

Součas  
v zobn  
(nejen

KATEŘINA

handmade  
Visualization  
tool-kit

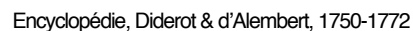
Visualization tool-kit  
A hands-on kit for learning data visualization  
Includes 100+ cards, 100+ buttons, 100+ string  
100+ string

handmade  
Visualization  
tool-kit

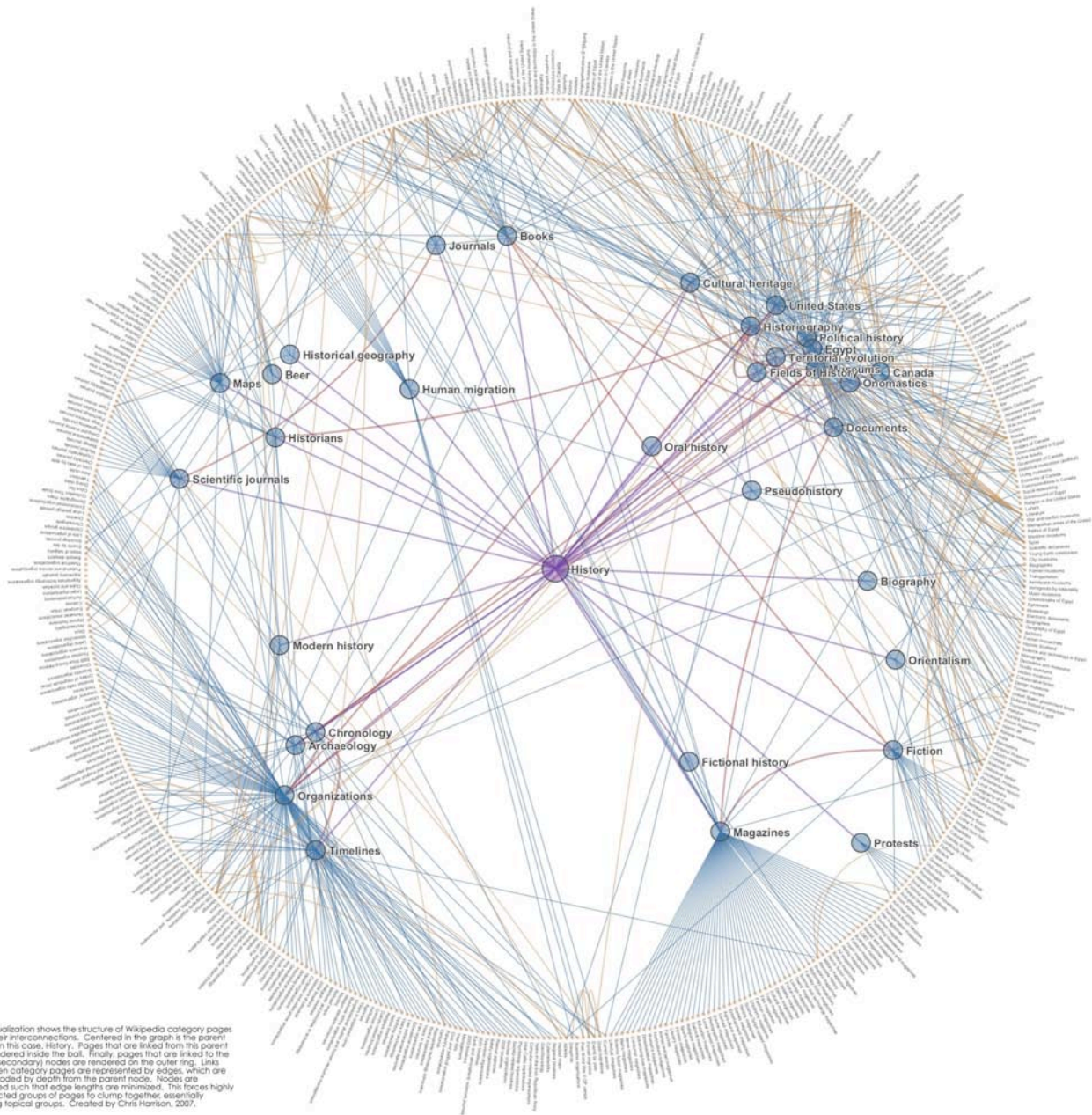
**Visualization tool-kit**



ENTENDEMENT.









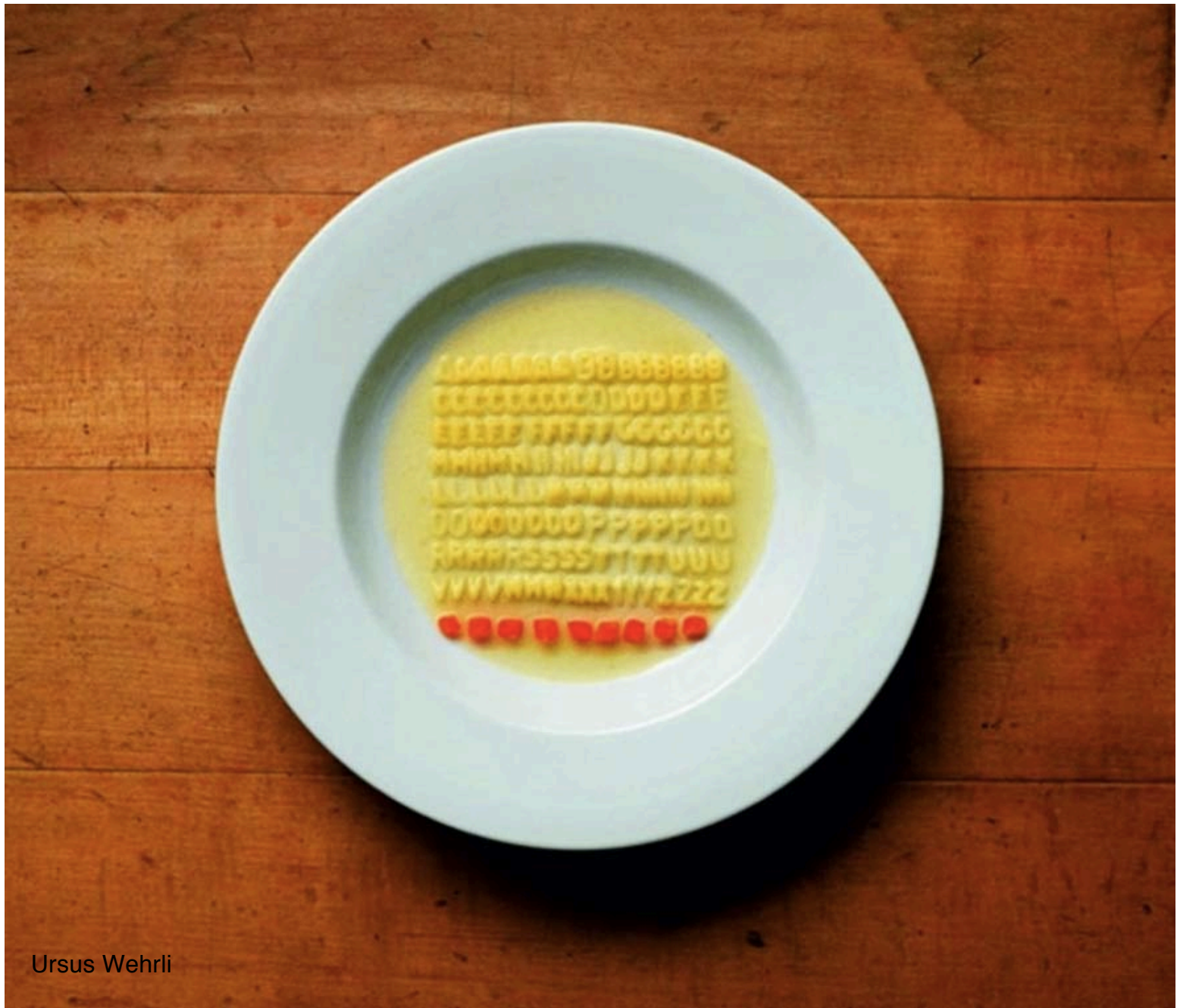
*Our ability to generate and acquire data  
has by far outpaced  
our ability to make sense of that data.*

Manuel Lima



Ursus Wehrli





Ursus Wehrli

*The greatest value of a picture is when it forces us to notice  
what we never expected to see.*

John Tukey



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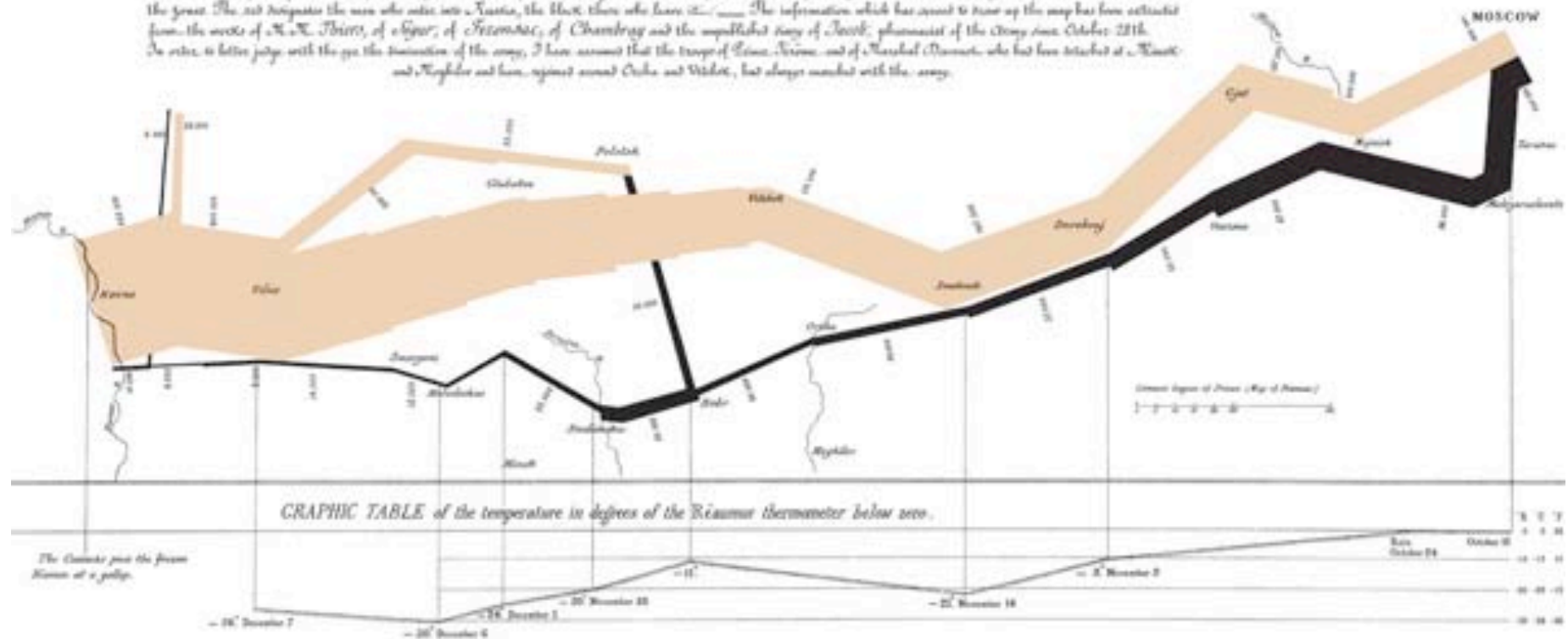
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26.8 54.3 Molodexno 32.0 -21 5 Nov 14 26.0 54.7 320000 A 1 24.5 55.2 60000 A 2
27.7 55.2 Gloubokoe 29.2 -11 10 27.0 54.8 300000 A 1 25.5 54.7 60000 A 2
27.6 53.9 Minsk 28.5 -20 4 Nov 28 28.0 54.9 280000 A 1 26.6 55.7 40000 A 2
28.5 54.3 Studienska 27.2 -24 3 Dec 1 28.5 55.0 240000 A 1 27.4 55.6 33000 A 2
28.7 55.5 Polotzk 26.7 -30 5 Dec 6 29.0 55.1 210000 A 1 28.7 55.5 30000 R 2
29.2 54.4 Bobr 25.3 -26 1 Dec 7 30.0 55.2 180000 A 1 29.2 54.3 30000 R 2
30.2 55.3 Witebsk 30.3 55.3 175000 A 1 28.5 54.2 30000 R 2
30.4 54.5 Orscha 32.0 54.8 145000 A 1 28.3 54.3 28000 R 2
30.4 53.9 Mohilow 33.2 54.9 140000 A 1 27.5 54.5 20000 R 2
32.0 54.8 Smolensk 34.4 55.5 127100 A 1 26.8 54.3 12000 R 2
33.2 54.9 Dorogobouge 35.5 55.4 100000 A 1 26.4 54.4 14000 R 2
34.3 55.2 Wixma 36.0 55.5 100000 R 1 24.6 54.5 8000 R 2
34.4 55.5 Chjat 37.6 55.7 98000 R 1 24.4 54.4 4000 R 2
36.0 55.5 Mojaisk 37.5 55.0 97000 R 1 24.2 54.4 4000 R 2
37.6 55.8 Moscou 36.8 55.0 96000 R 1 24.1 54.3 4000 R 2
36.6 55.3 Tarantino 35.4 55.3 87000 R 1 24.0 55.2 22000 A 3
36.5 55.0 Malo-jarosewli 34.3 55.2 55000 R 1 24.5 55.3 22000 A 3
33.3 54.8 37000 R 1 24.6 55.8 6000 R 3
32.0 54.4 20000 R 1 24.2 54.4 6000 R 3
29.2 54.4 20000 R 1 24.1 54.3 6000 R 3

```

# *Figurative Map of the successive losses in men of the French Army in the Russian Campaign 1812-1813.*

Drawn up by M. Minard, Inspector General of Bridges and Roads in retirement. Paris, November 20, 1869.

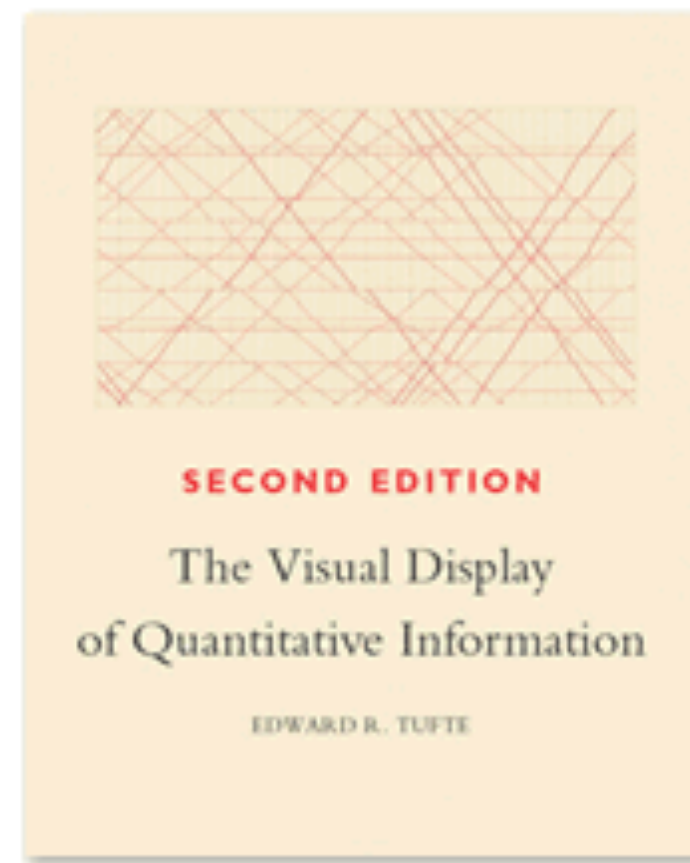
The number of men present are represented by the widths of the colored zones at a scale of one millimeter for every ten thousand men; they are further written across the zones. The red designates the men who enter into Russia, the black those who leave it. The information which has served to trace up the map has been collected from the works of M. de Thiers, of Ségur, of Fromentin, of Chambray and the unpublished diary of Jacob, pharmacist of the Army since October 28th. In order to better judge with the eye the diminution of the army, I have assumed that the troops of Prince Jérôme, and of Marshal Darmatz, who had been detached at a point and repulsed and have, against several Orlov and Wladis, but always marched with the army.





*The purpose of visualization is insight,  
not pictures.*

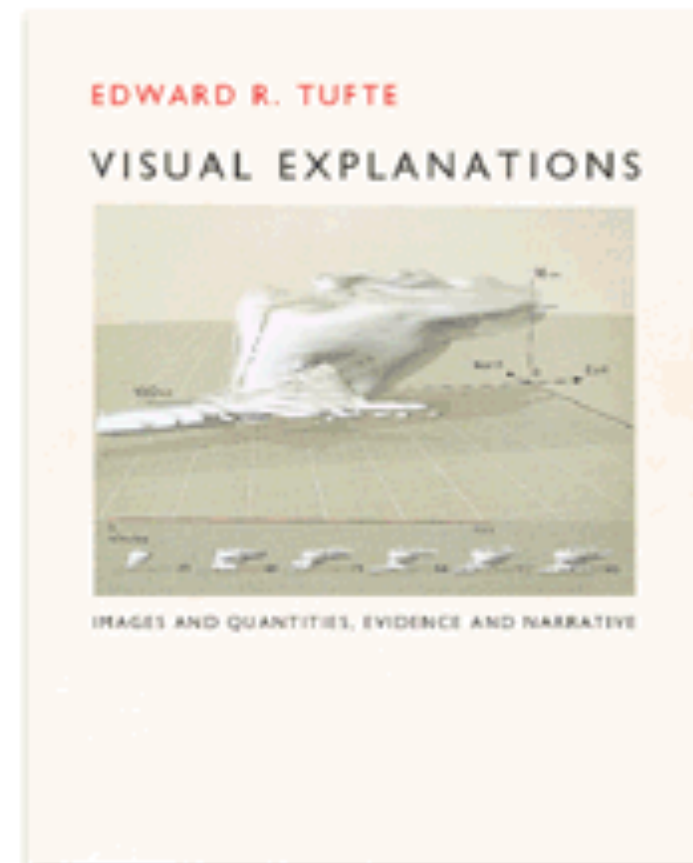
Ben Shneiderman



[Amazon.com: The Visual Display of Quantitative Information \(9780961392147\): Edward R. Tufte: Books](https://www.amazon.com/Visual-Display-Quantitative-Information/dp/0961392147)



[Amazon.com: Envisioning Information \(9780961392116\): Edward R. Tufte: Books](https://www.amazon.com/Envisioning-Information/dp/0961392116)

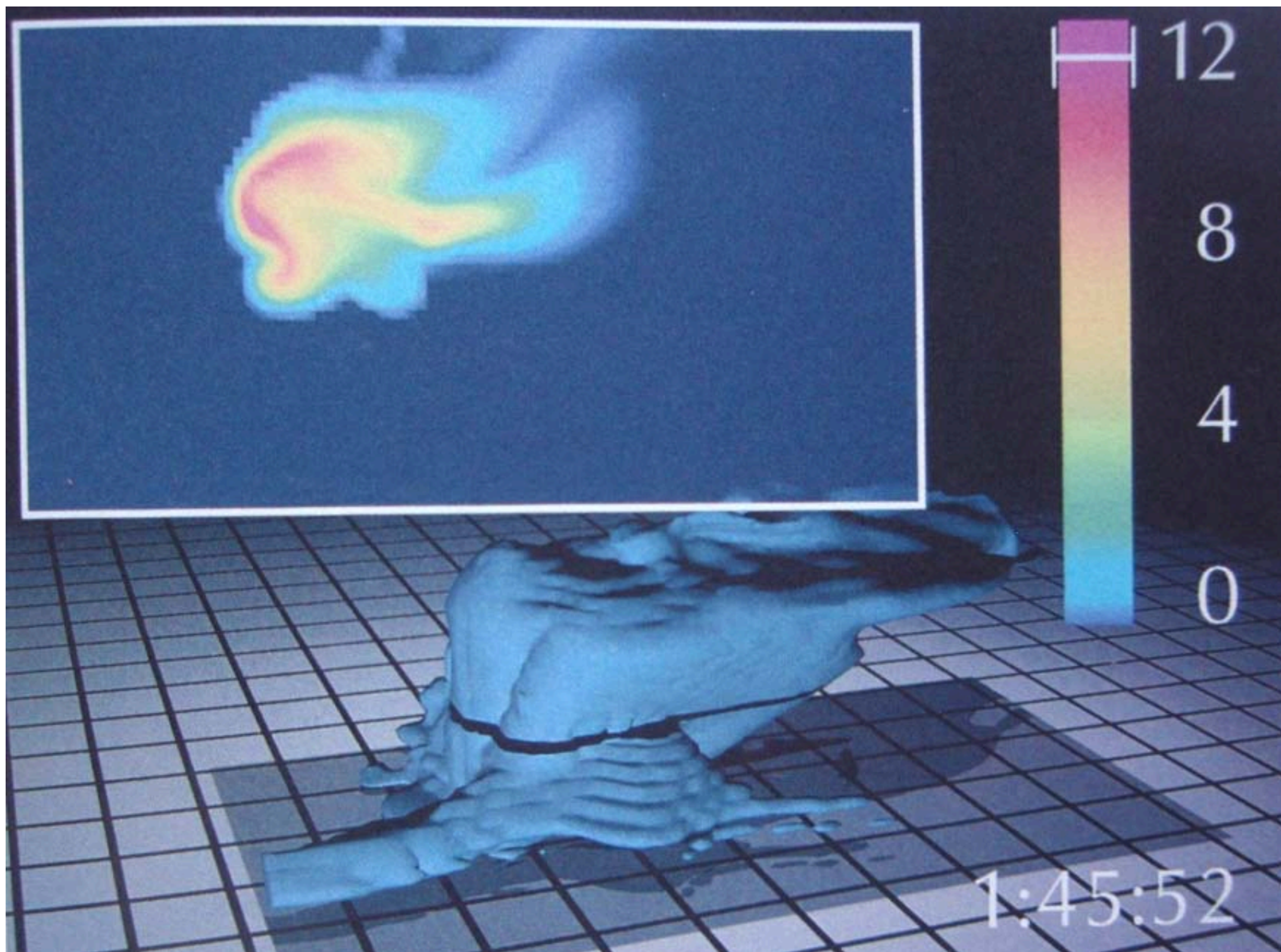


[Amazon.com: Visual Explanations: Images and Quantities, Evidence and Narrative \(9780961392123\): Edward R. Tufte: Books](https://www.amazon.com/Visual-Explanations-Images-Quantities-Evidence-Narrative/dp/0961392123)

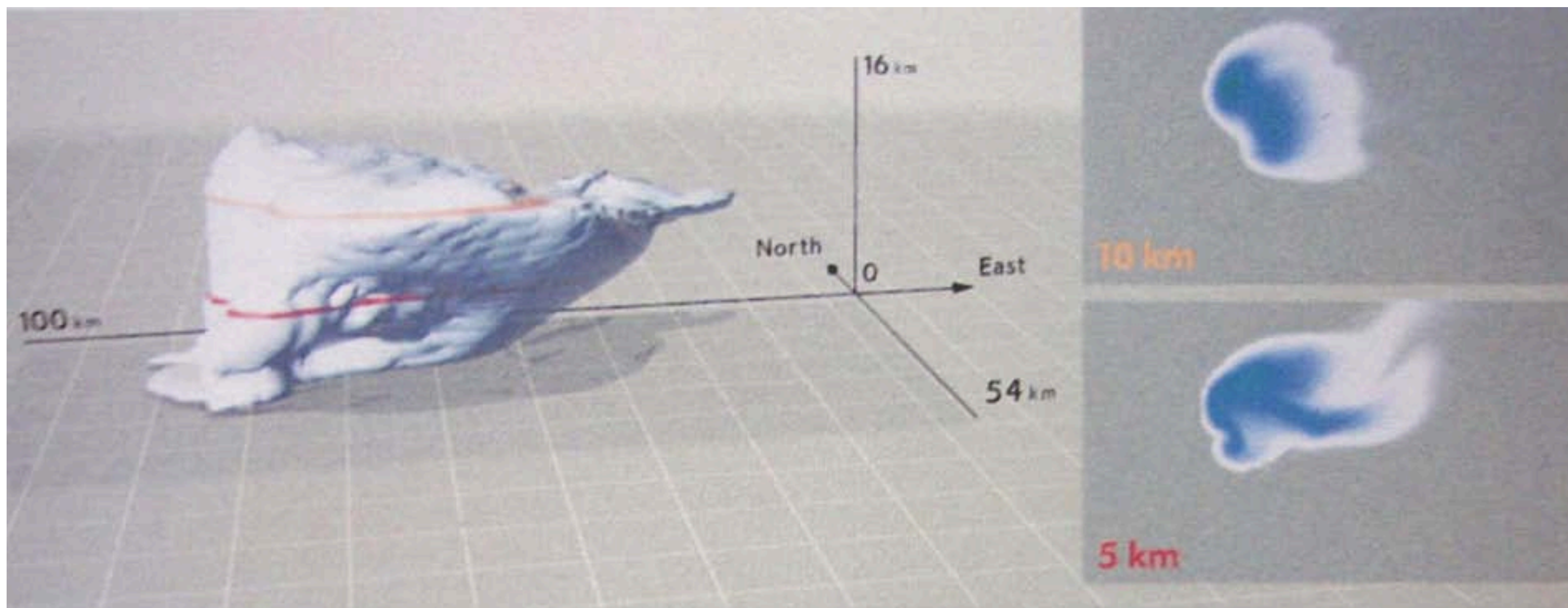


[Beautiful Evidence: Amazon.co.uk: Edward R. Tufte: Books](https://www.amazon.co.uk/Beautiful-Evidence/dp/0961392123)

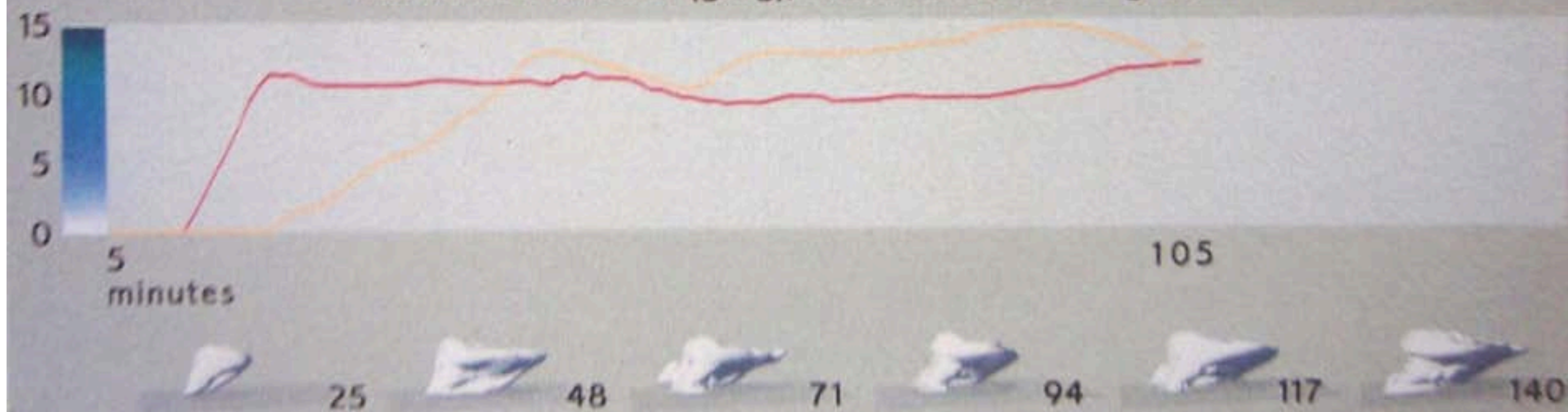








Maximum rainwater (g/kg), 5 and 10 km above ground



## [Journalism in the Age of Data: A Video Report on Data Visualization by Geoff McGhee](#)



## [Data journalism and data visualization | News | The Guardian](#)

## [Steve Duenes -- Talk to the Newsroom -- The New York Times -- Reader Questions and Answers - New York Times](#)

## Narrative Visualization: Telling Stories with Data

Edward Segel and Jeffrey Heer

**Abstract**—Data visualization is regularly promoted for its ability to reveal stories within data, yet these “data stories” differ in important ways from traditional forms of storytelling. Storytellers, especially online journalists, have increasingly been integrating visualizations into their narratives, in some cases allowing the visualization to function in place of a written story. In this paper, we systematically review the design space of this emerging class of visualizations. Drawing on case studies from news media to visualization research, we identify distinct genres of narrative visualization. We characterize these design differences, together with interactivity and messaging, in terms of the balance between the narrative flow intended by the author (imposed by graphical elements and the interface) and story discovery on the part of the reader (often through interactive exploration). Our framework suggests design strategies for narrative visualization, including promising under-explored approaches to journalistic storytelling and educational media.

**Index Terms**—Narrative visualization, storytelling, design methods, case study, journalism, social data analysis.

### 1 INTRODUCTION

In recent years, many have commented on the storytelling potential of data visualization. News organizations including the New York Times, Washington Post, and the Guardian regularly incorporate dynamic graphics into their journalism. Politicians, activists, and television reporters use interactive visualizations as a backdrop for stories about global health and economics [10] and election results [9]. A recent feature in *The Economist* [6] explores the proliferation of digital data and notes that visualization designers are “*melding the skills of computer science, statistics, artistic design and storytelling*”.

Static visualizations have long been used to support storytelling, usually in the form of diagrams and charts embedded in a larger body of text. In this format, the text conveys the story, and the image typically provides supporting evidence or related details. An emerging class of visualizations attempts to combine narratives with interactive graphics. Storytellers, especially online journalists, are increasingly integrating complex visualizations into their narratives.

Crafting successful “data stories” requires a diverse set of skills. Gershon and Page [12] note that effective story-telling “*require[s] skills like those familiar to movie directors, beyond a technical expert’s knowledge of computer engineering and science*.” While techniques from oration, prose, comic books, video games, and film production are applicable to narrative visualization, we should also expect this emerging medium to possess unique attributes. Data stories differ in important ways from traditional storytelling. Stories in text and film typically present a set of events in a tightly controlled progression. While tours through visualized data similarly can be organized in a linear sequence, they can also be interactive, inviting verification, new questions, and alternative explanations.

Currently, most sophisticated visualization tools focus on data exploration and analysis. Applications such as spreadsheets and visualization tools support an array of analysis routines and visual encodings, but beyond exporting images for presentation typically provide scant support for crafting stories with analysis results. As such, they provide powerful vehicles for discovering “*stories*”, but do little to aid narrative communication of these findings to others. As tools mature and more richly integrate with the web (e.g., Many Eyes [25], Tableau Public [22], GeoTime Stories [8]), they are enabling the publication of dynamic graphics with variably constrained levels of interactivity. It remains an open question how the design of such tools might be evolved to support richer and more diverse forms of storytelling.

• The authors are with Stanford University, Stanford, CA 94305.  
E-mail: {eseget, jheer}@stanford.edu.

Manuscript received 31 March 2010; accepted 1 August 2010; posted online 24 October 2010; mailed on 16 October 2010.  
For information on obtaining reprints of this article, please send email to: [reprints@computer.org](mailto:reprints@computer.org).

In this paper, we investigate the design of narrative visualizations and identify techniques for telling stories with data graphics. We take an empirical approach, analyzing visualizations from online journalism, blogs, instructional videos, and visualization research. After reviewing related work, we share five selected case studies which highlight varied design strategies and illustrate our analytic approach. We then formulate a design space constructed from an analysis of 58 examples. Our analysis identifies salient dimensions of visual storytelling, including how graphical techniques and interactivity can enforce various levels of structure and narrative flow. We describe seven genres of narrative visualization: magazine style, annotated chart, partitioned poster, flow chart, comic strip, slide show, and video. These genres can be combined with interactivity and messaging to produce varying balances of author-driven and reader-driven experiences. Finally, we discuss the implications of our framework, noting recurring design strategies, promising yet under-utilized approaches to integrating visualization with other media, and the potential for improved user interfaces for crafting data stories. By focusing on the graphical and interactive elements of narrative visualization, our approach gives less attention to the cognitive and emotional experience of the reader. We recognize the importance of these elements, however, and describe directions for future reader-centric research in our conclusion.

### 2 RELATED WORK

Storytelling and visual expression are integral parts of human culture; storytelling has even been referred to as “*the world’s second-oldest profession*” [12]. Without summarizing millennia of achievement, we describe a few of the key concepts informing narrative visualization.

#### 2.1 Narrative Structure

The Oxford English Dictionary defines *narrative* as “an account of a series of events, facts, etc., given in order and with the establishing of connections between them.” Central to this definition is the notion of a chain of causally related events. Stories of this form often have a beginning, middle, and end [3, 24]; an introduction to the situation, a series of events often involving tension or conflict, and a resolution.

Since ancient times, people have tried to understand and formalize the elements of storytelling. For example, writers (e.g., [5, 19, 21]) have developed typologies of dramatic situations and identified plot lines common to many narratives, such as the “*hero’s journey*” [5]. This research typically distinguishes between the content of the story and the form in which it is told. While stories often concern interacting characters, they may also present a sequence of facts and observations linked together by a unifying theme or argument.

Storytelling strategies vary among media and genre. For instance, stories told through writing have access to a different set of formal mechanisms and narrative structures (e.g., stream of consciousness) than stories told through film (e.g., split-screen sequences [3]). Blandwell [2] describes narrative devices for journalism such as the *unre-*

## [Stanford Vis Group | Narrative Visualization: Telling Stories with Data](#)

## [Narrative Structures in Data Visualizations to Improve Storytelling » OWNI.eu, News, Augmented](#)

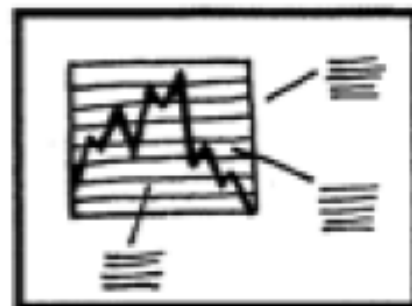




# Seven Genres



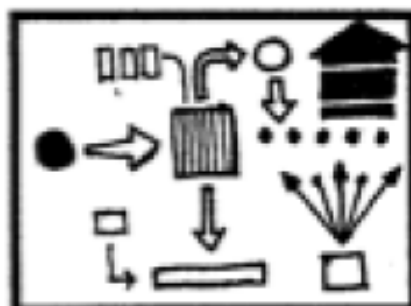
Magazine Style



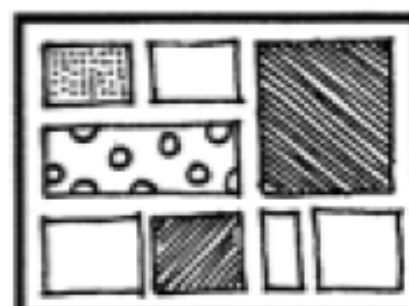
Annotated Chart



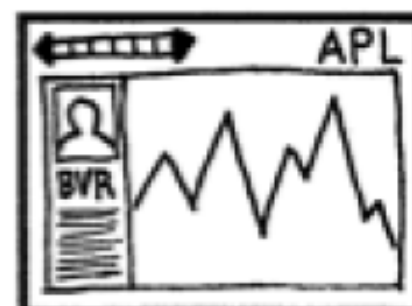
Partitioned Poster



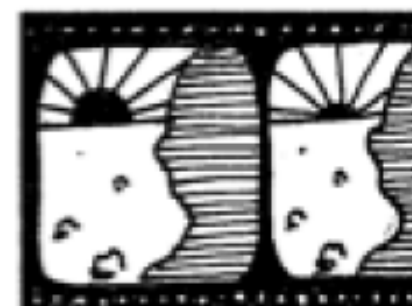
Flow Chart



Comic Strip



Slide Show



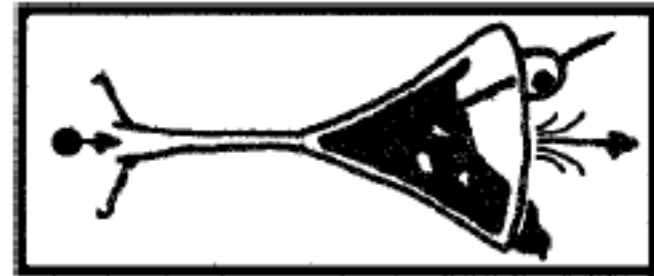
Film/Video/Animation

Table 1. Properties of Author-Driven and Reader-Driven Stories. Most visualizations lie along a spectrum between these two extremes.

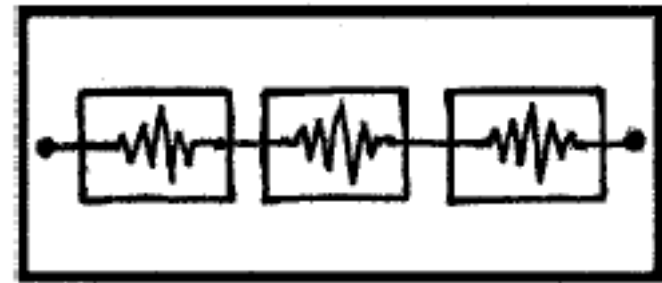
<b>Author-Driven</b>	<b>Reader-Driven</b>
Linear ordering of scenes	No prescribed ordering
Heavy messaging	No messaging
No interactivity	Free interactivity



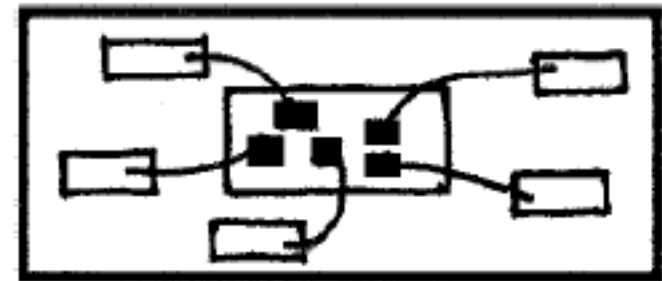
Martini Glass Structure



Interactive Slideshow



Drill-Down Story



# 755



## Steroids or Not, the Pursuit Is On

Barry Bonds is taking aim at the career home run record. He needs only 55 more to tie Babe Ruth and 47 to equal Hank Aaron.

Lines are cumulative home runs.

**Hank Aaron**  
755 homers  
23 seasons



**Babe Ruth**  
714 homers  
22 seasons



**Barry Bonds**  
708 homers  
20 seasons

**Bonds takes lead**  
Home runs after 16 seasons:  
Bonds 567  
Aaron 554  
Ruth 516

### Homer Pace After Age 34

If the accusations are correct, Bonds was 34 in his first season on steroids. Here are projected home run paces for each player after age 34.

..... PROJECTED PACE BASED ON AVERAGE OF PREVIOUS FIVE SEASONS

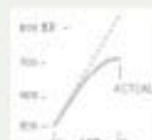
#### Aaron

Actual homers slightly outpace projected homers for five seasons.



#### Ruth

Averaged 46.4 homers a season from age 30 to 34. Averaged 42.6 for next four seasons.



#### Bonds

From age 25 to 29, he averaged 14 more homers a season than projected.



Note: Ages as of July 1 of each season.

### Others Taking Aim



#### Alex Rodriguez

Is ahead of the pace set by all three home run leaders.



#### Albert Pujols

Averaging 40 homers a season, he has started stronger than the three leaders did.



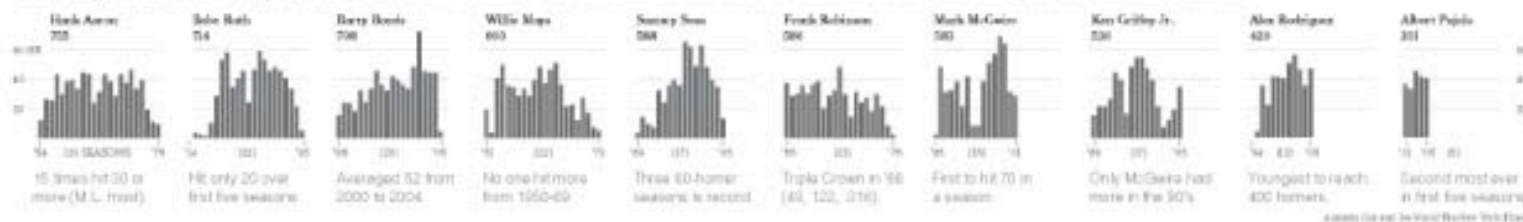
#### Ken Griffey Jr.

Many thought he would be the first to catch Ruth and Aaron until injuries limited his output.



### Differing Paths to the Top of the Charts

The top seven players on the career home run list, along with a look at Griffey (12th), Rodriguez (27th) and Pujols (35th).



Steroids Or Not, the Pursuit is On. New York Times.

Published: February 2, 2010

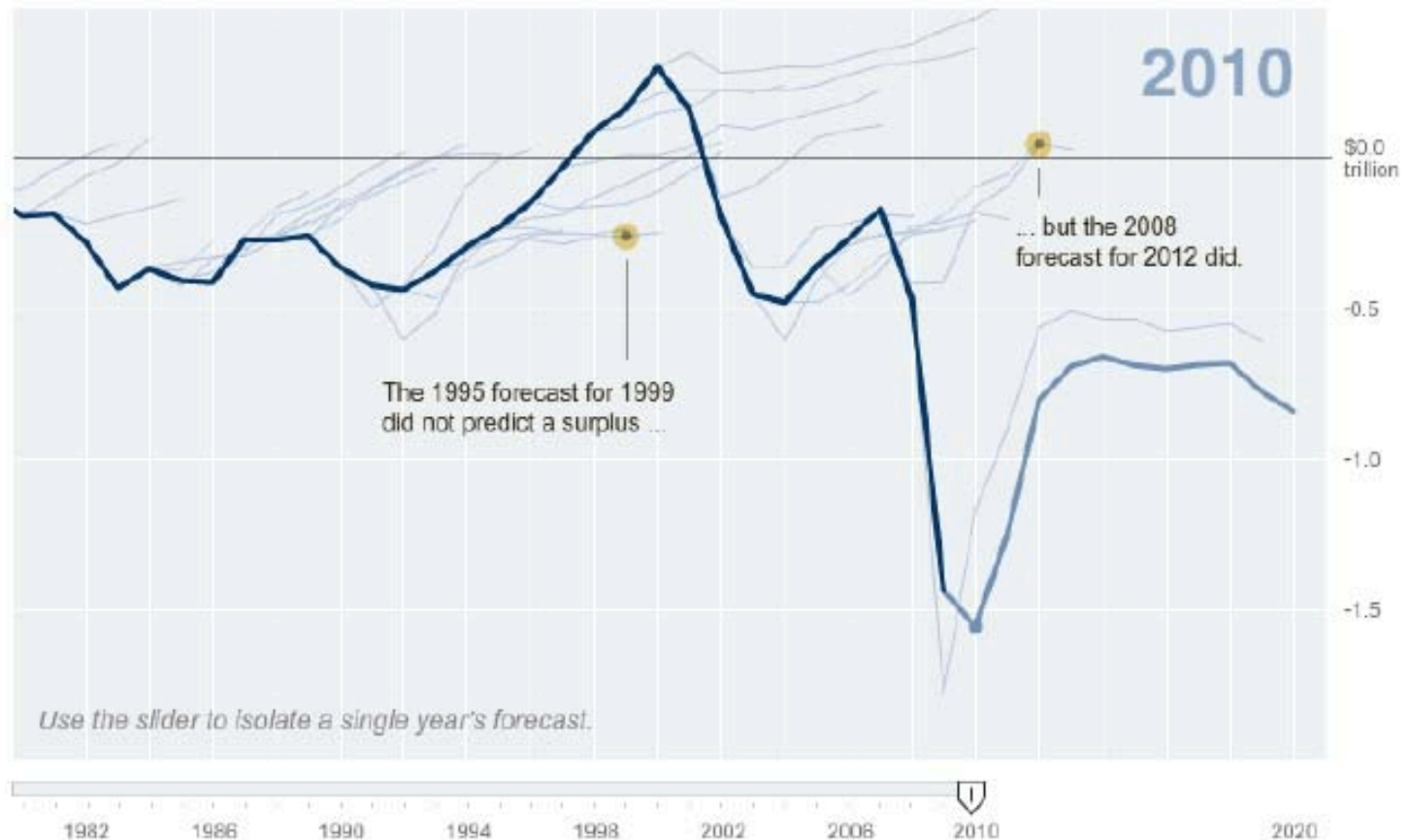
## Budget Forecasts, Compared With Reality

Just two years ago, surpluses were predicted by 2012. How accurate have past White House budget forecasts been?

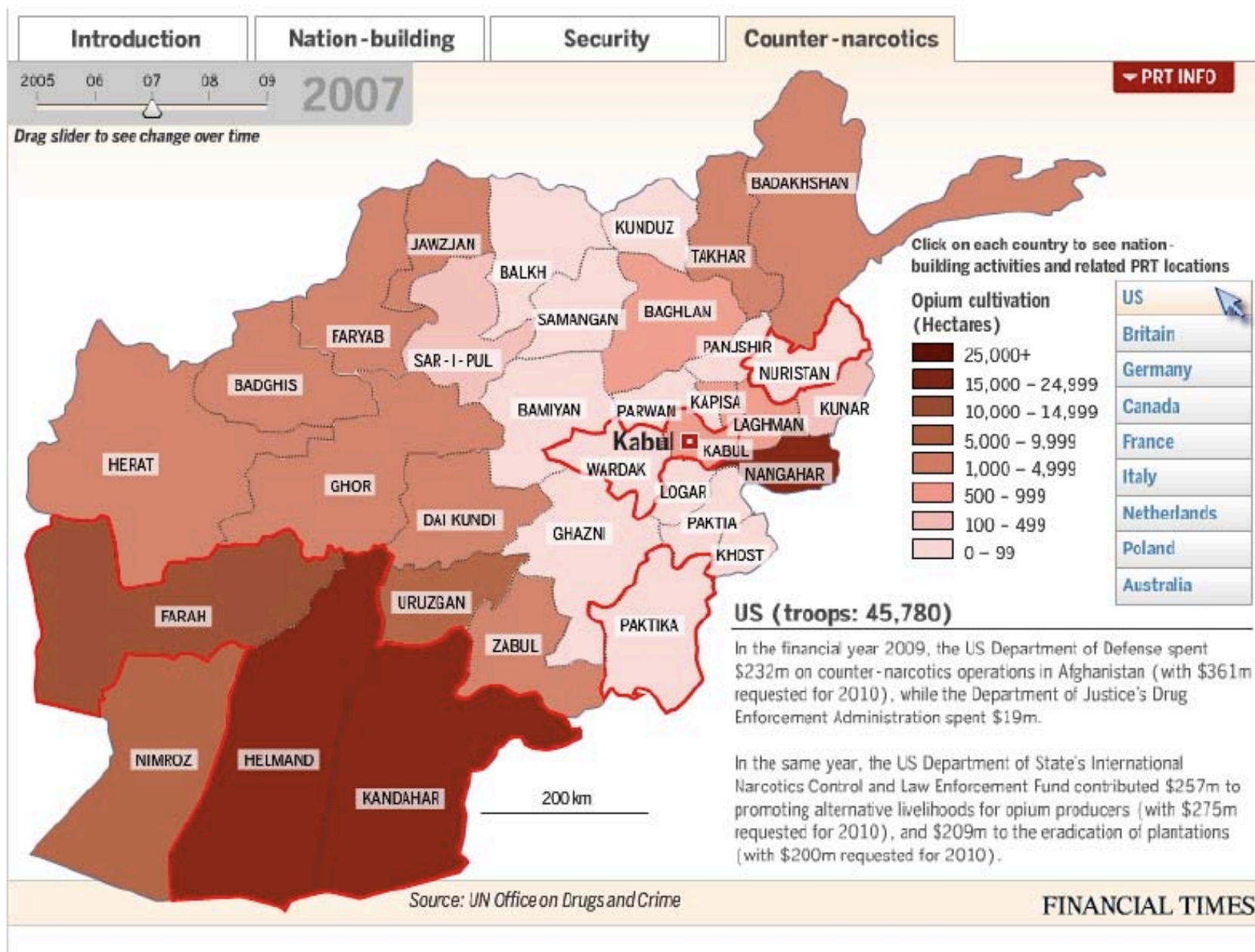
1 2 3 4 5 6 NEXT ▶

### Latest forecast

Today, with a better understanding of the severity of the economic downturn, the deficit situation is much more dire.



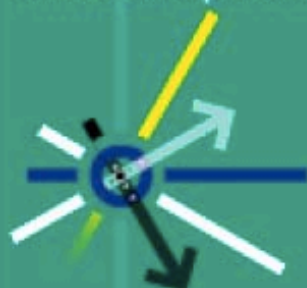




# Human Development Trends 2005



Interactive presentation of some of the messages in the Human Development Report 2005



English  
Dansk  
Portuguese  
Suomi  
Français  
Deutsch

Produced in collaboration with:

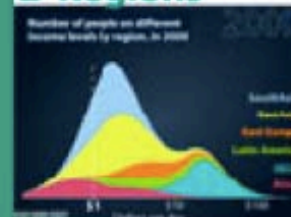
**GAPMINDER**  
[www.gapminder.org](http://www.gapminder.org)

English translation: Claes Johansson, UNDP

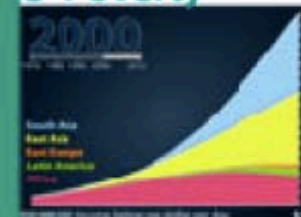
## 1 Income



## 2 Regions



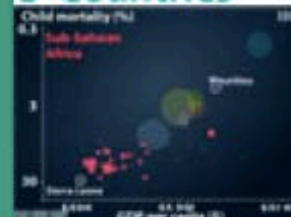
## 3 Poverty



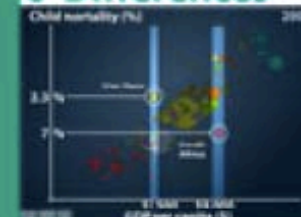
## 4 Health



## 5 Countries



## 6 Differences



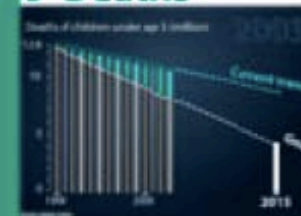
## 7 Trends



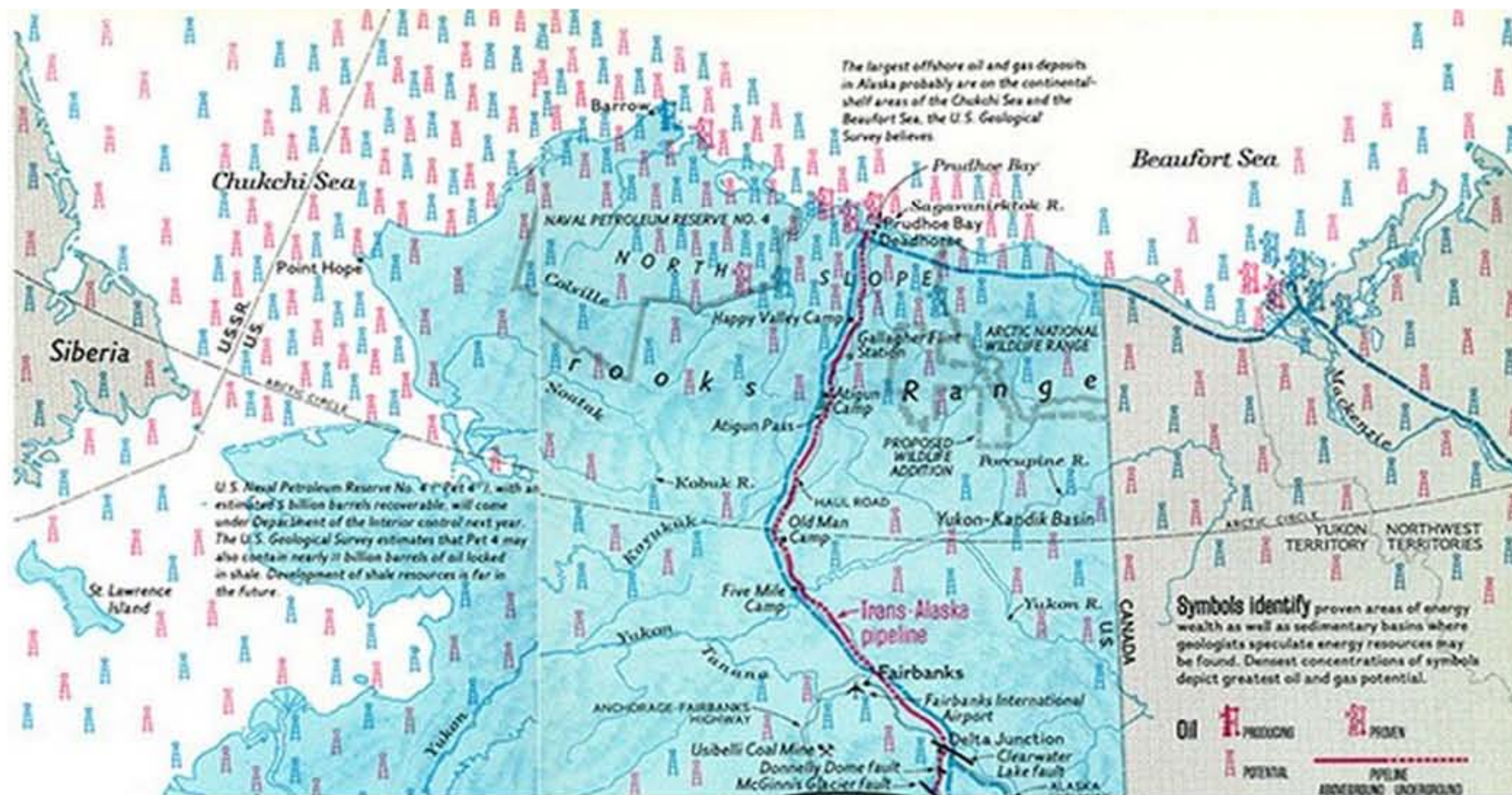
## 8 Gaps



## 9 Deaths





[ABOUT](#)[AWARDS](#)[SHOW DON'T  
TELL](#)[SUMMIT](#)[MALOFRIENDS](#)[BLOG](#)[CONTACT](#)[1](#)[2](#)[3](#)[4](#)[5](#)[6](#)

## National Geographic's Trans-Alaska Pipeline story

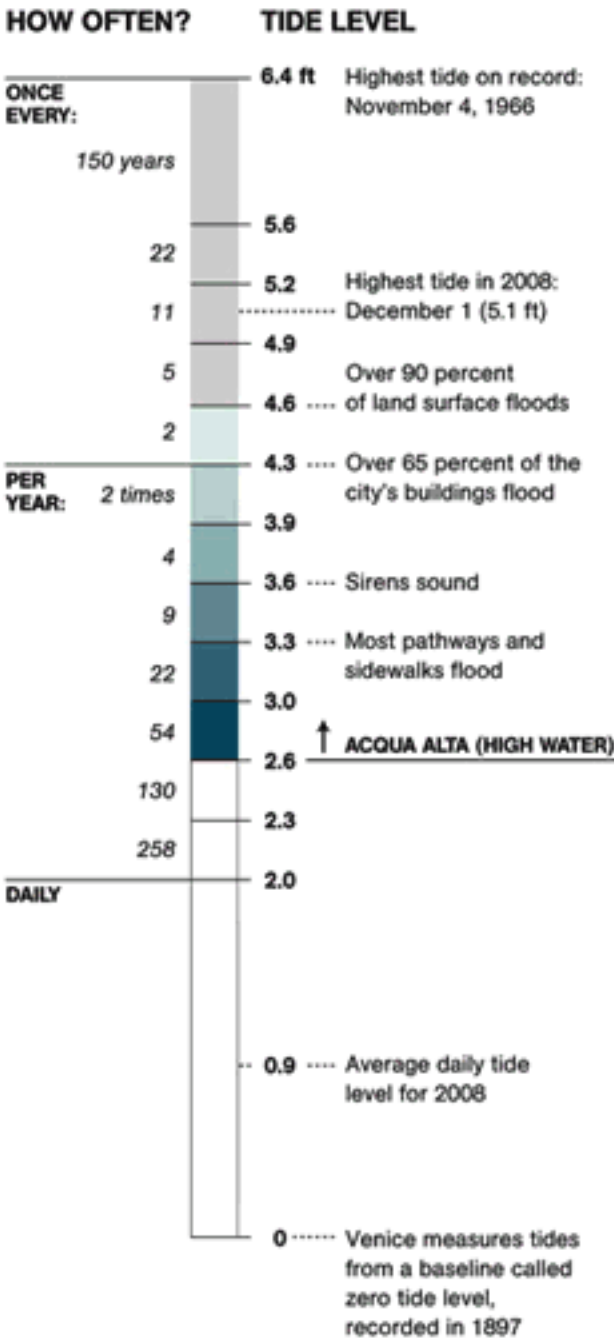
By John Tomanio Like many others, I have been reading National Geographic since I was a child. Now that I am [...]





**FLOOD ZONE**

Venetians are used to getting their feet wet, and efforts to alleviate the long-term effects of water are part of daily life in the city. During the *acqua alta*, unusually high tides cause floods (map). The lowest lying areas (darkest blue) are most often inundated.



**BUILDING AND CANAL-WALL DAMAGE**

- Extensive or moderate
- Minimal

About half of surveyed walls and buildings show damage. Turbulent waves caused by motorboats (*moto ondoso*) can accelerate the deterioration of canal walls. When sediment accumulates in canals and clogs sewer lines, sewage seeps into adjoining canals and damages brick and mortar. Dredging sediment helps limit damage.

**Piazza San Marco**  
One of the lowest spots in Venice, the entrance to the Basilica in San Marco floods frequently. Temporary elevated walkways provide passage.

**Punta della Salute**  
The 1897 tide measurement here has been the city's zero-level reference for sea-level rise.

Circles mark buildings most likely to flood, due to location and structure, when area is underwater.



0 ft 500  
0 m 100  
VIRGINIA W. MASON, NG STAFF  
SOURCES: CITY OF VENICE; INSULA; FORMA URBIS; WORCESTER POLYTECHNIC INSTITUTE, VENICE PROJECT CENTER

TIDE-LEVEL SCALE ROUNDED TO NEAREST TENTH.  
FREQUENCIES BASED ON 1966-2008 AVERAGES.  
FLOOD-INFORMATION MAP BASED ON AN INTERPOLATED MODEL OF BUILDING, SIDEWALK, AND PIAZZA ELEVATION DATA.









## Profile

2009 was a killer year for an unassuming designer from the Netherlands. Joost Grootens will have been known to map-design fans out there for some time, especially for his much-admired Metropolitan World Atlas, but last year his fame went stellar (in design terms, at least). ROBERT URQUHART visited Grootens's studio in Amsterdam and discovered that he might just hold the key to an interesting future for graphic design.

# JOOST GROOTENS

Portrait of Joost  
Grootens by Thijs Wolzak

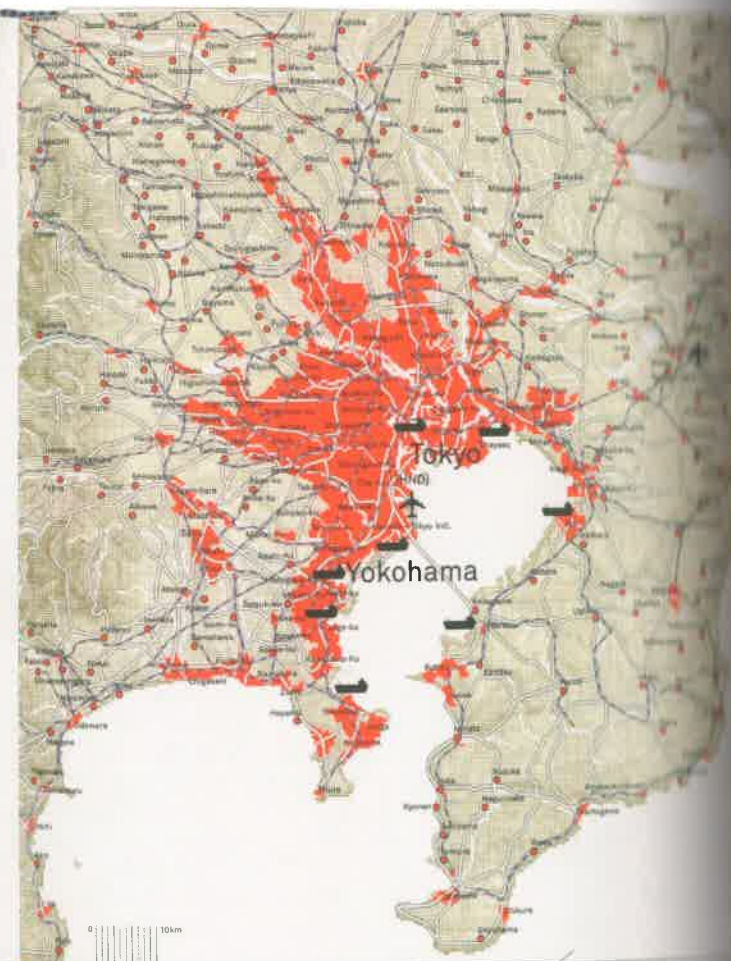
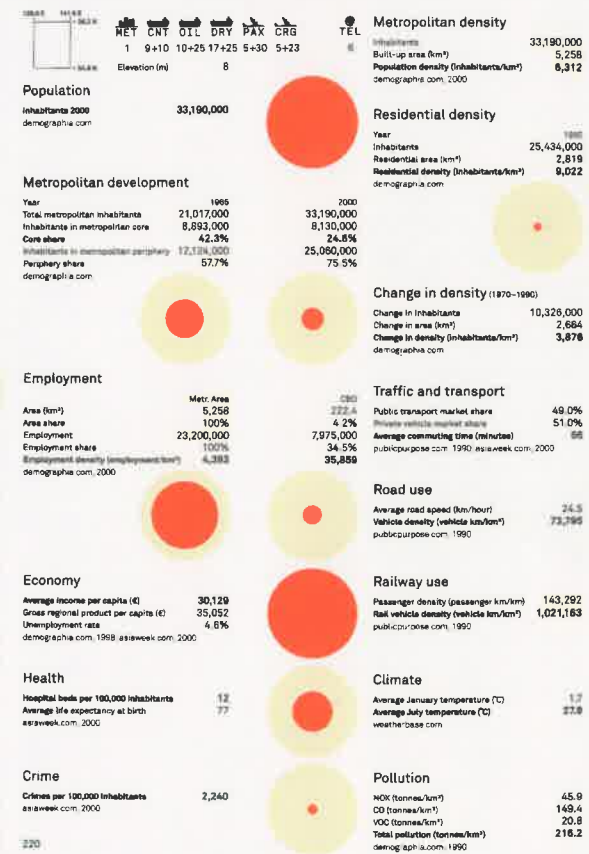
[www.thijswolzak.nl](http://www.thijswolzak.nl)



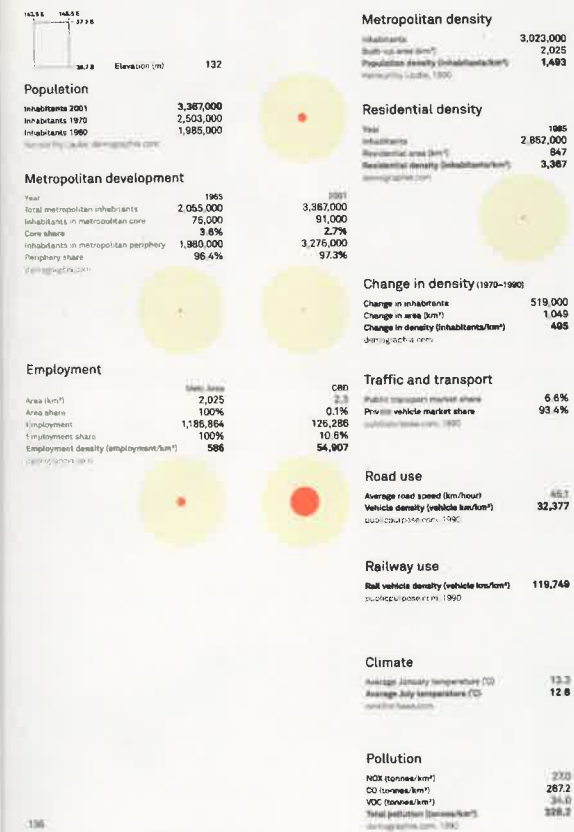




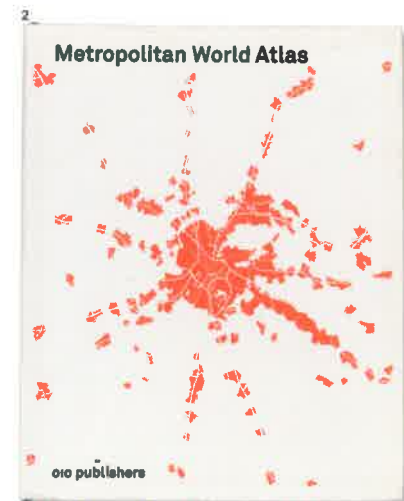
## Tokyo-Yokohama Japan



## Melbourne Australia



## METROPOLITAN WORLD ATLAS



Cover and spreads from *Metropolitan World Atlas*, which started out as a final thesis by Urban Design student Arjen van Susteren. When Peter de Winter of 010 Publishers read it he asked Grootens whether a specific part of the thesis – a comparison of cities in maps and data – could be made into a book. It uses a system of fluorescent orange circles, printed within larger circles of tinted varnish, to represent comparative data in 101 metropolises. The first section shows information for each place, while the second compares cities for each data point: population, life expectancy, literacy, etc. Grootens says: 'The system sometimes causes unusual compositions with empty spaces where data is missing.'

Intended readership: as a tool for urban designers.

1 and 3. Spreads show cities with similar cartography but big differences in data: Tokyo 'scores' higher in all categories.  
 2. One of eight different covers, each showing a different city. This is Moscow, from the first edition.  
 4. Spread from latter comparative section of book.

Dimensions: 210 x 160 mm  
 312 pages.  
 Language: English  
 Author: Arjen van Susteren  
 Publisher: 010 Publishers, Rotterdam, 2006  
 Design book and map: Studio Joost Grootens (Joost Grootens)  
 Production: Lecturix, Eindhoven (printing)  
 Interior: printed in a tinted varnish and four Pantone colours (including fluorescent orange, metallic blue, green, black). Interior printed on Eurobulk Matt.  
 Endpapers: printed in the flat colours of the interior on Offset.  
 Cover: black foil blocking and printed in fluorescent orange on Invercote C.  
 Typefaces: Akkurat & Akkurat Mono (Lineto).  
 Page layout software: Quark XPress. Maps and custom pictograms were made in Adobe Illustrator.

Awards:  
 Best Dutch Book Design 2006  
 Cold medal Best Book Design from all over the World, Leipzig, 2006  
 Dutch Design Award Graphic Design, 2006  
 Red dot: Grand Prix Editorial Design, Essen, 2006  
 Rotterdam Design Prize 2009.

## Population

Number of inhabitants in the metropolitan area (c. 2000)  
 demographia.com; citypopulation.de; Statistik; Population Review; Statistical Service; UN; Census

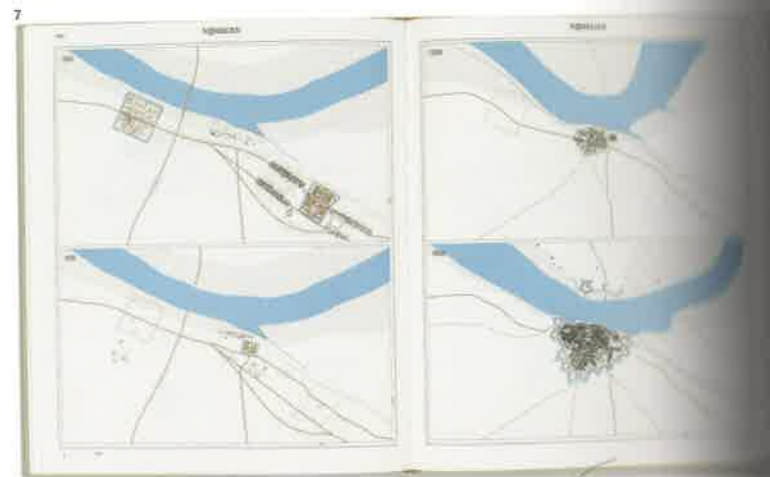
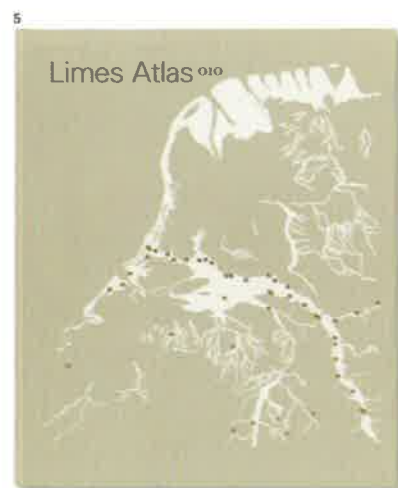




# LIMES ATLAS

Cover and spreads from *Limes Atlas*, which charts the way that the *limes*, the northern boundary of the Roman Empire, has affected the Dutch landscape from AD 200 to the turn of the millennium, using maps, diagrams and photographs. Like the *Atlas of the New Dutch Water Defence Line* (pp.80-81), *Limes Atlas* shows a hidden layer of Dutch landscape, since everything has sunk in the swamp-like soil. 'These atlases show that the Netherlands is not a *tabula rasa*, not an empty piece of land, but that it has a historic, if invisible past,' says Grootens.

Intended readership: architects, urban designers, municipalities and civil servants.

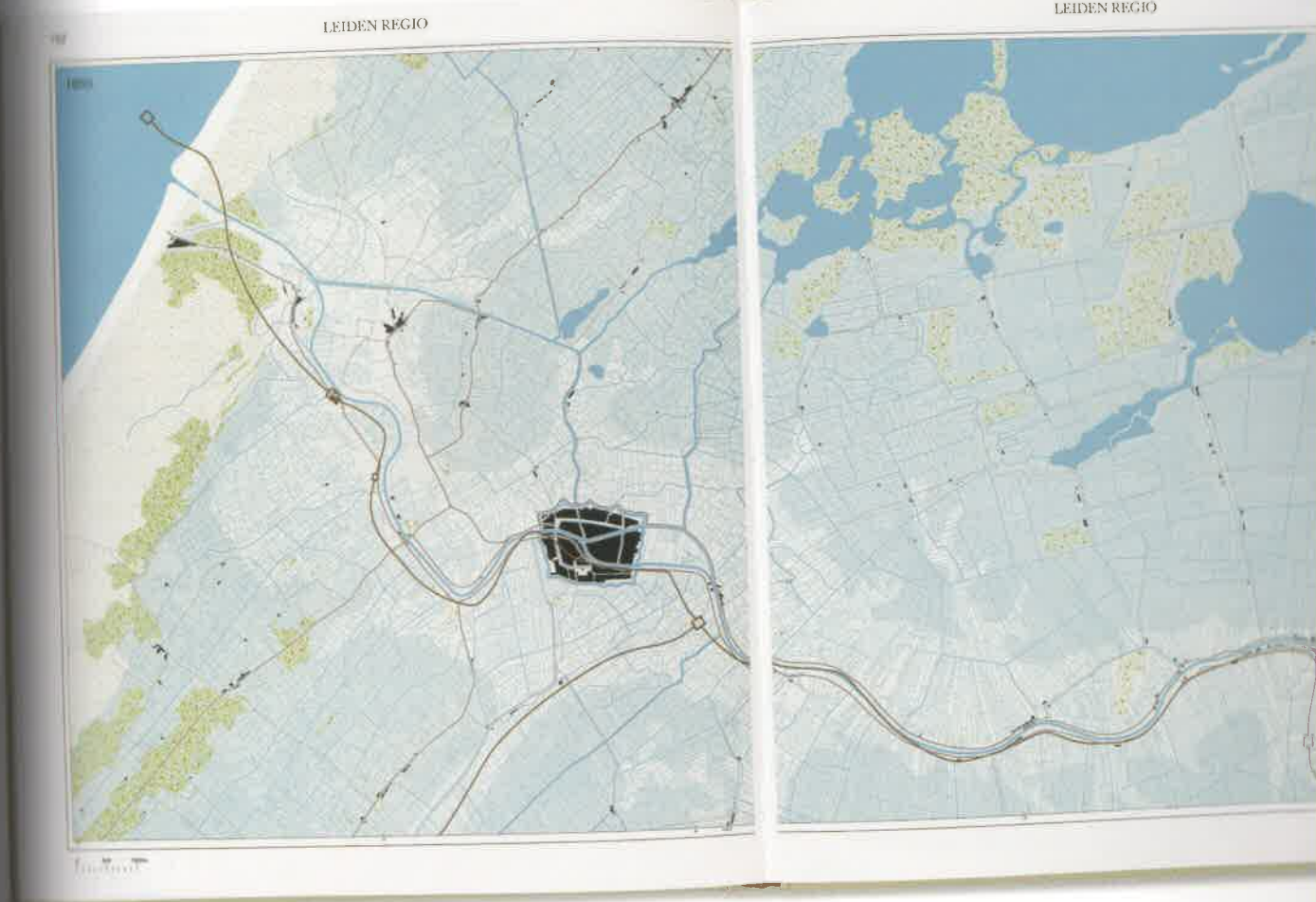


5. The cover shows the two layers of information in the atlas: the Netherlands' historical landscape in white foil blocking and the Roman fortresses in gold foil blocking.  
6 and 7. Changes over time in Utrecht and Nijmegen.  
8. Spread from final chapter, which contains several different approaches; a small diagram on the left connects it through use of gold and black ink to the rest of the book.  
9 and 10. Two of a series of five maps that show changes in the Dutch landscape over time. In the centre of each map spread is a 4mm white gutter. 'This is a technique often used in atlases, as it is possible that a map will move slightly in binding,' says Grootens. 'I used this for the first time in *Limes Atlas*.'

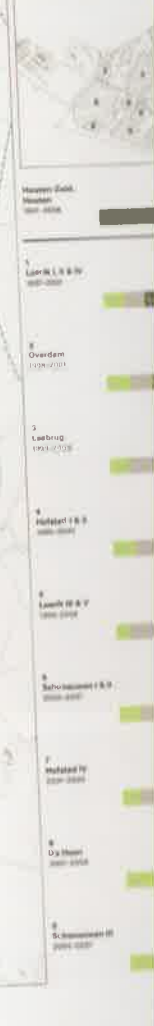
Dimensions: 240mm x 285mm, 208 pages.  
Language: Dutch.  
Authors: Bernard Colenbrander, MUST.  
Publisher: 010 Publishers, Rotterdam, 2005.  
Design book and maps: Studio Joost Grootens (Joost Grootens).  
Production: Lecturis, Eindhoven (printing).  
Interior: printed in four Pantone colours (including gold, blue, green, black) and a spot varnish on Eurobulk Matt.  
Endpapers: printed in the four colours of the interior on IJsselprint Offset.  
Cover: white and gold foil blocking; printed in black on Papilin.

Typefaces: Bastionville (Linotype), Univers (Linotype).  
Page layout software: QuarkXPress. Maps and endpaper pictograms were made in Adobe Illustrator.

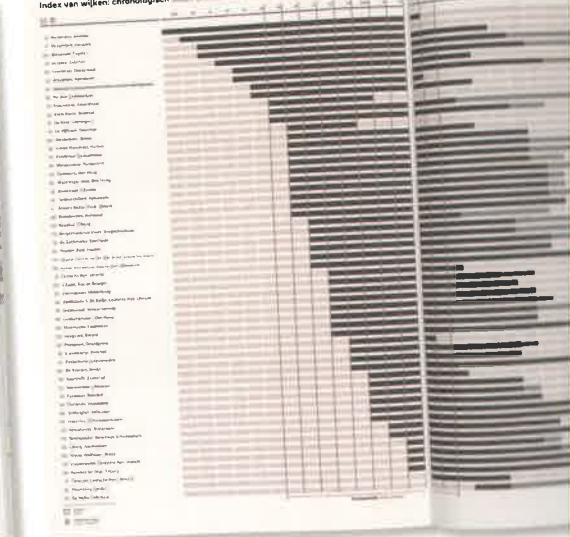
Awards:  
Best Dutch Book Design 2006  
Rotterdam Design Prize 2006



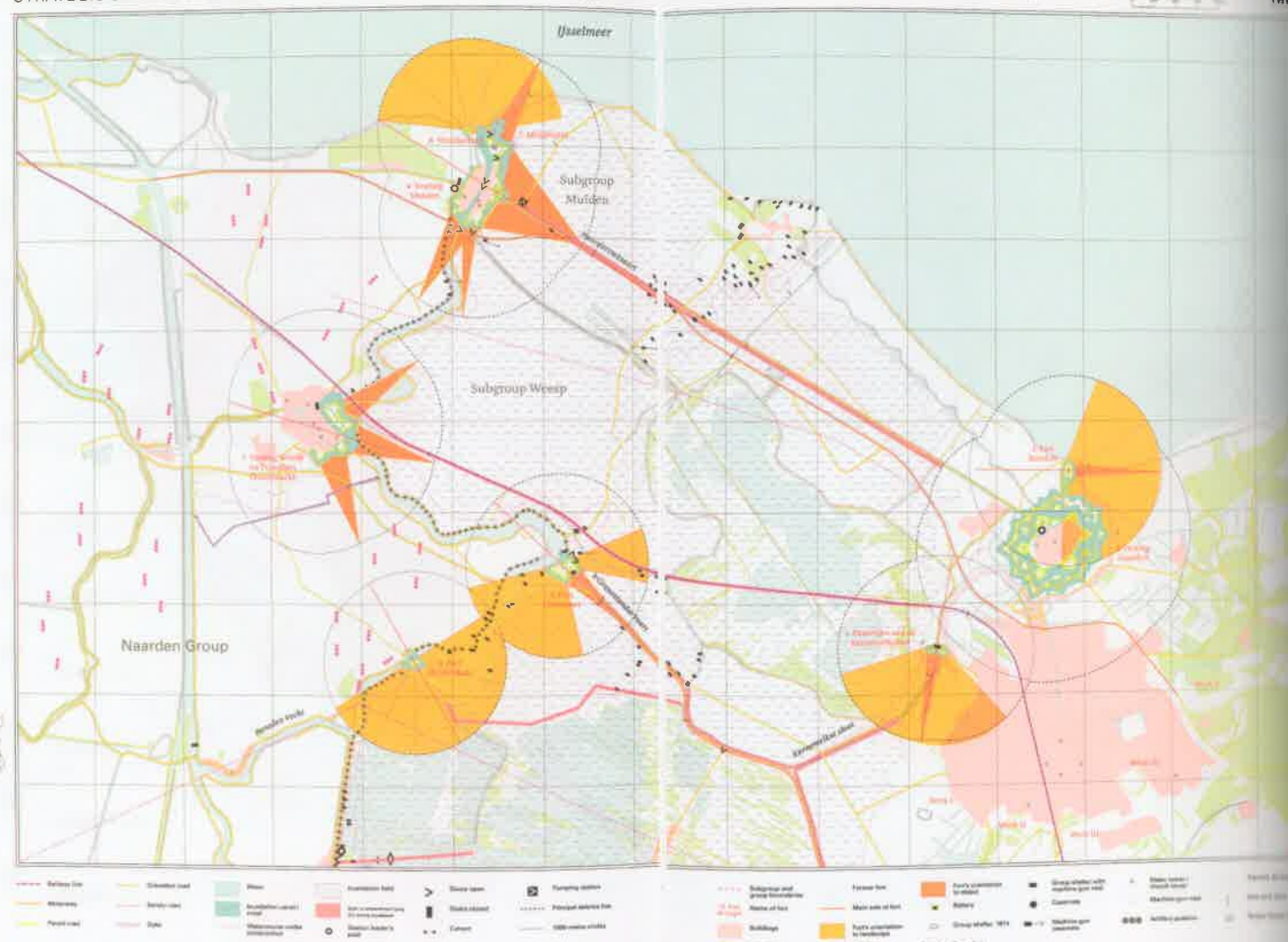




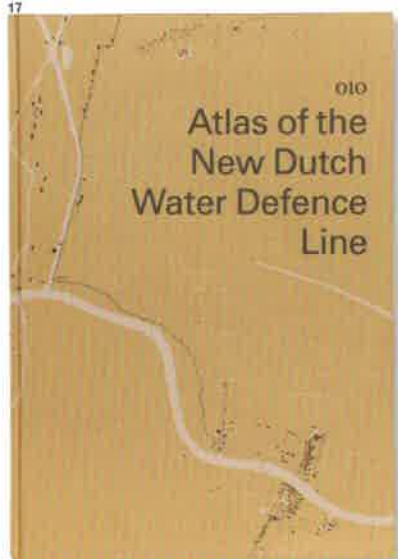
... chronologisch ...







## ATLAS OF THE NEW DUTCH WATER DEFENCE LINE



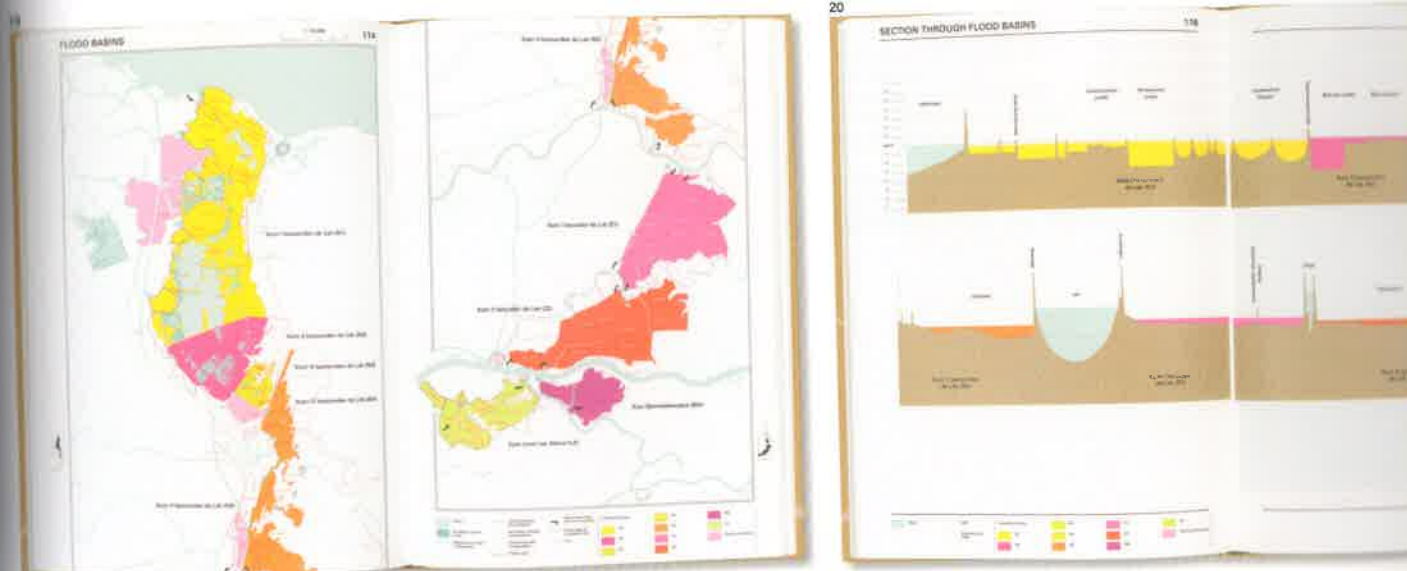
Crootens' design puts the water-dominated landscape of his homeland on the map, alongside historical essays, photographs and detailed maps of the complex system of forts, shelters and polders that can be flooded in the event of war. Crootens says: 'For the systems I used very bright, almost shouting colours. Leafing through the book is a succession of quiet colour palettes and bright, strong ones.' The book was commissioned by The Netherlands Architecture Fund and Nieuwe Hollandse Waterlinie Project.

Intended readership: architects, urban designers, municipalities and civil servants.

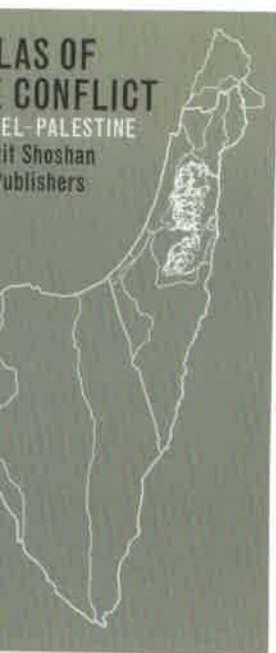
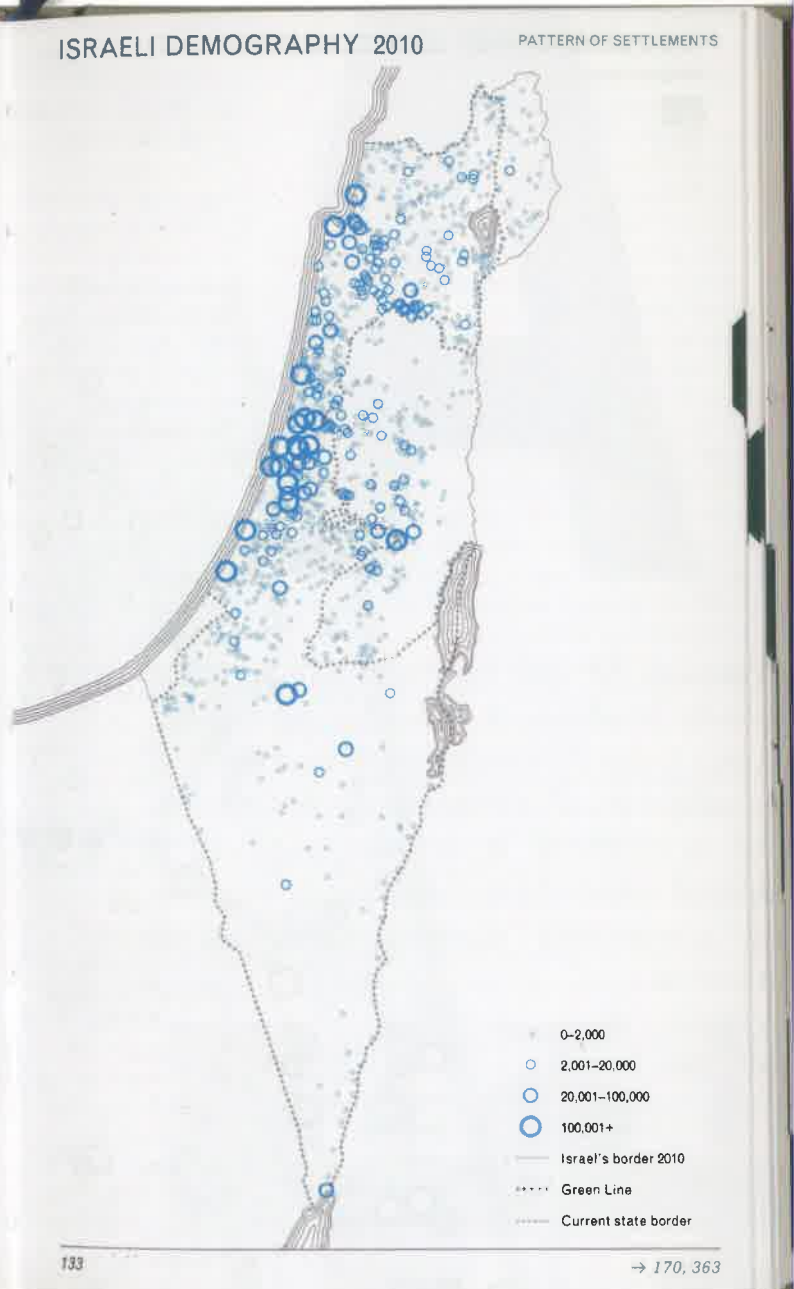
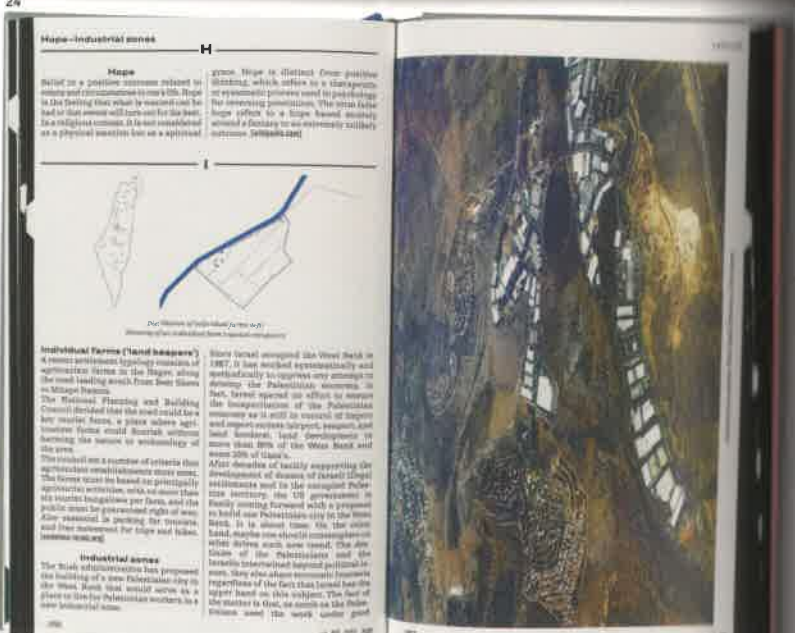
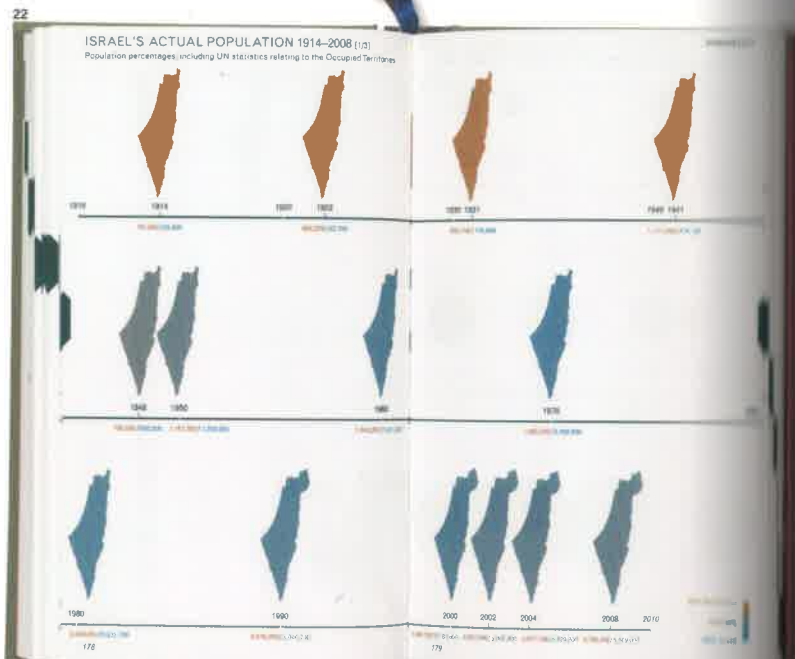
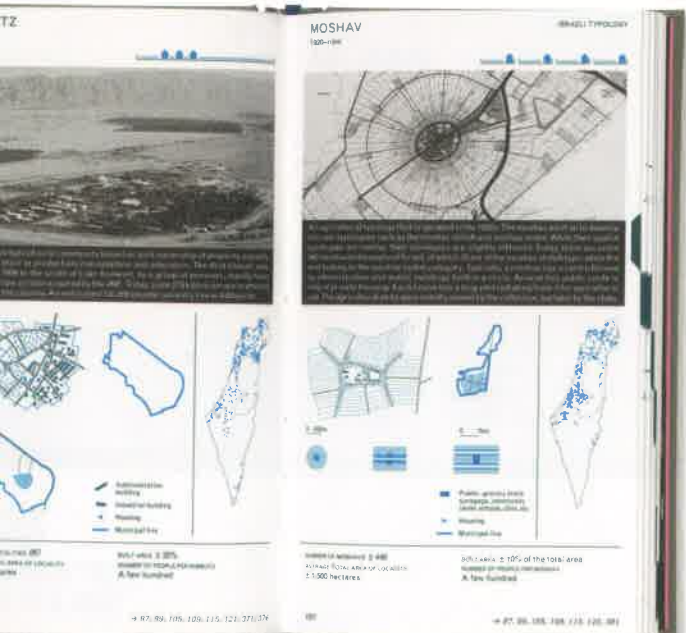
16. Military system superimposed on a topographic map.  
17. The cover shows an abstract of the landscape in grey and relief, with the military system in black and silver. (See enlarged detail on page 73.)  
18. Map using conventional colours for soil types.  
19. Polder system in strong Pantone colours.  
20. Cross-section through various polders.

Dimensions: 340mm x 250mm, 208 pages.  
Language: two editions, English and Dutch, English translation by John Kirkpatrick.  
Edited by: Rita Broeze & Bernard Colenbrander.  
Publisher: 010 Publishers, Rotterdam, 2009.  
Design of book and maps: Studio Joost Crootens (with Crootens with Tine van der Wal and Adam Farlie).  
Production: Lecturis, Eindhoven (printing) / Abbrigh, Croningen (finishing, including CD-ROM).  
Interior: printed in five Pantone colours (fluorescent yellow, fluorescent pink, beige, greyish blue and black) on Cardapat Kiara.  
Endpapers: printed in silver and black on On Off set.  
Cover: silver and relief black and printed in grey and black on Wibalin Buckram.  
Typefaces: Ambem Blood (OurType), Univers (Linotype), Ceremony (Studio Joost Crootens).  
Page layout software: QuarkXPress. Maps and pictograms were made in Adobe Illustrator.

Awards:  
D&AD Awards 2010 Book Design (Yellow Pencil),  
Bronze, European Design Awards, 2010.







# ATLAS OF THE CONFLICT: ISRAEL- PALESTINE

This atlas is in the form of a guidebook that lies easily in the hand. The first section contains maps, while the second half is a lexicon of source material. Architect Malkit Shoshan traces the geopolitical origins of the conflict from the beginning of the twentieth century, including the early settlements and what she terms 'spatial planning used as a political instrument.'

Intended readership: architects and urban designers.

21-23 and 26. Spreads showing maps and diagrams that make innovative use of two colours: blue for Israel and brown for Palestine. 22. Diagram combines three sources of information: time, data and space. 24. Spread from lexicon section of book. 25. Cover in three shades of grey, with reading ribbons in the colours of the two parties: blue and brown. 26. Juxtaposition that shows what author Shoshan calls the 'pattern' of the conflict.

Dimensions: 115mm x 195mm, 480 pages. Language: English. Author: Malkit Shoshan. Publisher: 010 Publishers, Rotterdam, 2010. Design book and maps: Stu Joost Crootsen (Joost Crootsen with Barbara Hoffmann, Tine van Wel, Annemarie van den Berg, Christiaan Drost, Adam Farlie, Margriet Hogenbirk, Arthur Roeloffs, Manuel Wesely). Production: Lecturis, Eindhoven (printing) / Abbrighing, Groningen (binding). Interior: printed in two Pantone colours (blue and brown) on Cardapat Kiara (maps) and in full colour on Royal Print Matt (lexicon). Endpapers: printed in black on Woodstock Rosa. Cover: white and black foil blocking on Buckram Prent. Typefaces: Grotesque MT (Monotype) and Egyptienne (Linotype). Page layout software: QuarkXPress. Maps and diagrams were made in Adobe Illustrator.



# Stamen

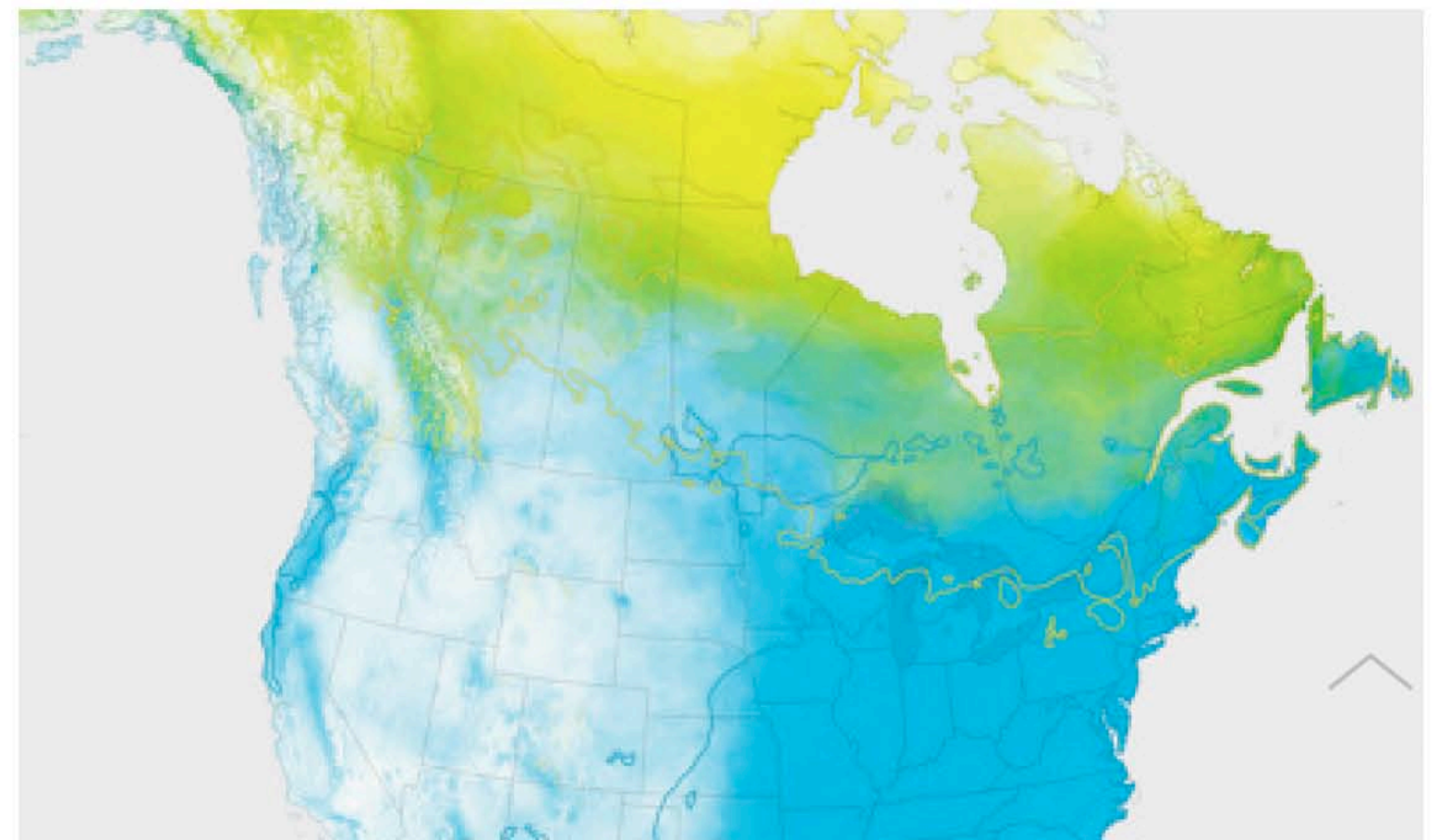
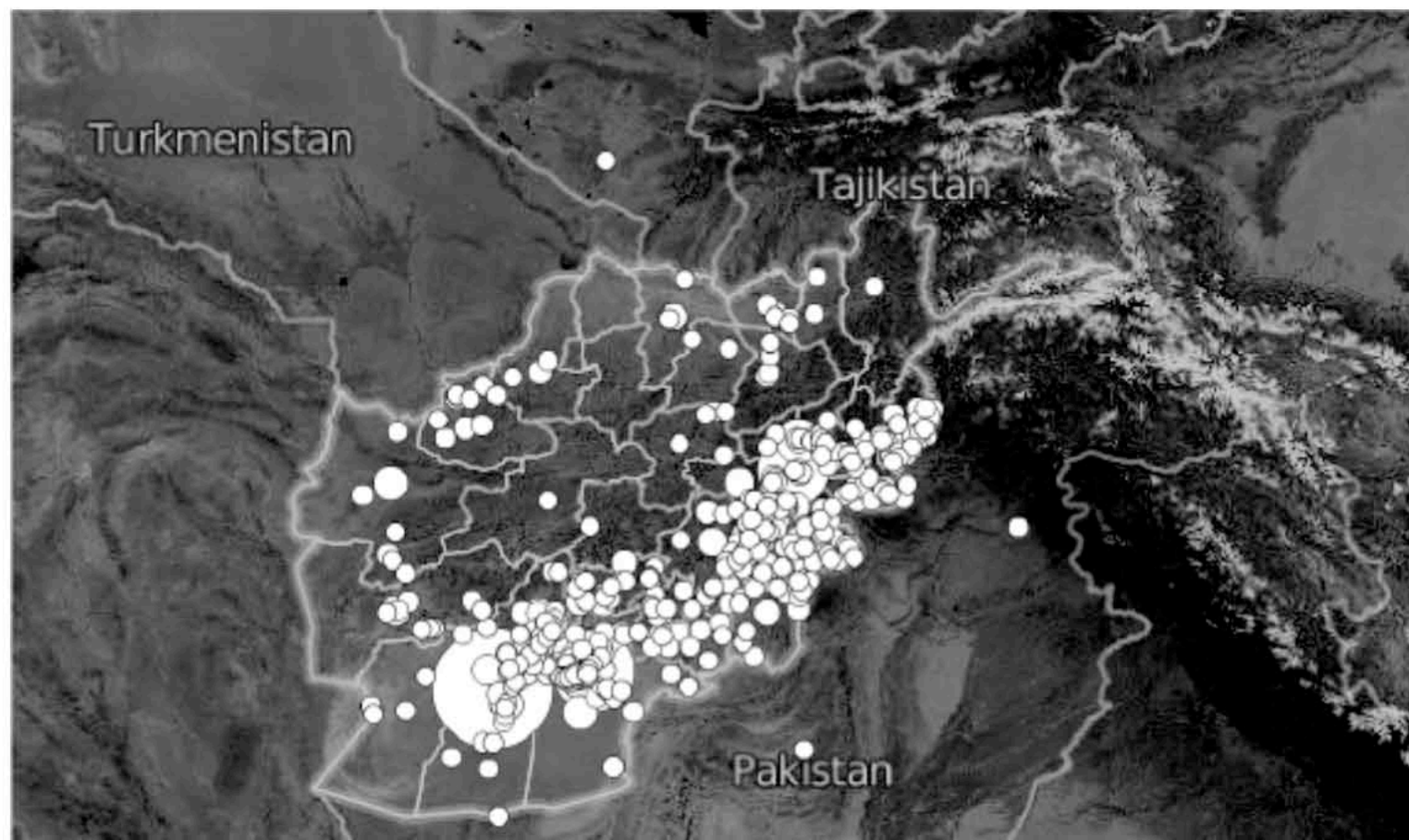
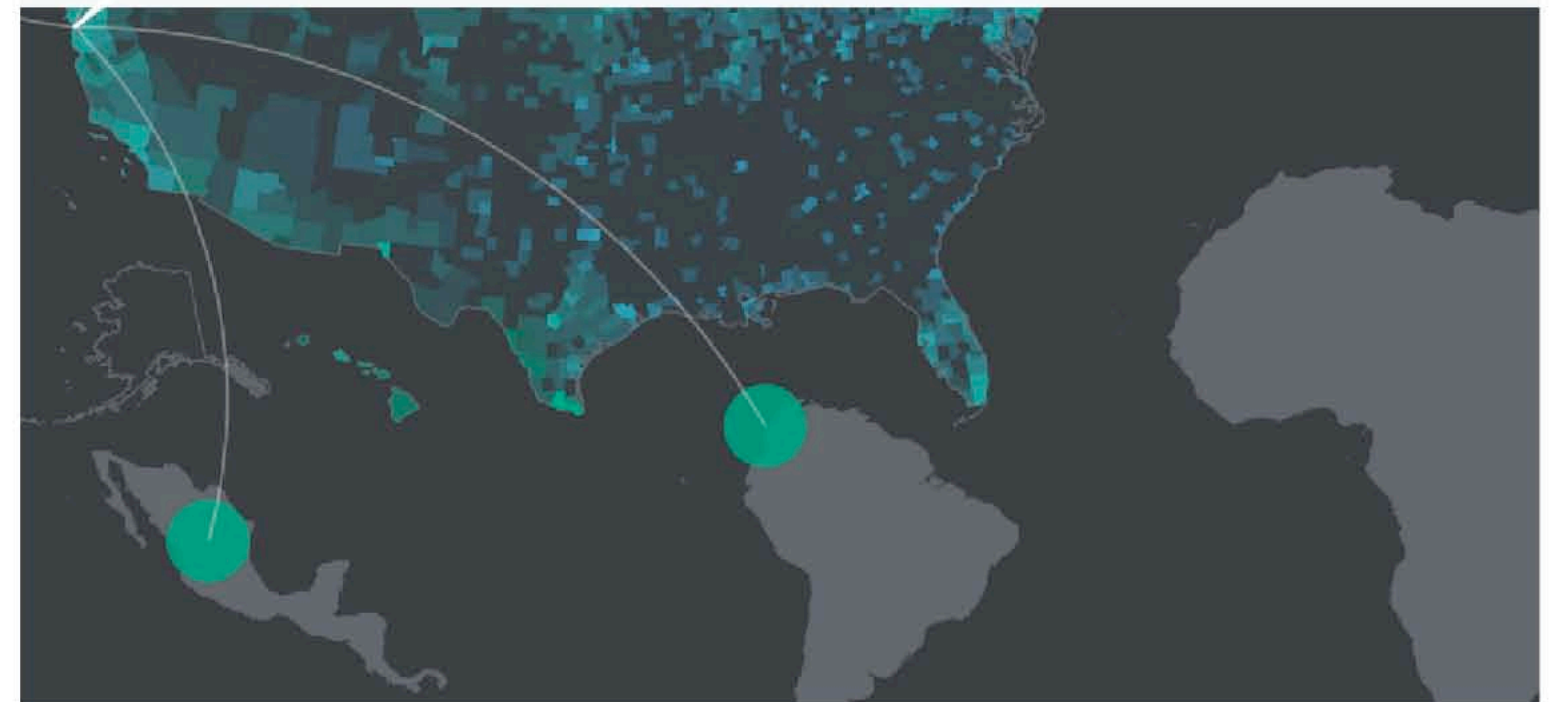
BARRETT

[Work](#)

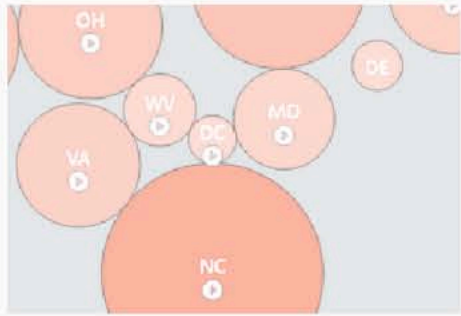
[About](#)

[Contact](#)

[Blog](#)







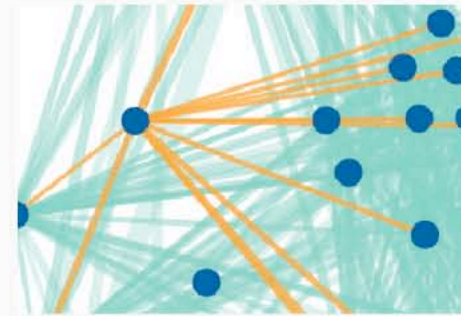
#BestSchoolDay



David Rumsey Map Center



Amazonia Under Threat



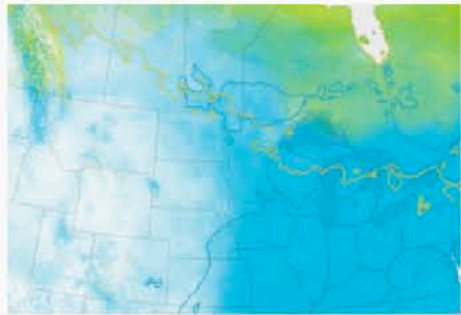
Toyota i-Road



American Panorama



Pinterest Maps



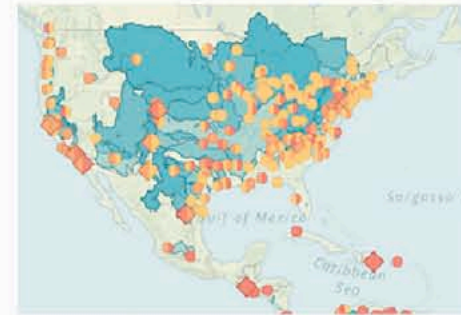
Audubon Society Climate Maps



CNN: Home and Away



Open Terrain



Urban Water Blueprint



Surging Seas 2



Open Earth



Open Reblock



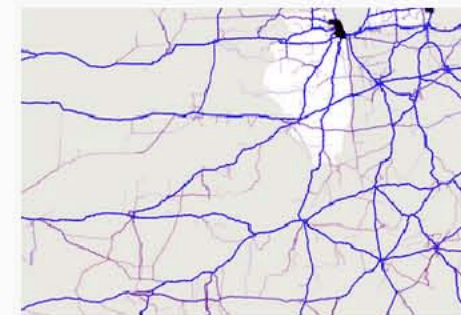
Surging Seas



California Health Care Foundation



Field Papers

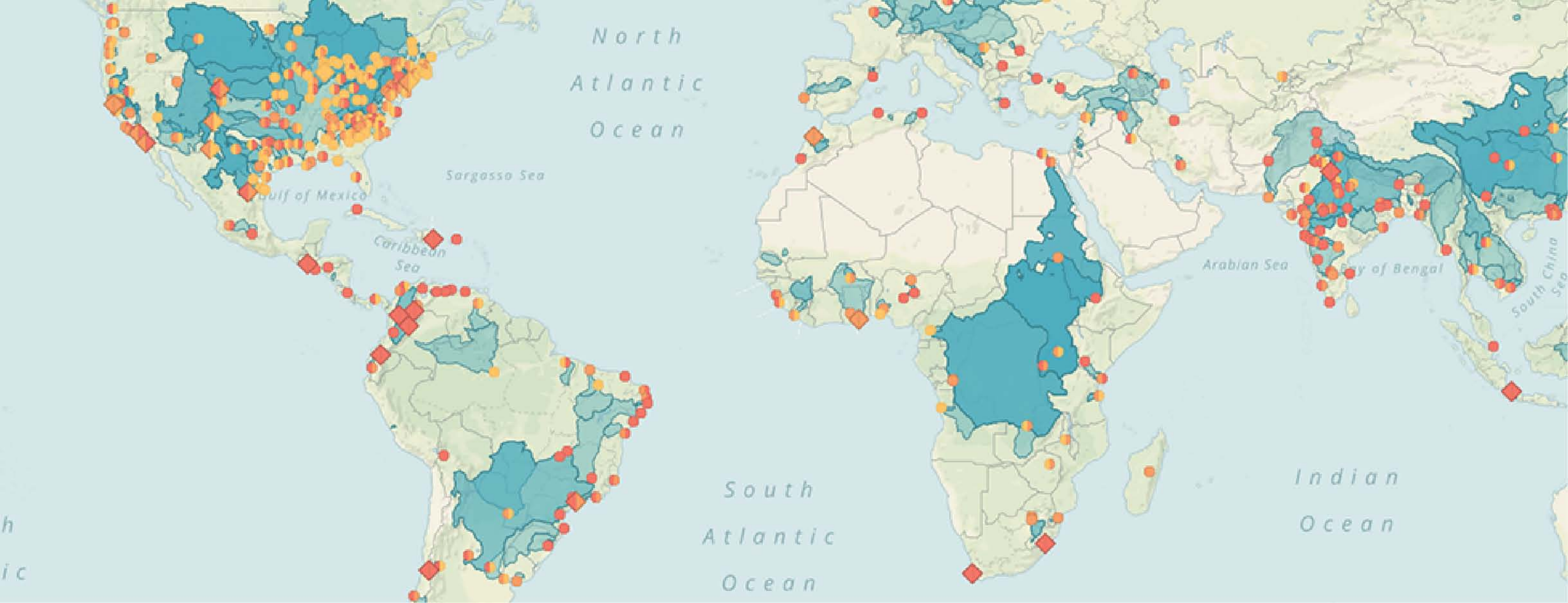


Where does the Money go?



OneBayArea Map











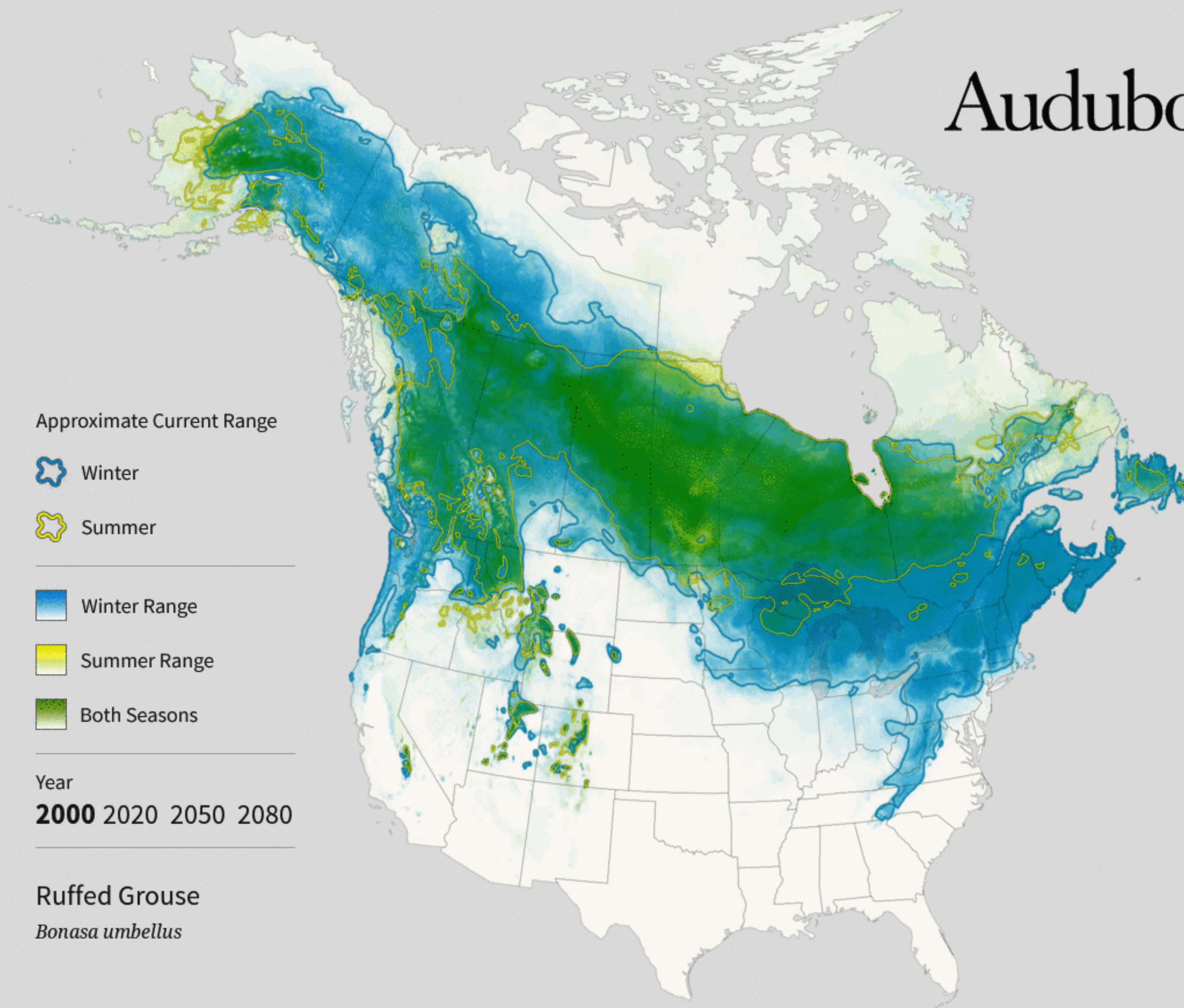








# Audubon





# CASUALTIES:

AFGHANISTAN

IRAQ

Search

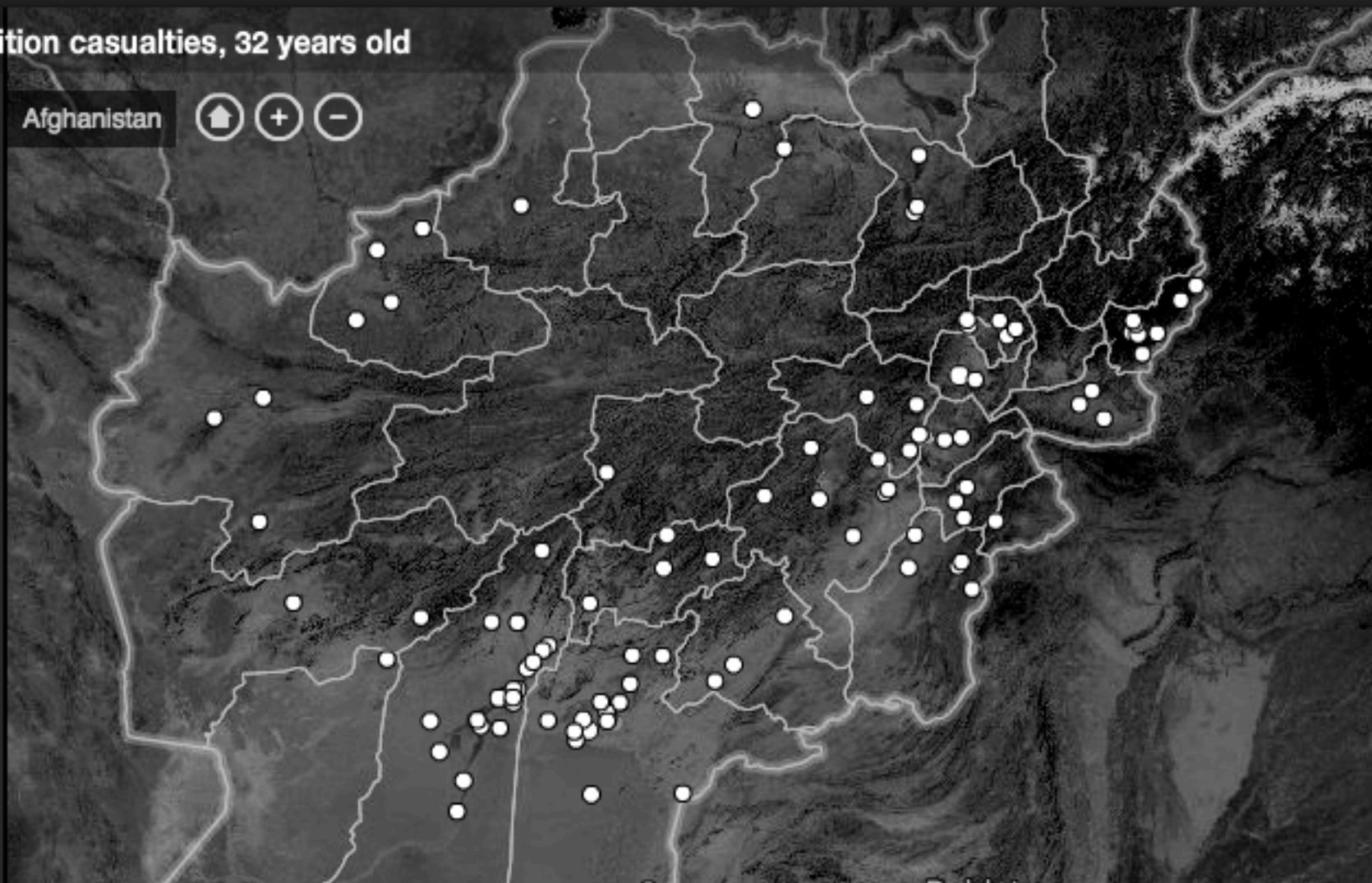
Map view [List view](#)

Showing 182 US and Coalition casualties, 32 years old

Hometown Locations

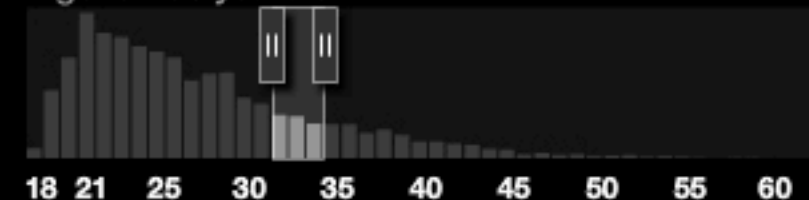


Afghanistan



Age: 32-35 years old

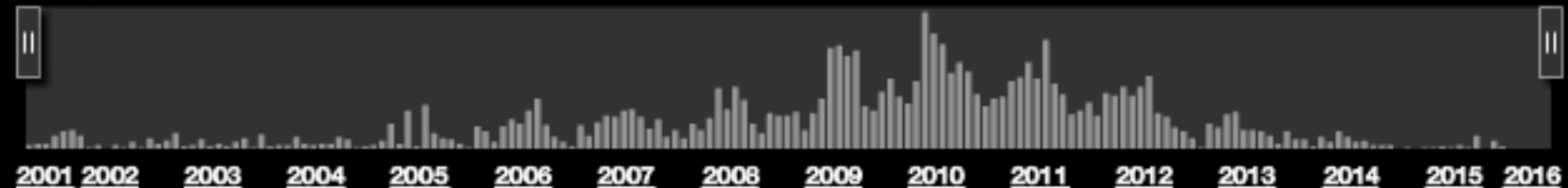
[Show All](#)



Location: (Countries & U.S. states)



Date



Totals: 3,509 deaths | 20,124 wounded | Last updated 6/29/2016





# CASUALTIES:

AFGHANISTAN

IRAQ

Search

Map view | List view

Showing 3,466 US and Coalition casualties

Hometown Locations



**Cpl. Brent John McCarthy**

25 years old

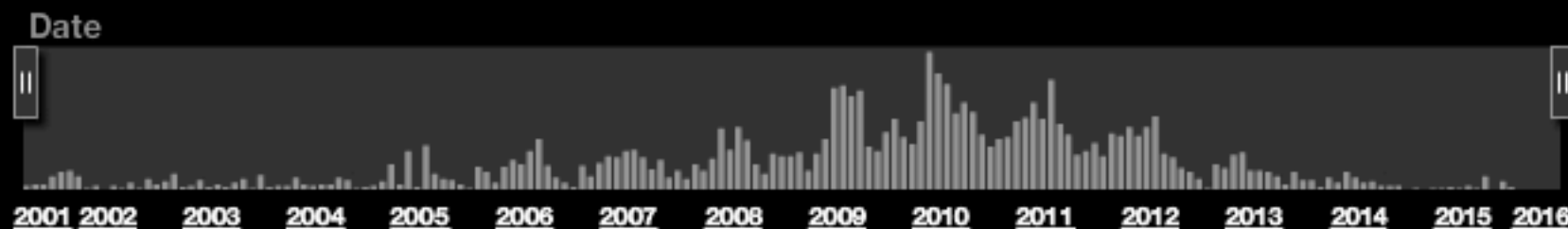
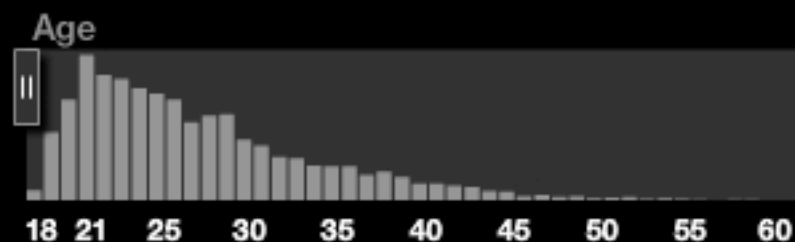
**Hometown: Priorslee, England**

One of two British servicemen killed by small-arms fire while providing security for a Police Advisory Team meeting at the local Afghan police headquarters near Patrol Base Attal in the Lashkar Gah district of

[Share memories and messages »](#)

Afghanistan

Lashkar Gah district



Totals: 3,509 deaths | 20,124 wounded | Last updated 6/29/2016



maps.stamen.com

report a bug

# stamen

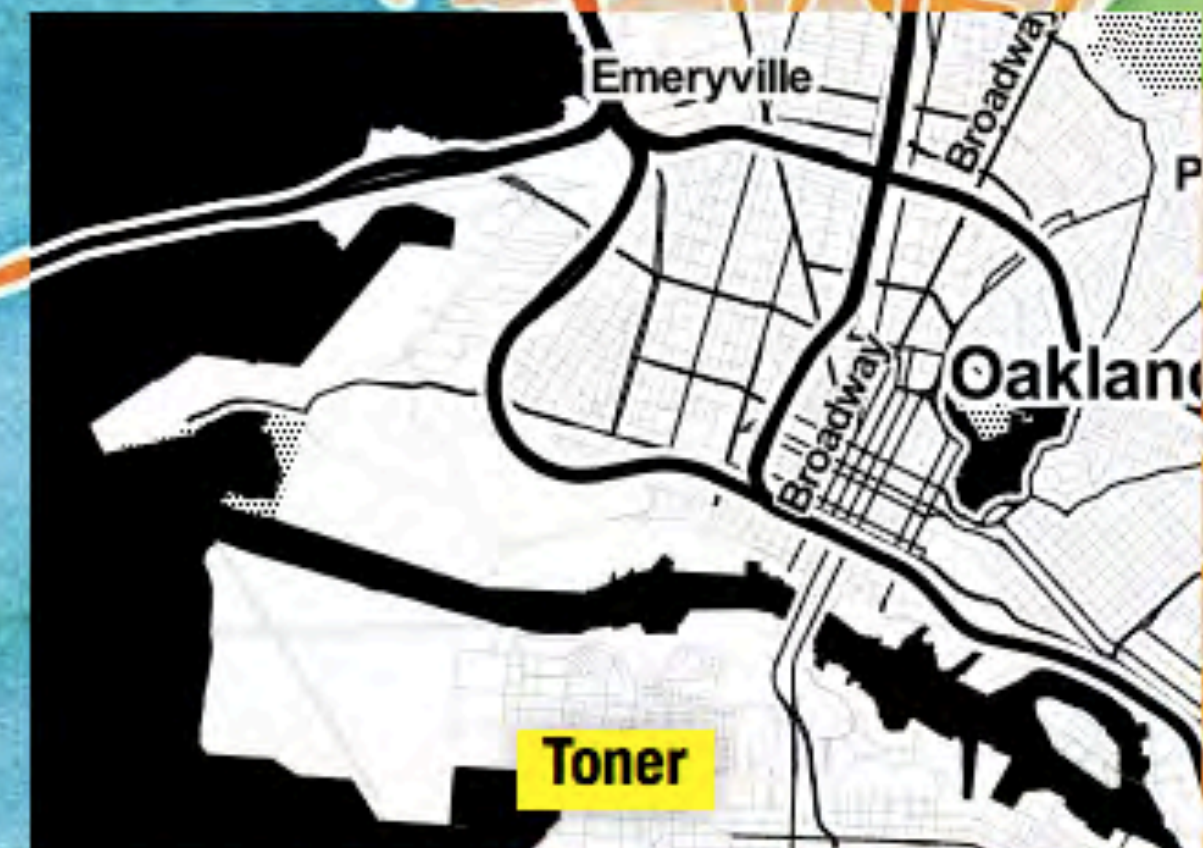
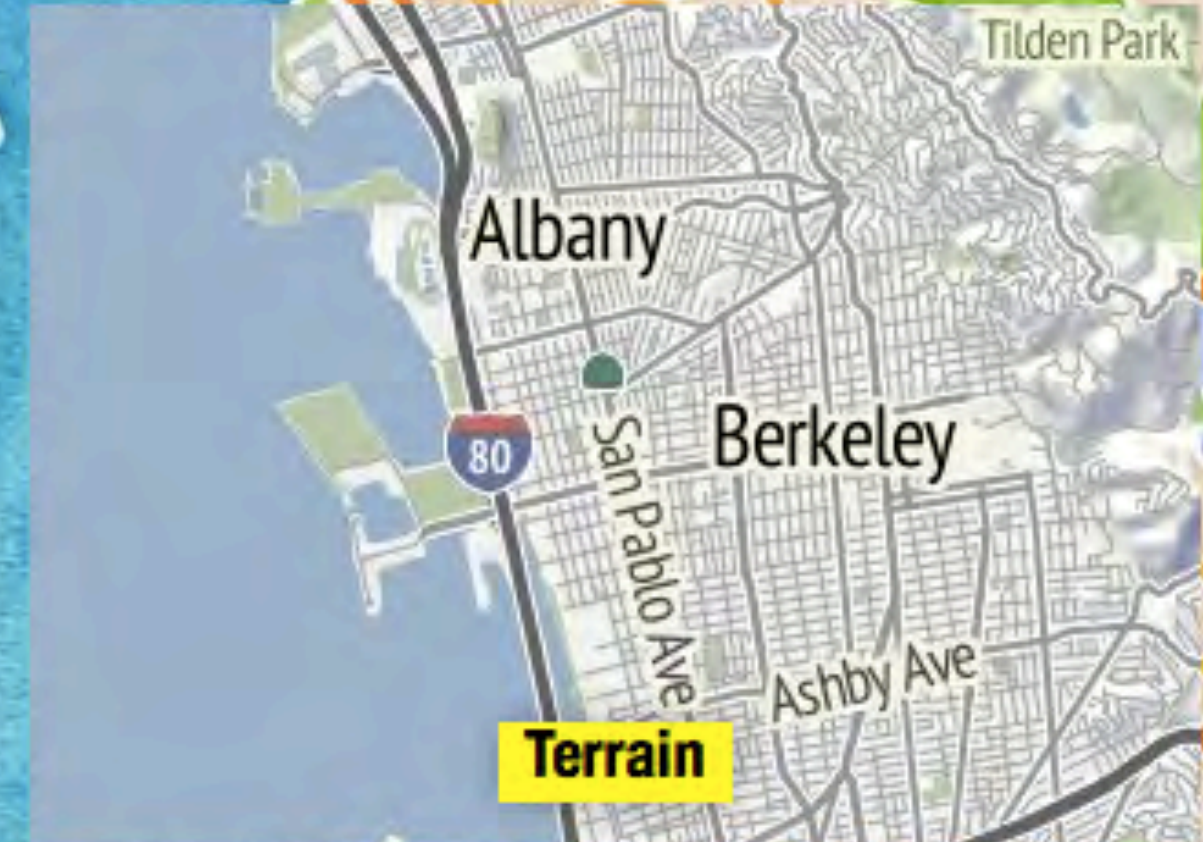
Type a location

Find

+

-

Watercolor





# Map Stack


makes designing maps  
free, easy, and fun.

Opening Hours

New: Seven Days a Week!

24 hours a day

(we'll see how this goes)

 Follow @mapstackStamen

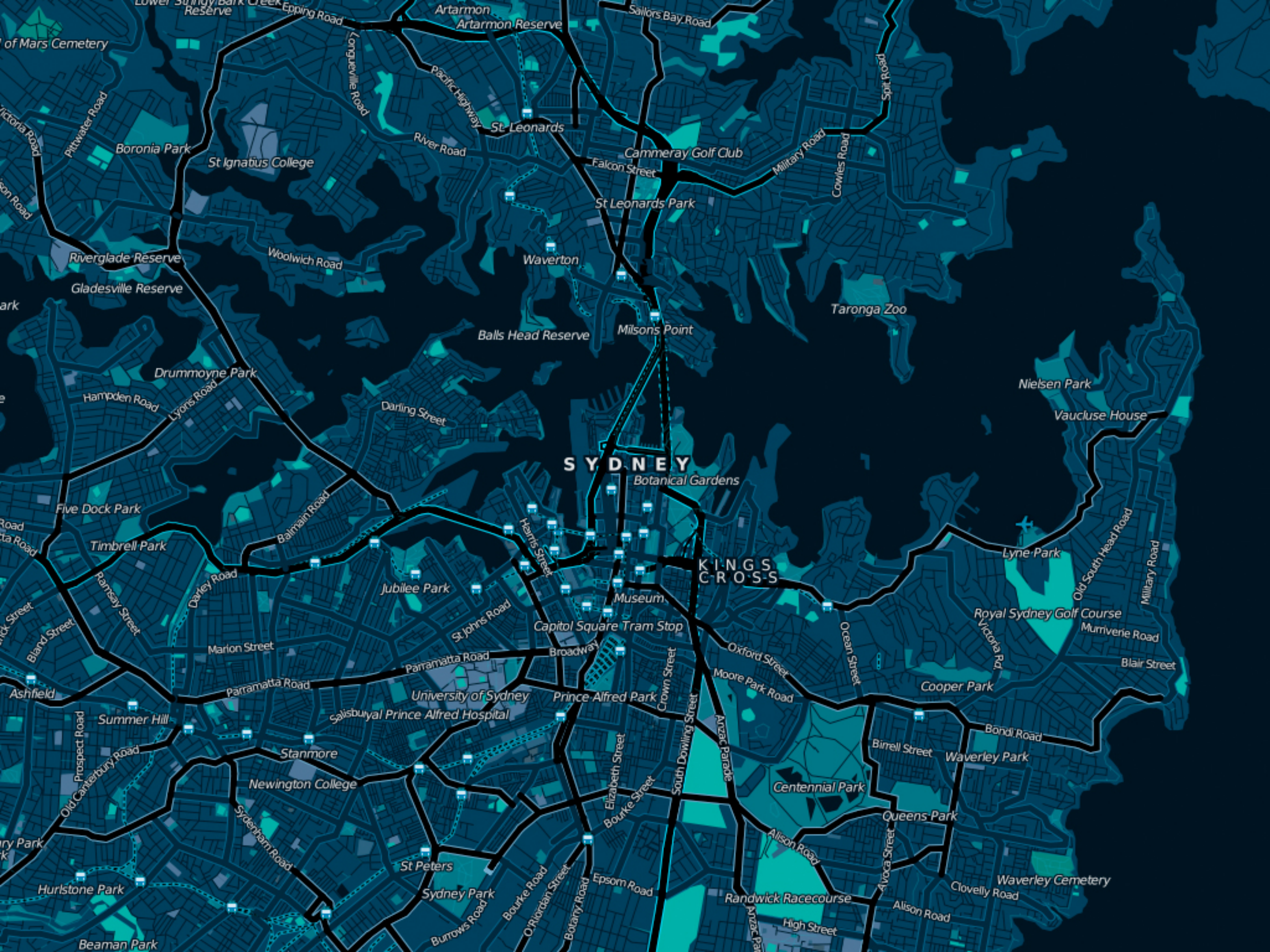
**Assemble** a selection of different map layers like backgrounds, satellite imagery, terrain, roads or labels! **Tweak** Photoshop-like controls like colors, masks, opacity and brightness to make a map your own! **Share** your map with a link or Pinterest or Tumblr!

Recently:

**TRY IT!**









*Urban imagination and social innovation  
through design & science*

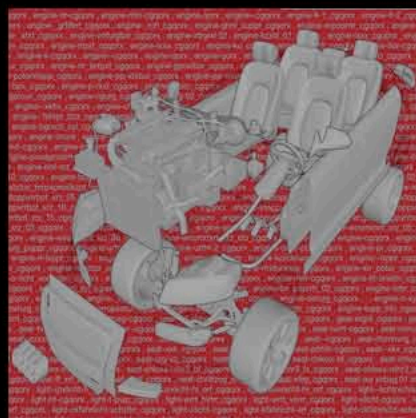
The real-time city is real! As layers of networks and digital information blanket urban space, new approaches to the study of the built environment are emerging. The way we describe and understand cities is being radically transformed—as are the tools we use to design them. The mission of the *Senseable City Laboratory*—a research initiative at the Massachusetts Institute of Technology—is to anticipate these changes and study them from a critical point of view.

Not bound by the methodologies of a single field, the Lab is characterized by an omni-disciplinary approach: it speaks the language of designers, planners, engineers, physicists, biologists and social scientists. Senseable is as fluent with industry partners as it is with metropolitan governments, individual citizens and disadvantaged communities. Through design and science, the Lab develops and deploys tools to learn about cities—so that cities can learn about us.

## Projects



Shareable Cities  
2017



Sensing Vehicle  
2017



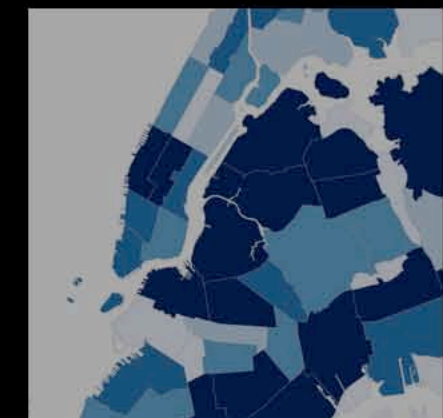
Treepedia  
2016



Roboat  
2016



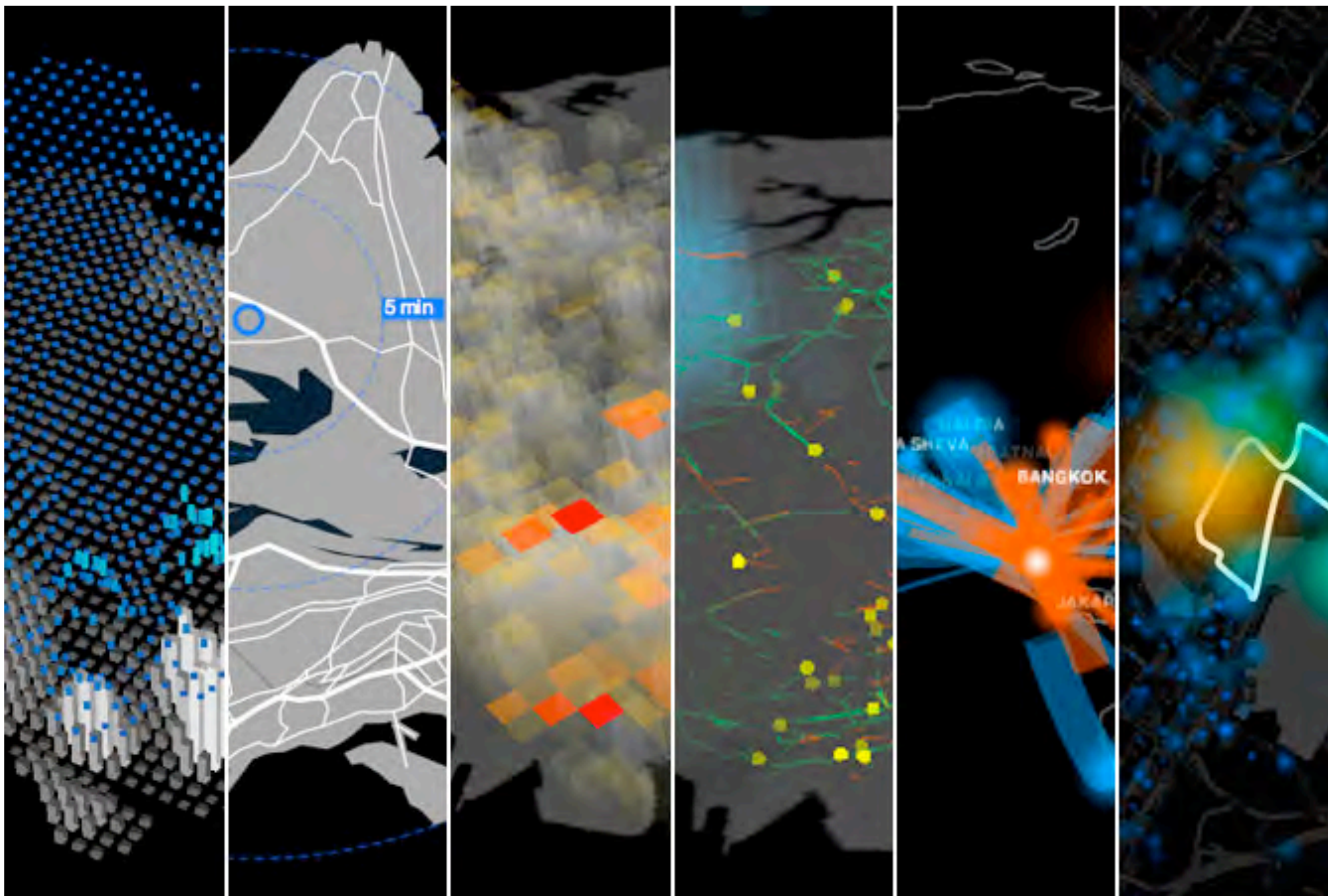
PisaPOOL  
2016



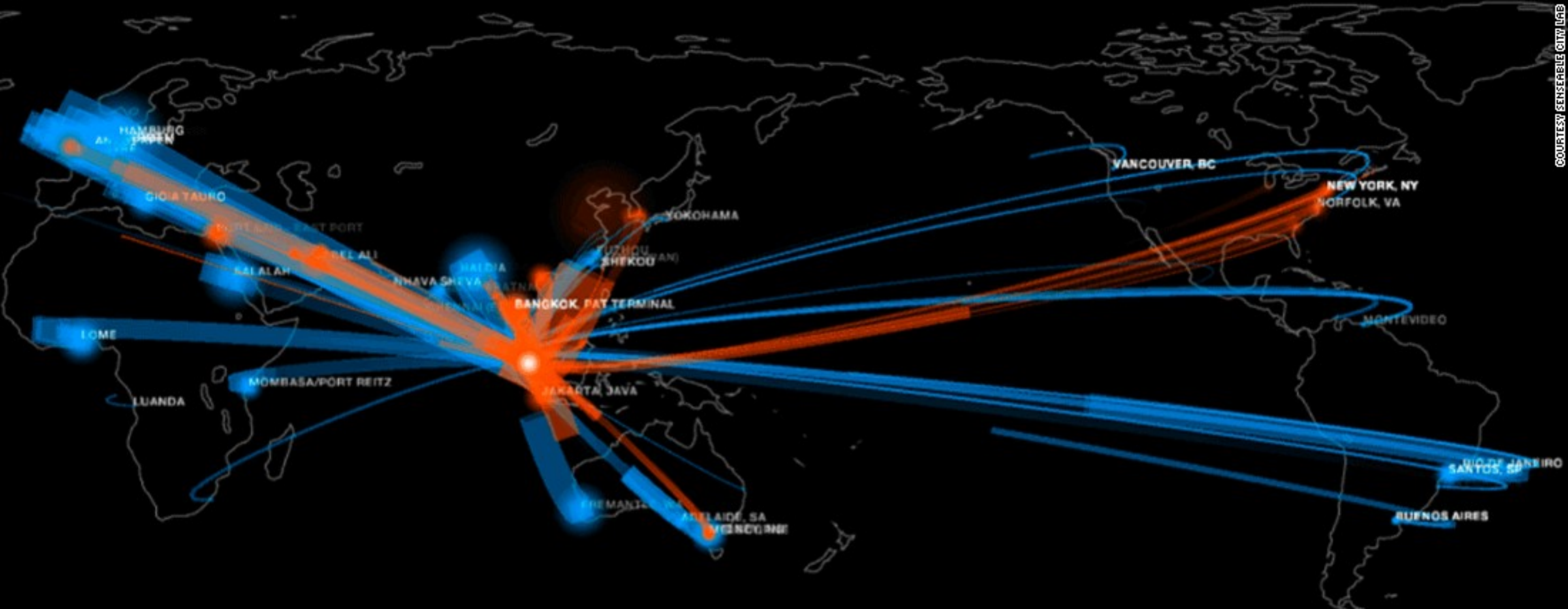
Urban Exposures  
2016







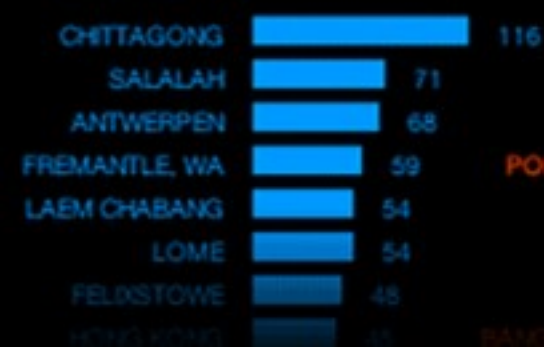




**ships**  
incoming / outgoing



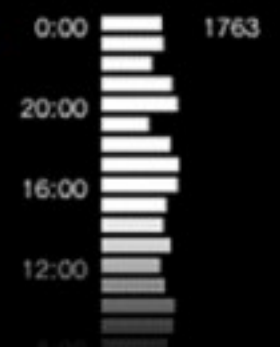
**containers**  
incoming



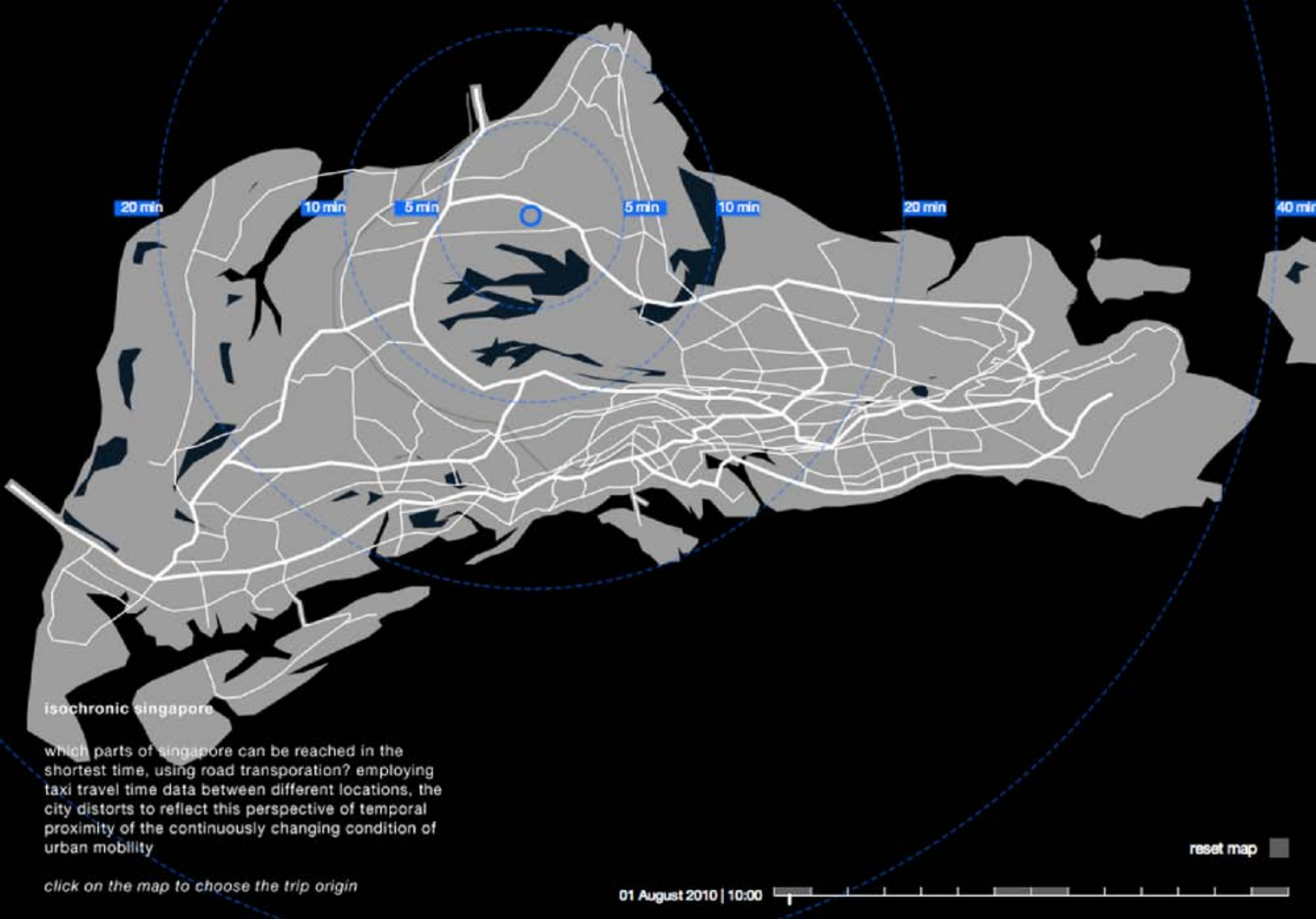
**containers**  
outgoing



**total**  
containers







20 min

10 min

5 min

5 min

10 min

20 min

40 min

### isochronic singapore

which parts of singapore can be reached in the shortest time, using road transportation? employing taxi travel time data between different locations, the city distorts to reflect this perspective of temporal proximity of the continuously changing condition of urban mobility

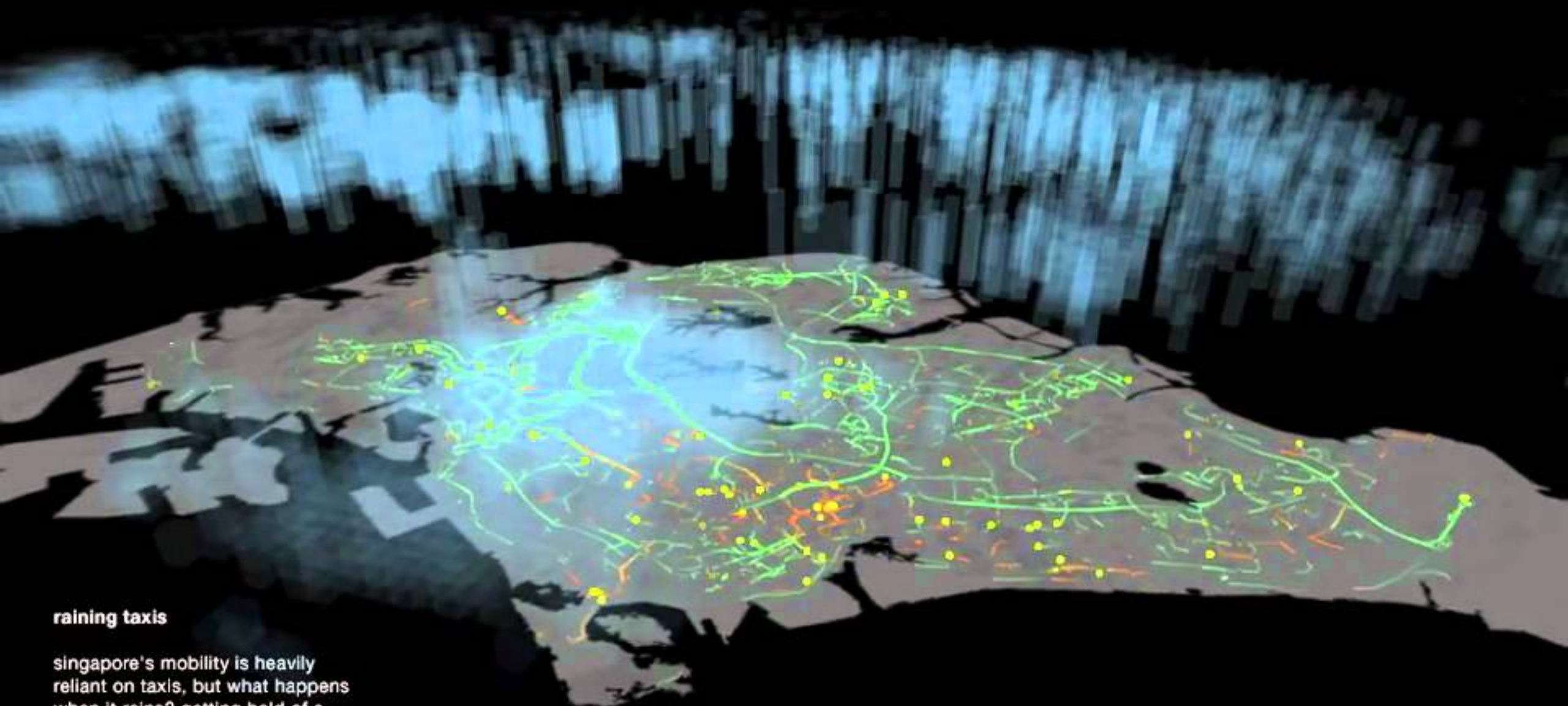
reset map

click on the map to choose the trip origin

01 August 2010 | 10:00



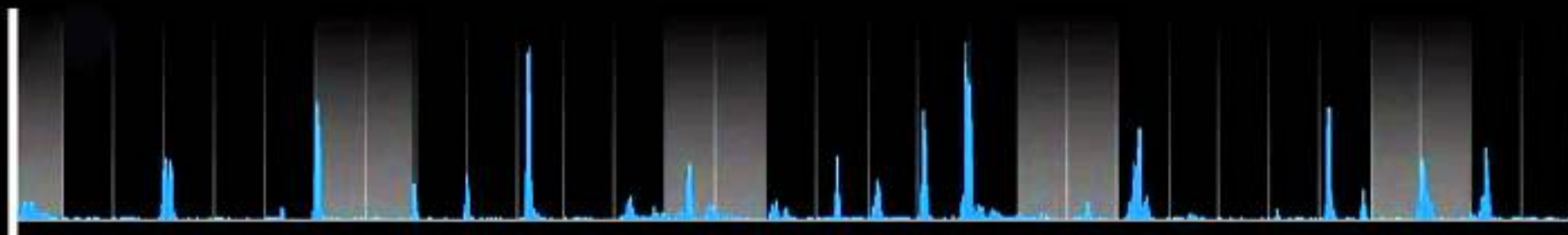
# LIVE Singapore!



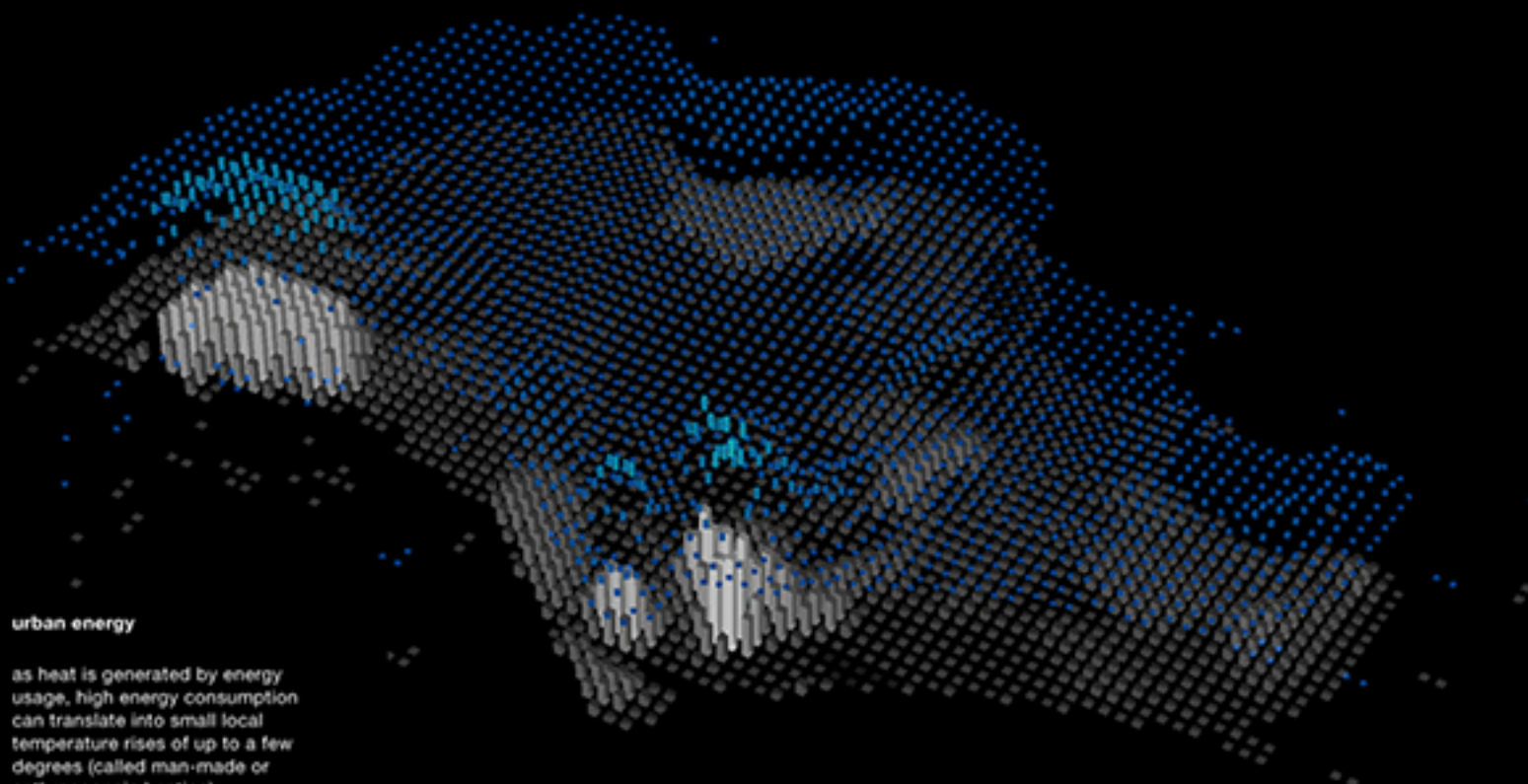
## raining taxis

singapore's mobility is heavily reliant on taxis, but what happens when it rains? getting hold of a cab is not the easiest thing in the world. we are exploring how our transportation system behaves by combining taxi and rainfall data, and investigating how in the future the system can streamline in order to better match taxi supply and demand.

*click and drag map to rotate,  
click on timeline to move in time  
swipe with two fingers to zoom*







## urban energy

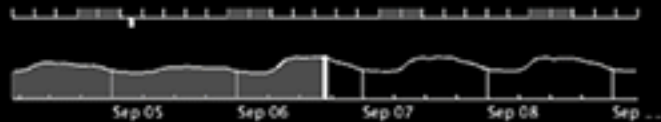
as heat is generated by energy usage, high energy consumption can translate into small local temperature rises of up to a few degrees (called man-made or anthropogenic heating). combining data on the energy consumption of the city's different zones with the wind speed, local temperature rise can be estimated. a potential addition of measured urban temperatures will provide the basis for a future city condition monitoring program.

wind  
speed



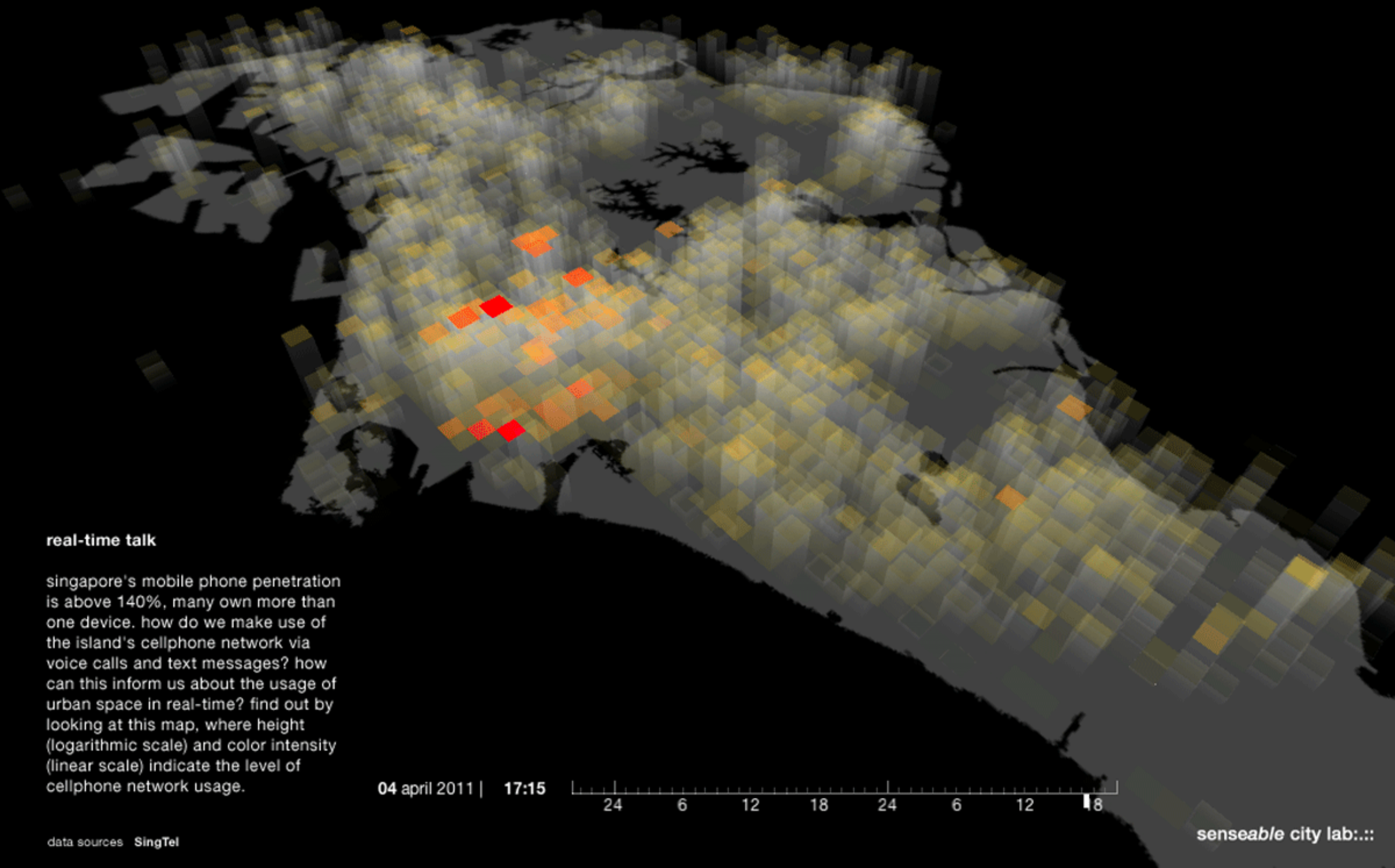
06 September 2010 | 16:40

aggregate  
energy consumption





## LIVE Singapore!

**real-time talk**

singapore's mobile phone penetration is above 140%, many own more than one device. how do we make use of the island's cellphone network via voice calls and text messages? how can this inform us about the usage of urban space in real-time? find out by looking at this map, where height (logarithmic scale) and color intensity (linear scale) indicate the level of cellphone network usage.

04 april 2011 | 17:15





