Iaac | Institute for advanced architecture of Catalonia | BARCELONA

MASTER IN CITY & TECHNOLOGY
DIGITAL TOOLS AND BIG DATA
2019/2020

FACULTY DIEGO PAJARITO

Social* Data

Crowds* generating (not always voluntarily) data

Crowd + Outsourcing = Crowdsourcing: Word coined in 2006

A sourcing model in which individuals or organizations obtain goods and services, including ideas, voting, micro-tasks and finances, from a **large**, relatively **open** and often **rapidly-evolving** group of **participants**.

Currently, crowdsourcing typically involves using the internet to attract and **divide work** between participants to achieve a **cumulative result**.

It is widely applied to multiple domains

Source: https://en.wikipedia.org/wiki/Wikipedia
https://en.wikipedia.org/wiki/Crowdsourcing

Wikipedia

The logo of Wikipedia a globe featuring glyphs from various writing systems

Screenshot	[show]
Type of site	Online encyclopedia
Available in	285 languages
Country of origin	United States
Owner	Wikimedia Foundation
Created by	Jimmy Wales Larry Sanger[1]
URL	www.wikipedia.org
Alexa rank	▼ 13 (Global, February 2020)[2]
Commercial	No
Registration	Optional[note 1]
Users	>349,083 active users[note 2] and >89,150,752 registered users 1,145 administrators (English)
Launched	January 15, 2001; 19 years ago
Current status	Active
Content license	CC Attribution / Share-Alike 3.0 Most text is also dual-licensed under GFDL; media licensing varies
Written in	LAMP platform[3]
OCLC number	52075003

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Wikipedia

A platform for crowdsourcing mapping tasks and generate a global open geospatial database. The Humanitarian HOT-OSM branch is supporting emergency response around the world

Check out my new role: https://wiki.openstreetmap.org/wiki/Organised_Editing/Activities/Rio_Branco

Welcome to OpenStreetMap, the project that creates and distributes free⧉ geographic data for the world. We started it because most maps you think of as free actually have legal or technical restrictions on their use, holding back people from using them in creative, productive, or unexpected ways.

More about OpenStreetMap | How to contribute | Where to get help

Use OpenStreetMap	**Contribute free map data**	**Software Development**
Using OpenStreetMap	**Beginners' Guide**	**Develop and use the Platform**
• Browse our world map⧉	• Browse the map feature documentation	• Use OpenStreetMap for your software
• Check the ready-to-use products for your mobile device, your desktop computer or the web services	• Browse the Mapping projects	• Contribute to the OpenStreetMap software
• ...**more on using OpenStreetMap**	• ...**more on contributing map data**	

The Wikipedia of maps

More about OSM: https://wiki.openstreetmap.org

Twitter
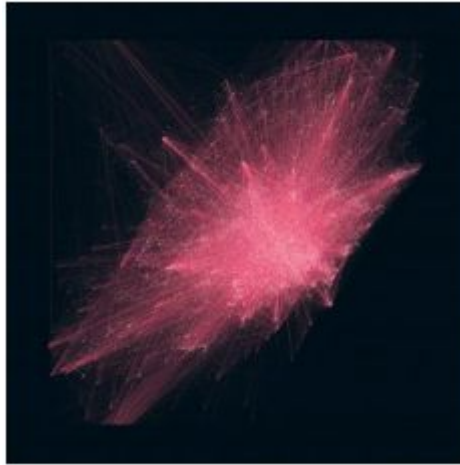
Tripadvisor

Airbnb

Venues

What do these projects have in common?

Do they have spatio-temporal dimensions?

Source: http://www.iaacblog.com/

- Search for some tweets (or use the github script from 3rd term)

- Try to get some data from OSM https://overpass-turbo.eu/s/TRo


```
1   /*
2   This is an example Overpass
    query.
3   Try it out by pressing the Run
    button above!
4   You can find more examples with
    the Load tool.
5   */
6   node
7     [shop=bakery]
8     ({{bbox}});
9   out;
```
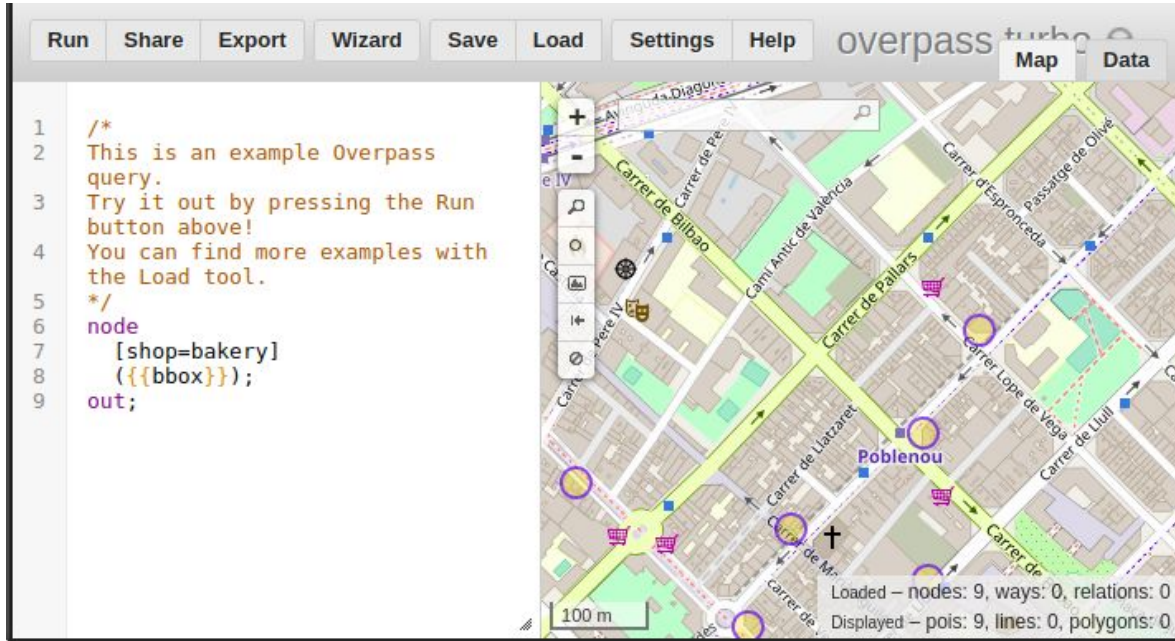
More keys and description at:
https://wiki.openstreetmap.org/wiki/Key:shop

shop

Description
A place selling retail products or services.
Group: Shops
Used on these elements

Documented values: 247
Useful combination
- contact:fax=*
- contact:phone=*
- contact:website=*
- opening_hours=*
- fax=*
- addr:housenumber=*
- addr:postcode=*
- name=*
- addr:street=*
- operator=*
- origin=*
- phone=*
- website=*
- wholesale=*
- brand=*
- level=*
- wheelchair=*
See also
- amenity=*

Let's get new data

Catalonia

Retail & recreation **-84%** compared to baseline

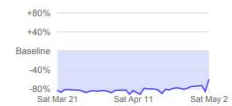Grocery & pharmacy **-27%** compared to baseline

Parks **-40%** compared to baseline

Transit stations **-60%** compared to baseline

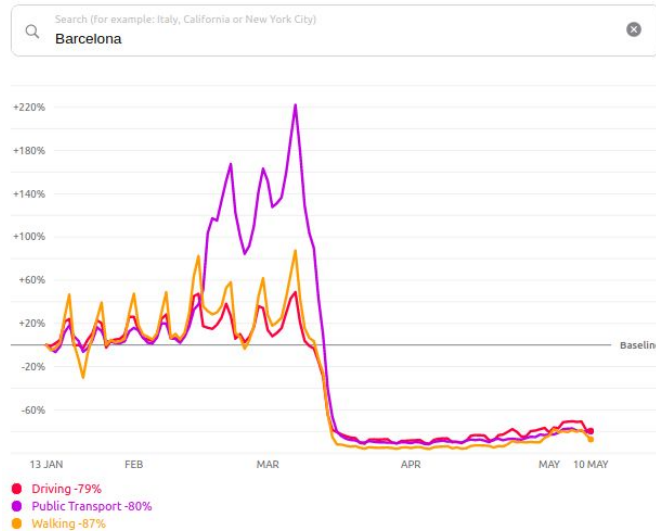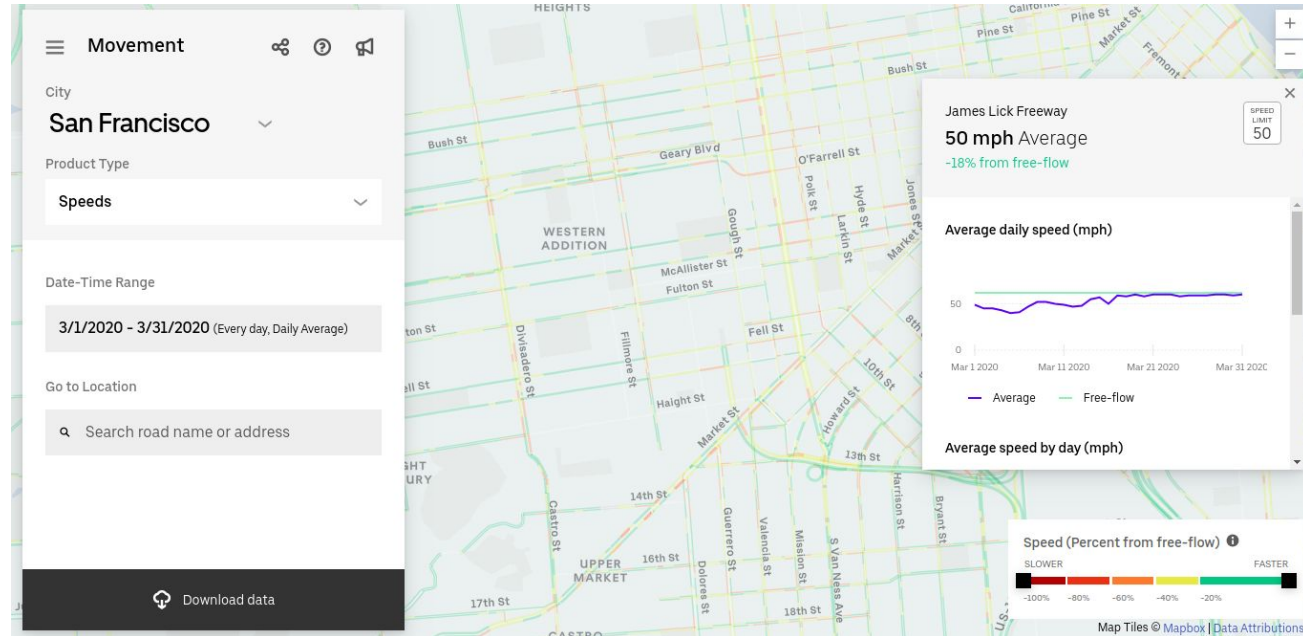Workplace **-55%** compared to baseline

Residential **+22%** compared to baseline

Source : https://www.google.com/covid19/mobility/

Barcelona

Driving -79%
Public Transport -80%
Walking -87%

Source: https://www.apple.com/covid19/mobility

Movement

City
San Francisco

Product Type
Speeds

Date-Time Range
3/1/2020 – 3/31/2020 (Every day, Daily Average)

Go to Location
Search road name or address

Download data

James Lick Freeway
50 mph Average
-18% from free-flow

SPEED LIMIT 50

Average daily speed (mph)

Average speed by day (mph)

Speed (Percent from free-flow)
SLOWER ——— FASTER
-100% -80% -60% -40% -20%

Map Tiles © Mapbox | Data Attributions

https://movement.uber.com/explore/san_francisco/speeds

Iaac Institute for advanced architecture of Catalonia   **A pandemic triggering novel applications**

A pandemic triggering novel applications

My personal exercise https://github.com/diegopajarito/COVID19_datavis

Covid-19 Oficial Data and DataVIS

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World and European official data

Social data platforms

Data is already there... how and why to get it?

Hiking (The best Hiking trails in Spain → Catalonia → El Poble Nou)
El Poblenou - Montjuïc 35

♡ Add to a List ☆ Add a review   ⌲ Share

⬇ **Download**

Author
kamaku6

602   ⌇ 67   ⚑ 416

I've done this trail

↔ 9.1 mi   ↻ Yes
↗ 1,824 f   ⬆ 758 f
↘ 1,824 f   ⬇ 49 f
△ Easy

Wikiloc path: https://www.wikiloc.com/hiking-trails/el-poblenou-montjuic-16975837

Time dimension makes analysis more complex.

Moving objects provide more information about behaviour and movement patterns.

* Lots of **mathematical modeling**.

NYC taxi data:
http://www.andresmh.com/nyctaxitrips/
T-Drive trajectory data sample:
https://www.microsoft.com/en-us/research/publication/t-drive-trajectory-data-sample
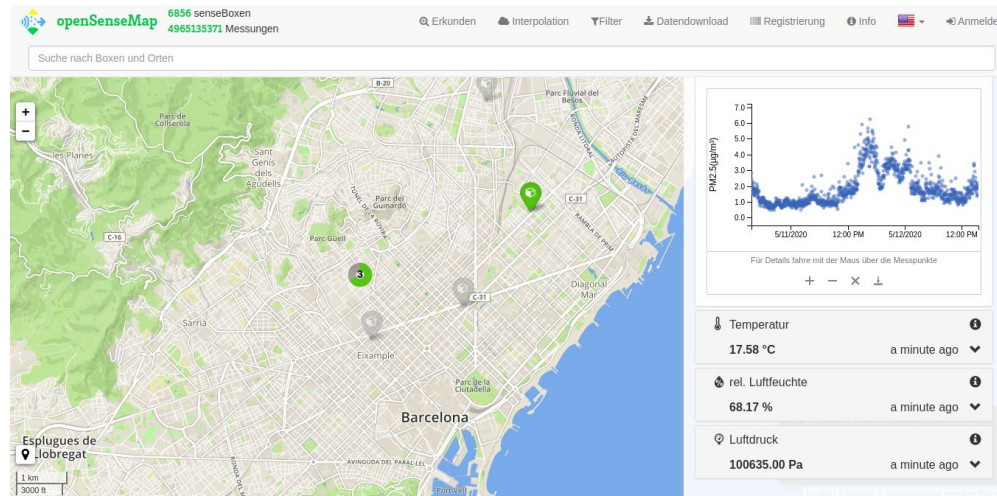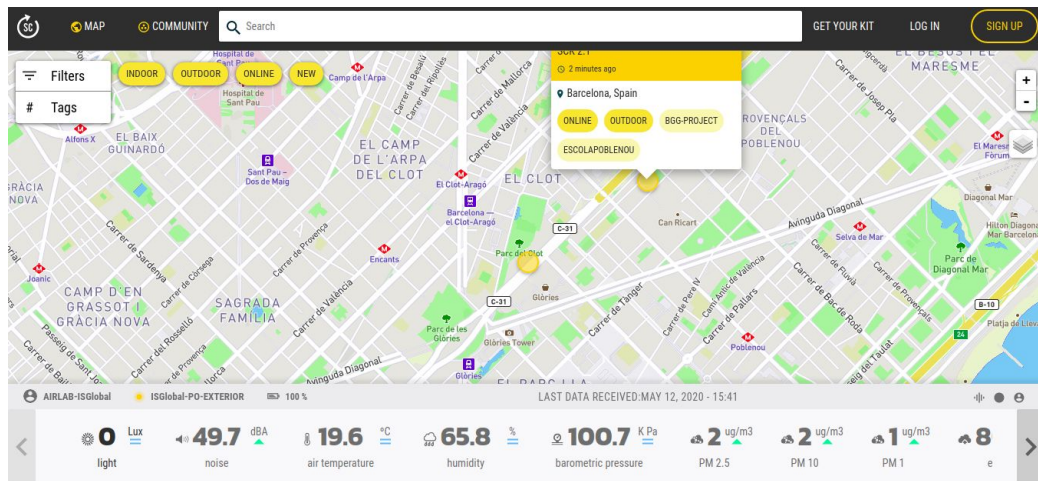
Ɪᵃᵃᶜ Institute for advanced architecture of Catalonia   **Moving objects and space-time analysis**

NY times

https://www.nytimes.com/interactive/2020/03/22/world/coronavirus-spread.html

Open Sense Map

https://opensensemap.org/explore/5d87f4ea5f3de0001aca3475

Smart Citizen Kit

https://smartcitizen.me/kits/9955

News and platforms for crowdsourced data

https://tasks.hotosm.org/

https://openaerialmap.org/

Humanitarian OSM and Open Aerial Photo

ICON **DESIGN**

EL MUNDO DESPUÉS

"Ahora que hemos conocido Madrid sin contaminación": el manifiesto de tres arquitectas para una ciudad 'postcovid'

So, what to do
with all of this?

How about using it
for urban design?

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Social data and Urbanism

Source: https://elpais.com/elpais/2020/04/21/icon_design/1587498287_556833.html?ssm=TW_CC

Hands-on

What can we see from these data sets?

Let's see what we are thinking
http://etc.ch/7CB8

https://www.directpoll.com/

* This survey is designed only for the live session

Group 1
Data: OSM + overpass turbo, Twitter + Pyqgis, (Airbnb from last two months)

Group 2
Data: Mobility data relate to the covid19 pandemic

Group 3
Data: Contagion and deaths data relate from the covid19 pandemic

Group 4
Data: Data from moving objects (Wikiloc)

Group 2
Data: Open areas and public spaces from cadastral information (buildings, parcels, blocks, streets)

A crowdsourced [presentation](#)

Slide 1
How feasible is this type of data to support the analysis? How representative of an urban feature is?

Slide 2
How this quick analysis relates to Urban Design?

New Data
Generate a single data set (table, layer, plot) to feed future analysis

How is social data complementing the analysis of urban issues?

How to make social crowdsourced data more representative of urban dynamics?

Space-time analysis

What else can we see from these data sets?

Future Planet

What is BBC Future?   Follow the Food   Future Planet   100 Year Life   Best of...   Japan 2020   Latest   More ≡

How cities are clamping down on cars
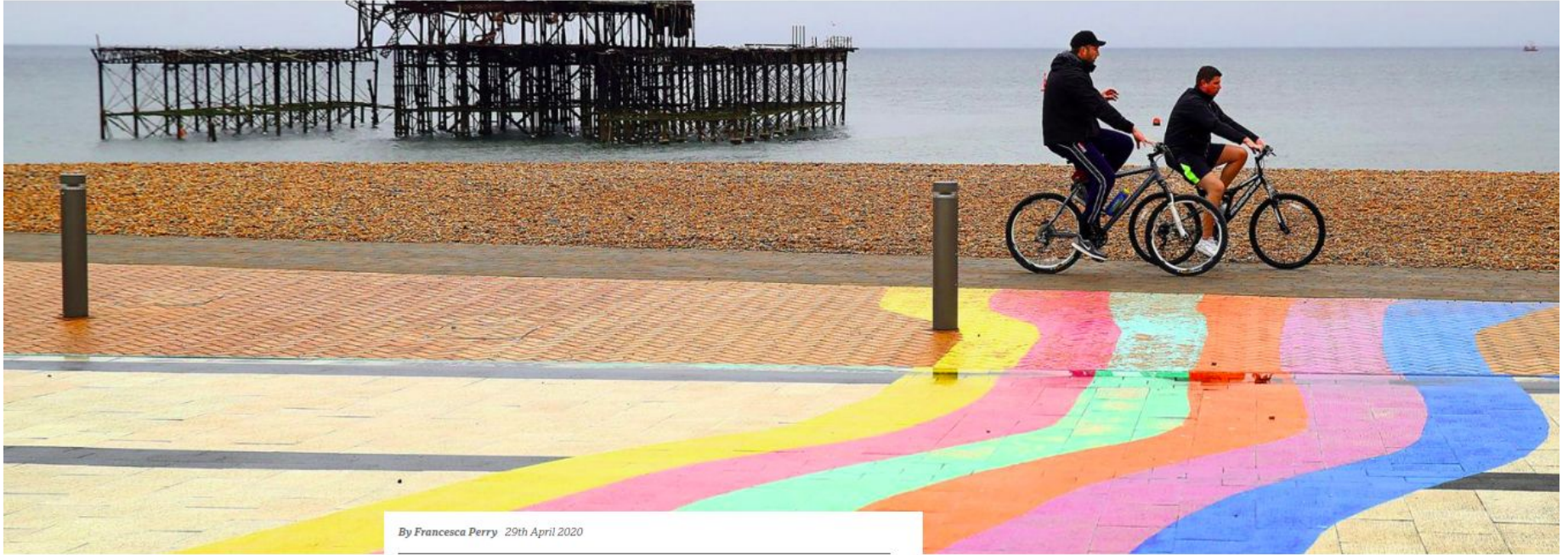
By Francesca Perry *29th April 2020*

Cities around the world are seeing dwindling numbers of fossil-fuel powered cars on their streets during lockdown, and many are planning to keep it that way.

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General analysis of spatio-temporal data

Population Density Maps

Our Population Density Maps help nonprofit and multilateral agencies plan vaccination campaigns, respond to natural disasters, and evaluate rural electrification plans. These maps help researchers assess the ways in which climate change and urbanization impact where people live.

Source: https://dataforgood.fb.com/tools/population-density-maps/

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Time as the Z dimension

A QGIS approach using formulas

hour(to_datetime("time")) +
minute(to_datetime("time")) / 60

Google earth: 41.592556, 1.674043
https://www.google.com/maps/place/41%C2%B035'33.2%22N+1%C2%B040'26.6%22E/@41.5921,1.672696,817m/data=!3m1!1e3!4m5!3m4!1s0x0:0x0!8m2!3d41.592556!4d1.674043

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Satellite image animations

EO-Browser
41.592556, 1.674043
https://apps.sentinel-hub.com/eo-browser/?lat=41.59362&lng=1.67099&zoom=15&time=2020-05-04&preset=2_FALSE_COLOR&datasource=Sentinel-2%20L1C

Satellite image animations

Source: https://www.dw.com/en/coronavirus-the-best-visualizations-to-understand-why-social-distancing-matters/a-52791891

The Washington Post: https://www.washingtonpost.com/graphics/2020/world/corona-simulator/

Pandemic data animations
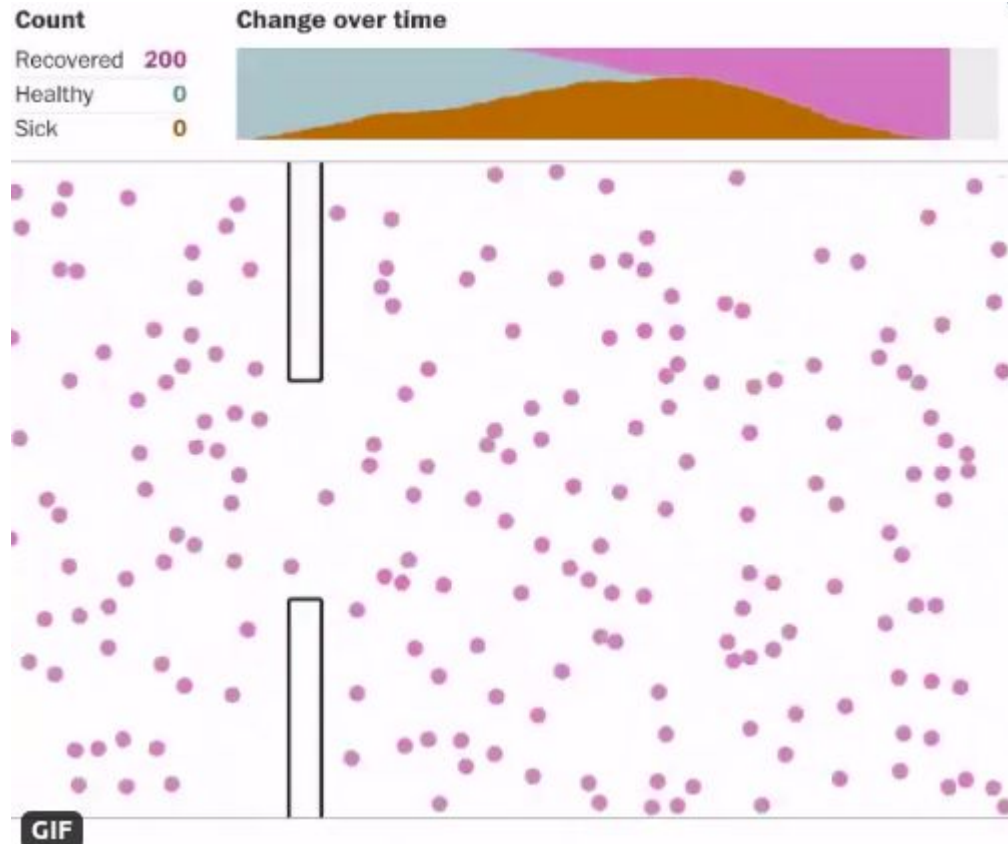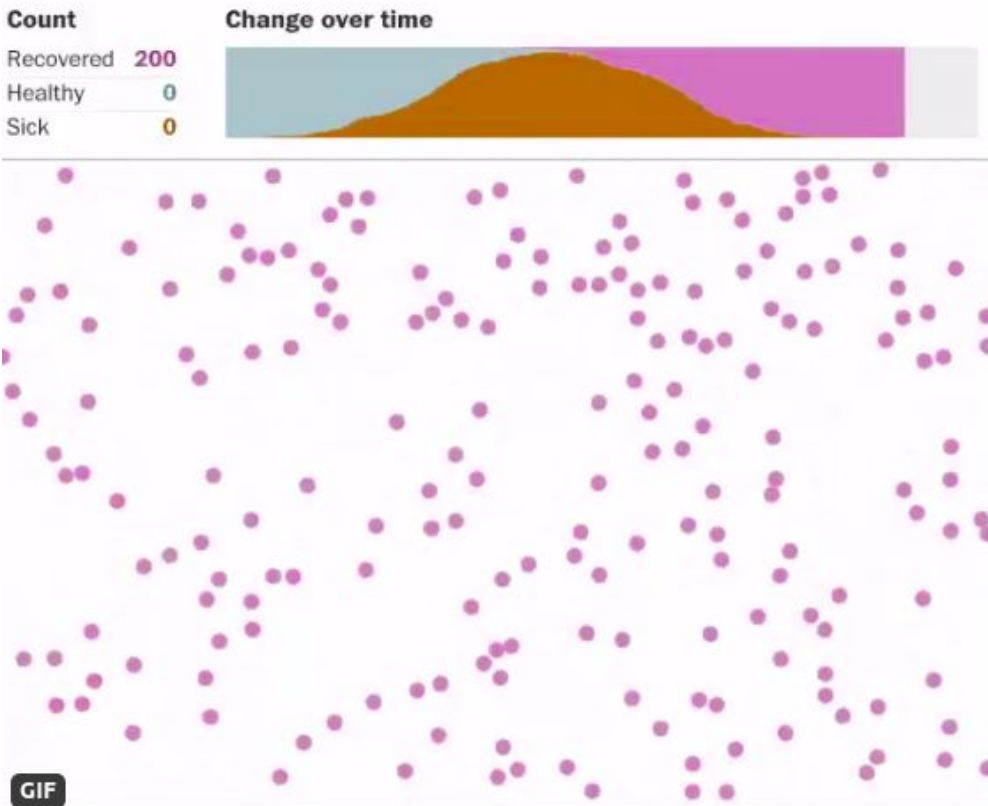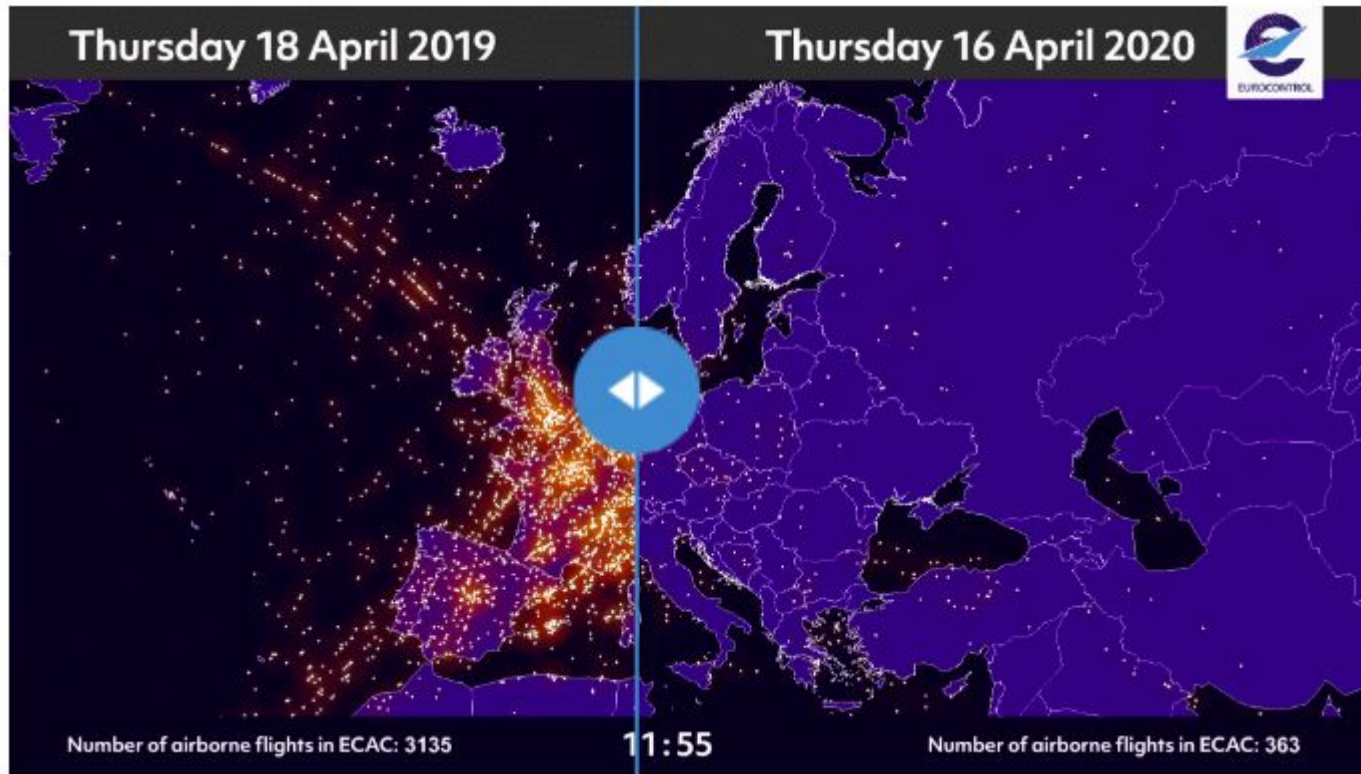
Source: https://www.eurocontrol.int/covid19
Get some data as well.

non - human dynamics

The European Space Agency has released two satellite images, one year apart, of Venice, showing the impact the coronavirus lockdown has had on its usually heaving waterways.
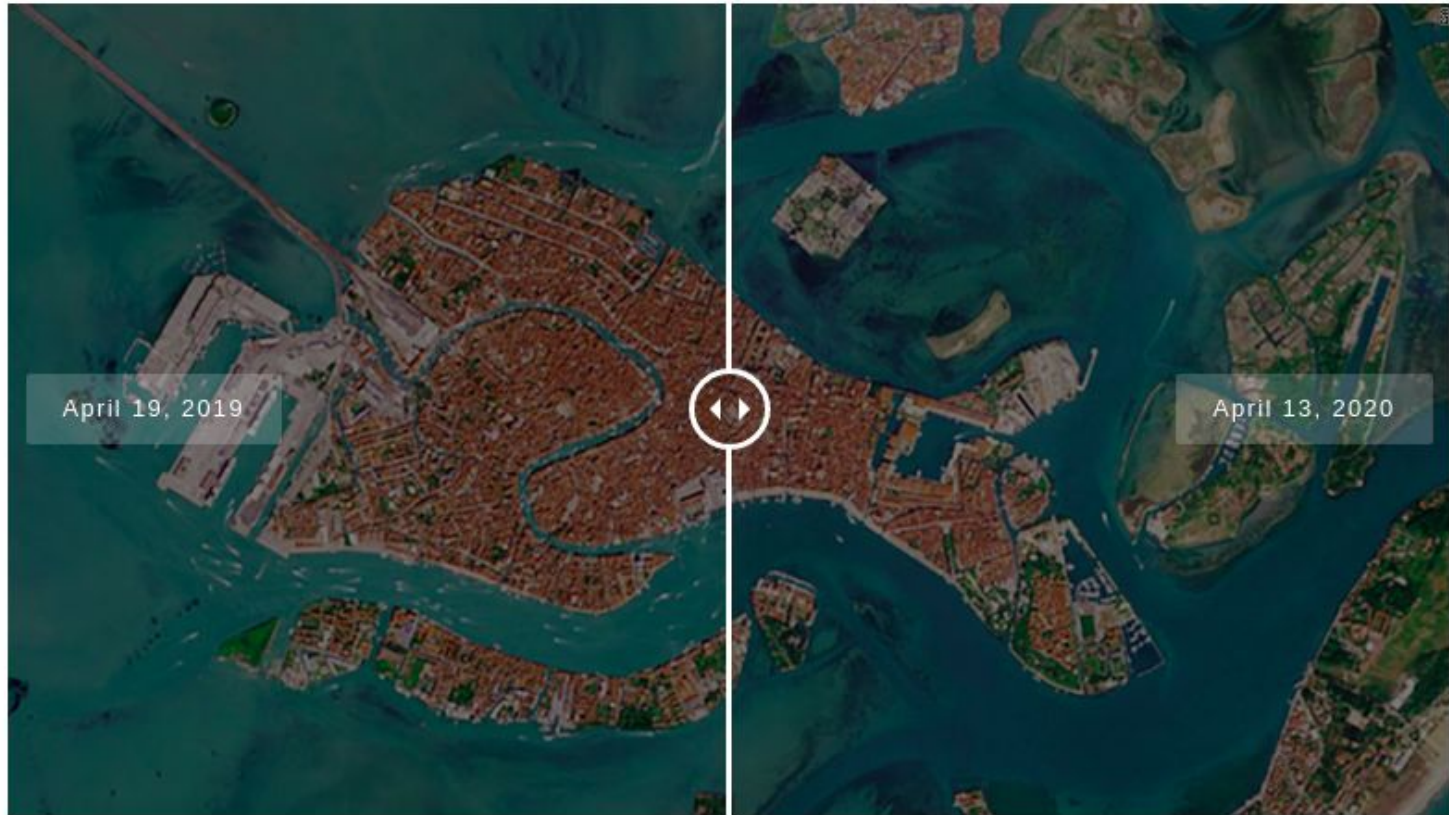
Source: https://edition.cnn.com/2020/04/16/europe/venice-space-satellite-images-canals-scli-intl-scn/index.html

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Evaluating COVID-19 contact tracing apps?
Here are 8 privacy questions we think you should ask.

Yves-Alexandre de Montjoye, Florimond Houssiau, Andrea Gadotti and Florent Guepin

Source:
https://cpg.doc.ic.ac.uk/blog/evaluating-contact-tracing-apps-here-are-8-privacy-questions-we-think-you-should-ask/

Source: https://www.elmundo.es/economia/2020/04/15/5e95dc90fdddff499f8b45c7.html

EL MUNDO

DATOS · Estudio de movilidad para Ábalos

Otro rastreo de móviles para el Gobierno: 13 millones de líneas Orange geolocalizadas

EDUARDO FERNÁNDEZ
eduardfdz
Madrid

Actualizado Miércoles, 15 abril 2020 - 02:14

El Ministerio de José Luis Ábalos analiza los movimientos de los españoles. El operador no cobra por esta colaboración efectuada en paralelo a otro estudio con todas las 'telecos', el DataCovid.

Ver 39 comentarios

El ministro de Transportes, José Luis Ábalos, y el presidente del Gobierno, Pedro Sánchez. Mariscal EFE

Open data and human contact tracing

Hands-on

Some extra data to explore

What you'll learn

- How to view data from a Data Hub space on a map
- How to upload, tag and view larger GeoJSON files
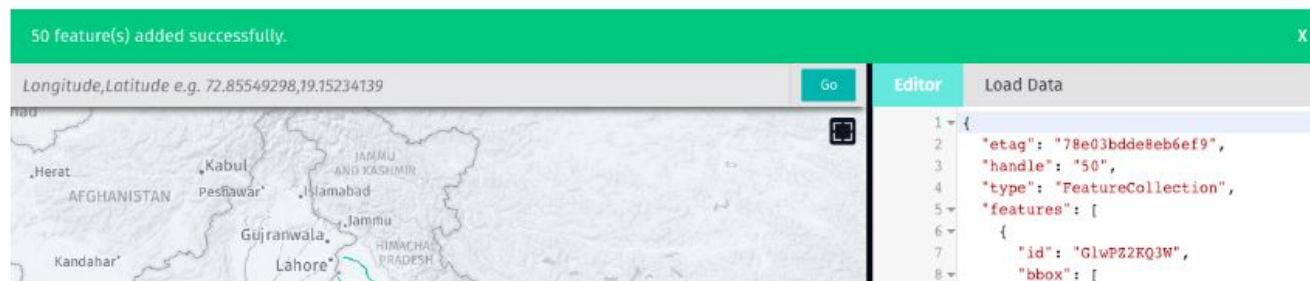- How to view the Data Hub space geodata in a variety of mapping tools

View data from a Data Hub Space using the GeoJSON Viewer

Duration is 5 min

Open the GeoJSON Viewer

Open this URL by clicking on the "Load Data" tab and copying and pasting this into the 'From GeoJSON URL' option: `https://xyz.api.here.com/hub/spaces/x-india-trains/iterate?limit=50&access_token=AcIjODo6UKfvEULPewFlnEk`

You should see a map like this:

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Follow the tutorial for here developers

Social/Crowdsourced data sets

- Mobile and Internet infrastructure coverage and antenas
- Micromobility (bicycles, scooters, carpooling)
- Location insights to convert visitors into customers https://www.avuxi.com/

Future scenarios after COVID19

How Will the Pandemic Transform Urban Space?

Workforces in These Cities Have Highest Covid-19 Risk

COVID-19 'Immunity Passport' Unites 60 Firms on Self-Sovereign ID Project

"Ahora que hemos conocido Madrid sin contaminación": el manifiesto de tres arquitectas para una ciudad 'postcovid'

Add your news headlines as well.

What would be the difference between space-time analysis and simulation?

How social crowdsourced data better feed simulation or spatio-temporal analysis?

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