forms, but to create effective communication (Frascara, 2004). In this context, considering the influence of design principles and mapping conventions, I developed the maps’ contents to interact with audiences. The purpose of this project is to help the audience understand the contents of the map more quickly and accept the smell information more easily. This project requires the subjective selection within the existing the conventions and principles based on the characteristics of the smell maps and the consideration of generating good communication with audiences. Not all conventions and principles apply to every map. It is necessary to use appropriate conventions based on the content, theme, and purpose of the maps, thereby avoiding conveying unnecessary information to audiences.

## 1.3 Overview of the paper

The following sections consists of four parts. The first part is the theoretical platform, which explains the importance of smell and the significance of mapping methods in understanding places. The second part provides precedents review which analyzes and researches the existing works related to this project. The third part provides the design process of this project, it explains the decisions. The fourth part gives the conclusion. It summarises what I have produced in relation to my aims and questions. It also reflects on the work and it offers opportunities to allow me to consider the further work.

# 2. Theoretical platform

## 2.1 Map as a way of understanding place

Maps are made up of images that people create in their minds when understanding the outside world. In other words, maps represent a way to express mental images in a graphical way, which is also the basis of people's cognition (Robinson & Petchenik, 2011). In addition, map also stands for a visual representation helping people understand space. When it comes to the map makers, they need to explore the features of the space in the environment and conceive the relationship between these features and the space. Furthermore, they map their own understanding and communication with that of audiences. The function of mapping is not so much to reflect the reality as to reveal people's diverse understanding of the outside world. The key point lies in the creative practice of mapping rather than replication (Corner, 2011). In other words, maps can be used to understand and explain the worlds. Furthermore, Powell (2010) claims that maps can make people understand the complex relationship between self and place, and it represents the way in which self and place constitute and relate to each other. When the status of map as a realistic description is challenged, it can be presented smell and explore its relationship with people and places through maps (McLean, 2017b). In this project, smell map is a new interpretation and understanding of Cuba Street, and its development is also the process of my gradual understanding about this place. Therefore, when we try to understand a place with smell map, we are also re-examining our relationship with the place. Such attempts have opened the possibility of exploring our own smell landscapes.

Fig. 1. N.d. c. 1300.  Hereford Mappa Mundi

A particularly important aspect of this project is the recognition of my own involvement in the mapping process. For a long time in the past, western cartographers had focused on reducing distortion when data is communicated to users (Dodge, Kitchin, & Perkins, 2009a). This means that map makers need to devote themselves into the mapping process as much as possible. In fact, the characteristic of map is the inevitable subjectivity, which is a clear fiction based on fact observation (Corner, 2011). Mappa Mundi is the largest surviving medieval map and it was once considered as an unscientific way to showcase the world’s geographic information (Ingold, 2000). As a result, it is not an accurate geographic information map, but a symbol and description of religious thoughts and history, so that audiences can see the world from the perspective of religion. The development of mapping conventions and the use of symbols not only depict geographic locations but also other things. Therefore, maps use symbols as they seek to

express beliefs, feelings, and site-specific facts. In other words, symbols are semiotic devices used to explain how we understand the world.

## 2.2 Communicative value of map

In the past, maps were traditionally carried out for planning purposes, based on quantitative and analytical surveys before they were drawn, and these maps were generally regarded as undisputed reflections of reality (Corner, 2011). The scientific nature of the survey data negates the inspired maps and the ability to describe spatial stories (Ingold 2000). Harley (2011) criticized the use of science to make maps as accurate descriptions of reality, which not only led to the limitations of western maps but also denied maps in other cultures. The highlight of this project is not to discuss the nature of map, but the use of map, such as, how map affects our understanding about the world, and how they map the world (Pickles, 2004). Robinson and Petchenik (2011) argue that map is a communicative device, which communicates with audiences with graphic form. In addition, the map presents selective and incomplete realistic views to simplify our reading process and locate the main information quickly (Corner, 2011). Thus, this project emphasizes the communicative value and has explored the inspired and rhetorical ability of maps. In my research, maps can be regarded as a platform on which I gather, filter and map the smell information. The experiences of the place and subjective consciousness are used on this platform for comparison, emphasis and interpretation of the smell information.

Maps are images with rhetorical power, which constitute our understanding about the physical world, draw our mental images of places, and construct our sense of spatial relationships (Dodge, Kitchin, & Perkins, 2011). Maps can show the landform as well as construct the world of imagination. In particular, the building of the imagination needs intervention that involves the selection and use of mapping conventions and design principles. Mapping is “gathering, working……sifting and speculating… [it] allows certain sets of possibility to become actual” (Corner, 2011, p.94). Moreover, mapping can help people have sensory experience of places through using sensory methods (Powell, 2010). Smell established a strong connection between people and the environment (Rodaway, 2002). In other words, maps have the ability to present smell and encourage people to have their smell experiences. Dodge, Kitchin and Perkins (2011) assert that map could work as they provide a perspective from the reality that people are willing to accept. The perspective of this project is smell.

## 2.3 Smell, a way to know and understand place

Vision seems to be our dominant sense, but the sense of smell is still crucial (Rodaway, 2002). Mclean (2017b) argue that human nose is more accurate than any technology or instrument and people's direct smell experience gives them a sense of place. Smelling is an effective way to recognize, understand and experience the world (Drobnick, 2006). Besides, smells can identify geographic location, structure space and define place (Rodaway, 2002). Consequently, smell is essential to our understanding of the world. These abilities of smell come from objective environmental factors and subjective consciousness. The objective factors of the environment affect human feelings, and what connects the objective factors of the environment with people's aesthetic feelings is what we call atmosphere (Böhme, 2016). Thus, the smell experience of the place can be considered as an experience of the atmosphere, which is also presented in the mapping of the smell.

Smell can only be partially separated from the objects that produce them, so they occupy a certain place between objects and thoughts (Drobnick, 2010). Accordingly, smell is not a clearly defined object, but a strong experience (Rodaway, 2002). Smell, like any other senses, requires a process of reception. In my

research, I prefer the direct contact and participation with the environment.

Smells in positional experience are complex, including both direct contact with the environment and virtual contact with the place in imagination when the smell memory is stimulated by the current local experience (Rodaway, 2002). On the one hand, smells can be divided into two types. One is easily recognized smell with obvious sources in the environment, which tends to focus on specific objects. The other is the smell inspired by specific association or memory, which is a recognition of the mixed or non-object smell in the space. On the other hand, smell information cannot be directly received by people, but safeguard to identify and understand smells through the participation of subjective consciousness. Henshaw (2014, p.55) says: "the smellscape is a spatial construct that exists for one person at a moment in time." In this project, smell experience and mapping are not only influenced by the external environment, but also by such subjective factors as personal aesthetics and feelings.

## 2.4 Design theory on regarding mapping conventions

Abstraction gives map meaning and effects, which is difficult for audience (Corner, 2011). Map makers need to take advantage of this abstraction and facilitate the understanding of maps by existing mapping conventions. This project explored how elements were used in design principles to create visual appeal and effective communication. In short, design principles guide design and distribution of map elements; while mapping conventions guide the construction and design of the entire map. According to Frascara's (2004) description of the design principle, this project contains contrast, movement, balance, hierarchy and rhythm, etc. (see more details in the project section is stated). Vozenilek (2015-2016) claims that, to meet high standards in the map making process, the use of maps must be taken into account. In addition, as Barton and Barton (1993) point out that the meaning of the map is transmitted partly through its selectivity or the exclusion and inclusion of information. In this research, unnecessary conventions were removed for effective and direct communication between smell maps and audiences. According to conventions concluded by Vozenilek (2015-2016), composition, title, text, legend symbol and colour were selected in this project.

Composition refers to the distribution and combination of various elements on the map. In other words, on the white space of the map, all the elements are placed to maintain the balance of the map and provide a comfortable environment for map reading. The choice of these elements depends on theme, content and purpose. The elements covered in this project can be summarized as title, text, symbol and legend.

Title is determined by theme, space and time of the map, which requires a short and clear expression of the theme (Vozenilek, 2015-2016). It also offers an explanation of the content, making the map image easier to understand (Wood & Fels, 2011). Title helps audience to have an intuitive cognition of the map by highlighting the subject.

Text has features such as positioning, interpretation and decoration for the information on the map. The use of text in this project was mainly reflected in the interpretation of smells and the context in which the smells were provided, thereby helping the audience better perceive and understand smell information.

There is no symbol that can explain itself (Wood & Fels, 2011). Legend should not be omitted, which not only explains the symbols on the map but also demonstrates the purpose. Legend outlines the symbols from which audiences can correctly decode the information stored in the map (Vozenilek, 2015-2016). In short, it enhances legibility and comprehensibility of the map.

Symbol is a visualization method selected based on information characteristics and map goals. It is commonly used to express characteristics of different information by adding different attributes such as shape, size and padding (Vozenilek, 2015-2016). Sparse data may undermine the credibility of information sources and cause audiences to question designers and their work (Tufte, 1990). In this project, there was no such limitation in the large amount of odor information obtained from the scent experience. The characteristics of smells were presented in different sizes and quantities of colored symbols. The smell and the sense of position it provided were formed by the combination and arrangement of these symbols on the map.

Color does not convey more information than black and white (Black, 1997); however it can better differentiate symbols, and evoke unconscious associations (Muehrcke, Muehrcke & Kimerling, 2001). Thus, color in this study was helpful for audiences to identify and understand the smell symbols. Harrower and Brewer (2003) assert that color scheme needs to help map information work better and appropriately match information on the map. The colors of other elements on the map were compared according to the smell symbols for achieving better visual effect. The colors of the smell symbols were selected based on the individual's recognition and understanding of the odor. The difference between these smell symbols required a contrast between colors.

# 3. Precedents review

## 3.1 Paris psychographic guides

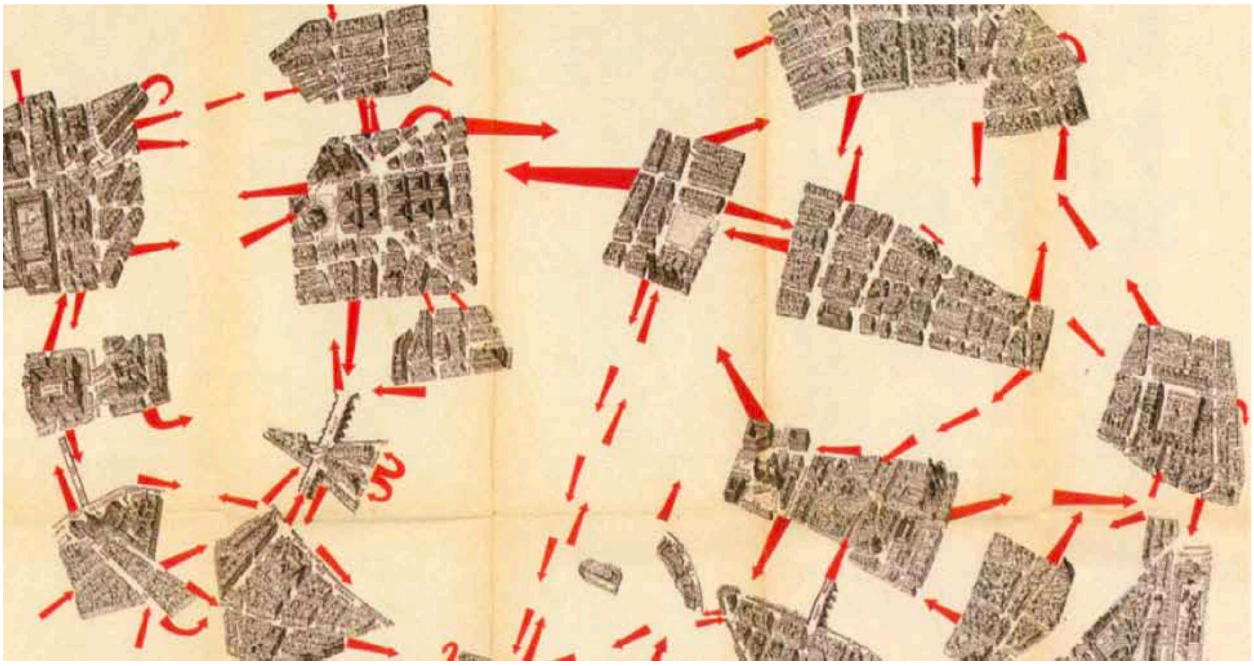


Fig. 2. Debord.G. 1957. Psychogeographic guide of Paris

Guy Debord (a key Situationist theorist) produced a series maps about Paris psychographic guides. By aimlessness walking in streets and alleys, he developed a subjective cognitive map of the city rather than an objective description of the urban landscape. It can be seen from the above figure (Fig.3) that the map is divided into different areas by Debord’s psychological distance. In other words, he did not recognize the city from a visual perspective or from the appearance of the city, but through his inner heart.

His attempt overturned the traditional expectation and description of maps and challenged the hegemony of cartographic autocracy. Instead of traditional mapping conventions, subjective understanding and participation were used to describe the relationship between environment and personal emotions. Debord explored how variety, accidental and obscure of spatial experiences replaced ocular gaze (Corner, 2011). A map was formulated as a behavioral self-interpretation and participation of a city as well as a new image of the relationship between space and people (Dodge, Kitchin, & Perkins, 2011). Moreover, situationists used maps in performative aspects to guide and implement a specific set of events originated in a given environment (Corner, 2011). Particularly, Debord's use of maps and the experience of space were highly personalized to describe the experiences in a given space (Corner, 2011). His map had little relationship with smell but focused on psychographic guides. However, its form, content and method inspired me regarding exploration of maps and recognition of places.

## 3.2 Scents and the City

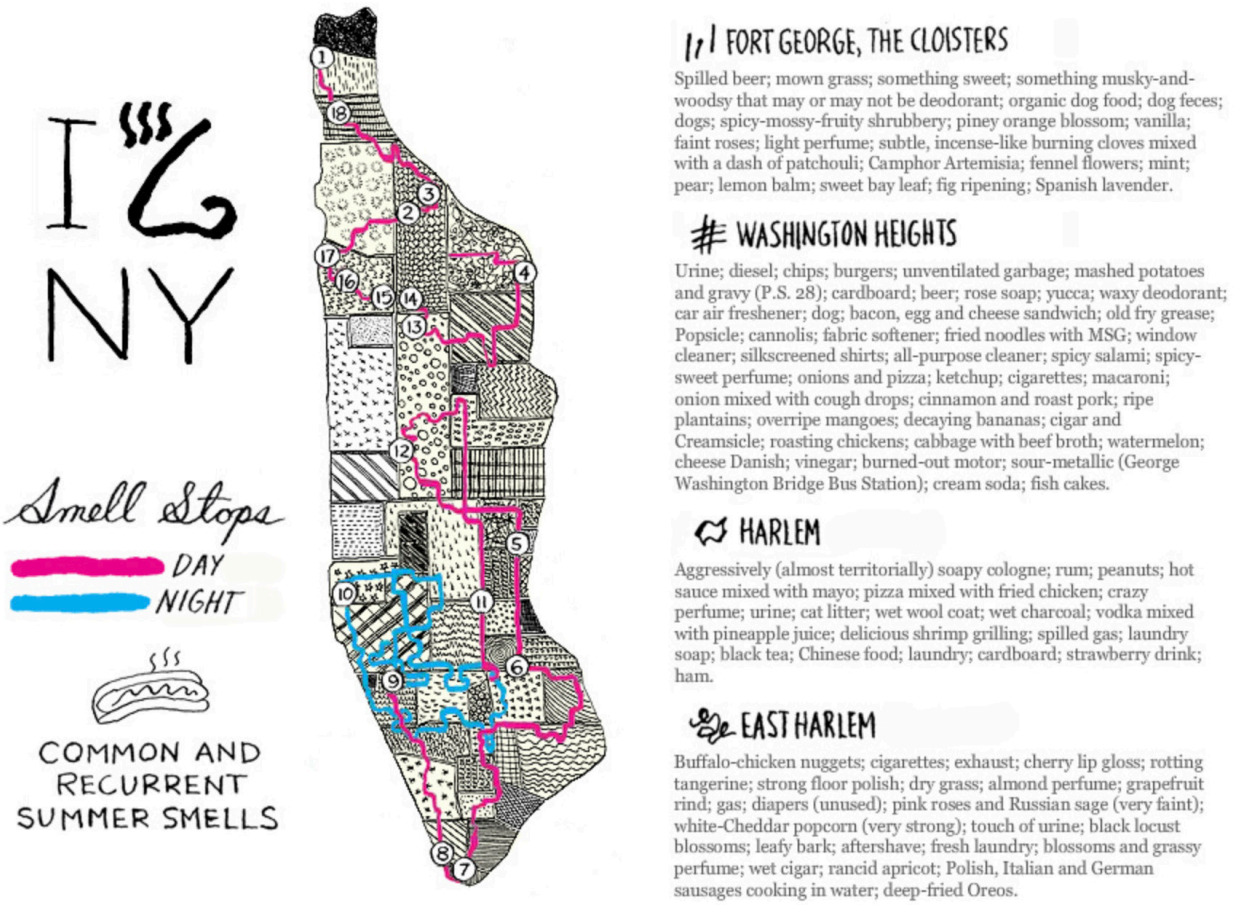



Fig. 3. Logan.J. 2009. Scents and the City

Jason Logan mapped his smell experiences in crossing Manhattan Island. One symbol was employed to represent the smell of the whole area, thus emphasizing the difference between regions rather than between smells. Also, the vocabulary descriptions were used to present the smell of the place. Though not strongly related to each other, these vocabularies shaped his understanding of smell. Despite the limited smell vocabulary, metaphors can help to describe the experience and memory of smell (Rodaway, 2002). Therefore, the odor characteristics, objects and experience related words were used to describe the scent. In addition, Logan adopted a lot of concrete objects to describe smells, since the smell of object is easily reminiscent during imagination. This required the experience with odors and the ability to imagine odors. He also marked the walking routes and combined them with the given geographical location, so

as to make it easier for the audience to locate smells.

The map developed by Logan served as not only an objective source of information but the statement and catalogue of spatial smell by him subjective understandings. His feelings and emotions of smells were all incorporated into the map. This makes his map full of personal color, but also allows the audience to conjecture his smell experience through these words and symbols.

## 3.3 McLean's smell maps

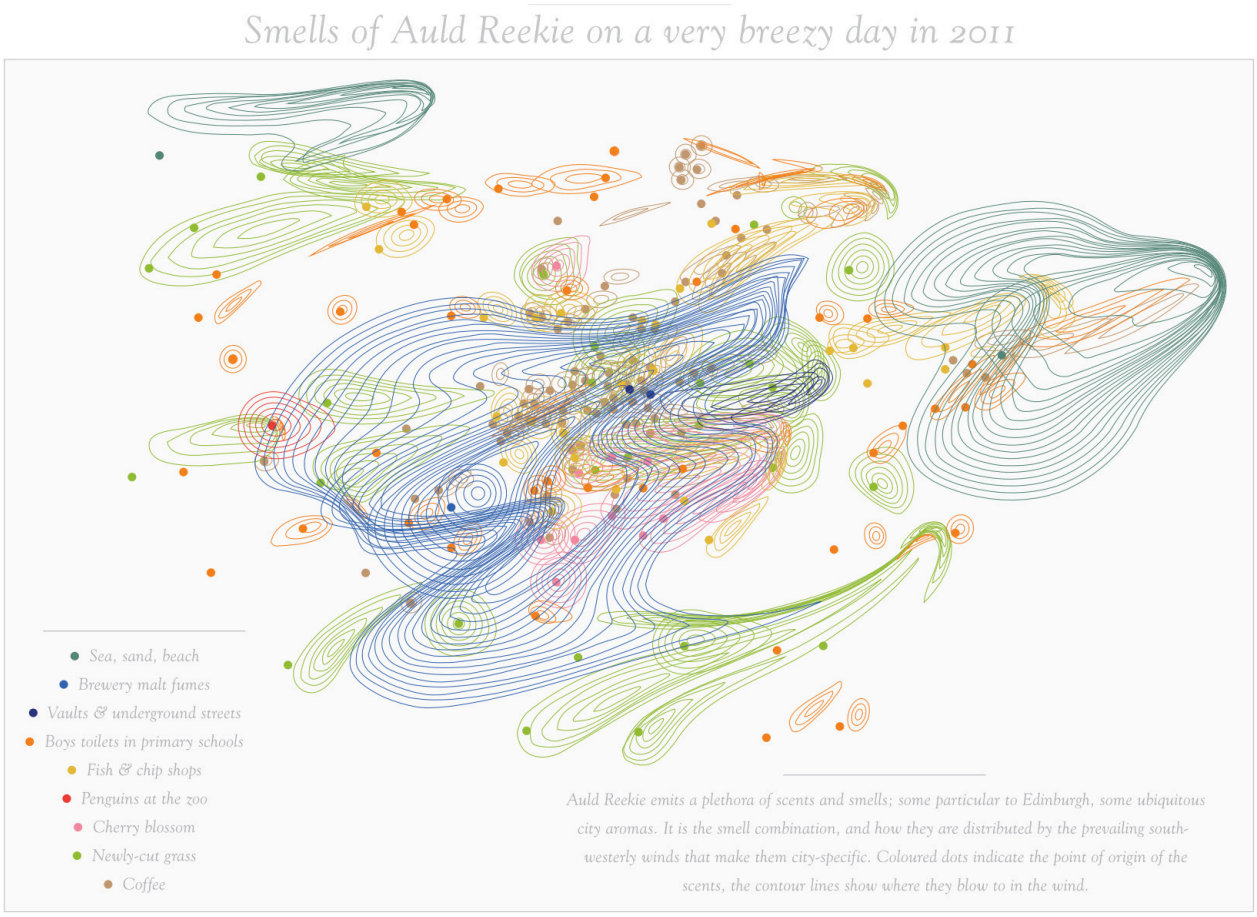



Fig. 4. McLean, K. 2011. Smellmap: Edinburgh

In early work, Smellmap: Edinburgh (Fig.4), McLean visualized the movements and trajectories of scent by using the contour lines to show the speculative urban scent landscape. This work was produced not from the perspective of map design, but focused more on experiences, personal smells, arguments and timeliness related to urban smells (McLean, 2017b). Ignoring the mapping conventions, she just indicated the attribution of the scent in the name of the map, and explained the smell symbol by legend (McLean, 2017b). Visual appeal to audiences was applied for encouraging their reflection on the relationship between people and the environment from vision to smell.

When designing the smell map of Singapore, McLean began a regional experience with local residents to feel the scent and adopted their choices of smell colors. A series of multi-team smell walking were conducted to collect smell information, following the traditions of the Situationists (McLean, 2017b). She claims that: "the experience is wholly immersive and performative." (McLean, 2017b, p.69) Afterwards, she switched to the combination of dots to visualize the smell, which was considered as "an instinctive decision" (McLean, 2017b, p.69). Range, movement, intensity, and timeliness of smells

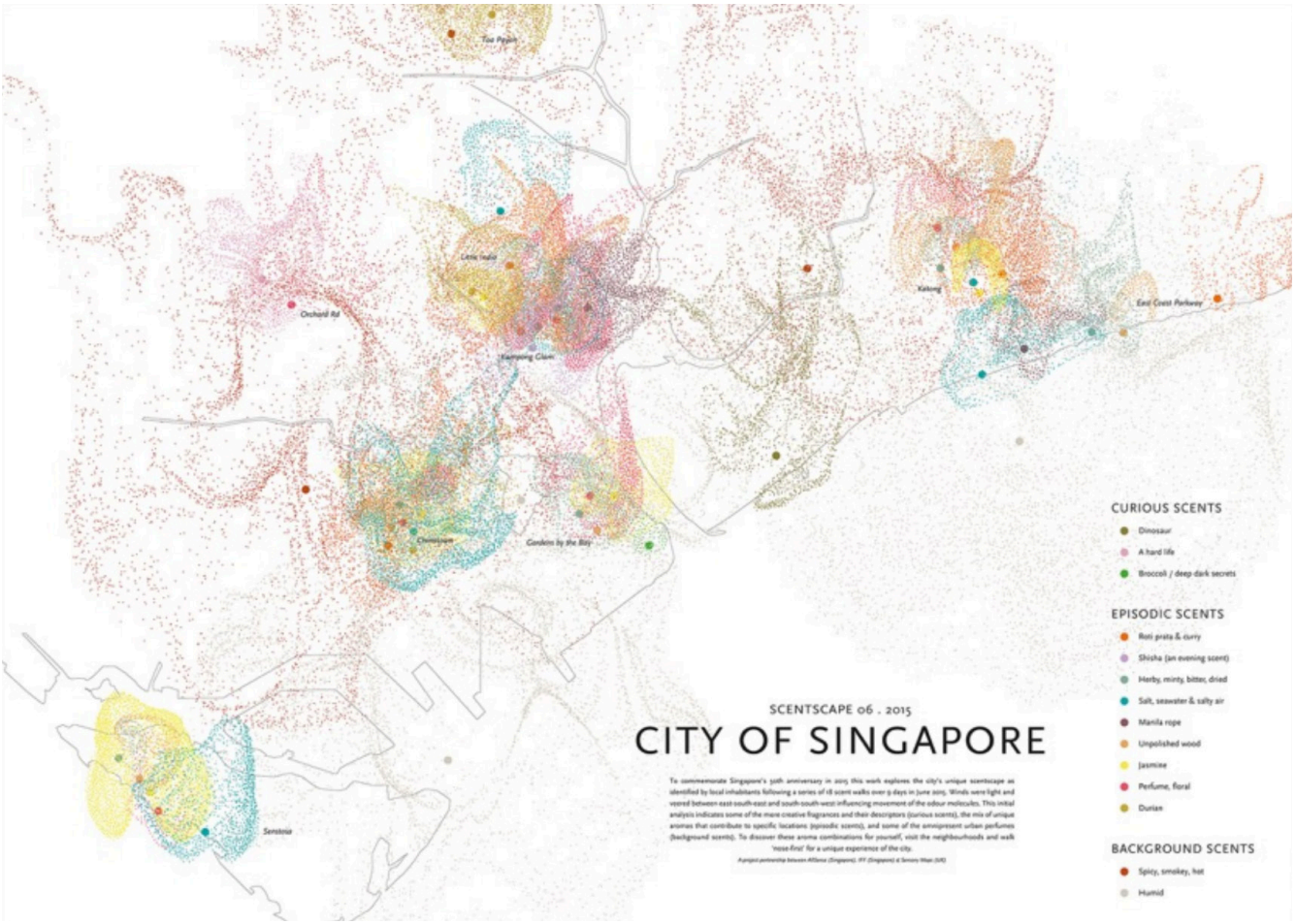



Fig. 5. McLean, K. 2015. Scentscape 06 . 2015 City of Singapore

were represented with the combinations of color dots. Also, more mapping conventions were applied. For instance, text was used to locate smell and the boundaries of the city were marked. The influence of wind on smell was also taken into account and presented through the manipulated combination of dots on the map. It inspired me to reflect the impact of wind on smell and the way to present it on the map. This subjective perception of smell symbols affected the presentation of smell information on maps in this project. In my research, the mapping of smell responds to McLean's approach and develops different thinking, strategies and applications.

Debord, Logan and McLean shared some common characteristics on their mapping. Firstly, when experiencing space, they acted as flaneurs that “let associations and memories flow through them and get stimulated by the distractions and impressions of the moment” (Featherstone, 1998, p.915). This way of experiencing places is between immersion and decontrol to record and analyze the acquired impression of place, which forms people's cognition and aesthetic perception of place (Featherstone, 1998). Therefore, their experience and exploration of space are not deliberate, but in this process and after that, they both think and fell about the impact of external environment and events on themselves and their relationship with the environment. In addition, their mapping of the world is to explore the relationship between people and space through the immersive experience of space and subjective consciousness.

## 3.4 What smell looks like

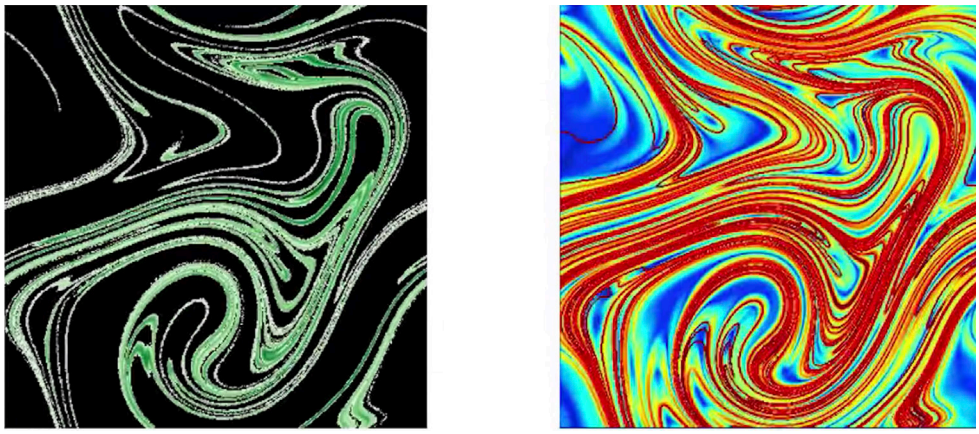


Fig. 6. PBS NewsHour. 2016. What a smell looks like

As displayed in the existing works on smell map, feeling and imagination of the individual or the team play a crucial role in the mapping of smell. These subjective feelings and delusions are the most obvious features that distinguish smell maps. In my research, collection, imagination and mapping of smell were changed with the progress of smell experiences. However, what smell looked like resulted in confusion initially of my mapping process, which was solved by PBS NewsHour's (2016) video about an engineering lab at the University of Colorado Boulder uses lasers to appear smell. This discovery was reflected in arrangement and combination of smell symbols. Further, it confirmed my imagination of smell, through which visual language, method, design process and strategy of this project were adjusted.

# 4. The project

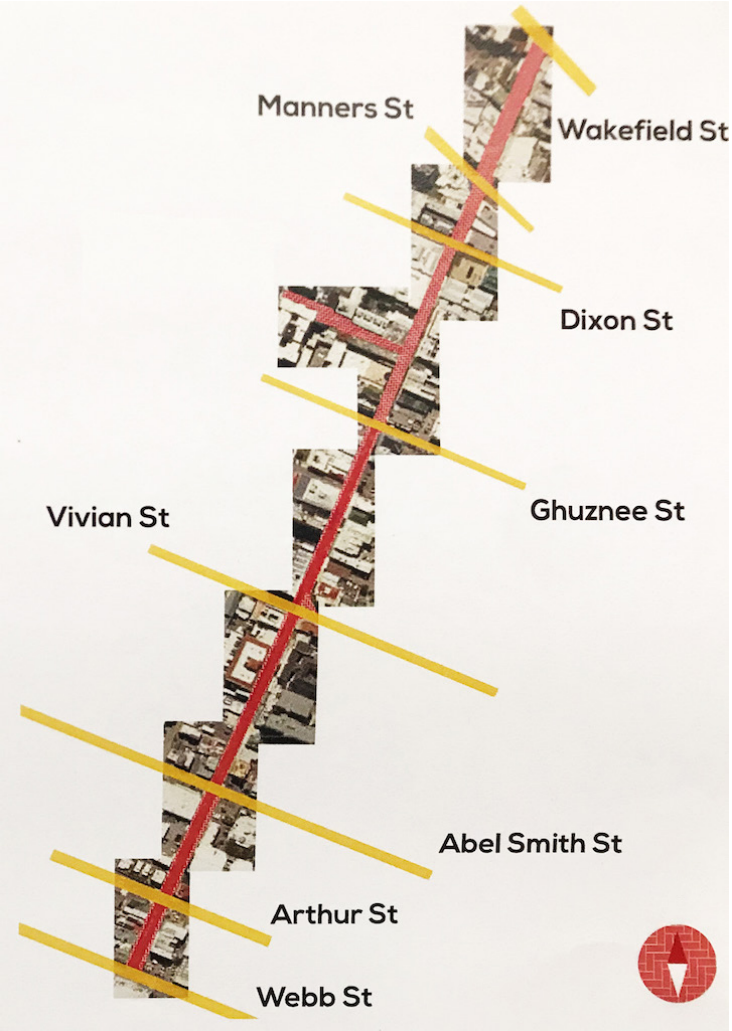



Fig. 7. The outline of Cuba Street

After conducting earlier experiments with the Island Bay area, the area from Massey University to Oriental Bay and the Massey University MDes Studio, I decided to choose Cuba Street as smell experience location.

Cuba Street, which is located between Webb Street and Wakefield Street, is one of the best-known heritage areas in Wellington and a place that is always celebrated for its charming character as well as its rich social life. There are six other streets that cross Cuba Street and divide it into seven parts. This place has the elaborate stores along the street, various goods inside the stores, refreshing plants, infrastructure, interesting human activities and many other elements. These elements are helpful to have the amazing smell experiences.These elements are also reflected in the maps. Cuba Street's smell landscapes have been influenced and made by them.

The following content is about smell experience, record methods, map design and final map.

## 4.1 Field trips


Fig. 8. The photo of Cuba Street

Del Casino and Hanna (2005) claims that the meaning of map comes from the mutual practice with space. The experience of smell allowed to obtain the urban rhythm, material, mobility, social interaction between people, as well as the interaction between people and the surrounding urban environment (Rochow, 2017). Before considering how to present the smell experiences of Cuba Street, it is necessary for me to have a clearer and deeper understanding of this place through smell. Then, I performed a series of field trips to have an in-depth experience in Cuba Street. In addition, as Farrauto and Ciuccarelli (2011) said: “maps can…… drawing a place from a personal filter.” Therefore, the smell experiences are completed by myself. My world view can have an influence on what I am most influenced by knowledge of the place, aesthetic value and cultural background, as well as understanding how it evokes emotions, feelings and other subjective responses. Certainly, the factors about environment, human activities and time should be considered to achieve the comprehensive understanding. Under this complexity, a series of field trips are required so as to help me document and get a deep understanding about the place.

When performing the field trips, I adopted the same method with Debord, Logan and McLean – flaneur. On the one hand, I was wandering through the experience. On the other hand, I was an observer, a person who recognized and recorded the smells. Furthermore, the performative aspects of map were utilized to guide and implement the specific set of events in a given environment (Corner, 2011). For this project, in the experience of smell, we should not give up the feeling and immersion of the surrounding environment in order to find the smell deliberately. This turns the concept of the smell experience into smell collection. In the process I am immersed in the environment and curiosity about the smell.

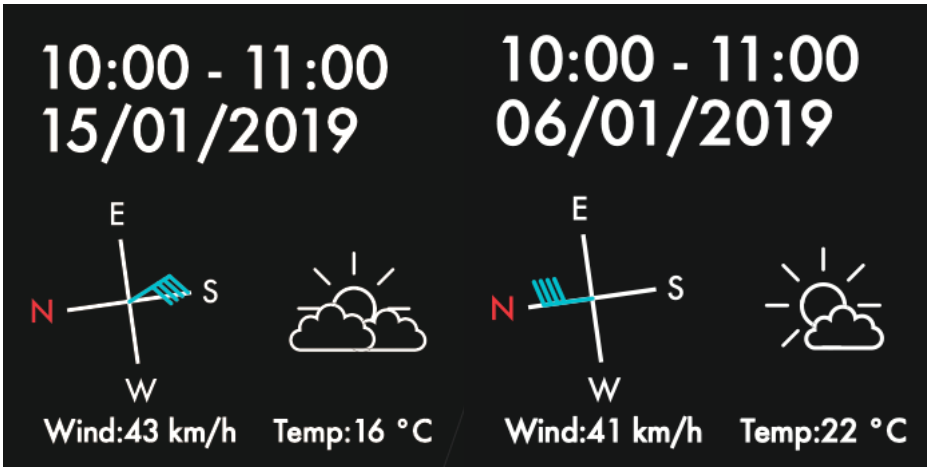



Fig. 9. The information parts of the final maps

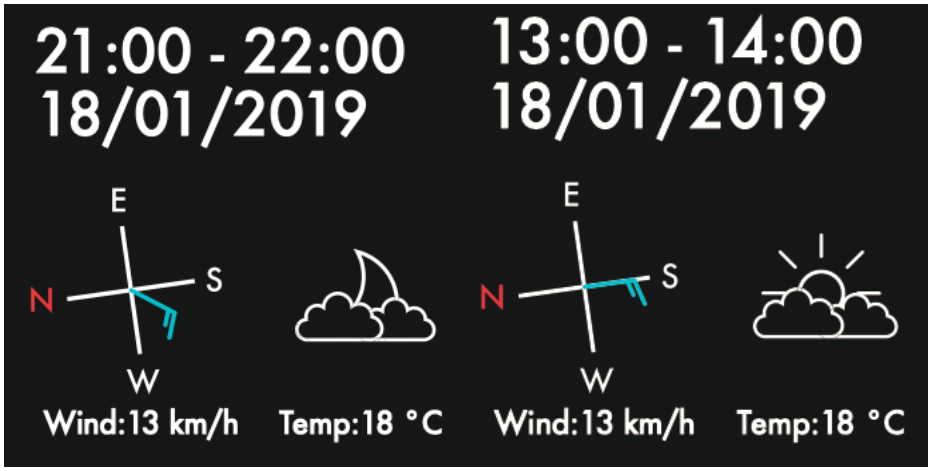



Fig. 10. The information parts of the final maps

Because other facilities (such as shops, fountain, trees, etc.) on the street affect the experience and smell landscapes, I also approached or walked into them, like trees and shops.

Too many uncertainties, such as weather, temperature, wind, and human activities and so on, exist in the smell experience process. Therefore, it is essential to fix the start and end points for each duration of the smell experience so that through the same walking route to feel different factors on the smell of same location. Therefore, I started at the north of the street and end at the south for each field trip. As McLean (2017b) argues that present the spatial structure and time of the smell with the most representative smell information by depicting the smell landscape in a certain period of time. In addition, based on the distance and area of Cuba street and my own concentration, I fixed the time in an hour. In order to better highlight the effects of various factors on the odor over the exactly same period of time and to achieve the scent location through time, my location was recorded every 15 minutes during each experience. In order to compare the same time period in different days (such as working days and weekends) and different time periods in the same day (such as day and night), the date and time period for the field trips were also selected. The final four maps of the project show changes in smells based on contrasts between wind, weather, temperature, human activities, weekday and weekend (Fig.9), day and night (Fig.10). It is not synchronized between the production of the map and the scent experience, which means that it is highly important to choose some proper ways to record the scent information so that the characteristics of the scent can be better recalled.

During my field trips, videos, photos, handwritten notes, and watercolor painting were applied to record my emotions, memories, smells and smell landscapes of Cuba Street.

## 4.2 Methods of smell recording

### 4.2.1 Video and photo

Video was applied in the initial stage of recording, mainly aiming to record the whole field trip. I thought the videos of field trip could help me to recall the specific walking process, so that any smell information cannot be missed. However, because the screen blocks the involvement of olfactory sensation, it could only recall the smell experience with the help of blurry memory, which would thus cause many of the feelings I formed at that time were lost.

The function of photo is similar to video. However, it also has the function of mood board. Through a series of photos, I could review the mood and atmosphere during the process of field trip, such as quite busy bar entrances, brightly lighted store windows and so on.

In the early stages, videos and photos were important methods for my rough understanding of Cuba


Fig. 11. The photos of Cuba Street


Fig. 12. The photos of Cuba Street

Street. Because of their limitations in recording smell information, I decided to find other recording methods.

### 4.2.2 Handwritten notes

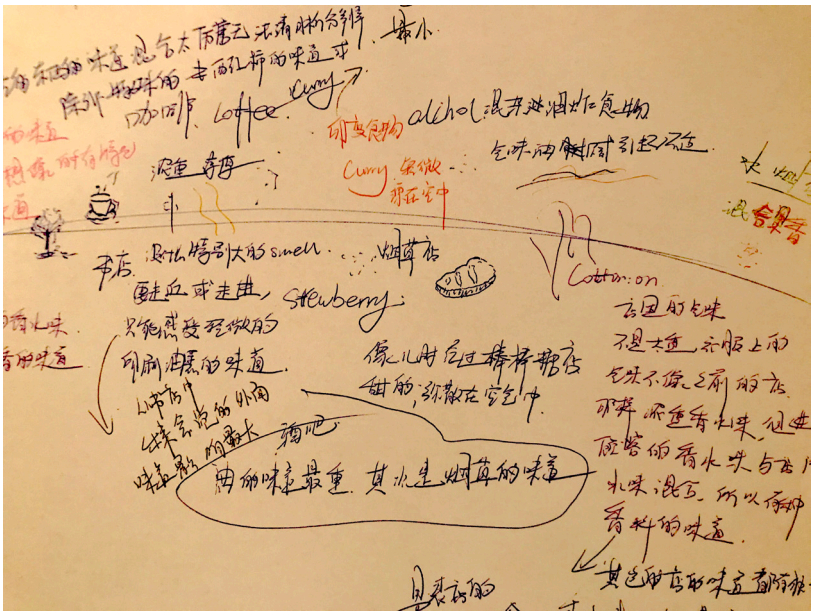



Fig. 13. The handwritten notes

Taking handwritten notes is a better way to record the description of sensory information of personal smell perception, such as the fragrant smell of cosmetics, the rose smell of chemical products, and a comfortable lemon smell and so on. In the process of map design, I used lots of vocabulary or phrase rhetoric, generalization, metaphor and association to help memorize real feelings and evaluations, not just records. I divided the odor information obtained in the field trips into two categories: the atmosphere smell and the physical smell. The atmosphere smell refers to the smell that has no specific source or the mixture of many different objects. I associated and applied vocabulary related to human activities, location, personal experience, and cognition. For example, I used “lively bar” to present the smell of a busy bar. The physical smell means the smell that has a clear source, such as exhaust and grass.

These notes could not only be used in the legend of maps to help the audience understand the symbols

of smell but also allow for a kind of persuasive sensory experience for audience during their reading of maps. To avoid overly abstract vocabulary that would impede audiences ‘s understanding of legend, the vocabulary used to describe the atmosphere smell were nouns or phrases in the form of adjective plus noun. The nouns are usually related to real objects, and the adjectives are often used to be the further supplement for the nouns, such as plasticine and dusty wood, etc.

Handwritten notes contain words and phrases that express my feelings, ratings and preferences for smell information. At the same time, the influence of my subjective consciousness and personal cultural factors on smell description and smell mapping can also be reflected through handwritten notes.

The western environment of Cuba Street is full of smells that are not particularly familiar or even unfamiliar to me who come from the eastern cultural world and who will use different knowledge, culture and past experience from the locals when identifying smells. When I come across a smell that I cannot find the resource or I am just not familiar with it, I will use something familiar in my daily life to express it, for example, dry soy which is impossible to find it in Wellington but was one of my childhood favorites. Some of the smells in Wellington evoked my deep memories of childhood, even though the similar smell was experienced by me in the far northern hemisphere. Flatley (2008) claims that we always use subjective ingredients to expand our sense of the environment, so the spatial environment is endowed with personal emotional value that affects our area journey. For MSE, it is not so difficult to avoid the influence of subjectivity since it is the embodiment of real localized experience and smell information.

In the later field trip, I used handwritten notes to draw watercolor paintings and integrated them together.

### 4.2.3 Watercolor paintings

Watercolor painting refers to the handwritten sketch of smell map based on handwritten notes and smell experiences. It involves freely controlled effects like dry and wet strokes, gradients, transparency and other effects, which can vividly exhibit odor characteristics including properties, intensity, range, movement, and blending. Watercolor painting is an effective visual method that can be used to present sensory information. The reason why it is convenient for simulating smells is that it not only retains my original and subjective perception of smells, but also converts invisible smell information into visual information.


Fig. 14. The watercolor painting of the area from Massey University to Oriental Bay

Watercolor painting was applied to record smells when I experienced the area from Massey University to Oriental Bay (Fig.14). However, I did not take into account the movement, mixing and other factors of the smells at that time, but just used color and street lines to locate the smells and to record their characteristics.


Fig. 15. The watercolor painting of Cuba Street

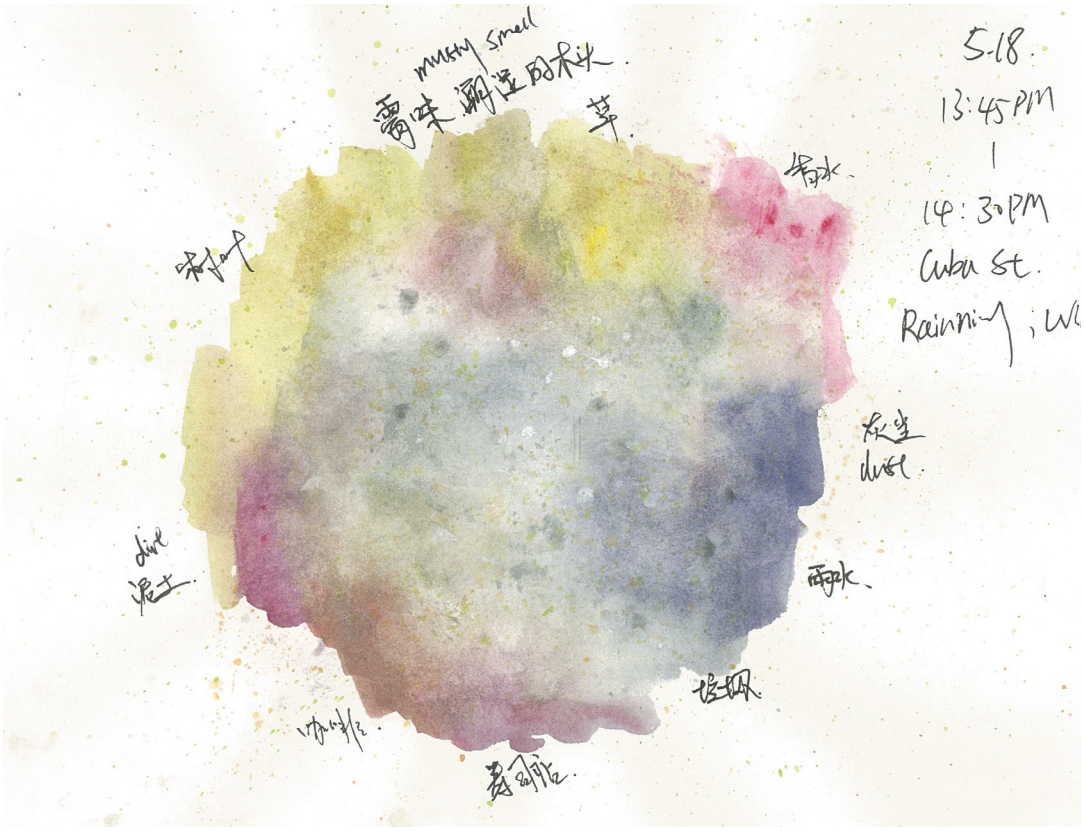



Fig. 16. The watercolor painting of Cuba Street

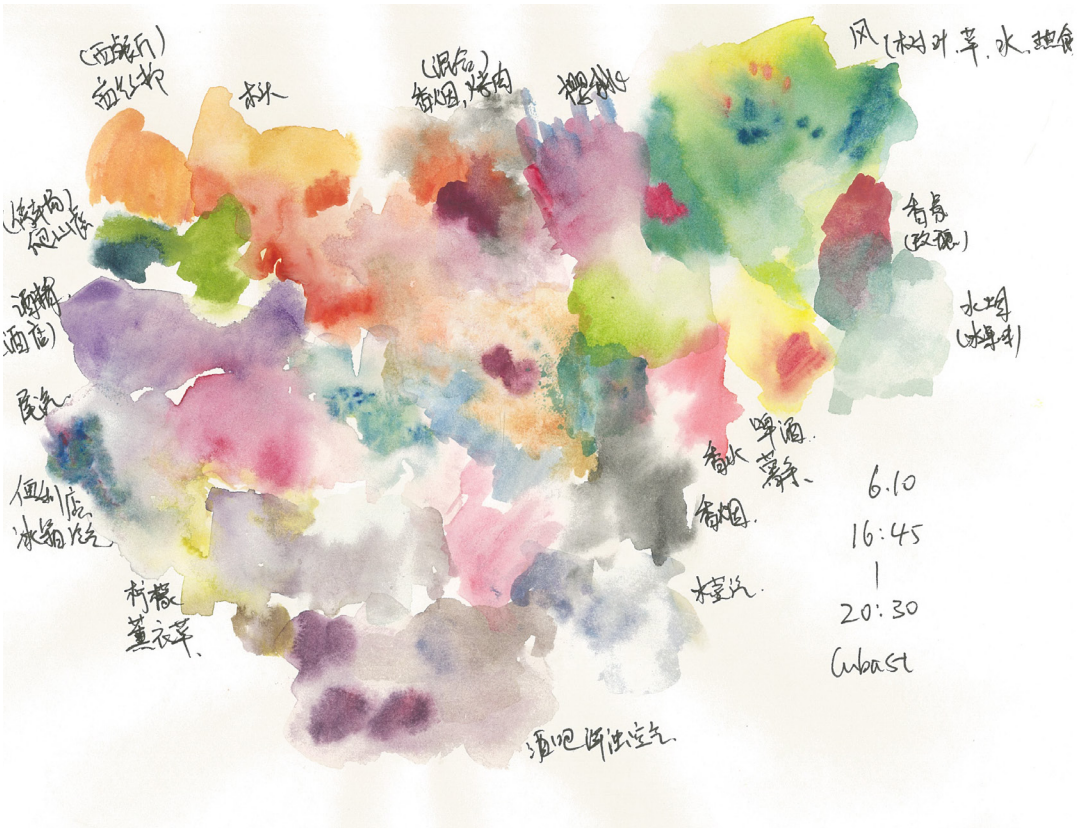



Fig. 17. The watercolor painting of Cuba Street


Fig. 18. The watercolor painting of Cuba Street

I further developed the watercolor painting when I started to experience Cuba Street (Fig.15-18). It started out as an abstract representation for my feelings and emotions during the field trip in Cuba Street, but meanwhile it also displayed specific date, time period and weather to record the factors that influence the smells. For example, the date shows weekday, weekend or festival; the time period shows morning or evening; the weather shows sunny or windy day.

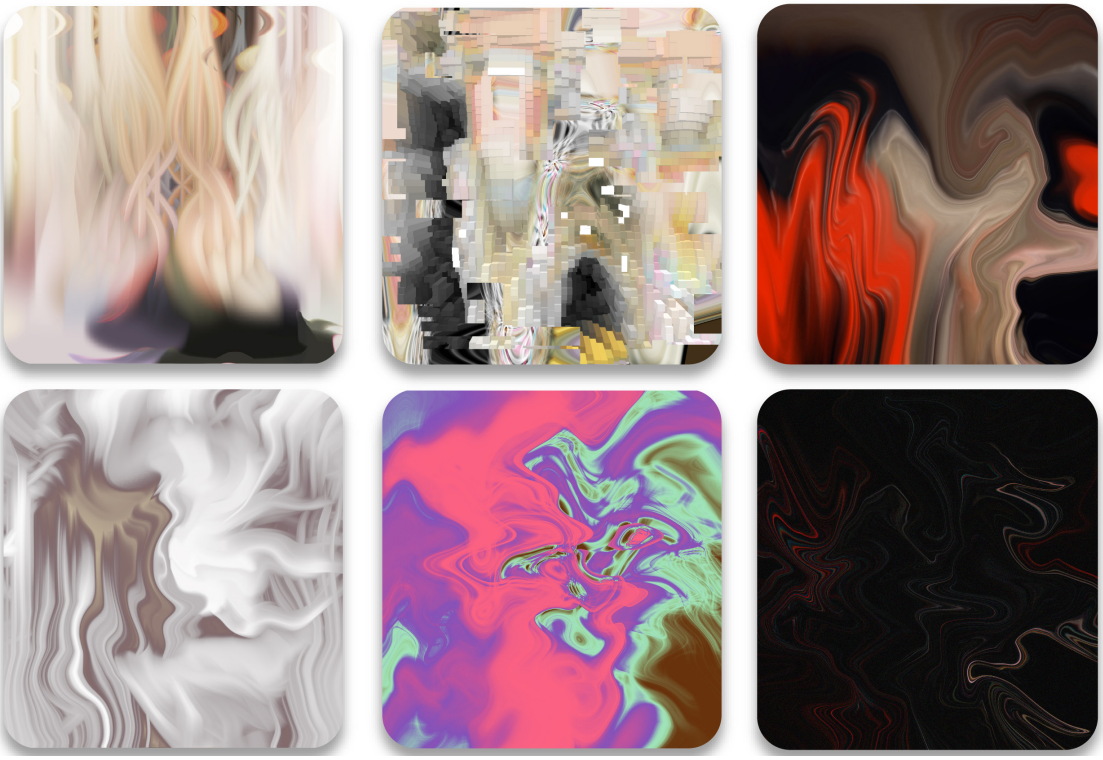


Fig. 19. The digital images of Cuba Street's locations

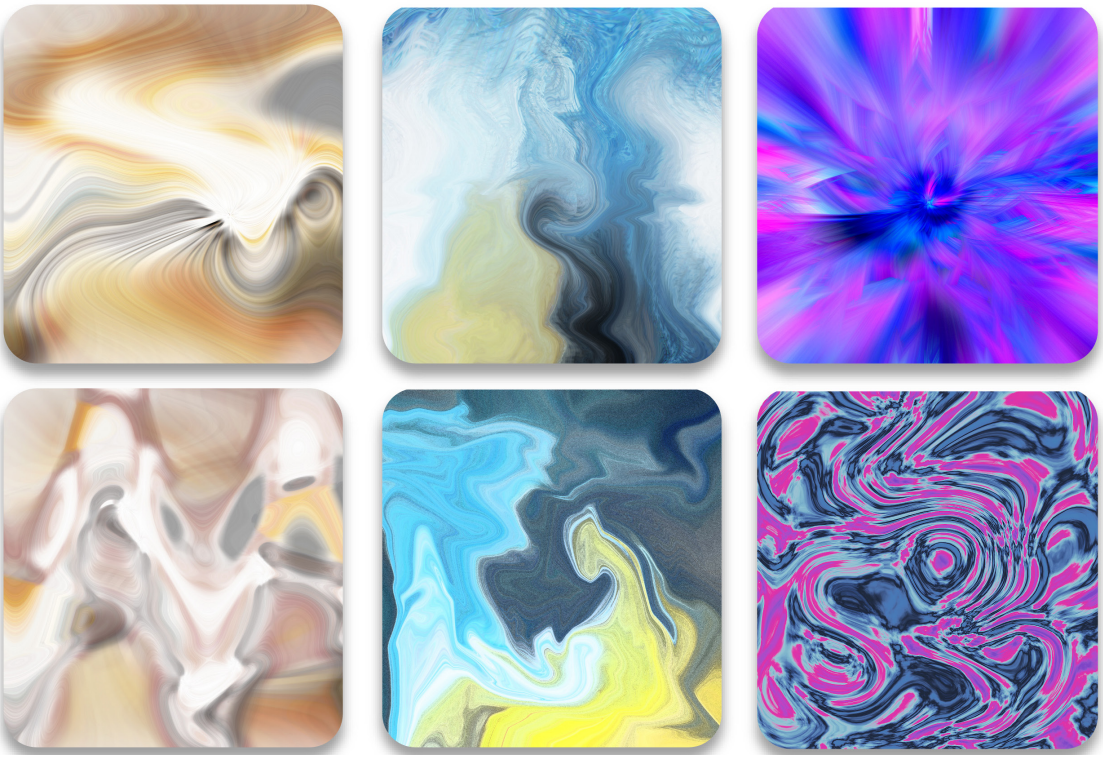


Fig. 20. The digital images of Cuba Street's locations

At this stage, I made the digital smell images of specific locations like restaurants, cafes and bars on Cuba Street based on the watercolor paintings. I took myself as a collector of smell information and integrated personal opinions into the collection process. The subjective understanding of locations is expressed through the personal color and emotion of the image. In other words, by combining subjective factors such as different atmosphere I felt in various environments, personal cognition, preference, and so on, these abstract smell images became the product that could reflected my further cognition of Cuba Street and my attempt to visualize smell. These highly personalized images made me reflect on the

research work and design ideas at that time, which paved the way for the following design content. They were more like a self-expression of my imagination of smell. This process takes into account how to establish effective communication with audiences.

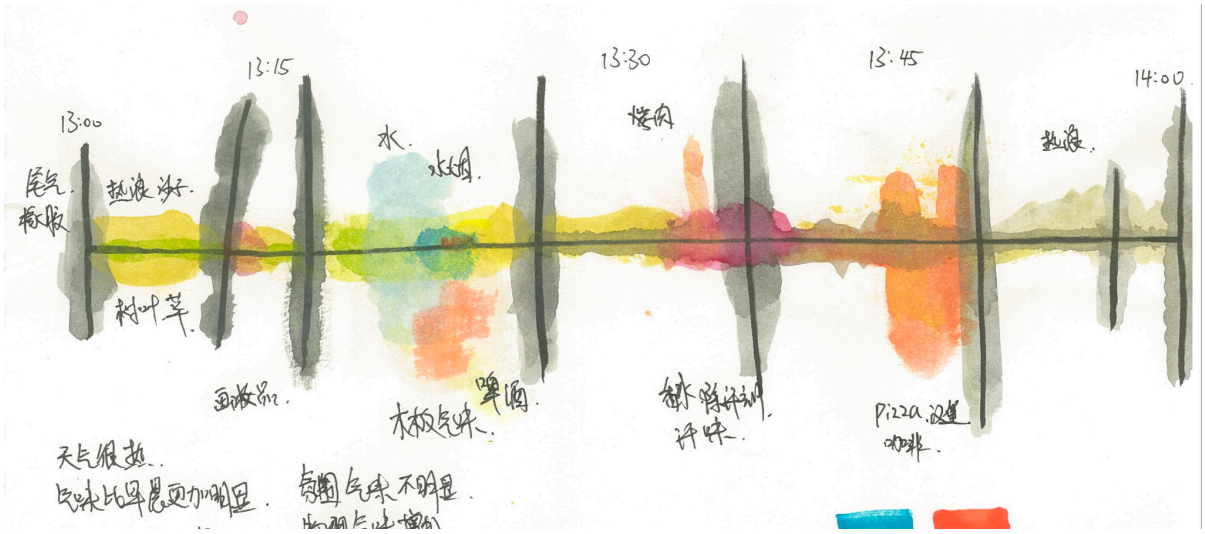



Fig. 21. The watercolor painting of Cuba Street

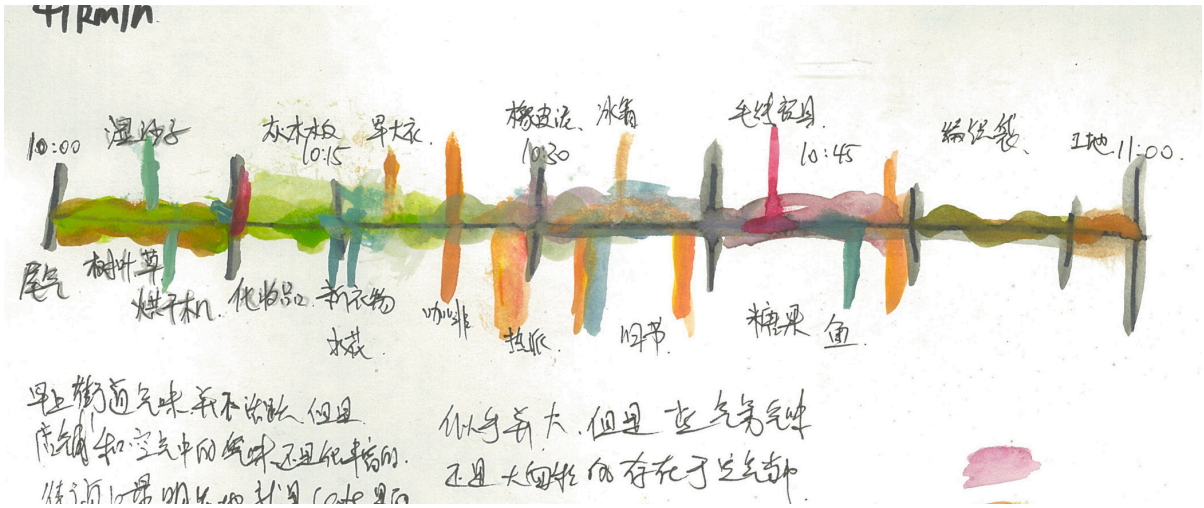



Fig. 22. The watercolor painting of Cuba Street

Thus, watercolor painting (Fig.21-22) grew and developed into a creative way of recording in map design and smell mapping from abstract and subjective memory flashbacks. The color in watercolor paintings is determined by my description and feeling of the smell. For example, the plant is green; the dusty wood is light yellow. Color saturation stands for the intensity of smells, and the higher saturation means the stronger smell. Besides, the influence of wind speed and direction on the movement track and range of the smell in paintings was also taken into consideration. The shape of smell is determined by its range, movement and direction. Also, it is also influenced by my fantasies about the smell. Cuba Street is represented by a simple straight line, which also contributes to the general location of the smell.

In this project, the direction, content of smell visualization and visual language were established through the change and improvement of the above smell recording methods, which also changed the design content of this project accordingly.

## 4.3 Symbols

The smell information collecting and recording methods have been discussed in the previous section. In the following sections, the symbols change in the order of the project's map design process will be described.

Symbols for this project include: smell, weather, wind, walking routes and streets.

### 4.3.1 The process of designing smell symbols

Visualization of smells has changed with the development of my understanding and perception of the spaces and the smell that exists in the spaces. When the smells are at the appropriate concentration or density, it is rather easy for us to identify them, to tell their differences and similarities by make comparison between them, and to associate different odors with different characteristics in our environment (Rodaway, 2002). The intensity of smell is a key factor in my design decisions and strategy, because it determines whether people can capture the smell or not. Continuous capture in place produces a mental image of the movement, extent and overlap of the smell. he selection and use of smell symbols will be described in the following parts.

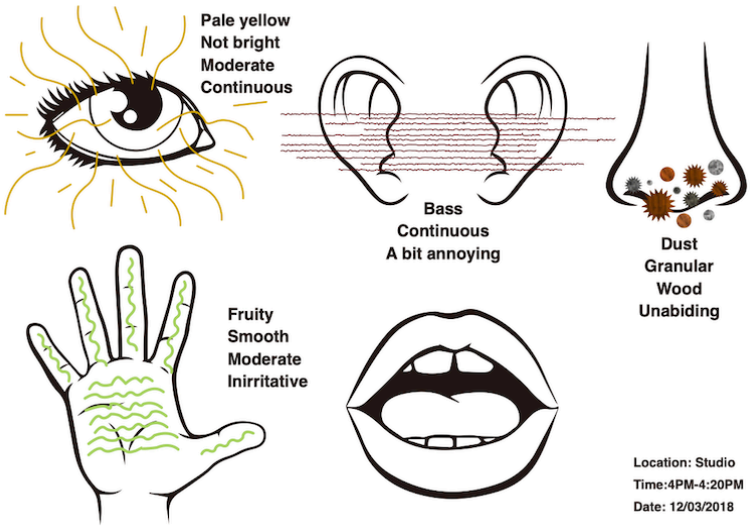



Fig. 23. The recorded sensory information of Massey University MDes Studio

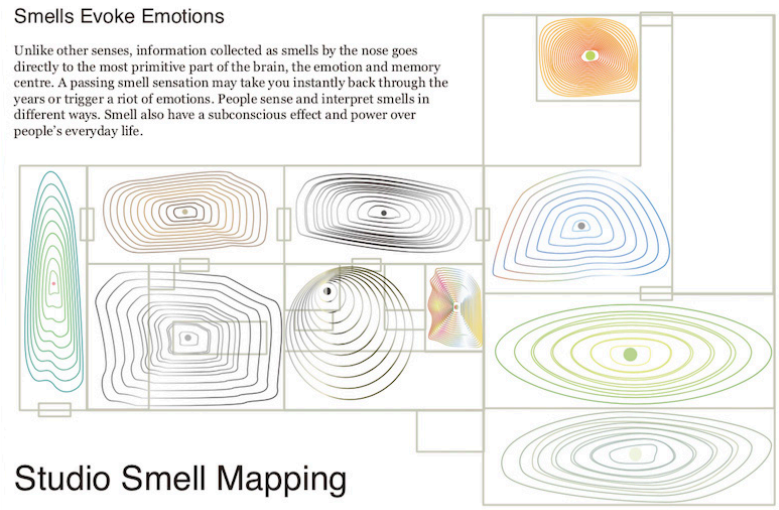



Fig. 24. The smell mapping of Massey University MDes Studio

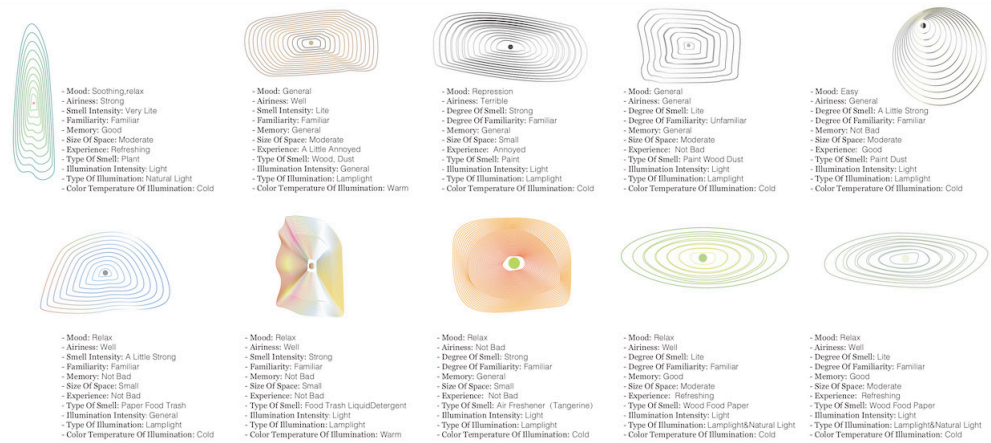



Fig. 25. The smell mapping of Massey University MDes Studio

Before I decided to choose Cuba Street as the object of study, I had tried to collect sensory information, mapping smell information and making the map legend. During this process, I had thought maps are a tool for presenting objective data. I had also tried to make the map as accurate, comprehensive and realistic as possible by recording and mapping all the factors that might affect the smell. When the Massey University MDes Studio was tested as a specific location, I used concentric circles with different colors to represent the characteristics, range and movement of the smell. I used concentric circles with color to represent the characteristics, range and movement of the smell. At the same time, I also tried to locate the smell and my perception towards it by placing different color points in the center of the concentric circle. The colors of the concentric circles and color points in the center of the concentric circle were influenced by my experience of the smell as well as my subjective evaluation of it. Many subjective factors like such as mood, degree of familiarity, degree of preference to smell and other factors were shown with a legend.


Fig. 26. The smell mapping of the area from Massey University to Oriental Bay


Fig. 27. The smell mapping of Cuba Street


Fig. 28. The smell mapping of Cuba Street

While exploring the area from Massey University to Oriental Bay and the early explorations of Cuba Street, in order to reflect the richness and rhythm of the smell, I changed the smell symbol from the concentric circle to the gradient curve.

At this stage, I have been thinking about how to accurately present the smell information. As Barton and Barton (1993) claims, the meaning of the map is partly achieved through its selectivity or the exclusion and inclusion of information. In the following process, the obsession with the so-called accurate information gradually dissipated as I conducted my studies in maps deeper. I began to realize the importance of subjectivity in conveying smell information and maps. After all, it is inevitable that everyone indeed has their own subjective judgment about smell.

In the progress of the project, I also tried to map the sound of Cuba Street, which let me find that it was much softer, more detailed and easier to understand in the representation of sound and smell by applying a large number of graphics than the curves. Vozenilek (2015-2016) also claims that the direction of symbol is most commonly used to indicate the direction of motion, such as wind direction. It is hard for the serried gradient curve to show the visual effect when printed on the paper, which caused the vagueness in the aspect of transmitting information. In view of this, I changed the smell symbol from curve to geometric shape.

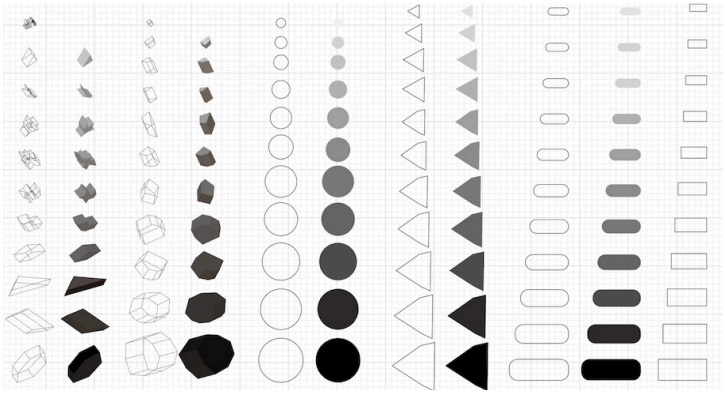


Fig. 29. The sound symbol systerm of Cuba Street

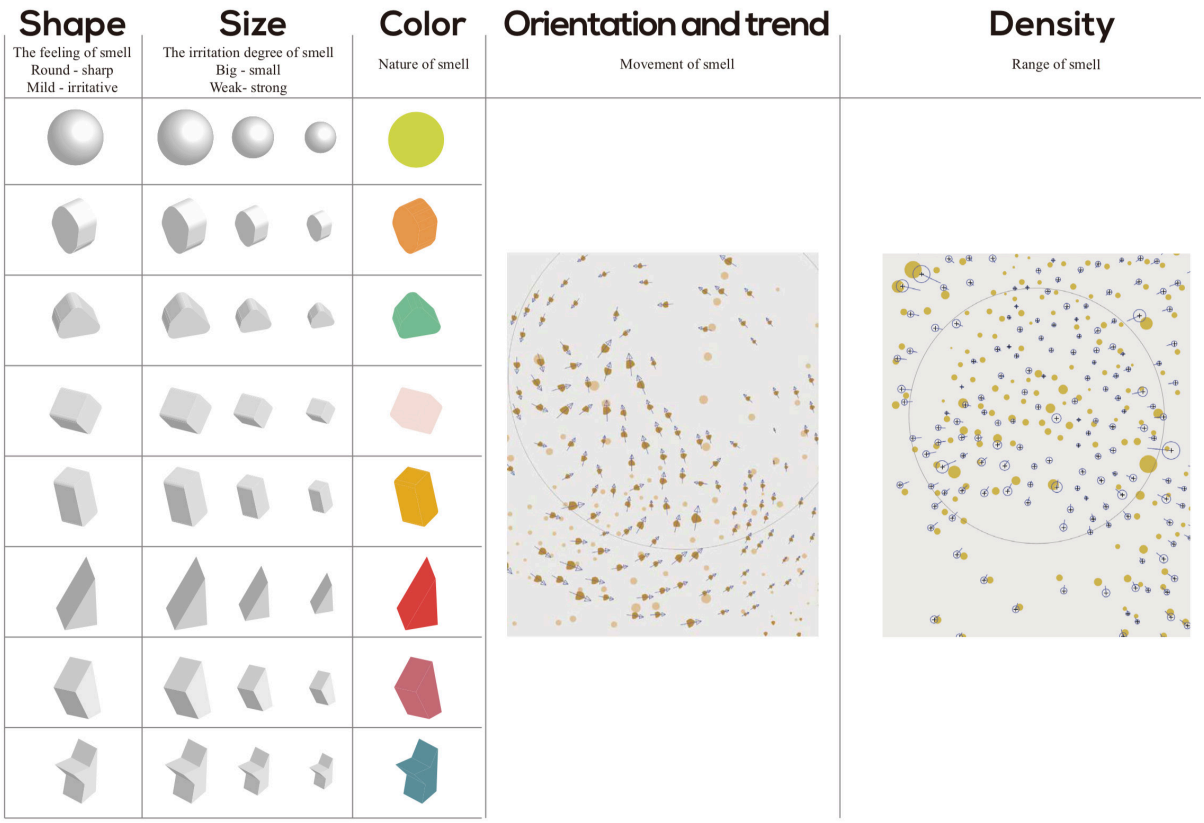



Fig. 30. The eight geometric shapes systerm of Cuba Street's smell mapping

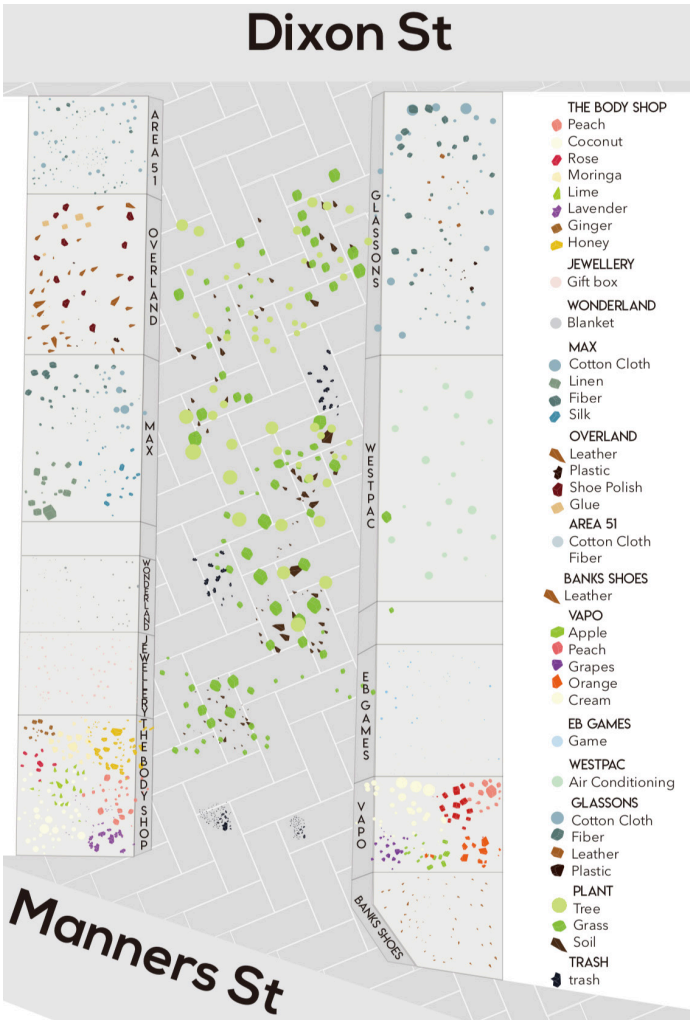



Fig. 31. The eight geometric shapes systerm of Cuba Street's smell mapping

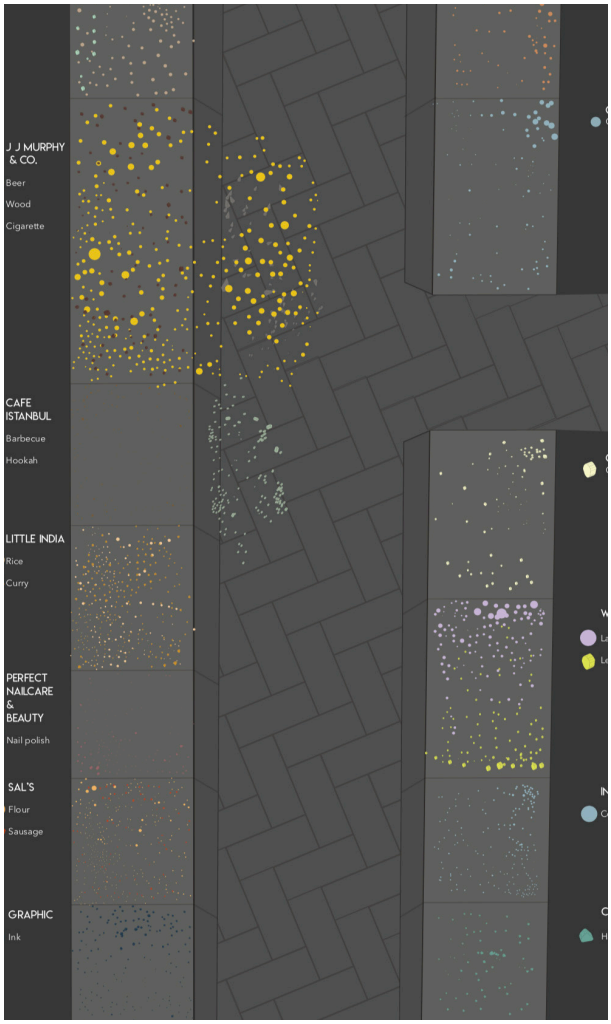



Fig. 32. The eight geometric shapes systerm of Cuba Street's smell mapping

Based on the prototype of the sound symbol system, I evolved eight geometric shapes as smell symbols. For this project, how to visualize and arrange smell information is the one of keys to solve effective communication between the smell maps and audiences. At this stage, different shapes and sharpness represent different types of smell molecules and different levels of irritation. For instance, the smooth shape represented bland and mild smell while the sharp shape represents tangy and spicy smell. Furthermore, I used the shapes' layout and orientation to represent the movement of smell in space. The intensity of the smells was indicated with the size and number of these shapes and the smell characteristics were shown with colors. The range of the smell was shown by the density of the shape. The map legend was placed in the position of the corresponding smells; day and night was distinguished with light and dark backgrounds; walking areas were represented by textures; streets that run through Cuba Street were also presented. At this stage, I started to consider the effects of time, wind, and human activity on smells and tried to map them.

Subsequently, in order to guarantee that the audience wouldn't suffer from too much visual interference and focus on the smell information, I decided to simplify the map content. Specifically, I changed the street into a simple outline, without displaying street names and walking areas; I made the geometry smaller on the map in order to present more details of the smell, and also to better appear the smell molecules floating in the space; I reduced the eight geometric shapes to five by removing the circle symbol which had no directivity and other two similar shapes.

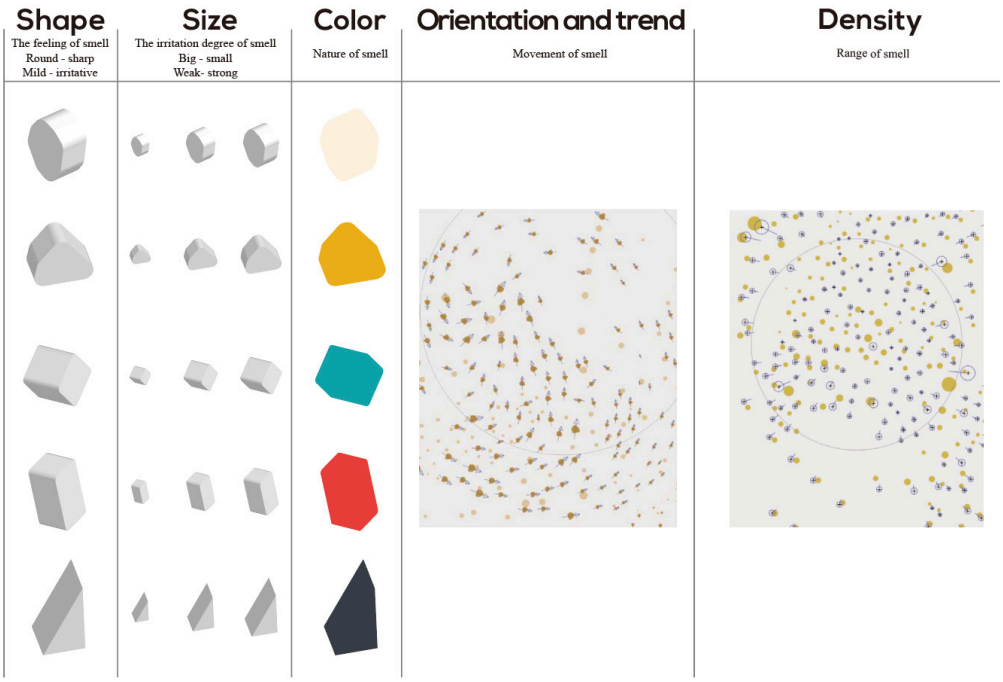



Fig. 33. The  five geometric shapes systerm of Cuba Street's smell mapping

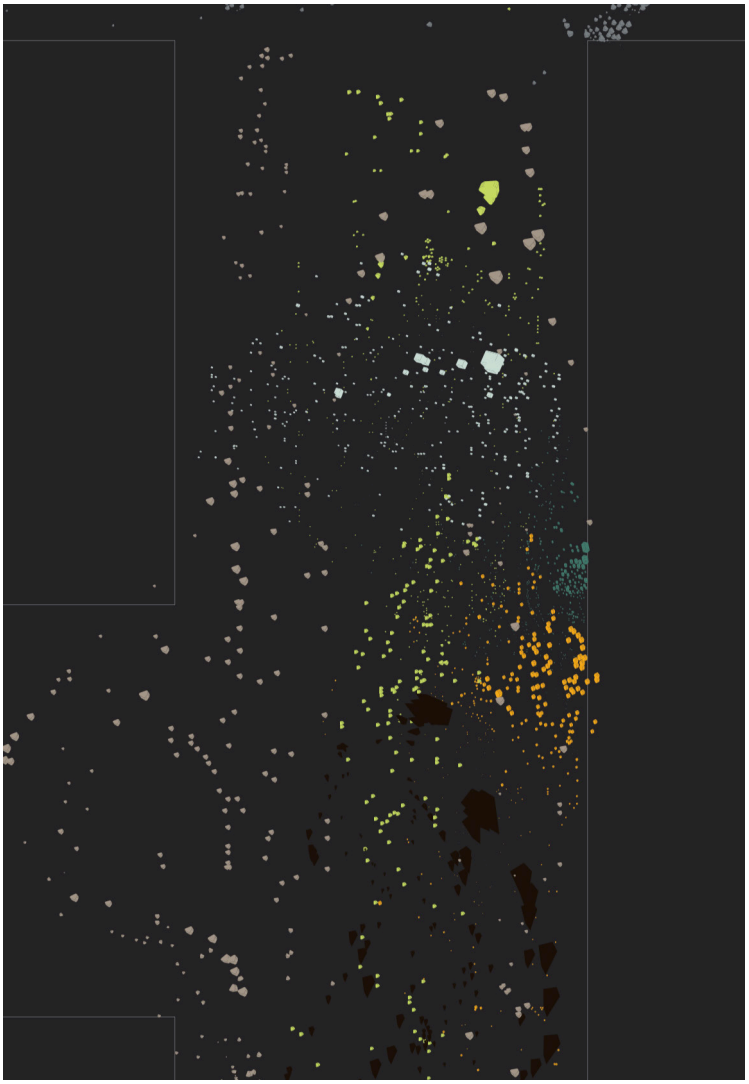


Fig. 34. The  five geometric shapes systerm of Cuba Street's smell mapping

The above processes of map design cannot be separated from these: with more experience of Cuba Street, my understanding of this area as well as the relationship between myself and this area got deeper; I learnt and selected the mapping conventions based on the characteristics and content of this project; I tried to enhance visual information and effects from the perspective of information transmission in order to achieve a better communication with the audiences. Further in the subsequent processes, I will also take the final printing effect, perfection of details and other further promotion factors into full consideration.

### 4.3.2 Smell dots

Fig. 35. PBS NewsHour. 2016. What a smell looks like

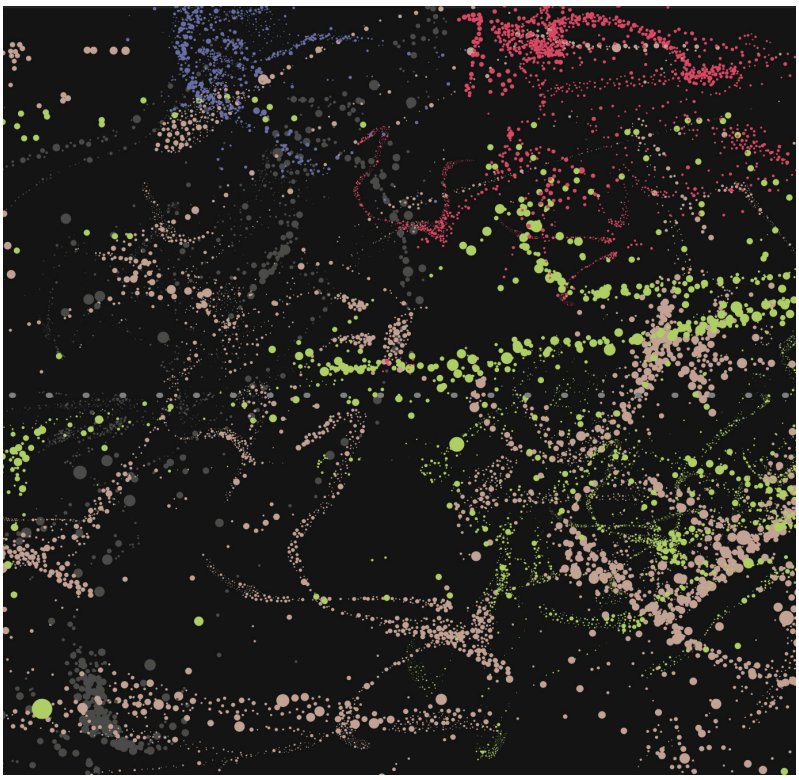


Fig. 36. A part of the final map

Considering the final size of the smell maps and the sizes of the smell shapes on the map, it is difficult to identify a large number of different shapes, and the process of recognizing these different shapes is prolonged, which will be an obstacle to achieve the smoothness of information transmission. Robinson and Petchenik (2011) argue that it is a good approach to use simple concepts to illustrate more complex things. So I chose to apply simpler colored dots instead of the shapes to express the movement direction and stimuli of smell. Therefore, the Cuba Street's smell landscapes are represented by the arrangement and distribution of colored dots with different colors and different sizes. This method is similar to McLean's. However, according to my use of the design principles of contrast, movement, balance and rhythm, the specific use of dots was significantly different in the aspects of size, density, layout, and color. The difference comes from the PBS NewsHour's (2016) video as mentioned above. Likewise, my own smell experiences and cognition of the smell landscapes are also important. The air is more like a flowing stream than a stationary one. Smells don't move like clouds but more like an octopus, spreading its tentacles from one direction to the other. Based on these findings, I changed the smell graphics arrangement from the twisted blob to the bifurcate curves. The smell dots' size, color, and degree of density relate to the design principles of contrast, movement, and rhythm.

### 4.3.3 Prioritize information

The Cuba Street's environment context for a specific period of time was given to the audience through the presentation of the symbols of the weather, wind, walking routes, streets and the texts of date, time, temperature, wind speed and experience summary. These factors presented on the maps can show audiences the smell experience I got in certain environment context and help them to imagine what kind of smell experience they will get. Besides, texts of time point, the symbol of the walking route and the arrow are given to indicate my route, direction and where I am at different times.


Fig. 37. The information parts of a final map and old version maps

In this project, all the data of weather, temperature, wind direction, wind speed and the weather symbol pattern comes from the website: Time and Date AS (n.d.). They not only provide audiences with external factors that affect the smell but also explain the changes and formation of smell landscapes on map.

The wind symbols are represented with the blue icon instead of the traditional compass hands to indicate the north direction. The letters show the directions. The blue wind icon changes according to the data of wind speed and direction. The larger the wind speed data, the more lines the icon has (see Fig.9-10). The original version used only the red line to represent the north, and did not show the size of the wind speed on the wind icon (Fig. 37).

I have presented my summary of every smell experience to audiences through the text, which helps them have a general understanding of smell landscapes presented on the map.

The outline of Cuba Street can help to locate the smell information. In this project, the smell and its characteristics are affected and defined by its location and source. Taking the infrastructure and shops on Cuba Street for an example, their location is fixed, but the smell they emit is affected by time and environmental factors. In order to present and compare the effects of different factors on odor, it is necessary to provide the basic orientation and location identification in order to make sure that the audience can have a general understanding of the place.

The above contents interpret the communication design principle- hierarchy. In this project, all the information is divided into two levels. Smell is the main information, which shows the most impressive central idea after the audience read the map. The rest of the map belongs to primary messages, which is used to support the smell information. Meanwhile, the smell information also endows the primary messages with meaning.

# 4.4 Color

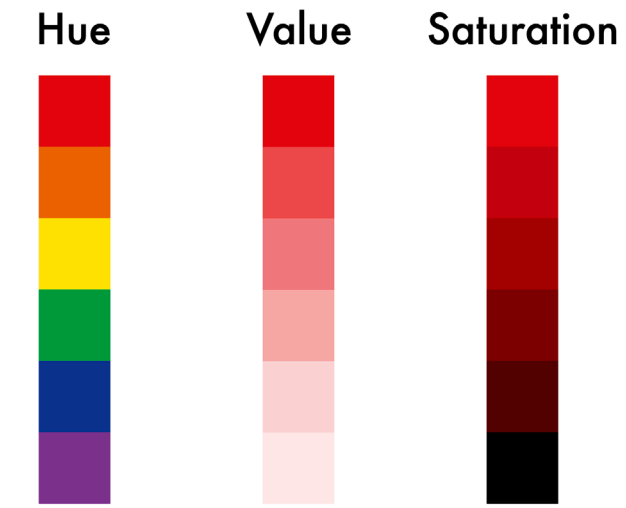



Fig. 38. Hue, value and saturation

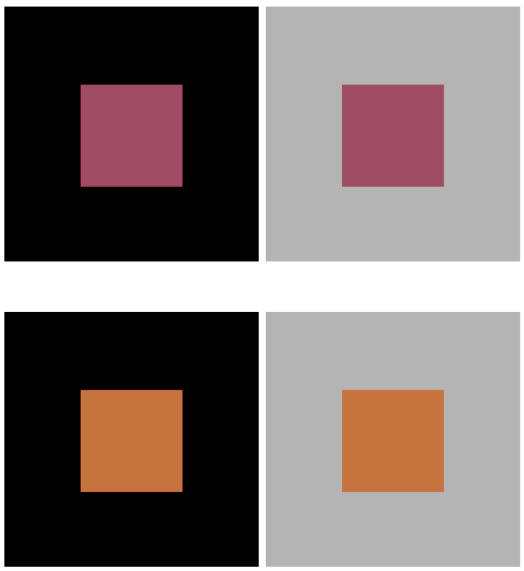


Fig. 39. The colors contrast about value

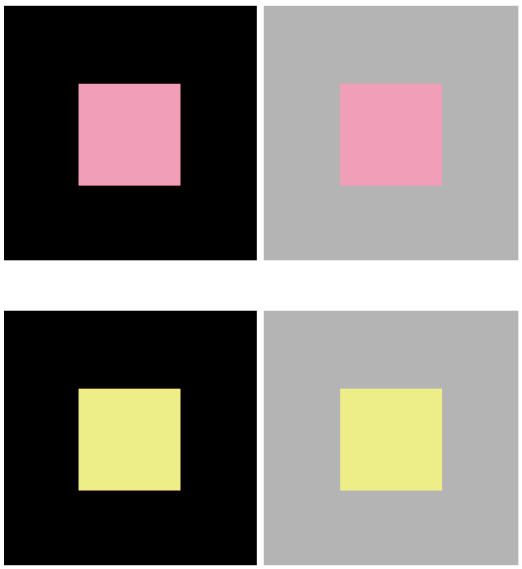


Fig. 40. The colors contrast about value

Colors are determined by its hue, value and saturation (Fig.38), and differences appear with the change of the parameter (Vozenilek, 2015-2016). Hue refers to the variety of colors we observe, and a lot of colors can be produced by adjusting the value and saturation. Value refers to the degree of light and dark, and it is affected by the background. The dark color is more vivid when it is surrounded by a dark background while the light color becomes much fresh (Fig.39). Compared with a gray background, it is not easy to cause a dazzling outline (Fig.40). Saturation refers to the purity of the color.

Frascara (2004) claims that images must have a strong visual impact so that it can stand out from the context. In order to avoid dazzling outline caused by the white background, which will mislead the audience to generate random noise while reading the maps, the darkness is selected as the background of

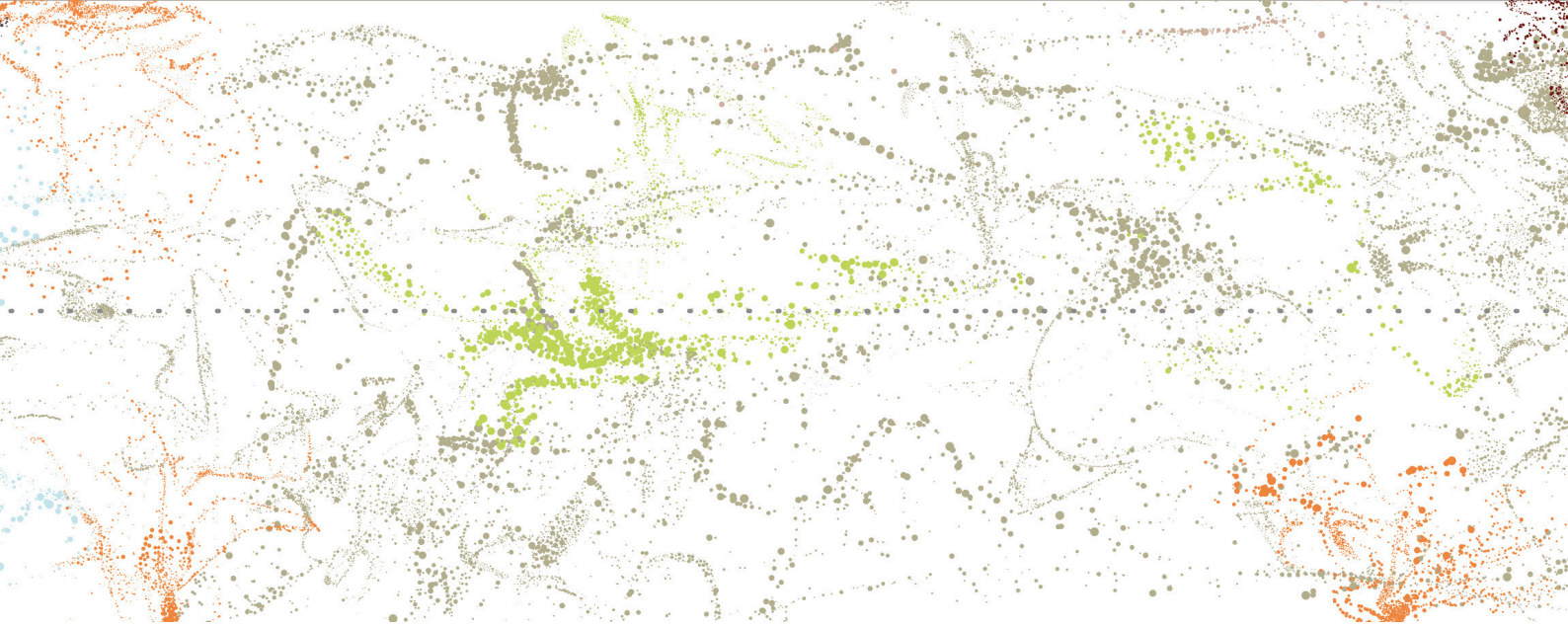


Fig. 41. A test about white background of the final map

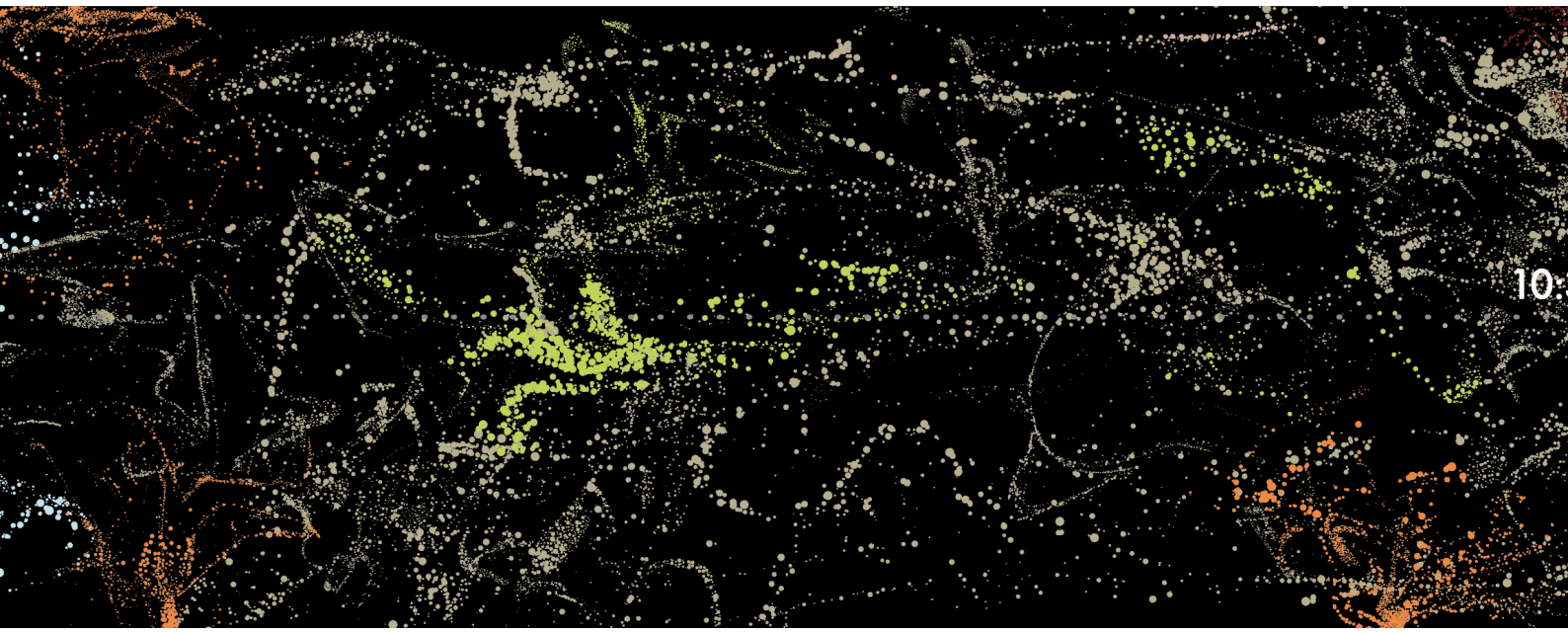


Fig. 42. A part of the final map

the map so that the smell dots can be highlighted and a better visual effect can be achieved. In addition, light background was considered to reduce the visual effect of light dots while dark background was highlighted (see Fig.40-41). All text on the maps are white against the dark background.

The wind direction system emphasizes the north in red and the wind direction symbol in blue. Considering that wind has a significant influence on the movement, range, direction and intensity of smells, the wind direction is shown in the map in the form of combination of compass and icon, while the wind speed is represented by specific data. Both Cuba Street's symbol and walking route are marked with light grey, which can thus allow them to jump out of the dark background without affecting the visual effect of scent dots.

The characteristics of smell and different smell dots are represented with colors. In my research, hue and saturation of colors are influenced by smell in the following aspects: essence, source (place, object and human activity, etc.), aroma, subjective experience (like or hate, familiar or strange, culture, emotion, memory, etc.). Intensity, aroma, and subjective experience determine the value. The recording methods of handwritten notes and watercolor painting that have been described above are also important reference of the color choices.

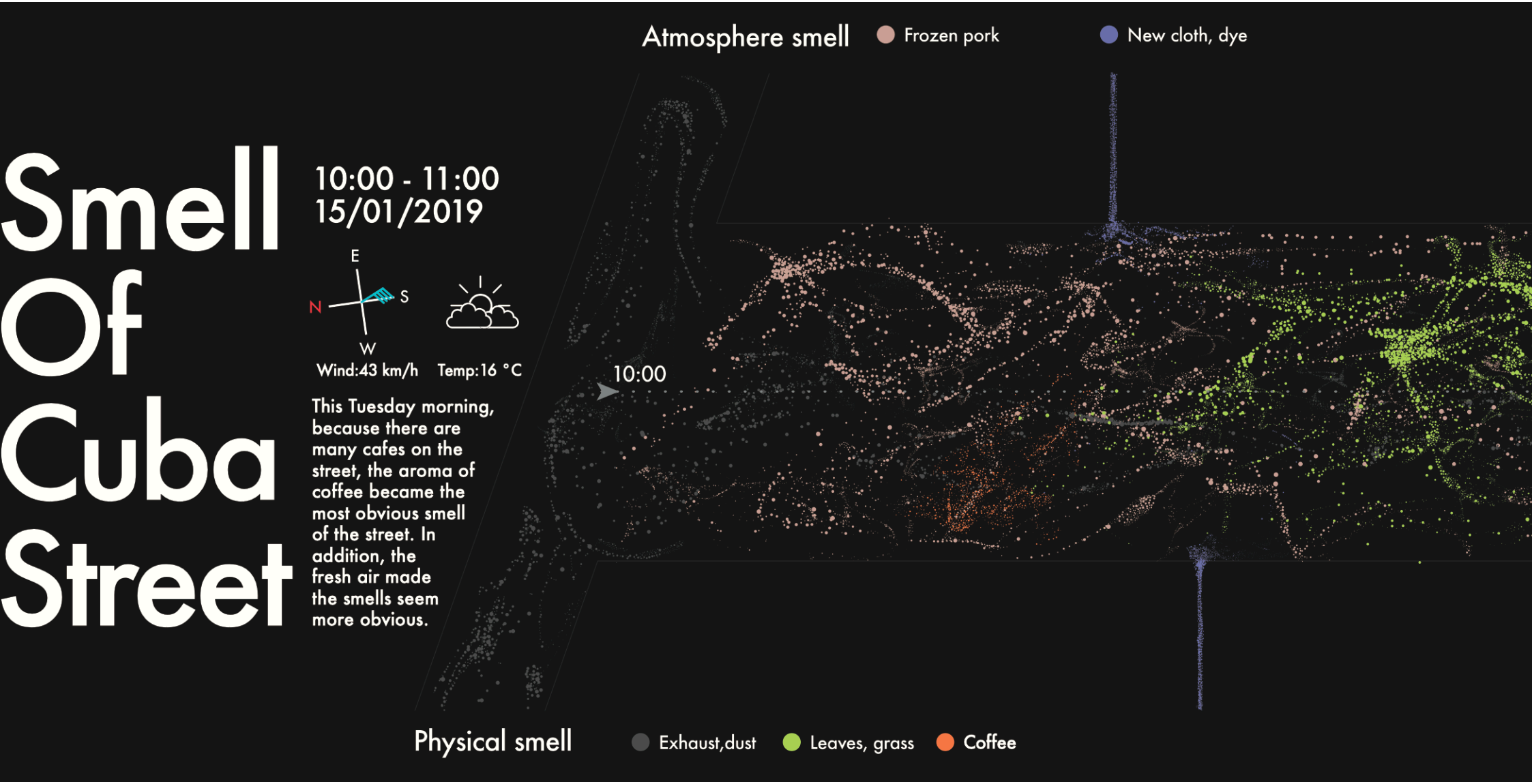
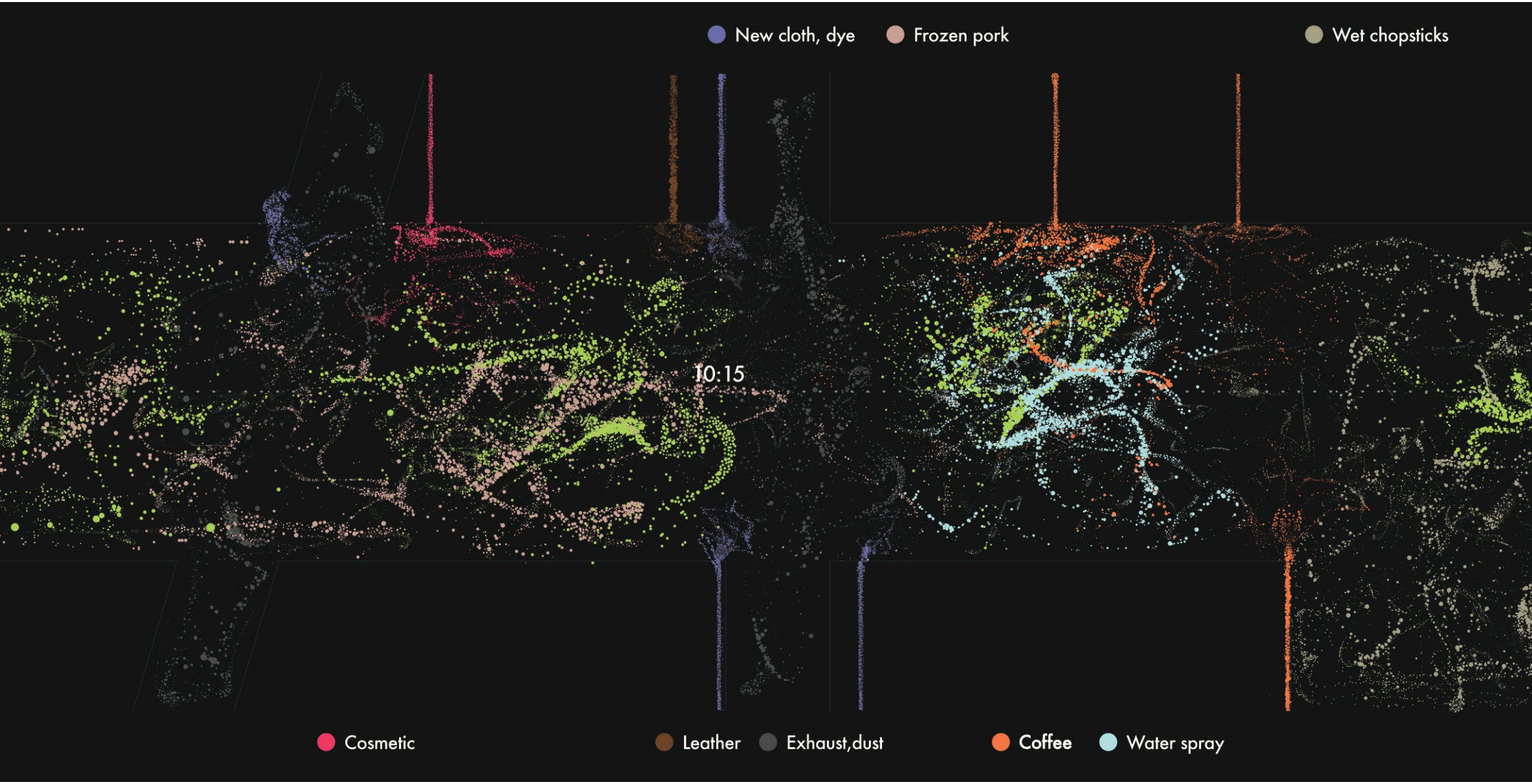
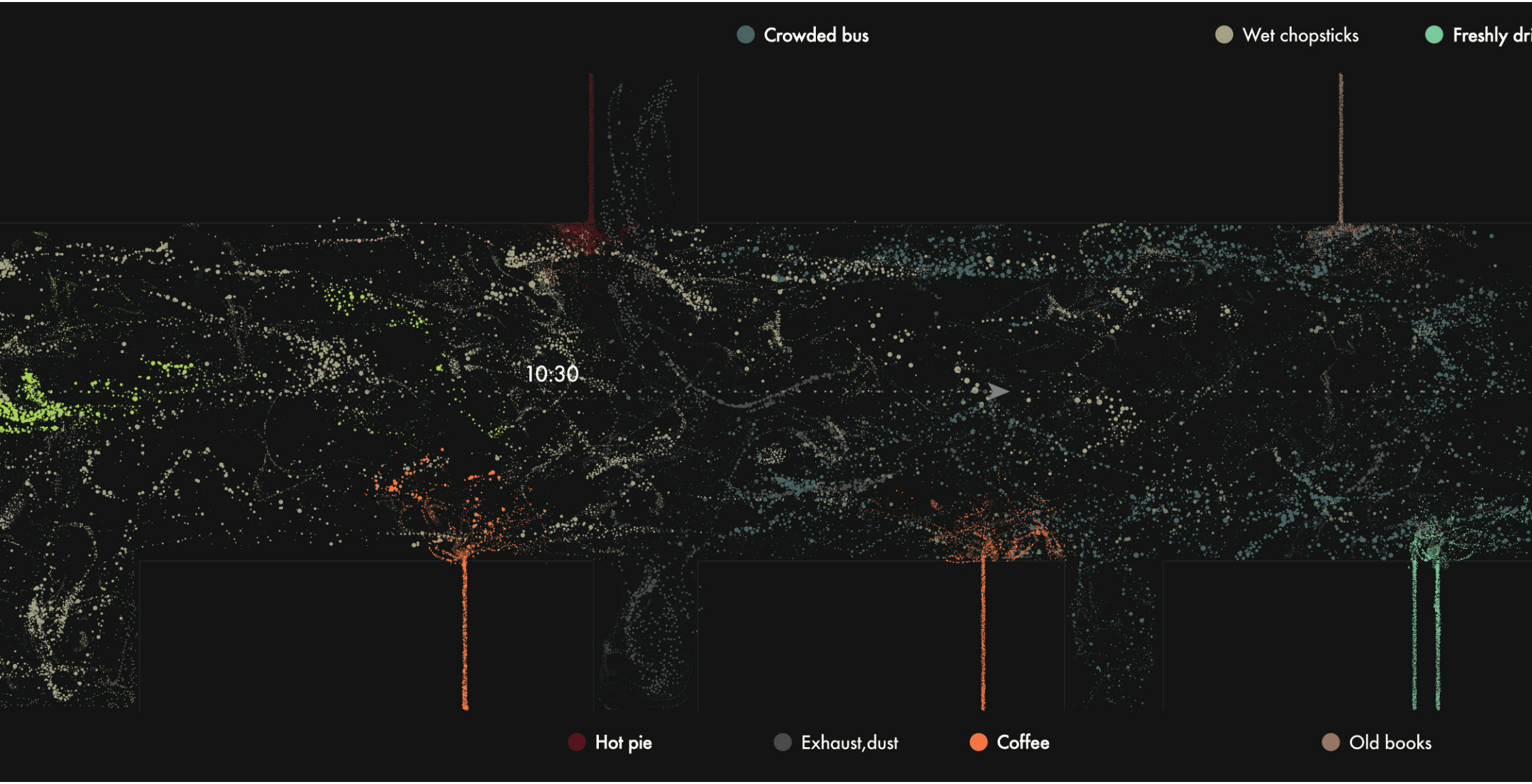
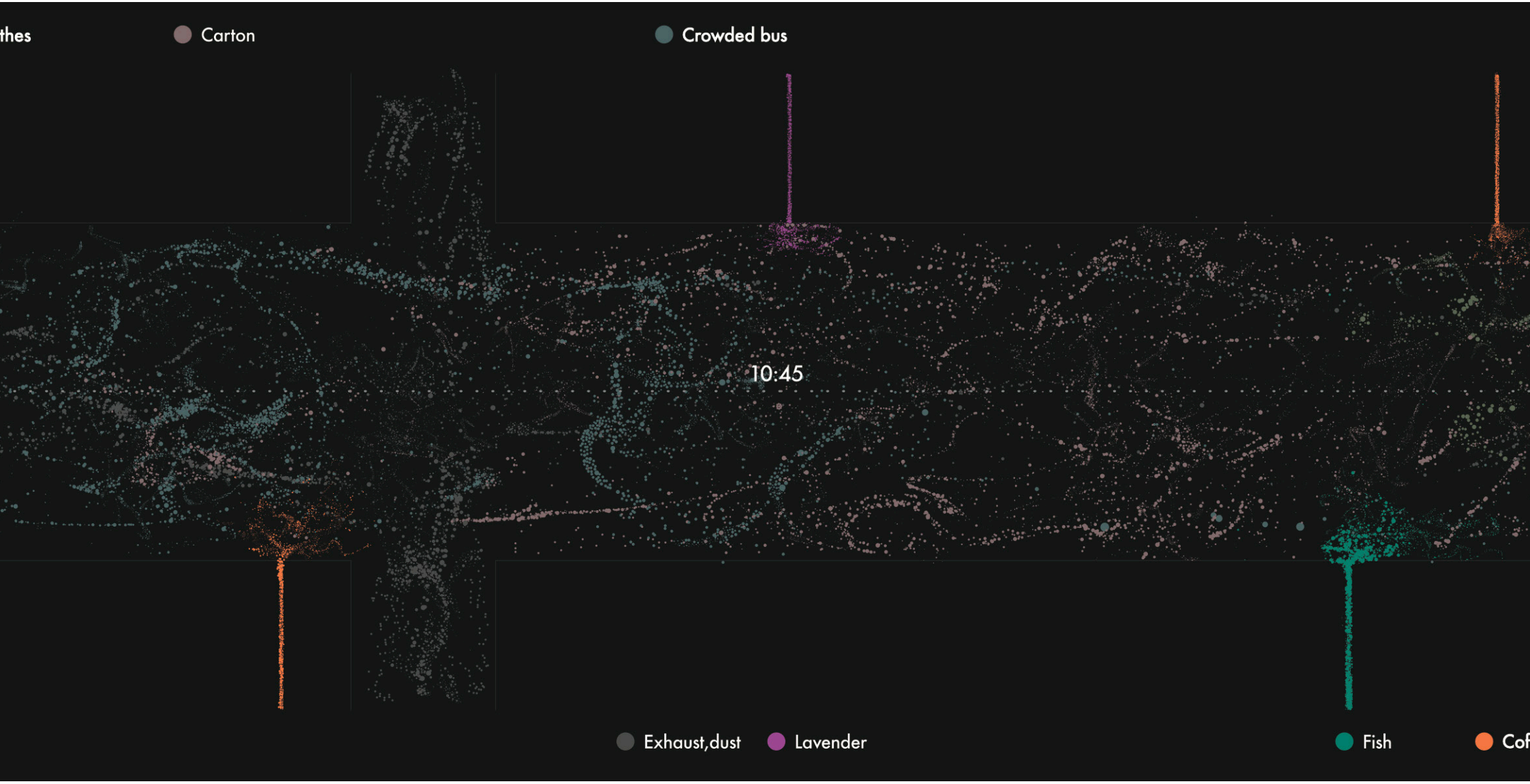
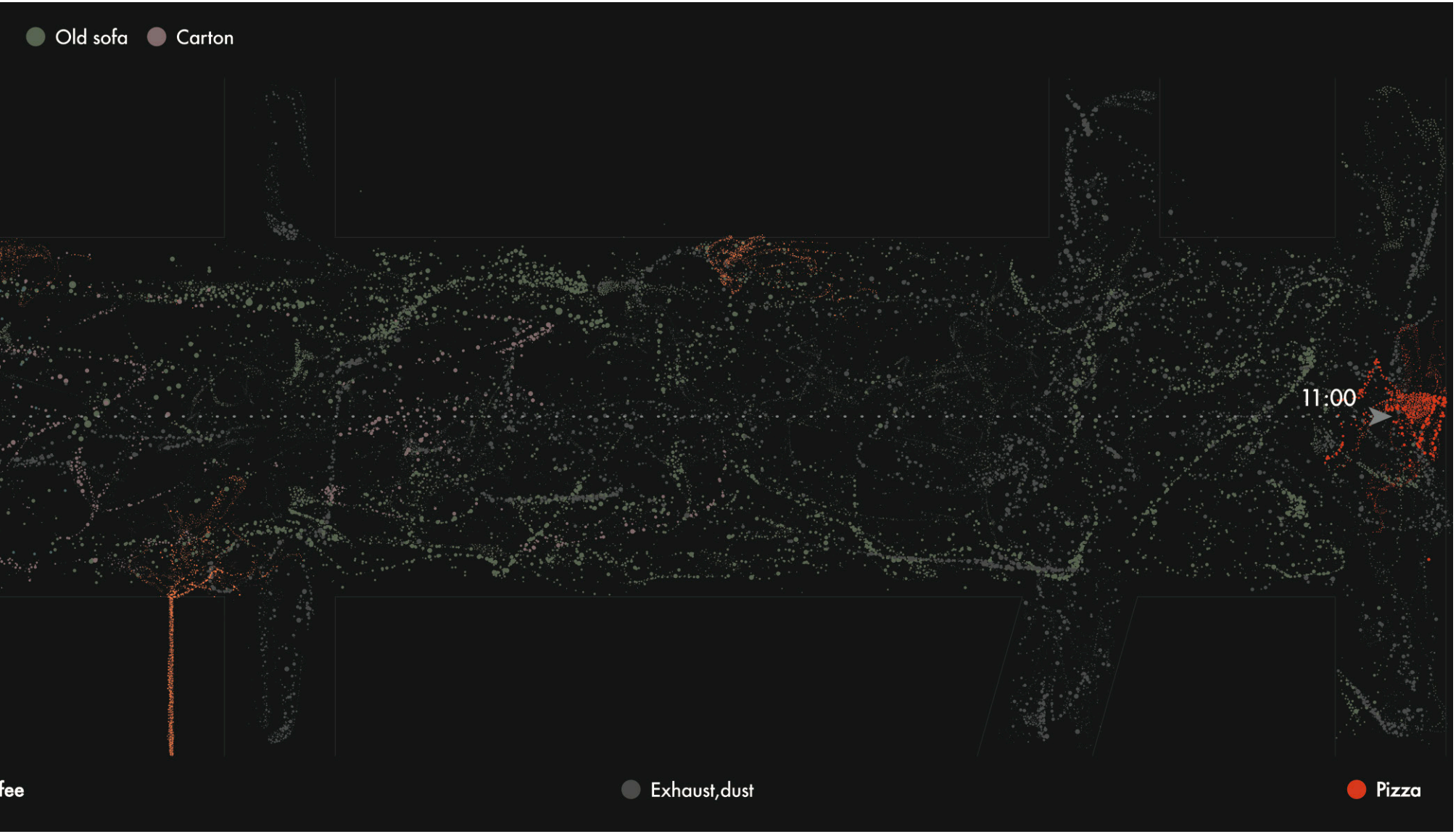



Fig. 43. The final maps


New cloth, dye
Frozen pork
Wet chopsticks
10:15
Cosmetic
Leather
Exhaust,dust
Coffee
Water spray


Crowded bus
Wet chopsticks
Freshly dri
10:30
Hot pie
Exhaust,dust
Coffee
Old books


thes
Carton
Crowded bus
10:45
Exhaust,dust
Lavender
Fish
Cof


Old sofa
Carton
11:00
fee
Exhaust,dust
Pizza

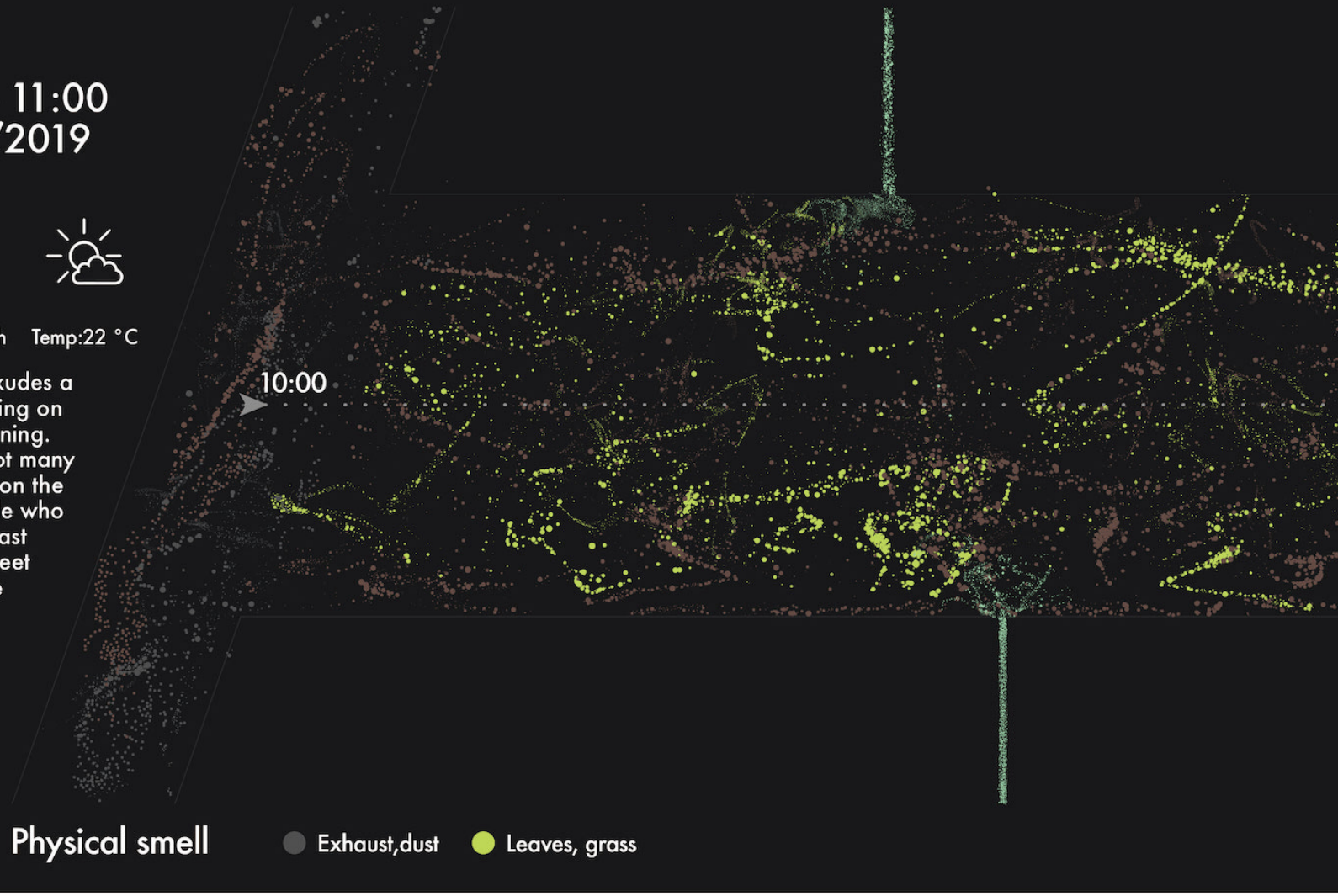
# Smell Of Cuba Street

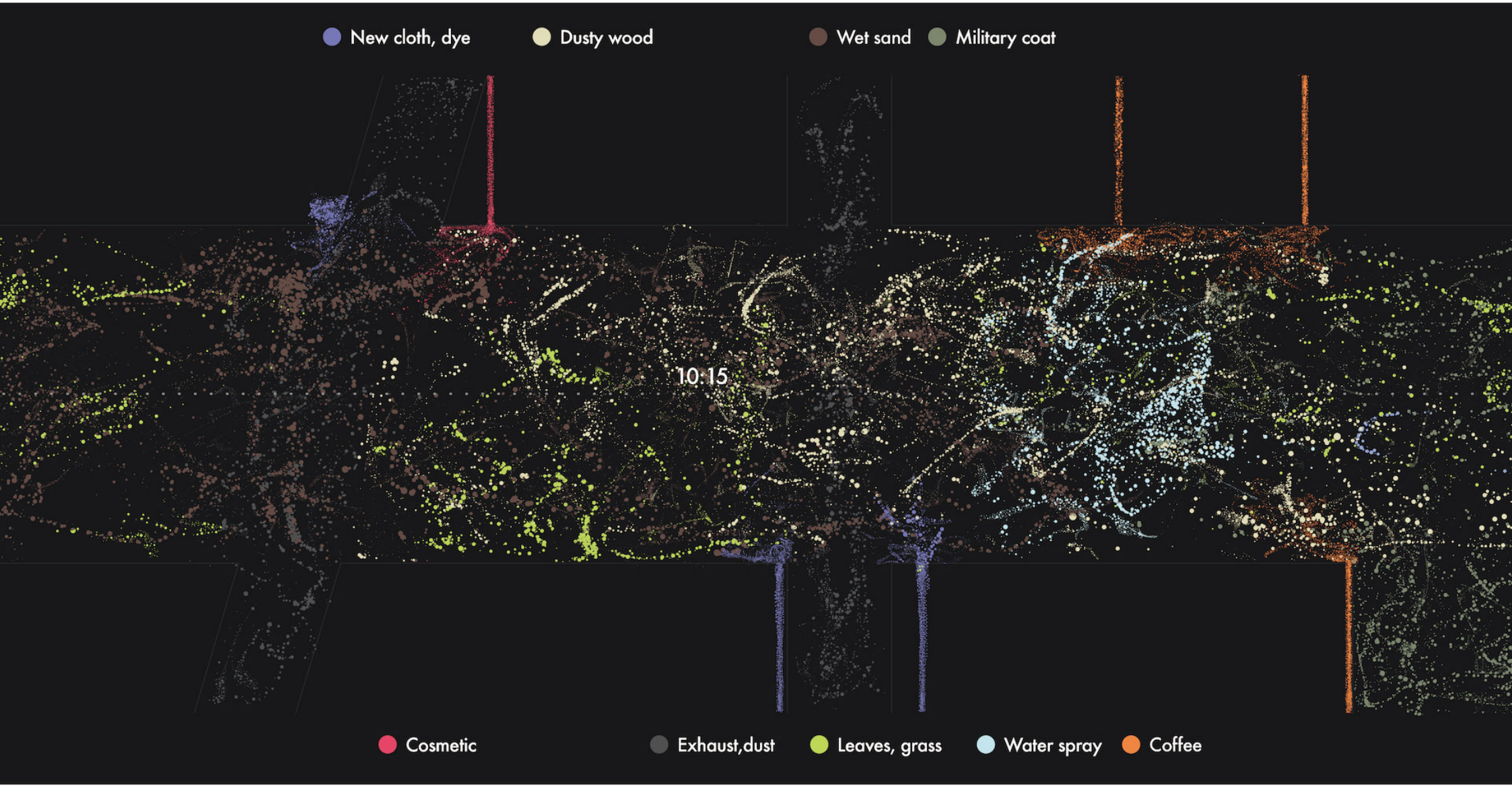
10:00 - 11:00
06/01/2019

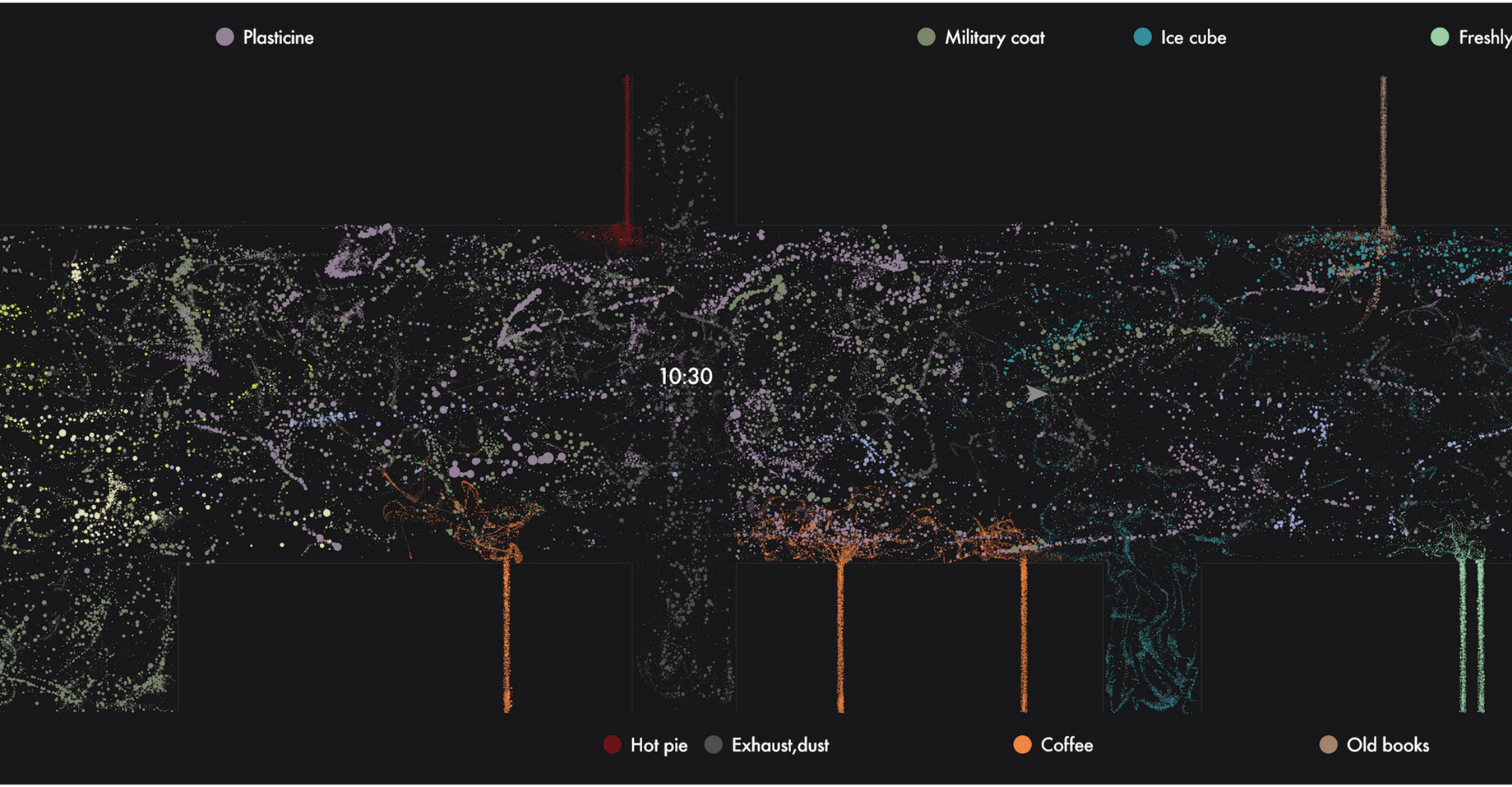
E
N
S
W

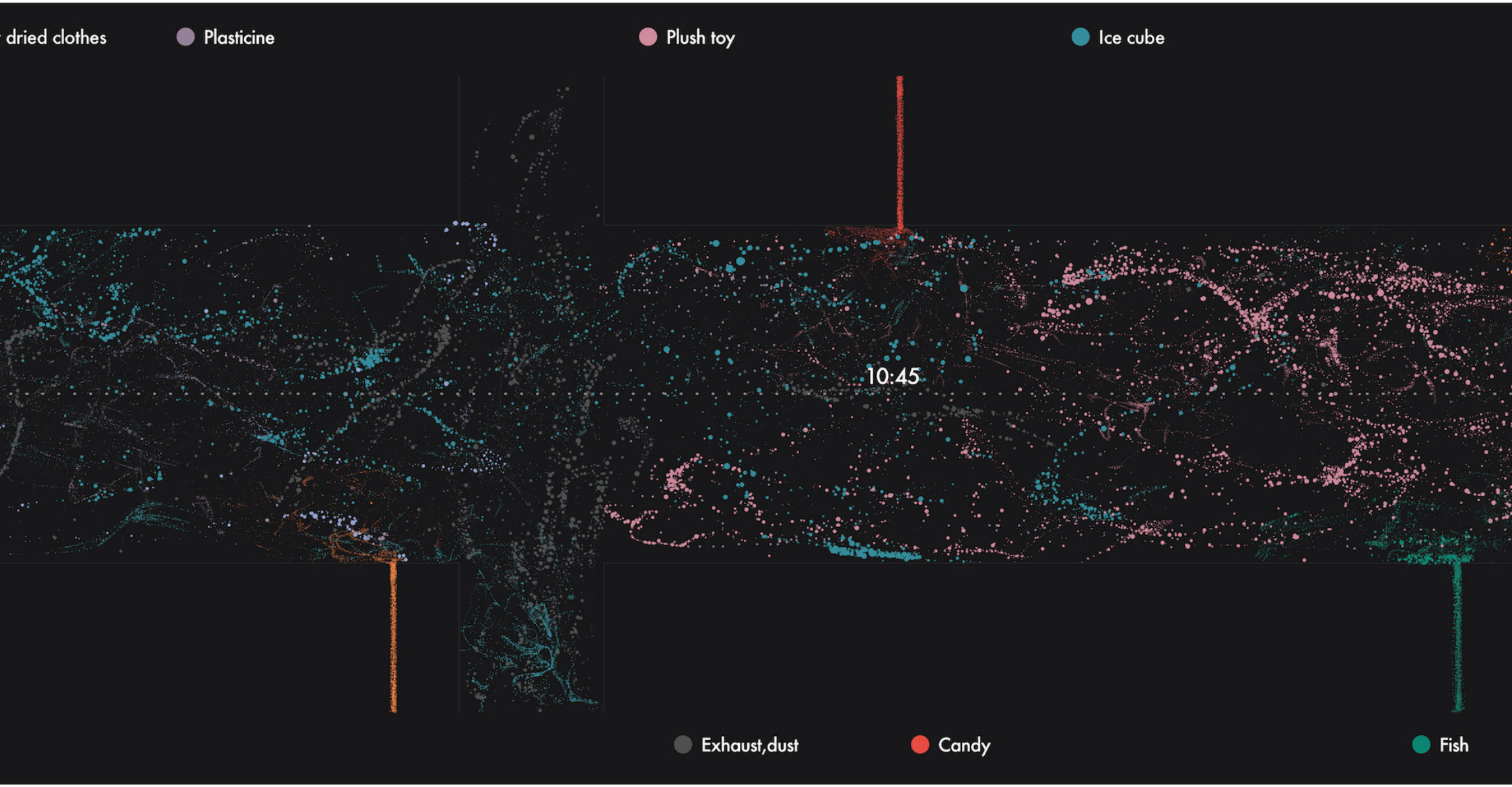
Wind:41 km/h Temp:22 °C

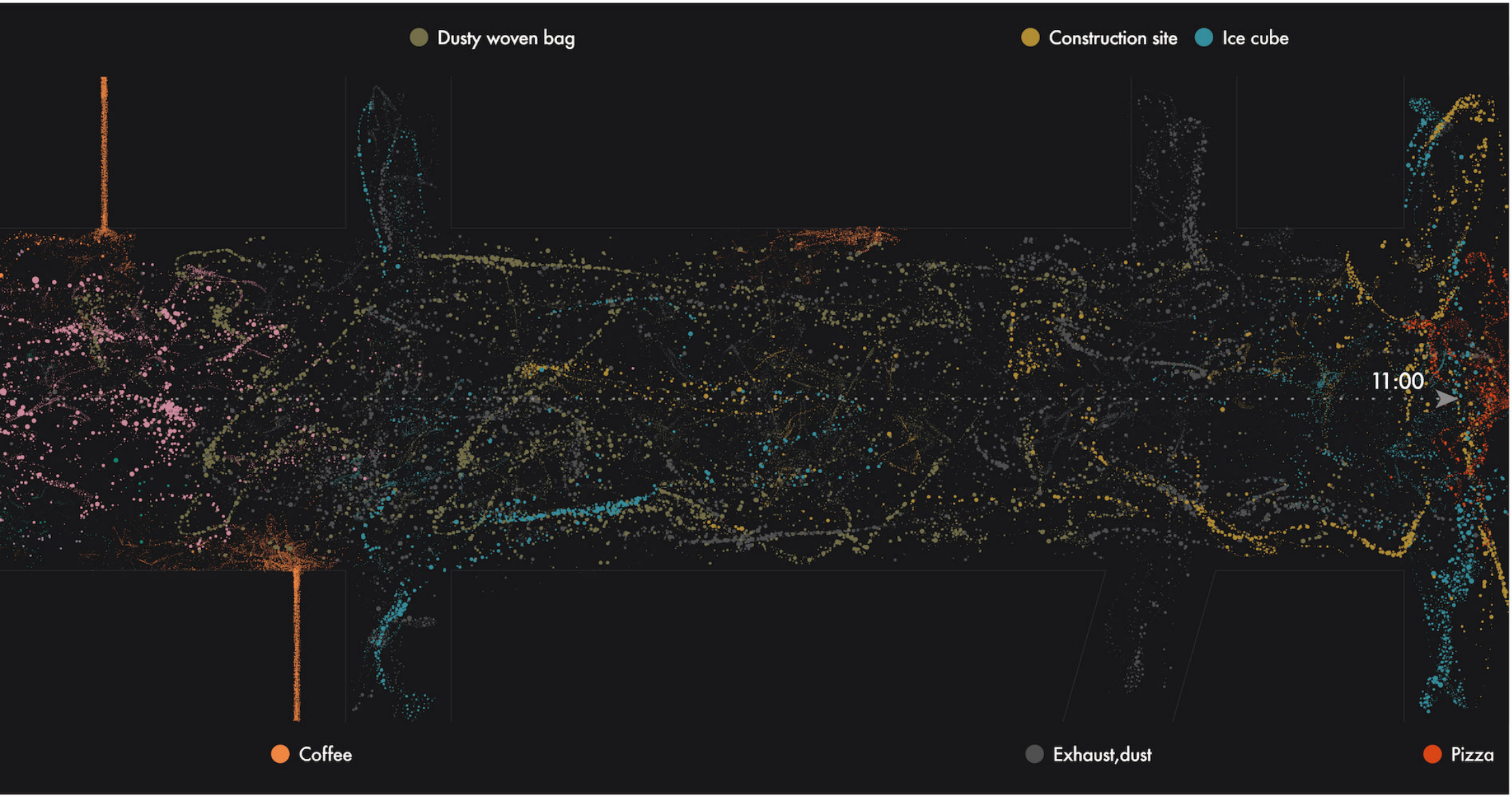
The street exudes a relaxed feeling on Sunday morning. There are not many pedestrians on the street. People who have breakfast make the street full of coffee smell.Other shops also exude their smell.




New cloth, dye
Dusty wood
Wet sand
Military coat
10:15
Cosmetic
Exhaust,dust
Leaves, grass
Water spray
Coffee


Plasticine
Military coat
Ice cube
Freshly
10:30
Hot pie
Exhaust,dust
Coffee
Old books


dried clothes
Plasticine
Plush toy
Ice cube
10:45
Exhaust,dust
Candy
Fish


Dusty woven bag
Construction site
Ice cube
11:00
Coffee
Exhaust,dust
Pizza

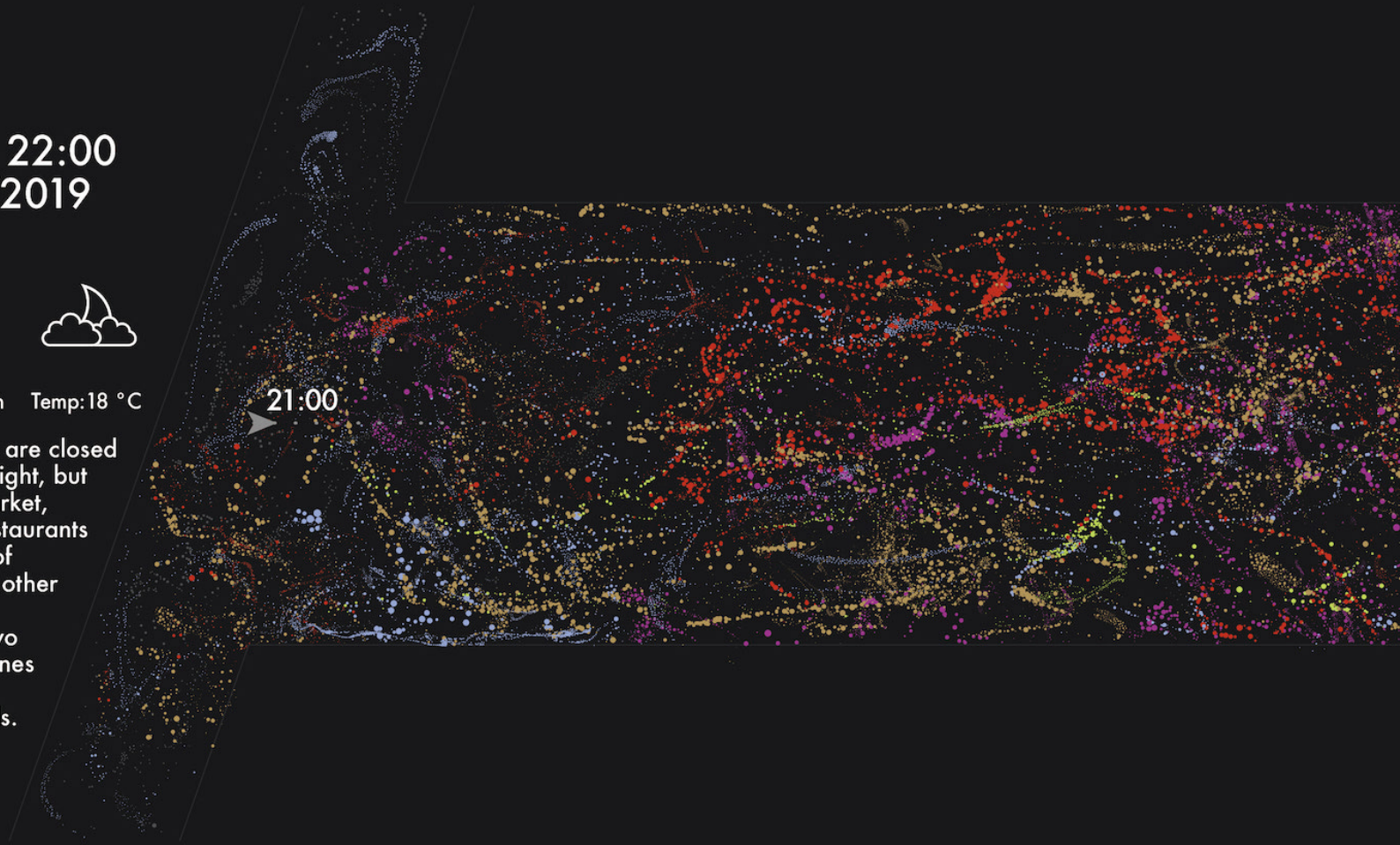
# Smell Of Cuba Street

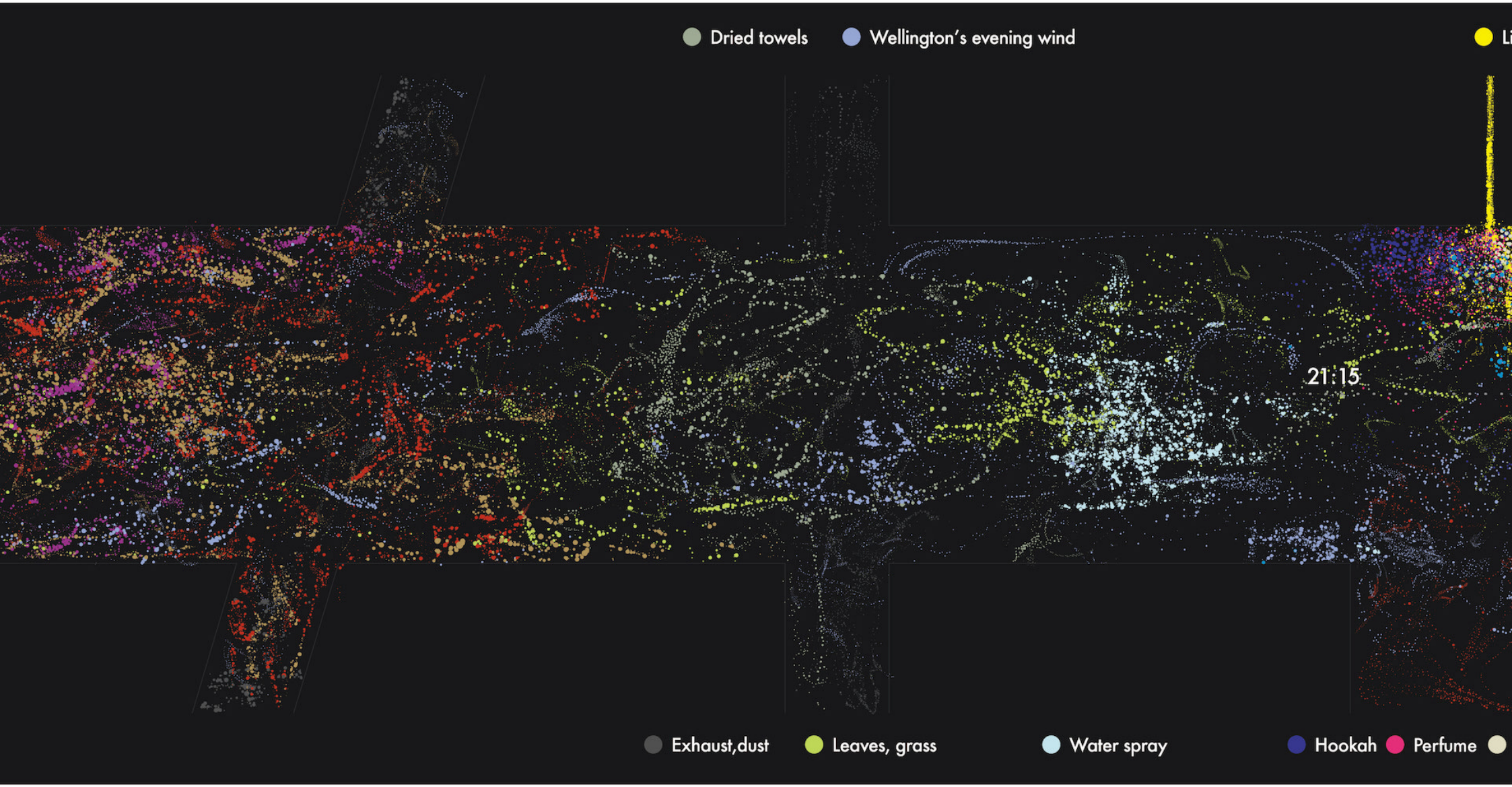
21:00 - 22:00
18/01/2019

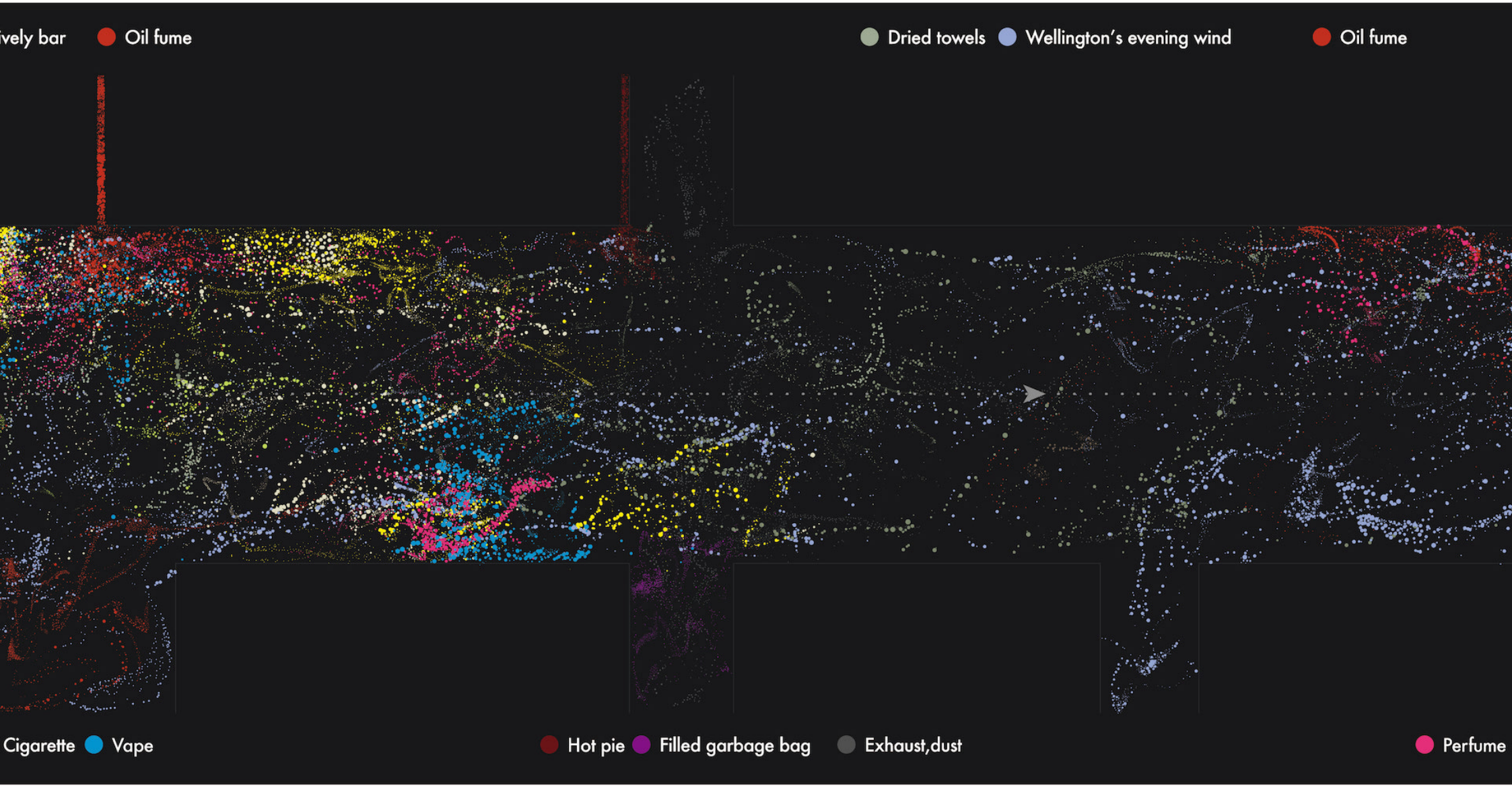
E
N
S
W

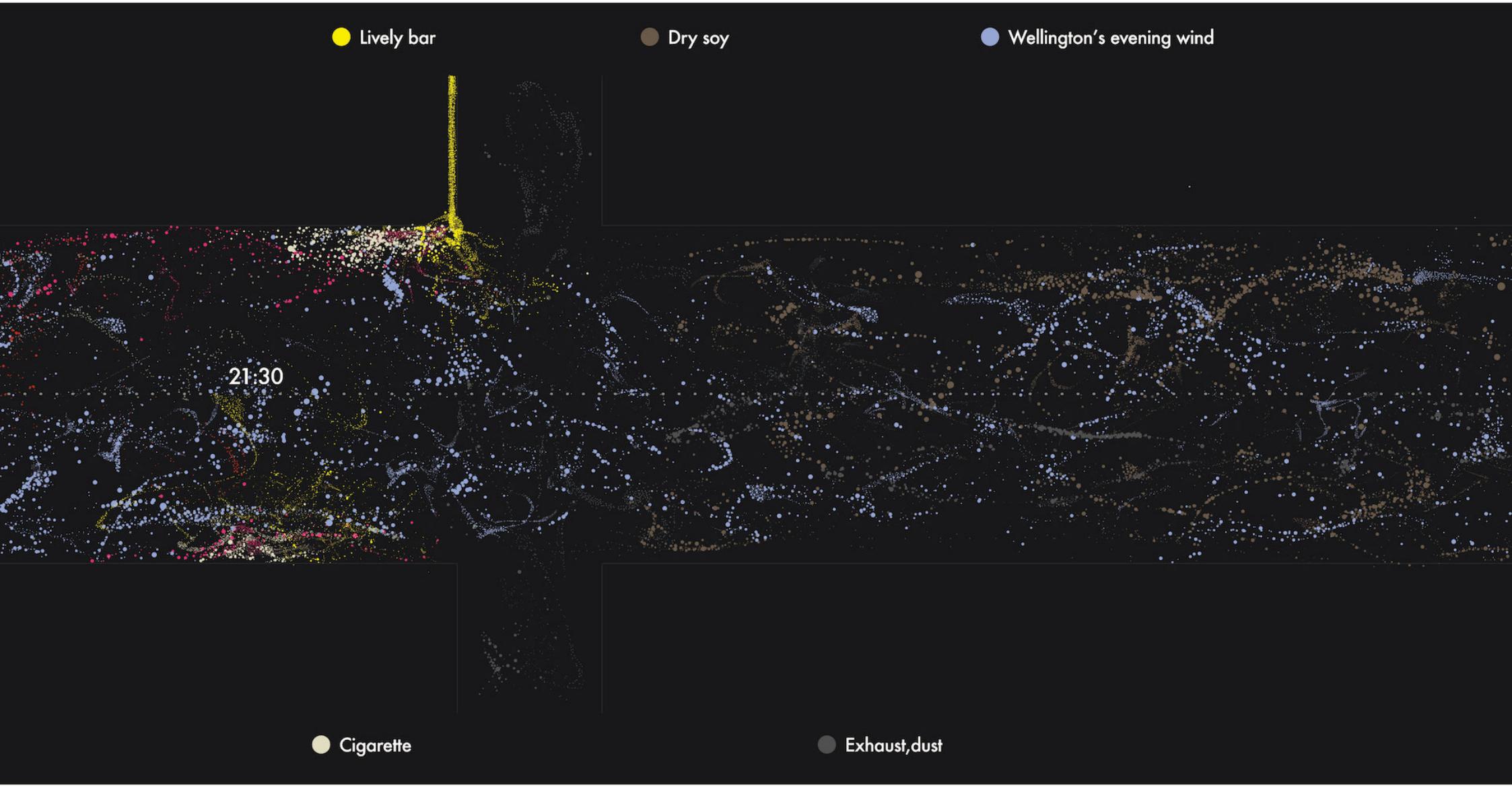
Wind:13 km/h  Temp:18 °C

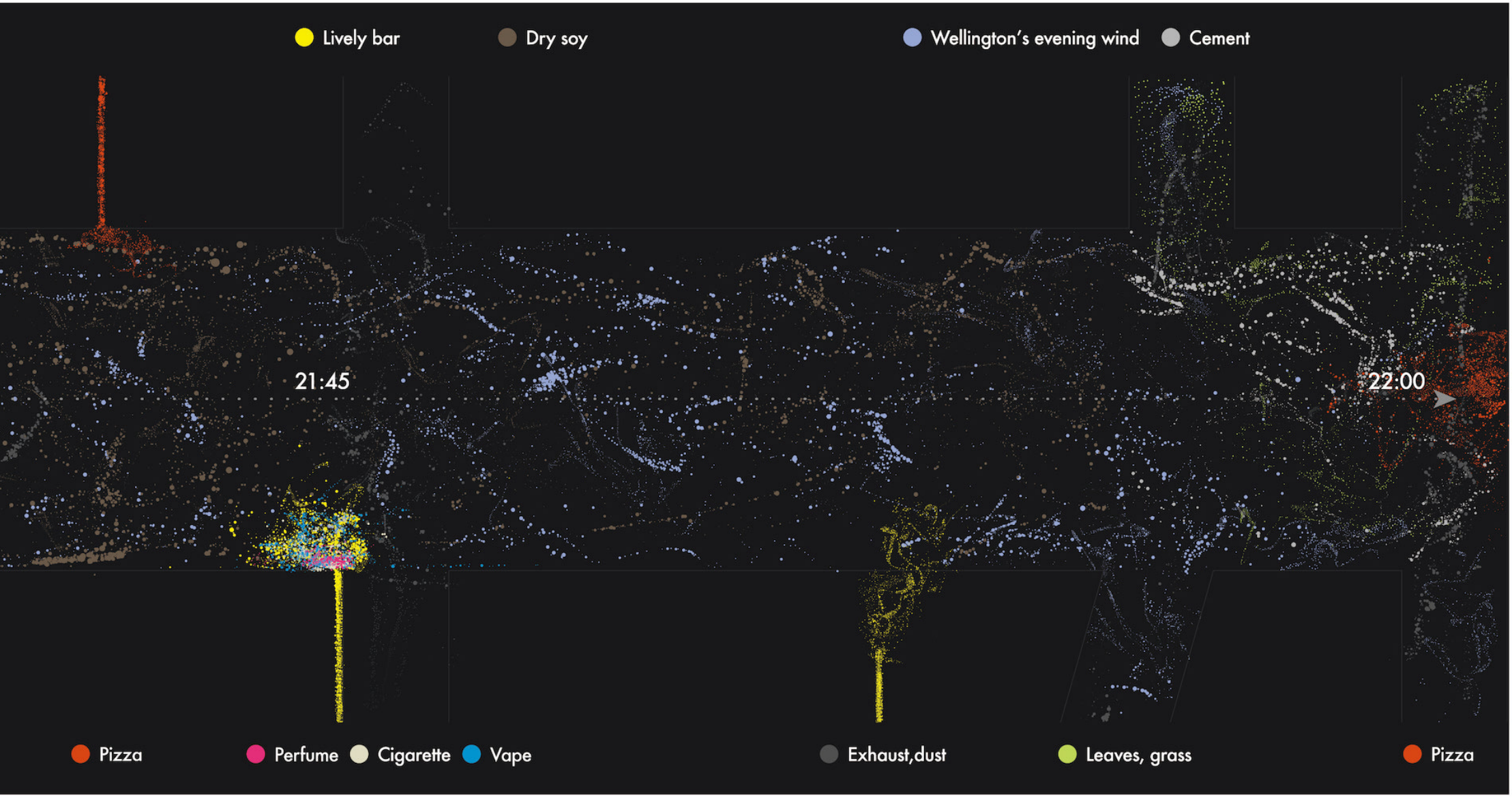
Many shops are closed this Friday night, but the night market, bars and restaurants are still full of people. The other areas are deserted. Two different scenes create the distinct smells.




Dried towels
Wellington's evening wind
21:15
Exhaust,dust
Leaves, grass
Water spray
Hookah
Perfume


ively bar
Oil fume
Dried towels
Wellington's evening wind
Oil fume
Cigarette
Vape
Hot pie
Filled garbage bag
Exhaust,dust
Perfume


Lively bar
Dry soy
Wellington's evening wind
21:30
Cigarette
Exhaust, dust


Lively bar
Dry soy
Wellington's evening wind
Cement
21:45
22:00
Pizza
Perfume
Cigarette
Vape
Exhaust,dust
Leaves, grass
Pizza

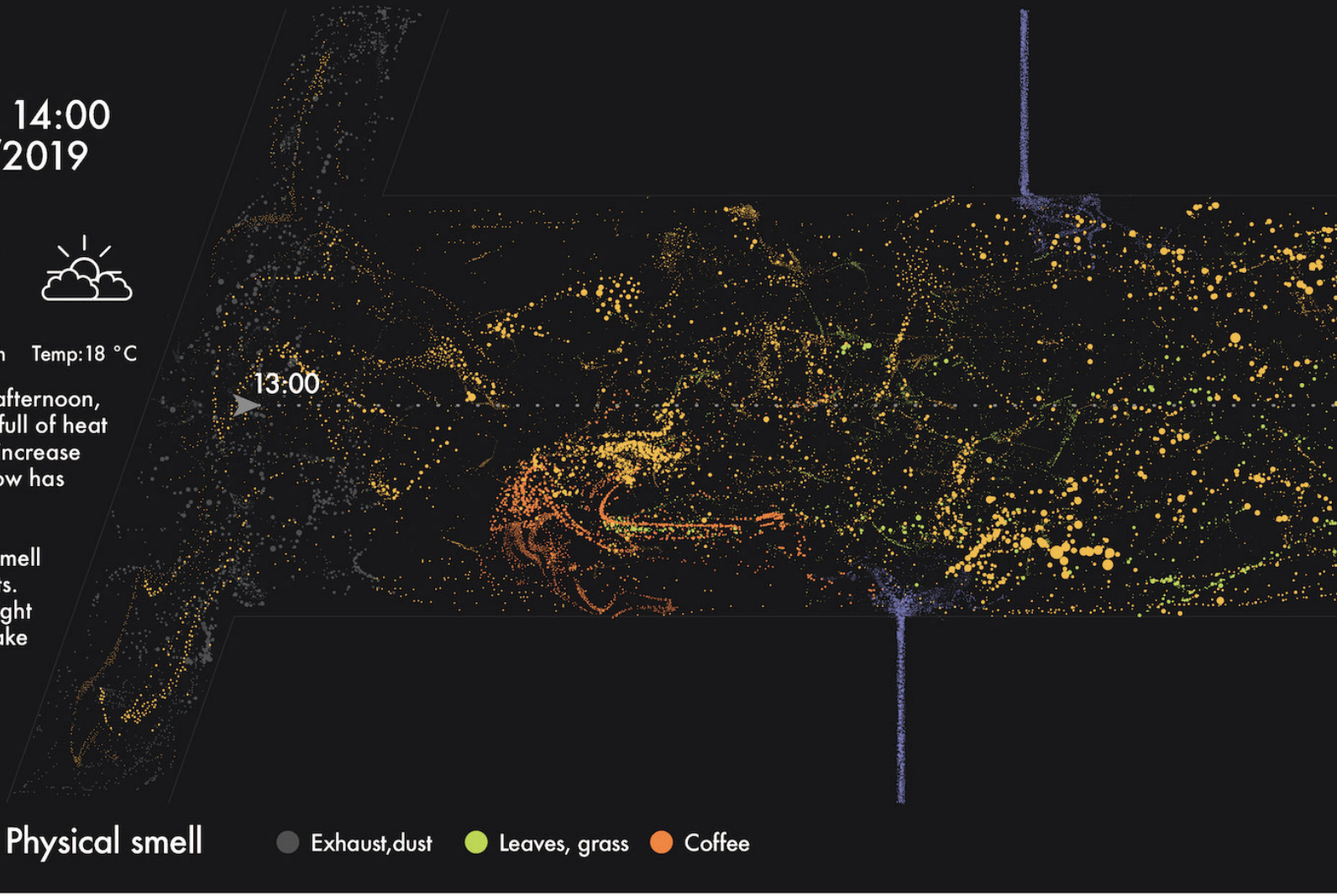
# Smell Of Cuba Street

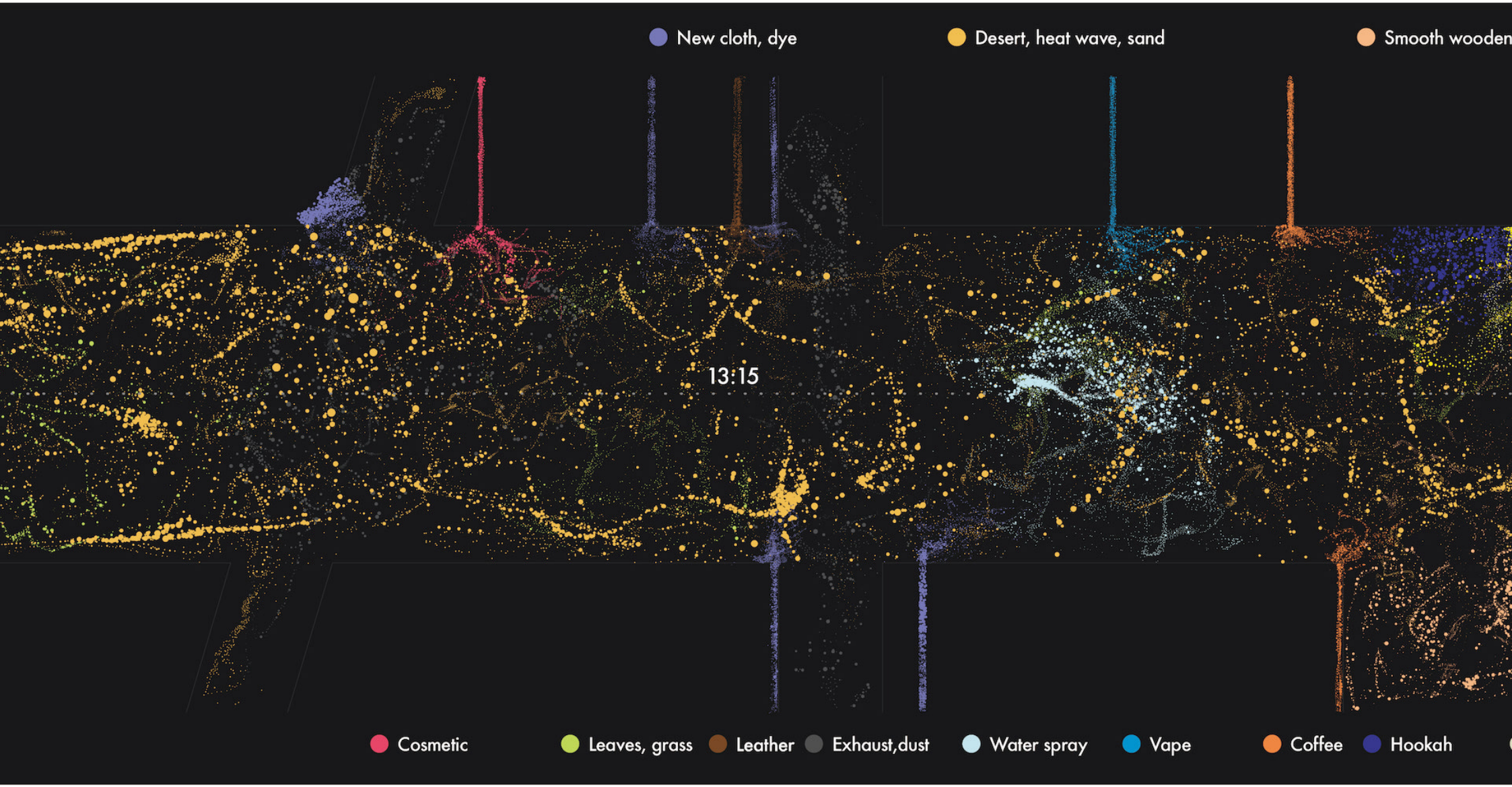
13:00 - 14:00
18/01/2019

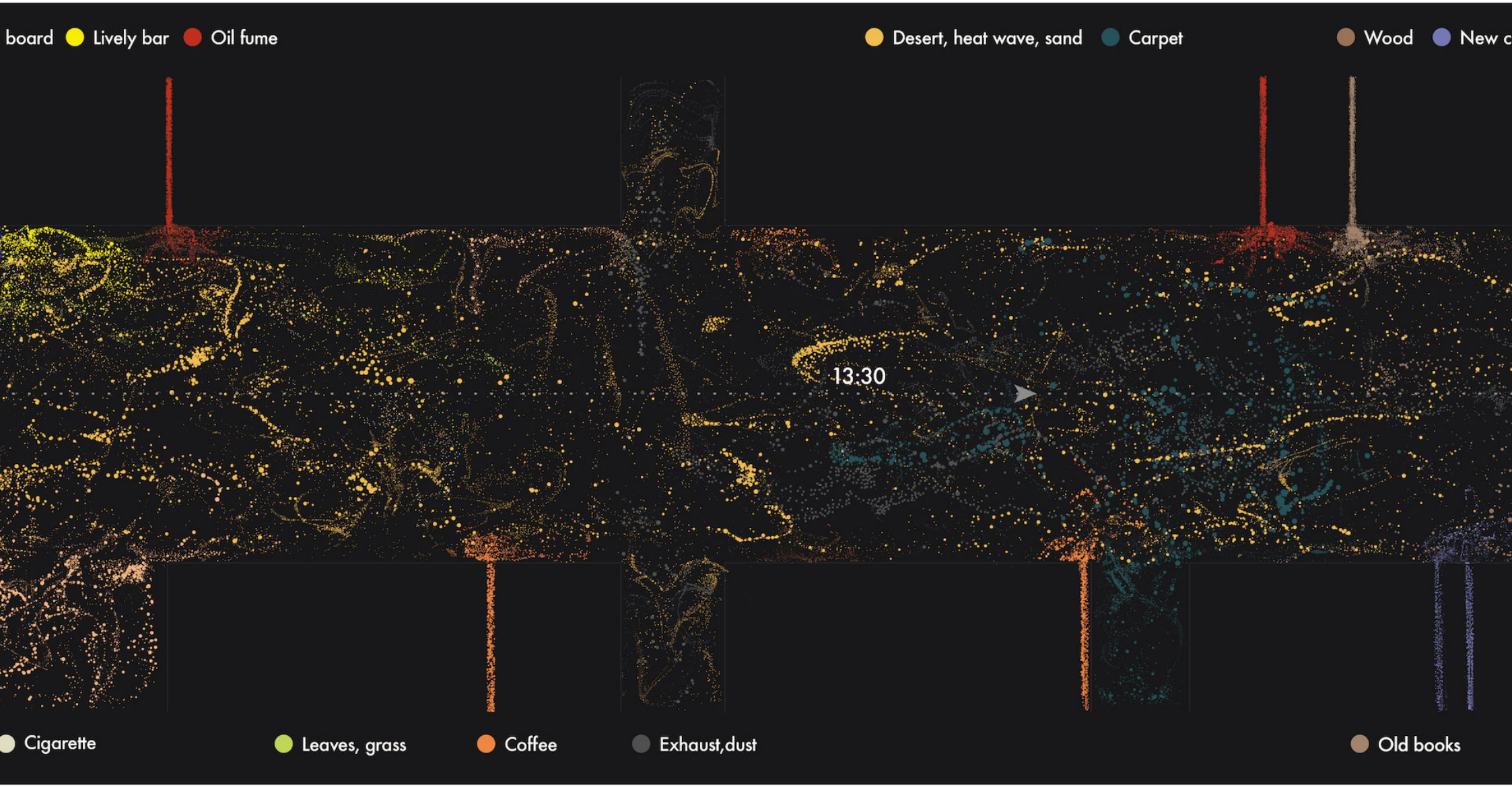
E
N
S
W

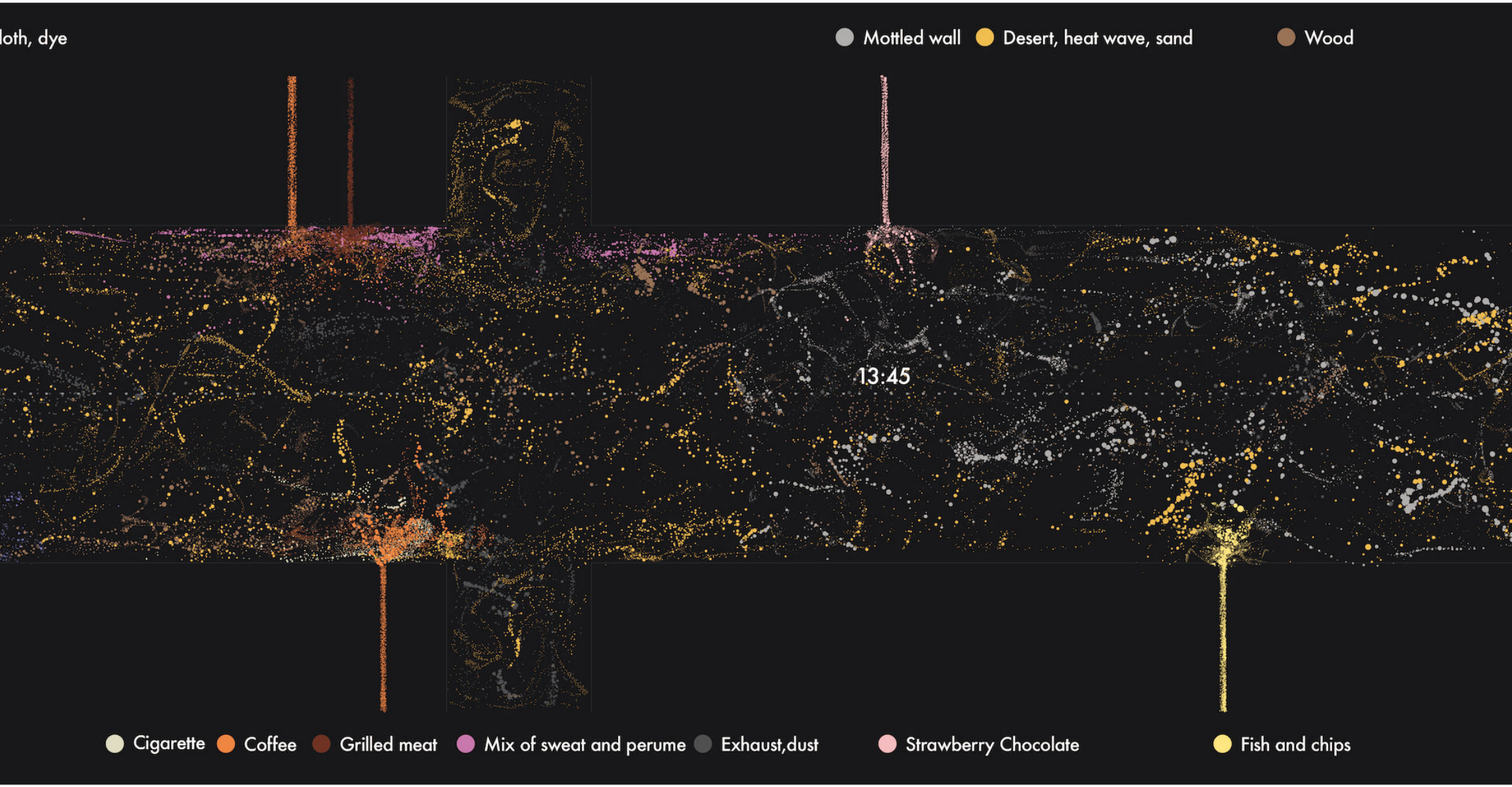
Wind:13 km/h  Temp:18 °C

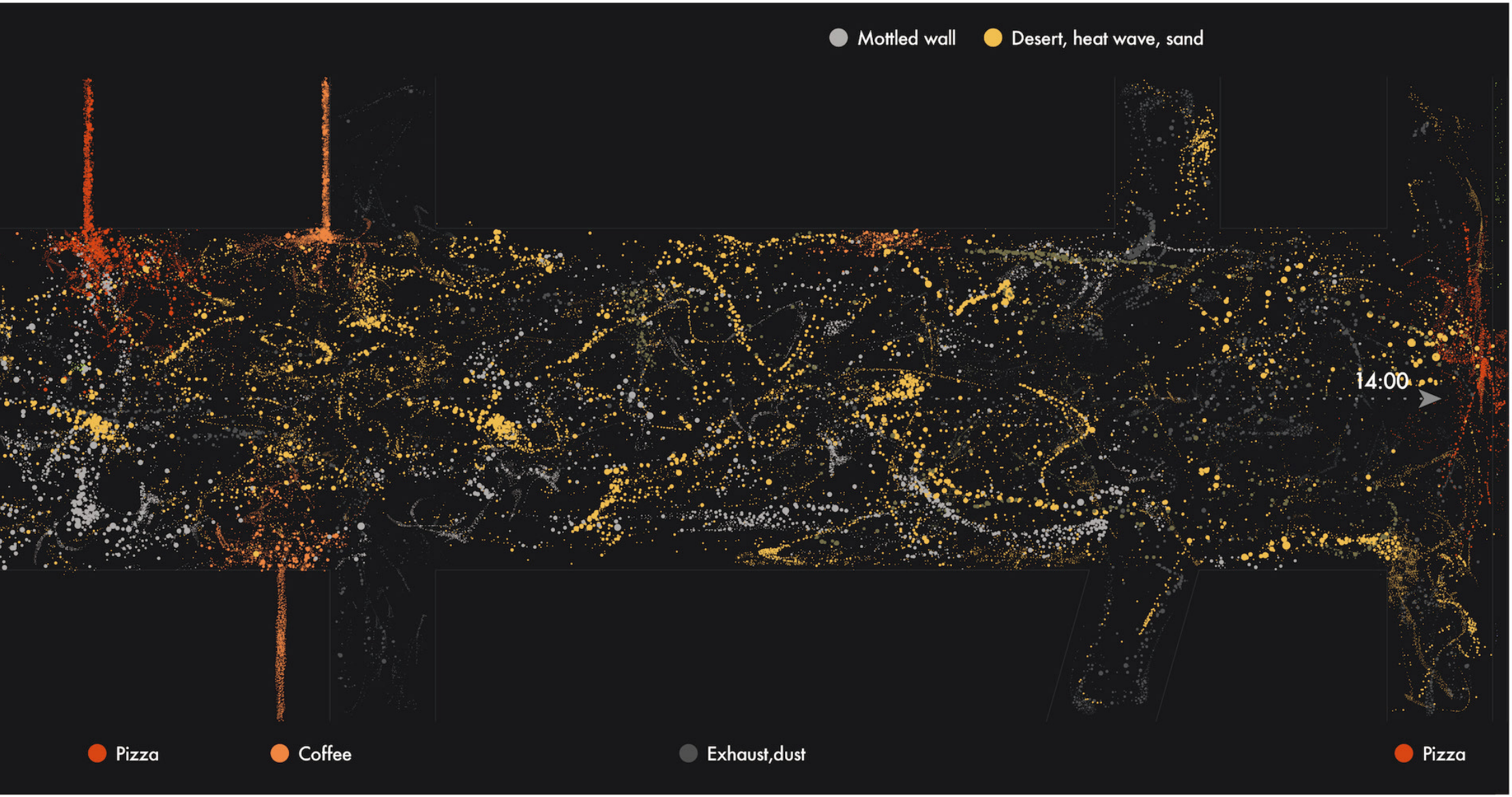
This Friday afternoon, the street is full of heat waves. The increase in people flow has led to an noticeable pedestrian smell on the streets. Intense sunlight and heat make the smell active.




New cloth, dye
Desert, heat wave, sand
Smooth wooden
13:15
Cosmetic
Leaves, grass
Leather
Exhaust,dust
Water spray
Vape
Coffee
Hookah


board
Lively bar
Oil fume
Desert, heat wave, sand
Carpet
Wood
New c
13:30
Cigarette
Leaves, grass
Coffee
Exhaust,dust
Old books


loth, dye
Mottled wall
Desert, heat wave, sand
Wood
13:45
Cigarette
Coffee
Grilled meat
Mix of sweat and perume
Exhaust,dust
Strawberry Chocolate
Fish and chips


Mottled wall
Desert, heat wave, sand
14:00
Pizza
Coffee
Exhaust,dust
Pizza

## 4.5 Final maps and legend

The outcome of this project consists of four maps that show the changes in smell by contrasting them in pairs. The four maps designed for this project are 3503 mm wide and 336 mm high, which is very helpful to better represent the characteristics of smell (density, movement, range, etc.). Compared with regular maps, these four maps are longer and narrower, which is also a particular way that can show the realistic characteristics of Cuba Street. The maps are designed to place on the wall and compared in pairs according to the time and environmental factors provided by the map. In order to make the map in line with the left-to-right reading order (the western reading order) of the audience, I focused the title and other texts on the left side of the map, corresponding to the starting point of my route. In addition, the title together with the size and color of the text made the focus of the map turn to the left.

Audiences can interpret the smell dots in maps with the help of the legend. Compared with legend of traditional maps, its content is simpler since it only needs to explain the smells. However, in light of the fact that there is still no established cognition and convention for smell description, it is also a difficulty that this project needs to overcome. In this project, legend of smell map was formed and smell dots were explained to audiences through description of smell classification, text description of smell and dots with colors.

The text description of smell is created in the form of handwritten notes that had been obtained during the field trips process. They explain the meaning of the content in the map by interpreting the corresponding dots. The meaning of the content in the map was explained by interpreting the corresponding dots, which realizes the correlation between the expression in the legend and the content in the map and also implements the visual symbol function of maps. According to handwritten notes, smells are divided into two categories, that is, the atmosphere smell and the physical smell.

Different from most maps that place the legend on one side of the map, this project places the atmosphere smell and physical smell above and below the map to make the dots in the legend correspond directly to the corresponding smell dots. Generally, audiences' eyes move from left to right when they read. If the legend is placed to the left or to the right of the map, the audiences will frequently move left and right while looking for the meaning of the corresponding smell dots. However, the smells of Cuba Street span a lot in space, and some smells appear multiple times in different location. In order to make sure the smooth reading experience of audiences, this project made a challenge against Vozenilek's (2015-2016) argument that a symbol is allowed to appear only once in a legend. To help audiences find the respective meaning of smell dots quickly and easily, I placed each smell dots and the text in this smell dots on the map for the first time. Based on the width of the map is 3,503 mm, I divided the map into five parts with a width of about 700 mm for each part. If the smell dots appear multiple times and the distance from the position where they first appear on the map exceeds 700 mm, the dots will repeat in the legend at the corresponding position. Through this design, the problem that the reading order of the audience may be interrupted when they view the legend back and forth on the map can be avoided.

# 5. Conclusion

This project designed four smell maps to present an individual understanding of Cuba Street and the imagination of the smell landscapes. It discusses the important role that smells play in our understanding of the outside world. The relationship among smell, place and people is revealed through the influence of environment, time, human activities and other factors found in the process of smell experience. This project is based on the understanding of this relationship that presents the smell landscapes caused by these factors.  Besides, it explores how to map smells through smell experiences and creative practices of maps so as to reflect the characteristics of a place.

This project inspires people to understand a place through its smell. This project aims to provide people with a different perspective and inspiration to experience and re-examine the smell for our more complete cognition and understanding of the world. During the process, smell recording and mapping methods are explored, and the smell landscapes of Cuba Street are presented in the form of maps. I considers how to visualize smells from the perspective of communication design and map design. Through the selection and application of design principles and mapping conventions, the map summarizes, conveys and defines odor information. This project provides a new way to attract the audience by visualizing the smell and reveals the important role smells play in the composition of a place as well as people’s understandings of it.

This project inspires people to understand a place through its smell. During the process, smell recording and mapping methods are explored, and the smell landscapes of Cuba Street are presented in the form of a map. By studying the relationship between a place and smells through the smell experience, this project provides a potential perspective and method for those who want to understand, plan, share and record a certain place. It provides a new way to attract the audience by visualizing the smell and reveals the important role smells play in the composition of a place as well as people’s understandings of it.

As a creative map practice on the smell experience, the current project contains a lot of my personal experience and subjective consciousness during the experiences, mapping and representations of smells. Therefore, this project was not intended as mediator for smell information in the real environment, but as a collector and subjective mapper. However, it can be developed as a way for people to practice and act on the community to discuss issues related to smells. Furthermore, it can even be developed into an online community for people to analyze and plan the smell of the same place. It is known to all that people have five senses that can help to experience and understand of the outside world. In the future, I hope to make a more comprehensive method to understand and evaluate a place through the multi-sensory combination of smell, sound, touch and taste. In addition, the medium for transmitting smell information can also be expanded and presented in different form and method. My expectation is this project will provide some help for people who are attracted to the smell information presented by the maps to explore and create their own smell maps to help the mapping of smell is not just a processor of subjective information but a mediator. Through more people's participation in smell mapping, it helps smell map not only processors of subjective information but also mediators.

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Figure.1 N,d. (c.1300). *Hereford Mappa Mundi.* Retrieved from https://commons.wikimedia.org/wiki/File:Hereford_Mappa_Mundi_1300.jpg#/media/File:Hereford_Mappa_Mundi_1300.jpg

Figure. 2 Debord, G. (1957). *Psychogeographic guide of Paris.* In Farrauto, L., & Ciuccarelli, P. (2011). The image of the divided city through maps: the territory without territory, 31. In Proceedings of the everyday life in the segmented city conference. https://www.researchgate.net/publication/250917123

Figure. 3 Logan, J. (2005). *Scents and the City.* Retrieved from http://www.jasonslogan.com/work#/mapping/

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