



# OPEN GEODATA FOR HUMANITARIAN ACTION

**June 8, 2019 – MiniDebConf Hamburg**

**Felix Delattre**

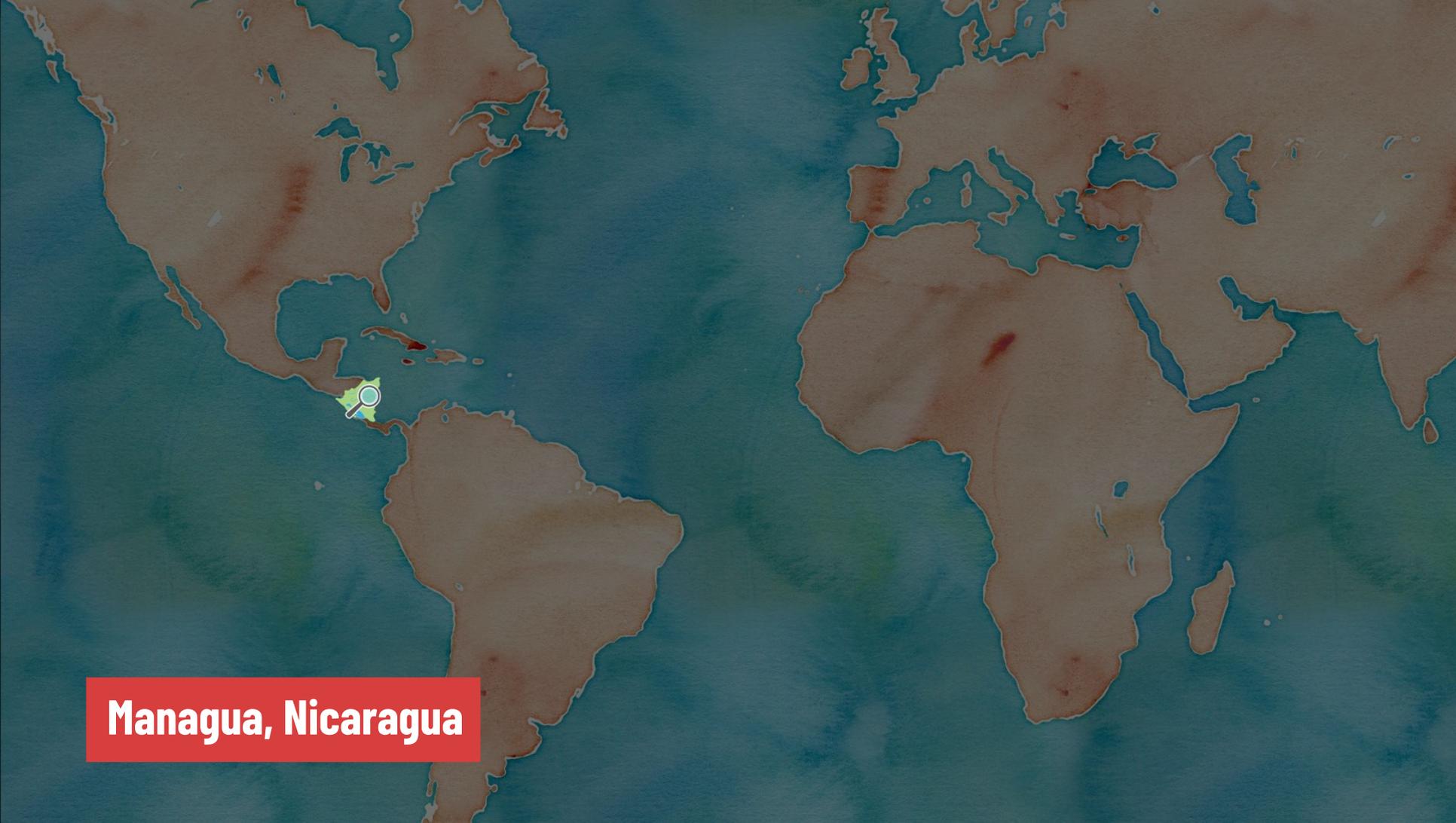
felix@delattre.de

@xamanu



Edit





**Managua, Nicaragua**

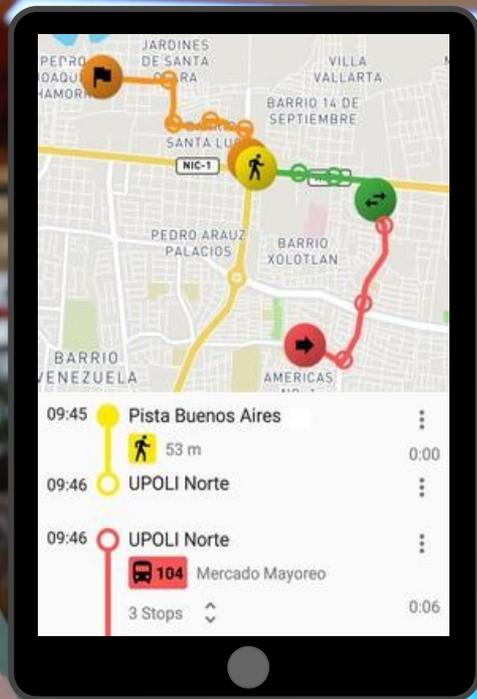


Managua, Nicaragua



**Managua, Nicaragua**

# Managua, Nicaragua



Edit

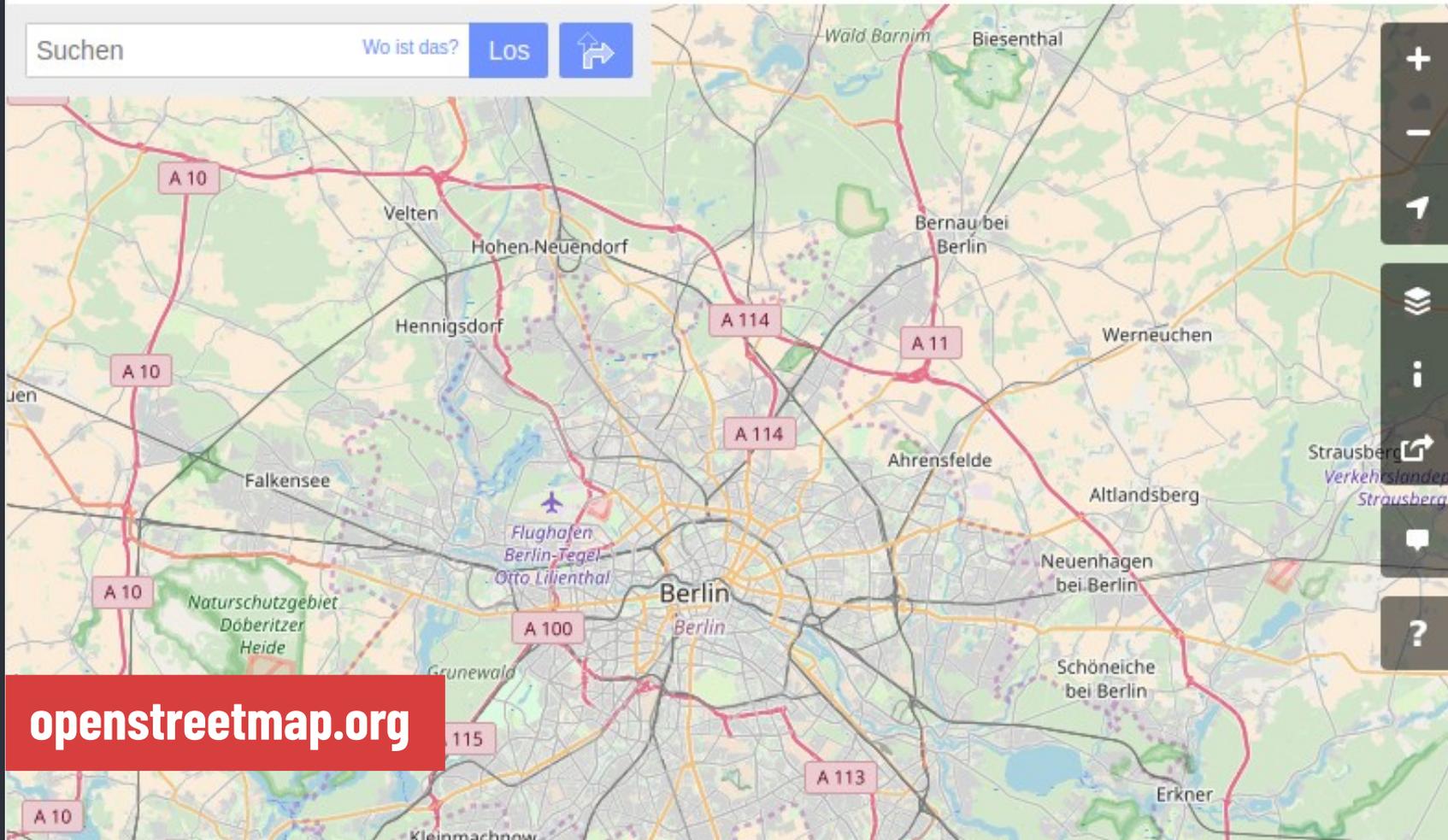




Suchen

Wo ist das?

Los



openstreetmap.org



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WIKIPEDIA  
Die freie Enzyklopädie

- Hauptseite
- Themenportale
- Von A bis Z
- Zufälliger Artikel

- Mitmachen
- Artikel verbessern
- Neuen Artikel anlegen
- Autorenportal
- Hilfe
- Letzte Änderungen
- Kontakt
- Spenden

- Werkzeuge
- Links auf diese Seite
- Änderungen an verlinkten Seiten
- Datei hochladen
- Spezialseiten
- Permanenter Link
- Seiteninformationen
- Wikidata-Datenobjekt
- Artikel zitieren

- Drucken/exportieren
- Buch erstellen
- Als PDF herunterladen
- Druckversion
- In anderen Projekten

# Berlin

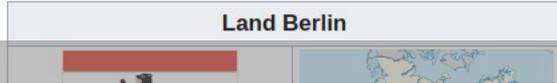
Dieser Artikel befasst sich mit der deutschen Hauptstadt. Zu weiteren Bedeutungen siehe [Berlin \(Begriffsklärung\)](#).

**Berlin** [bɛʁˈliːn]] ist die **Bundeshauptstadt** der **Bundesrepublik Deutschland**<sup>[14]</sup> und zugleich eines ihrer **Länder**. Die **Stadt Berlin** ist mit gut 3,5 Millionen Einwohnern die bevölkerungsreichste und mit 892 Quadratkilometern die flächenrößte Gemeinde

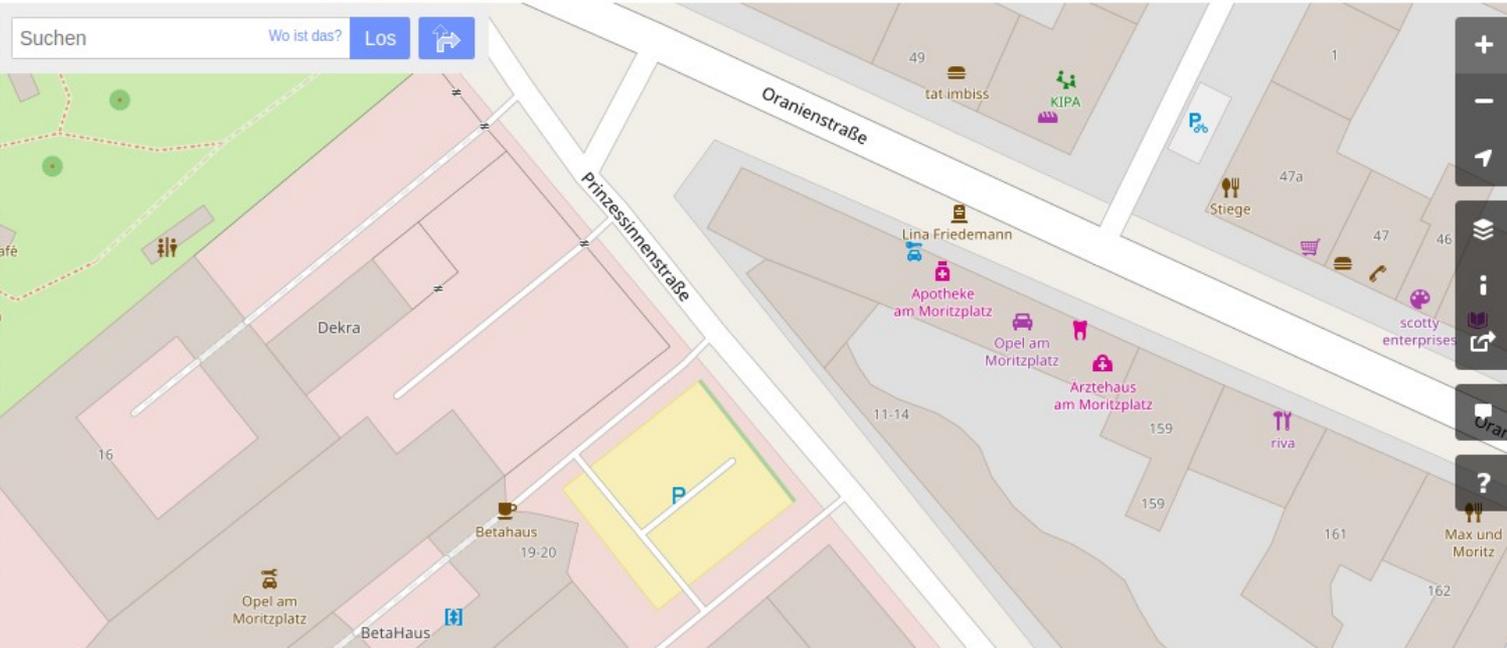
Deutschlands. Sie ist die Hauptstadt von Berlin/Brandenburg und besteht aus vier **Bezirken**. Neben dem **Stadtgebiet** kleine **Wälder**.

Urkundlich erstmals im 12. Jahrhundert, im Verlauf der Geschichte Residenz- und Hauptstadt des **Deutschen Reichs**, Hauptstadt der **Deutschen Wiedergesamtheit**, **Bundesregierung**, **Bundesrat** sowie **Botschaften**.

Zu den bedeutendsten anderen der **Tourismus**, **Biotechnologie** und **pharmazeutischer Kommunikation**.



**OpenStreetMap** **Bearbeiten** Chronik Export



< Objekt bearbeiten



Co-Working-Räumlichkeiten



Alle Felder

Eigenname

BetaHaus

Adresse

Prinzessinnenstraße 19

10969 Berlin

Gebäude

yes

Öffnungszeiten

24/7, Mo-Sa 08:00-20:00, sunrise-sunset...

Internetzugang

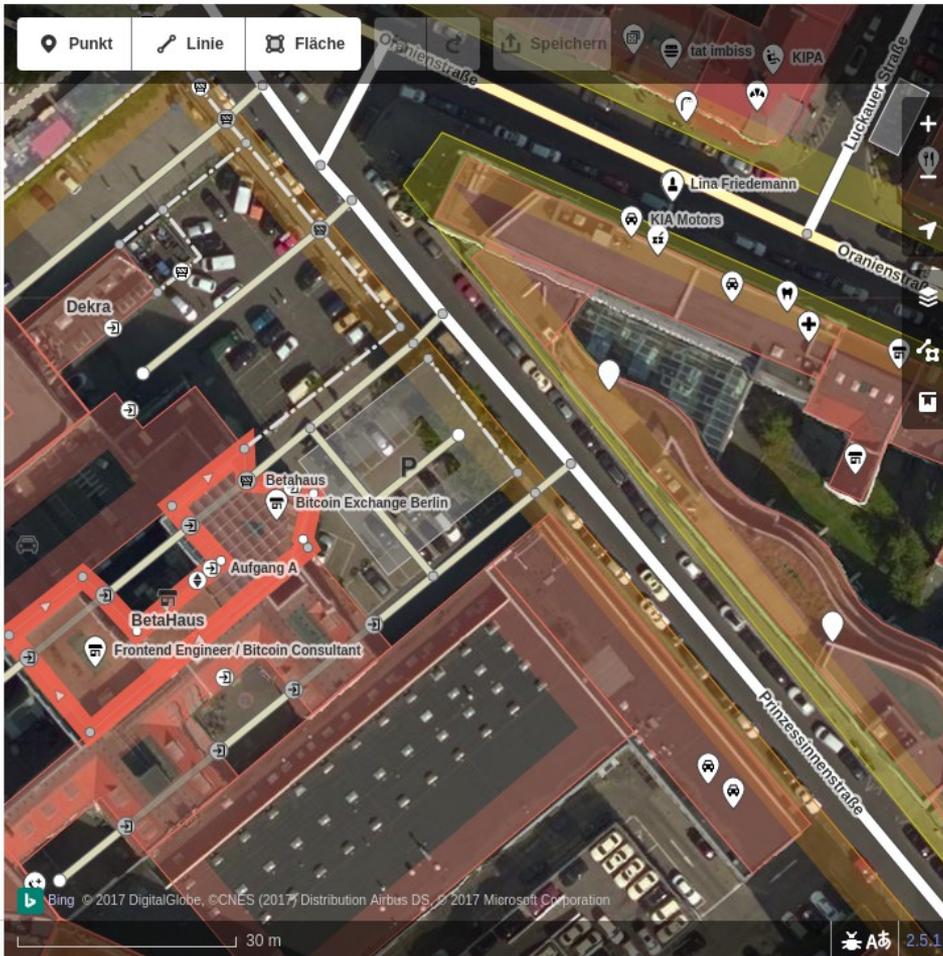
Ja, Nein, Wi-Fi...

Internetzugangsg Gebühr

Unbekannt

SSID (Netzwerk Name)

[Auf openstreetmap.org ansehen](#)



Punkt Linie Fläche

Speichern

# Planet OSM

The main and hugest source for open geographic data.



## Planet OSM

The files found here are regularly-updated, complete copies of the OpenStreetMap.org database, and those published before the 12 September 2012 are distributed under a Creative Commons Attribution-ShareAlike 2.0 license, those published after are Open Data Commons Open Database License 1.0 licensed. For more information,

[see the project wiki.](#)

### Complete OSM Data

#### [Latest Weekly Planet XML File](#)

**76 GB**, created 6 hours ago.

md5: 62ecb5598d7711eac0b4c4821c40c7af.

#### [Latest Weekly Changesets](#)

**2.7 GB**, created 6 hours ago.

md5: 53d9d1c417c8cf90833a94831d56b102.

#### [Latest Weekly Planet PBF File](#)

**45 GB**, created 6 hours ago.

md5: 2902cd16865257c661d7b1745584c10e.

Each week, a new and complete copy of all data in OpenStreetMap is made available as both a compressed XML file and a custom PBF format file. Also available is the ['history'](#) file which contains not only up-to-date data but also older versions of data and deleted data items.

A smaller file with complete metadata for all changes ('changesets') in XML format is also available.

### Using The Data

You are granted permission to use OpenStreetMap data by [the OpenStreetMap License](#), which also describes your obligations.

You can [process the file](#) or extracts with a variety of tools. [Osmosis](#) is a general-purpose command-line tool for converting the data among different formats and databases, and [Osm2pgsql](#) is a tool for importing the data into a Postgis database for rendering maps.

[Processed coastline data](#) derived from OSM data is also needed for rendering usable maps, and can be found in a [single shapefile](#) (360MB).

Use the data!



<http://www.flickr.com/photos/harrywood/>



<http://www.flickr.com/photos/harrywood/>



<http://www.flickr.com/photos/harrywood/>



<http://www.flickr.com/photos/kachkaev/>



<http://www.flickr.com/photos/padorange/>

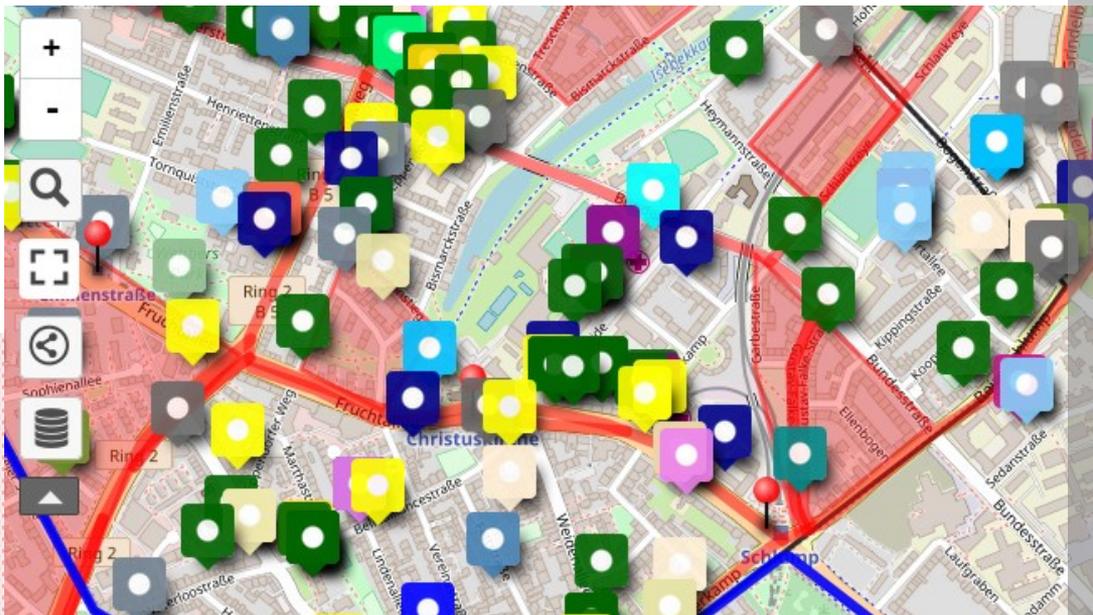
# Printed maps



[wiki.openstreetmap.org/wiki/OSM\\_on\\_Paper](http://wiki.openstreetmap.org/wiki/OSM_on_Paper)

Photos:HOT

# Online maps



[umap.openstreetmap.de](http://umap.openstreetmap.de)

QGIS2.16.1-Nedebo

Projekt Editovat Zobrazit Vrstva Nastavení Zásuvné moduly Vektor Rastr Databáze Web Zpracování nápověda

Panel vrstev

- dávkový příkon ( $\mu\text{Sv/h}$ )
  - < 0.05
  - 0.05 - 0.10
  - 0.10 - 0.20
  - 0.20 - 0.30
  - 0.30 - 0.80
  - 0.8 - 1
  - 1 - 5
  - 5 - 10
  - 10 - 70
  - 70 - 200
- OpenStreetMap

Safecast

Style: 0.05 - 200.00 microSvh Apply

Souřadnice 5689418,4491043 Měřitko 1:54 376 Lupa 100% Rotace 0,0 Vykreslování EPSG:3857 (OTF)

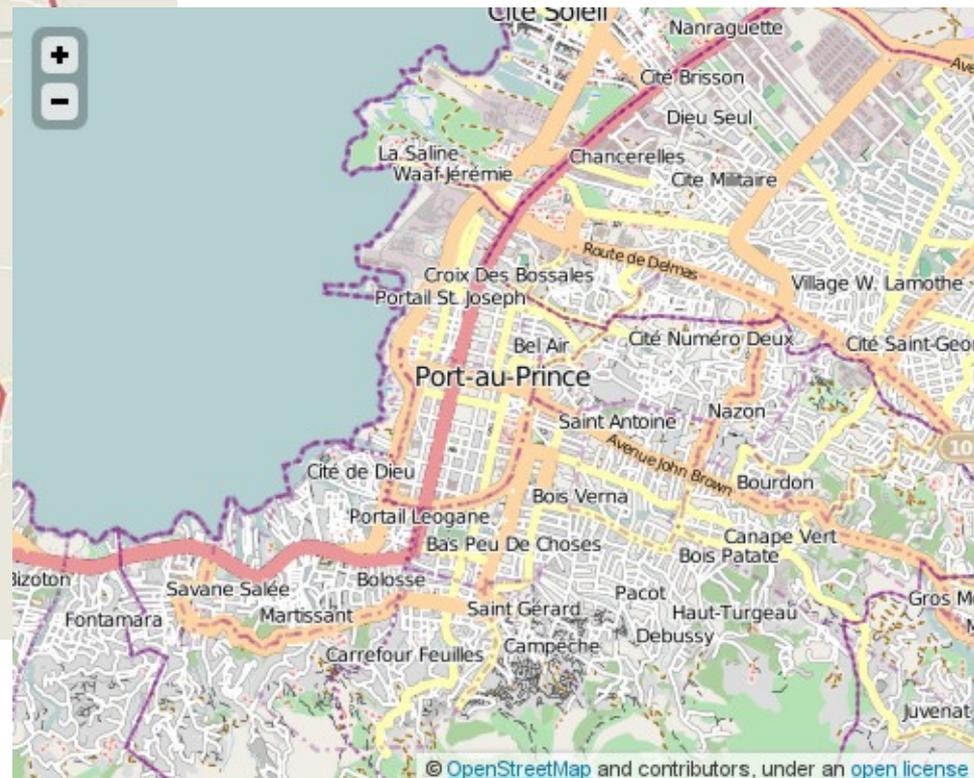
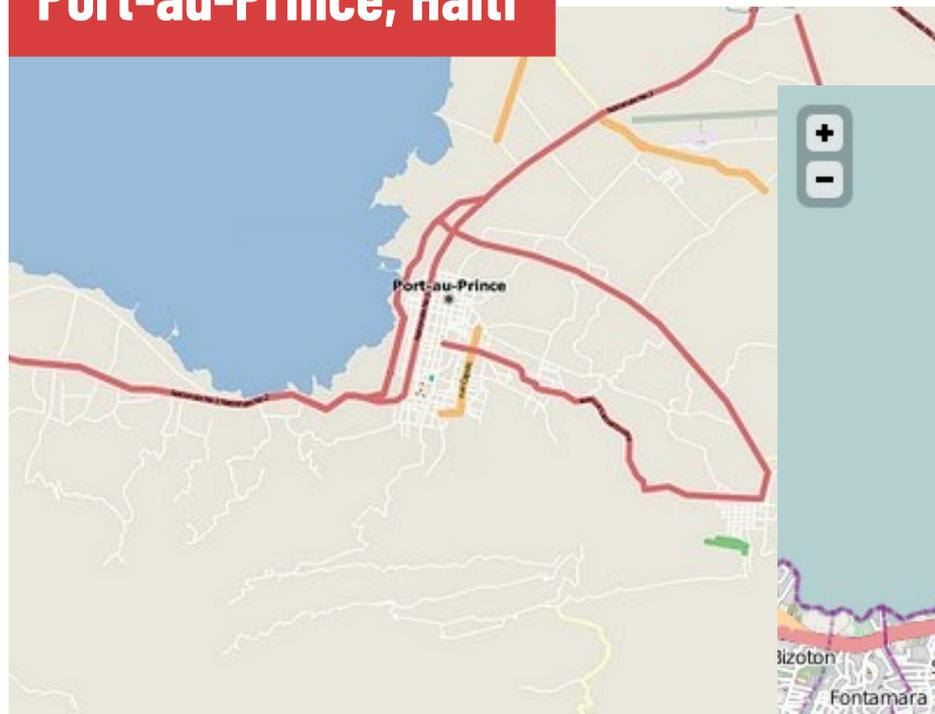
**Port-au-Prince, Haiti**



## Port-au-Prince, Haiti

[https://www.youtube.com/watch?v=oNZ\\_ZBCTRqc](https://www.youtube.com/watch?v=oNZ_ZBCTRqc)

# Port-au-Prince, Haiti



Port-au-Prince, Haiti



2010/01/22

Photo:HOT



[www.cartong.org](http://www.cartong.org)



[www.hotosm.org](http://www.hotosm.org)

[lists.openstreetmap.org/listinfo/hot](https://lists.openstreetmap.org/listinfo/hot)

*Les Libres Géographes*



Photo:HOT



**West Africa**



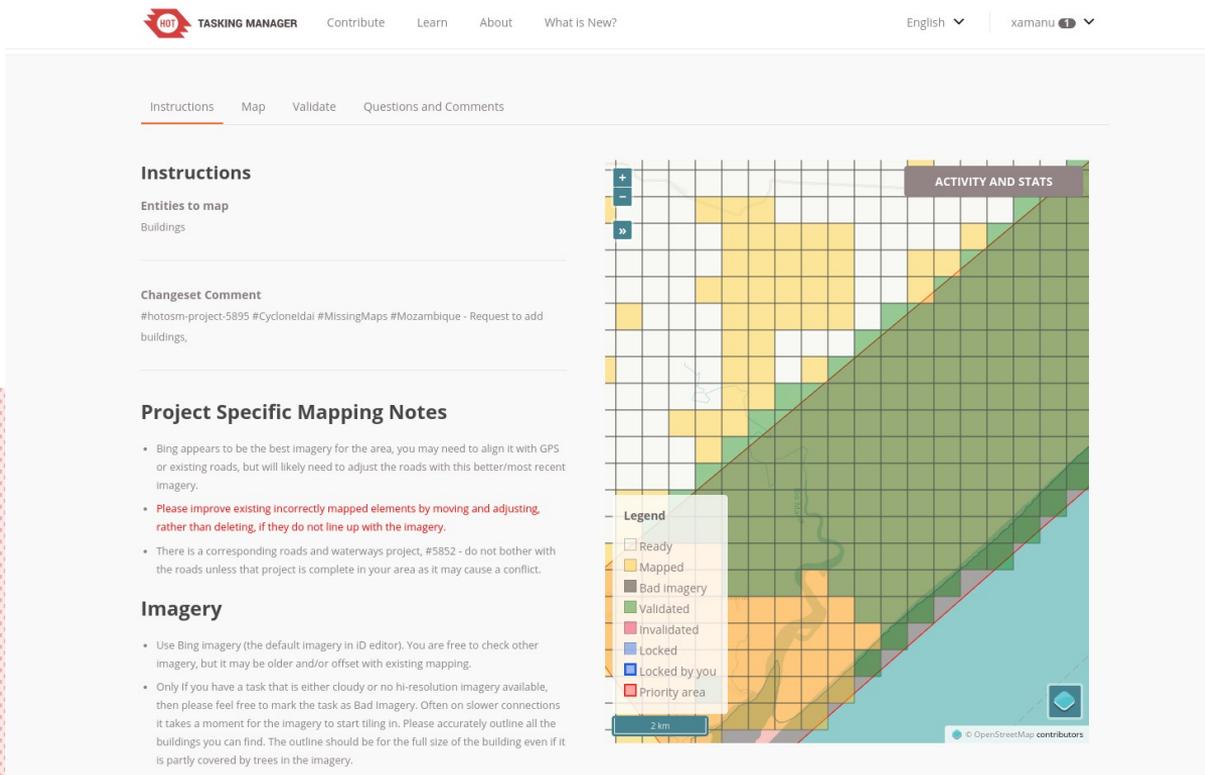
**West Africa**

Photo: Red Cross

# Tasking Manager

Coordination for  
groups of mappers.

tasks.hotosm.org



The screenshot displays the HOTOSM Tasking Manager interface. At the top, there is a navigation bar with the HOTOSM logo, the text "TASKING MANAGER", and links for "Contribute", "Learn", "About", and "What is New?". On the right side of the navigation bar, there are options for "English" and a user profile for "xamanu".

Below the navigation bar, there is a secondary navigation bar with tabs for "Instructions", "Map", "Validate", and "Questions and Comments". The "Instructions" tab is currently selected.

The main content area is divided into several sections:

- Instructions:** This section includes "Entities to map" (Buildings) and a "Changeset Comment" field containing the text: "#hotosm-project-5895 #Cyclonedai #MissingMaps #Mozambique - Request to add buildings."
- Project Specific Mapping Notes:** This section contains a list of instructions:
  - Bing appears to be the best imagery for the area, you may need to align it with GPS or existing roads, but will likely need to adjust the roads with this better/most recent imagery.
  - Please improve existing incorrectly mapped elements by moving and adjusting, rather than deleting, if they do not line up with the imagery.
  - There is a corresponding roads and waterways project, #5852 - do not bother with the roads unless that project is complete in your area as it may cause a conflict.
- Imagery:** This section contains a list of instructions:
  - Use Bing imagery (the default imagery in ID editor). You are free to check other imagery, but it may be older and/or offset with existing mapping.
  - Only if you have a task that is either cloudy or no hi-resolution imagery available, then please feel free to mark the task as Bad Imagery. Often on slower connections it takes a moment for the imagery to start tiling. Please accurately outline all the buildings you can find. The outline should be for the full size of the building even if it is partly covered by trees in the imagery.

On the right side of the interface, there is a map view. The map shows a grid of tasks, each represented by a colored square. A legend in the bottom-left corner of the map view explains the colors:

- Ready (white)
- Mapped (yellow)
- Bad imagery (grey)
- Validated (green)
- Invalidated (red)
- Locked (blue)
- Locked by you (dark blue)
- Priority area (orange)

The map also includes a scale bar for 2 km and a copyright notice for "© OpenStreetMap contributors".

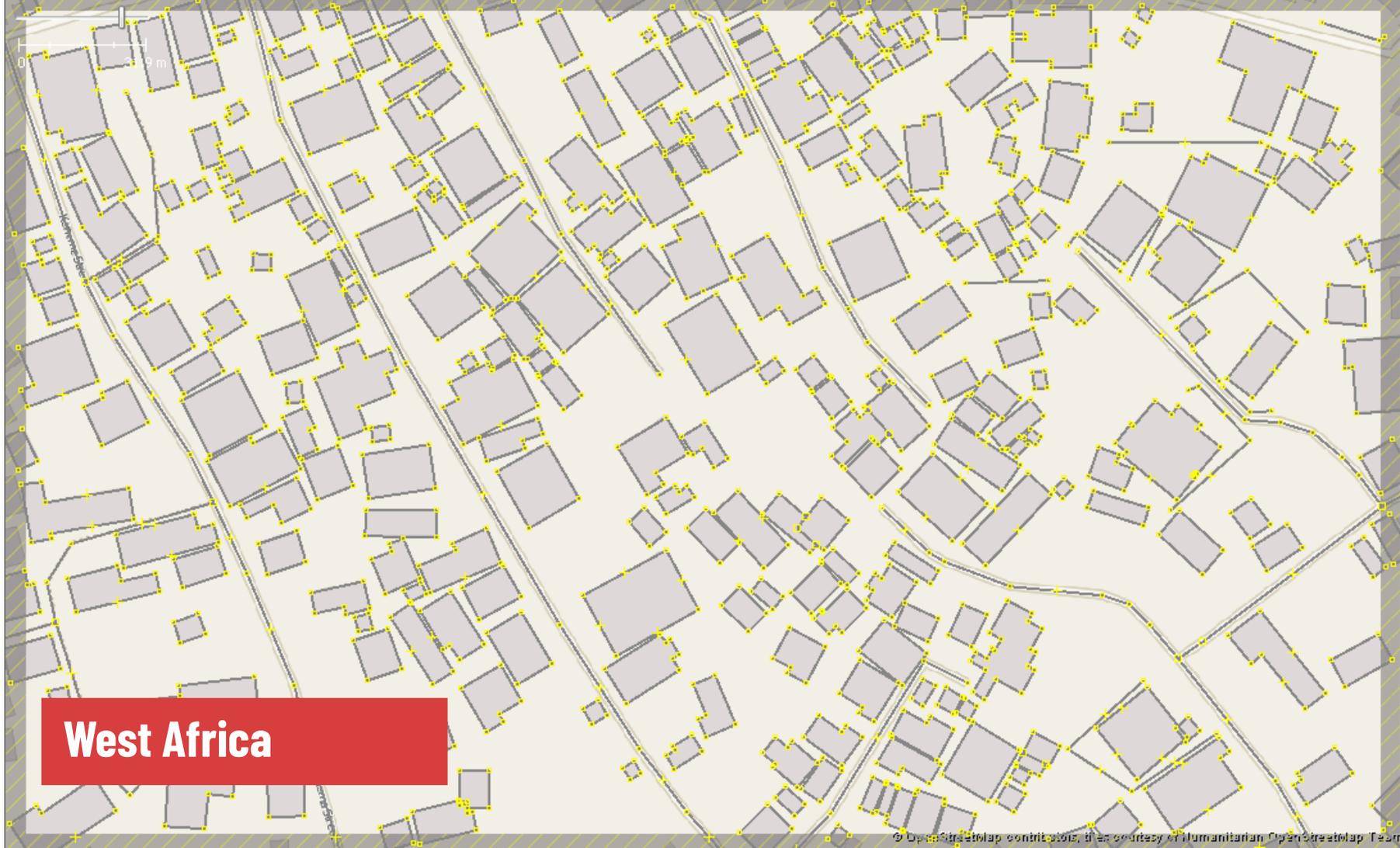


**West Africa**

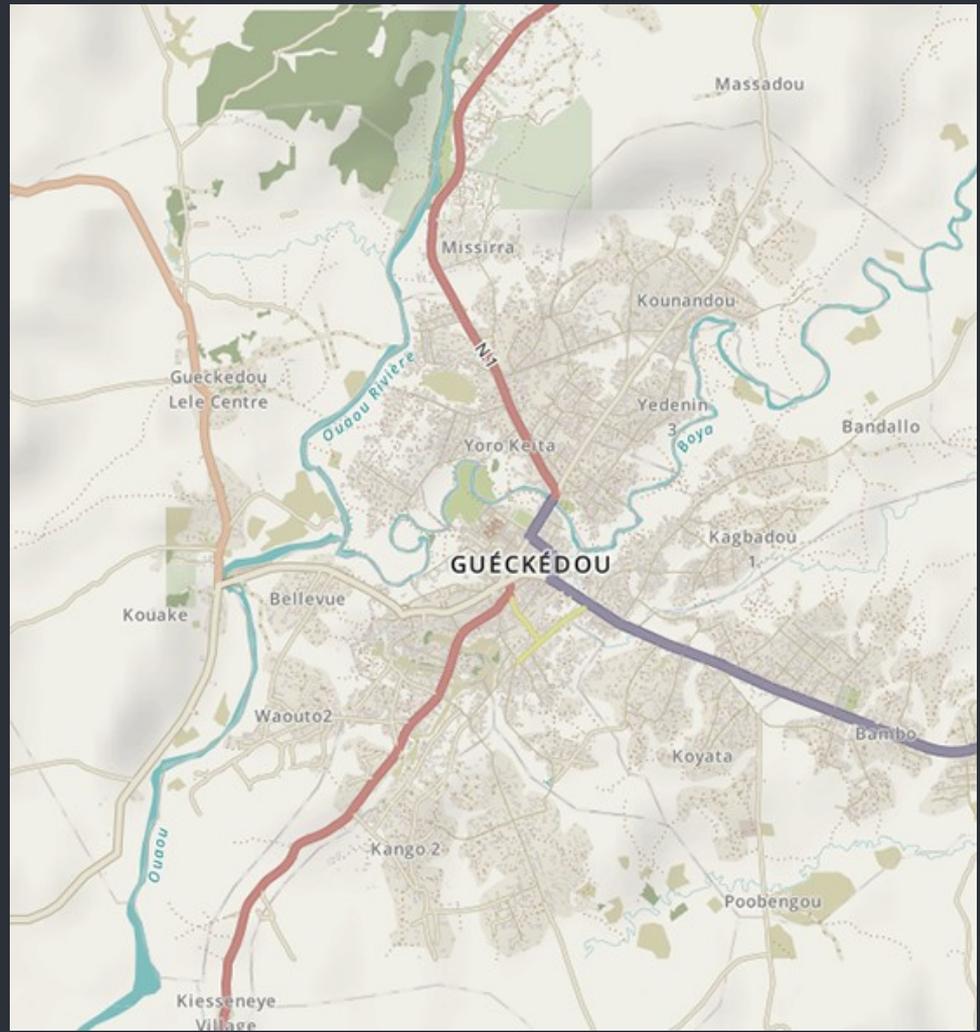
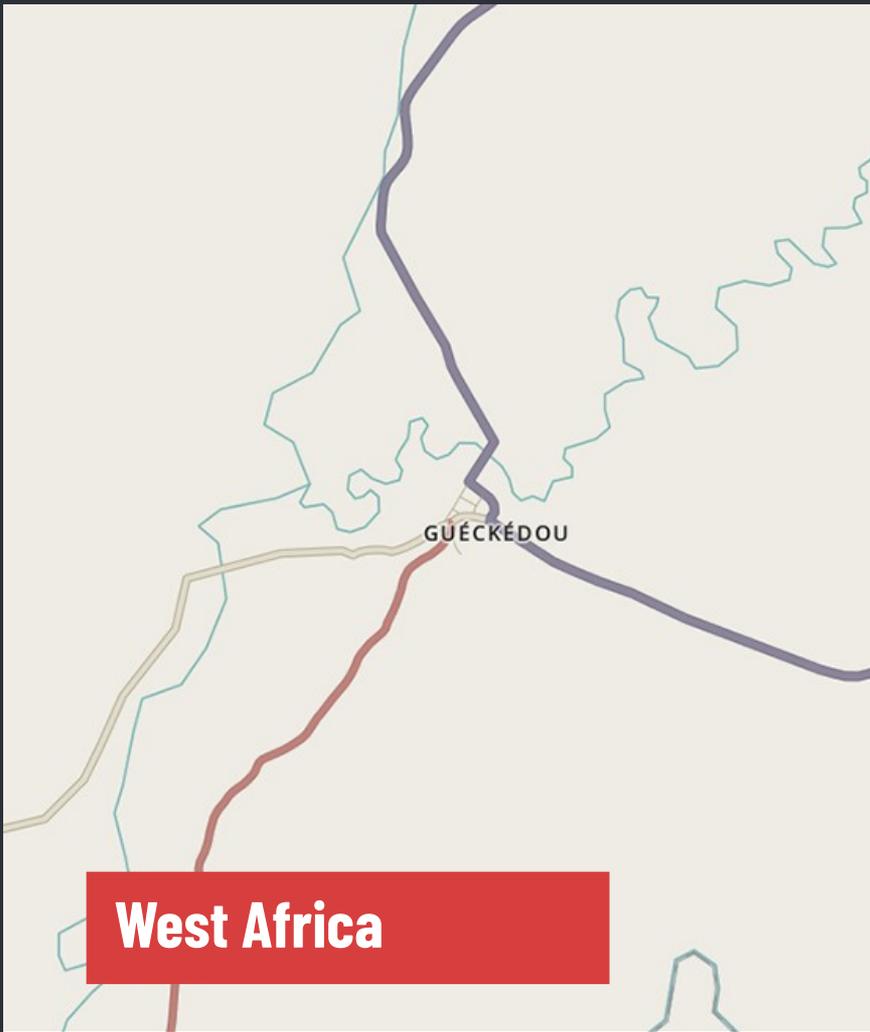




**West Africa**



**West Africa**





Photos:HOT





BNPB



OCHA





Missing  
Maps

[www.missingmaps.org](http://www.missingmaps.org)



## Mapathons



Ärzte ohne Grenzen @MSF\_austria · Nov 7

Los geht's: Volles Haus beim 1. #Mapathon - heute setzen wir Straßen & Häuser in Mwezeni, #Simbabwe auf die Landkarte! #MissingMaps

📍 Österr. Rotes Kreuz, CartONG and Missing Maps project





Mapathons



**Mapathons**

Photo:HOT



Ärzte ohne Grenzen  
@msf\_de

Ärzte ohne Grenzen leistet medizinische Nothilfe, wenn in Kriegsgebieten oder nach Naturkatastrophen das Leben vieler Menschen bedroht ist.

Berlin ([www.msf.de/impressum](http://www.msf.de/impressum))

[aerzte-ohne-grenzen.de](http://aerzte-ohne-grenzen.de)

Joined June 2010

Ärzte ohne Grenzen  
@msf\_de

Follow

Für Nothilfe in #Mosambik nach Zyklon #Idai haben wir zum @TheMissingMaps Mapathon aufgerufen. Wir freuen uns, dass so viele von euch unserem Aufruf gefolgt sind & geholfen haben. Mit eurer Hilfe konnten wir 330.000 Gebäude und 34.000 km Straßen kartieren! Danke!



[https://twitter.com/msf\\_de/status/1121375852015575041](https://twitter.com/msf_de/status/1121375852015575041)

452 views 0:00 / 0:58

4:30 AM - 25 Apr 2019

19 Retweets 36 Likes



19 36



**Local knowledge and expertise**

Photo:HOT



**Local knowledge and expertise**

# Data, data, data



Node



Way



Relation

## — Three types

Points (Nodes), Lines (Ways), Relations

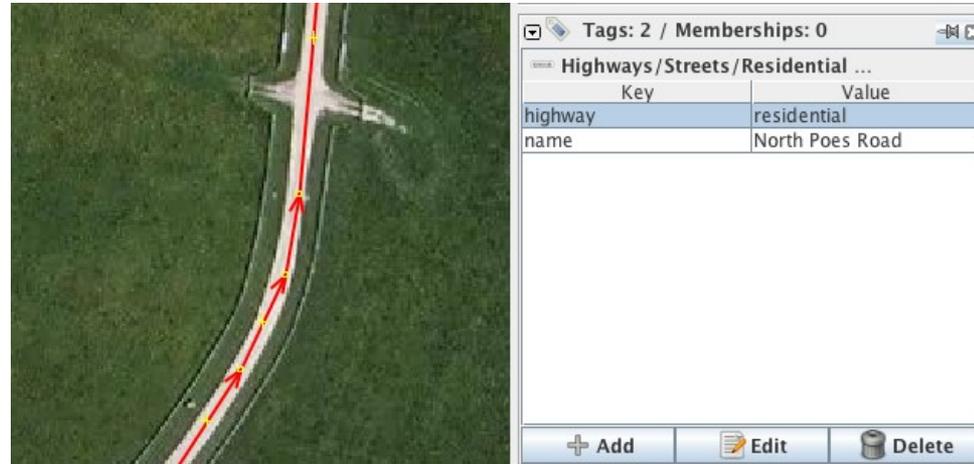
## — Classification with tags

Key-Value-Paar

## — Volatile data structure defined continuously by the community

Documentation and exchange in the OSM wiki

Focus on local communities and particularities



# Three aspects of Openness

— Open Data

Artifact



— Data literacy

Knowledge



— Free Software

Tool



From: Open Knowledge Foundation  
(Saadya Windhauer)



**Dar es Salaam, Tanzania**

Photo:HOT

# Open Aerial Map

Collection of open  
aerial images.

openaerialmap.org

The screenshot displays the OpenAerialMap web application. On the left, a metadata panel for a specific aerial image is shown. The image is titled "Task of 2019-05-01T20:51:44.845Z" and was uploaded by "Russell Walker". The panel includes options to display the image as a TMS thumbnail, open it in JOSM, or copy its URL. Below this, a table lists technical details: DATE (2019-05-01), RESOLUTION (5 cm), PROVIDER (WebODM), PLATFORM (UAV), SENSOR (DJI FC6510), IMAGE SIZE (1.41 MB), and TYPE (Image + Map Layer). The main map area on the right shows a satellite-style aerial view of a rural area with roads and buildings. A search bar at the top left of the map area contains the text "Search location or coordinates". A "Sign In" button is located in the top right corner. A small world map is visible in the bottom right corner of the map area. The footer of the page includes the text "Leaflet | © Mapbox © OpenStreetMap | Report an issue with this map".

|            |                   |
|------------|-------------------|
| DATE       | 2019-05-01        |
| RESOLUTION | 5 cm              |
| PROVIDER   | WebODM            |
| PLATFORM   | UAV               |
| SENSOR     | DJI FC6510        |
| IMAGE SIZE | 1.41 MB           |
| TYPE       | Image + Map Layer |

**Dar es Salaam, Tanzania**

Photo:HOT

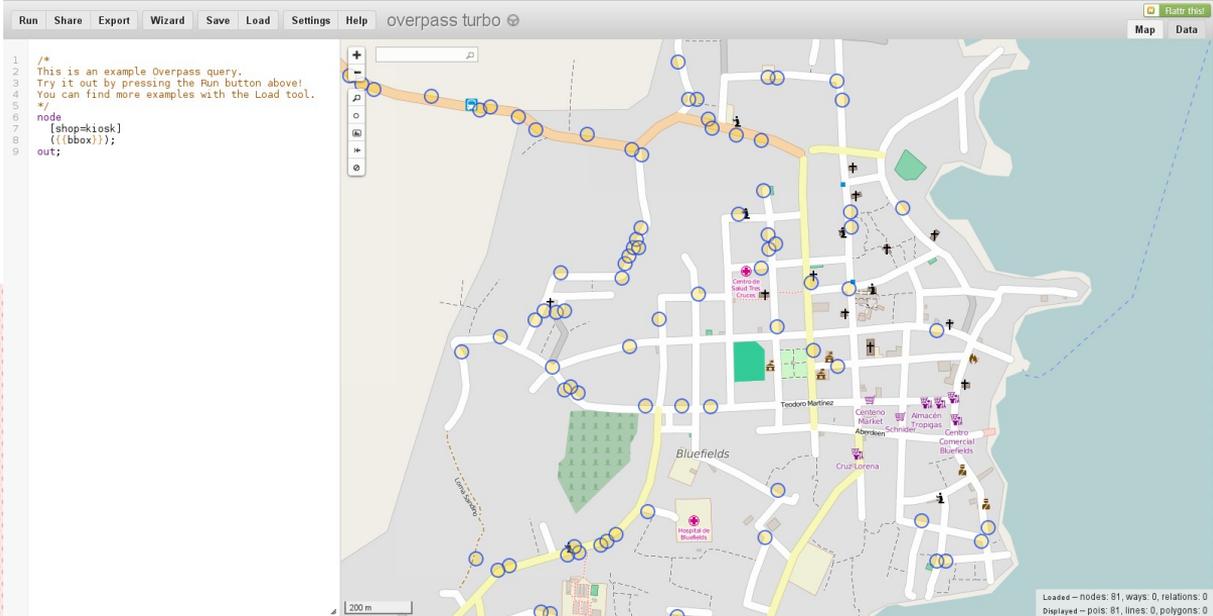


Dar es Salaam, Tanzania

Foto:HOT

# Daten export

## Query API for geodata



The screenshot shows the Overpass Turbo web interface. The top navigation bar includes buttons for Run, Share, Export, Wizard, Save, Load, Settings, and Help. The main window is split into two panes. The left pane contains a text editor with the following code:

```
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=kiosk]  
8   ({{bbox}});  
9 out;
```

The right pane displays a map of Bluefields, Nicaragua, with numerous blue circular markers representing kiosk locations. A scale bar at the bottom left indicates 200 meters. In the bottom right corner, a status bar reads: "Loaded - nodes: 81, ways: 0, relations: 0. Displayed - pois: 81, lines: 0, polygons: 0".

overpass-turbo.eu

# Export Tool

User interface to  
select focus on data  
and export it in usable  
layers.

export.hotosm.org

The screenshot displays the HOT Export Tool interface. At the top, there is a navigation bar with links for 'About', 'Learn', 'Create', 'Exports', 'Configs', 'English', and a 'Log Out' button. The main content area is divided into several sections:

- Export #d70b21f4-5df9-479c-8512-7fa91df31cef**: A metadata section containing:
  - Description: Mhairi's attempt to replicated the export data from METEOR Kathmandu Field Survey 2019
  - Project: METEOR
  - Area: 1097 sq km
  - Created at: Thursday, May 2nd 2019, 4:55 am
  - Created by: mataharimhairi
  - Published: Yes
  - Export formats: OSM (.pbf), POSM bundle
  - OSM Analytics: View this area
- Run #7e9f8d3b-76ce-4ed1-85b7-2eada4d4f8ca**: A status section showing:
  - Status: COMPLETED
  - Started: Thursday, May 2nd 2019, 4:55 am
  - Finished: Thursday, May 2nd 2019, 4:56 am
  - Duration: a minute
  - OSM (.pbf): mhairi-meteor-kathmandu-field-survey-2019\_export\_pbf.zip (155 kB)
  - POSM bundle: mhairi-meteor-kathmandu-field-survey-2019-bundle.tar.gz (21.1 MB)
- Map**: A topographic map of Kathmandu with a blue rectangular selection box covering the central urban area. Labels on the map include Kathmandu, Patan, Bhaktapur, and various surrounding areas.

At the bottom of the interface, there is a 'Slide 38' indicator, a 'Contact Us' link, and a footer that reads 'Made with by HOT and friends' and 'fork the Code'.

# Estimation de la densité de population ZdS Idjwi - South Kivu, RDC

Date de production: 20/04/2016

Sources:  
rgc.cd  
openstreetmap.org  
missingmaps.org  
Routes non vérifiées

Contact: GIS.MansonUnit@london.msf.org

0 2 4 6 8 km

## Légende

- Idjwi
- Villages
- Routes

Population par 100m\*100m

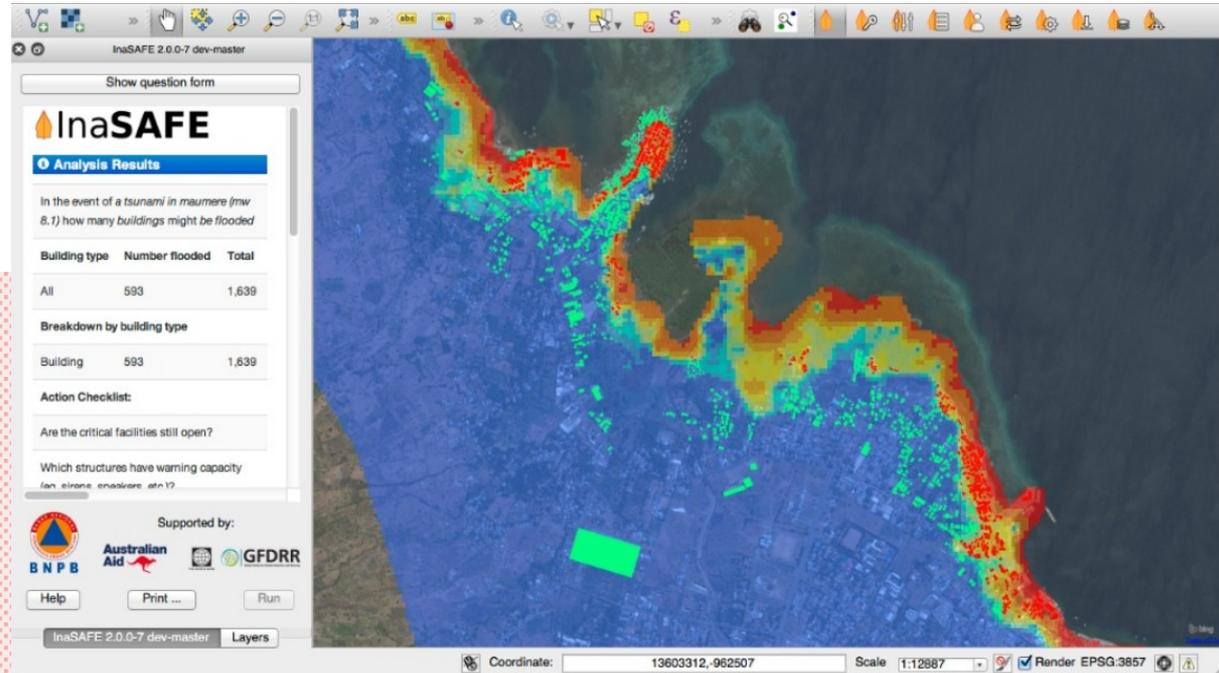
- 4.0 - 18.4
- 18.4 - 32.8
- 32.8 - 47.2
- 47.2 - 61.6
- 61.6 - 76.0
- 76.0 - 90.4
- 90.4 - 104.8
- 104.8 - 119.2
- 119.2 - 133.6
- 133.6 - 148.0



Cette carte est pour information uniquement et n'a pas de signification politique.  
Les frontières et noms affichés n'impliquent aucune approbation ou reconnaissance de MSF.

# InaSAFE

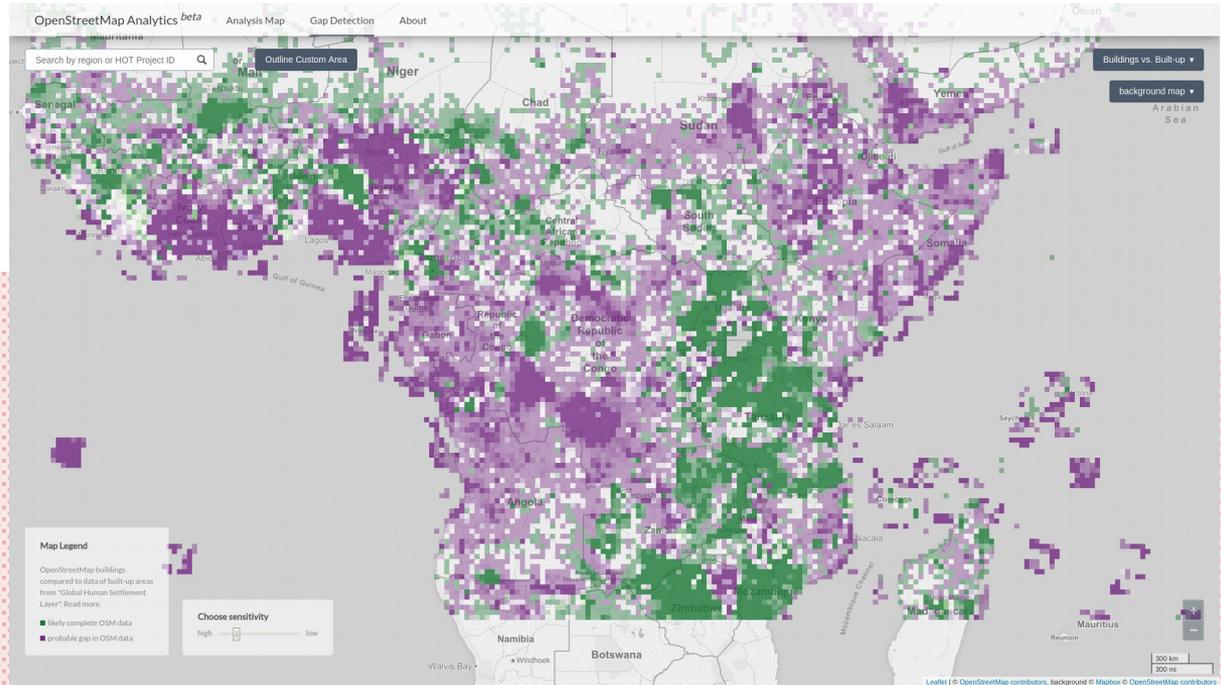
Simulations of risk  
scenarios



inasafe.org

# OSM Analytics

Analysis of changes and gap estimations based on deep learning.



## OSM Ecosystem

- Uncountable applications and libraries around geographic information and digital maps.
- Some more oriented to tie into OpenStreetMap others for all kind of Geographic Information Systems.



[wiki.openstreetmap.org](http://wiki.openstreetmap.org)

# Interessiert?

## — Support mapping!

[tasks.hotosm.org](https://tasks.hotosm.org)

## — Learn how to map

[www.learnosm.org](http://www.learnosm.org)

[wiki.openstreetmap.org](https://wiki.openstreetmap.org)

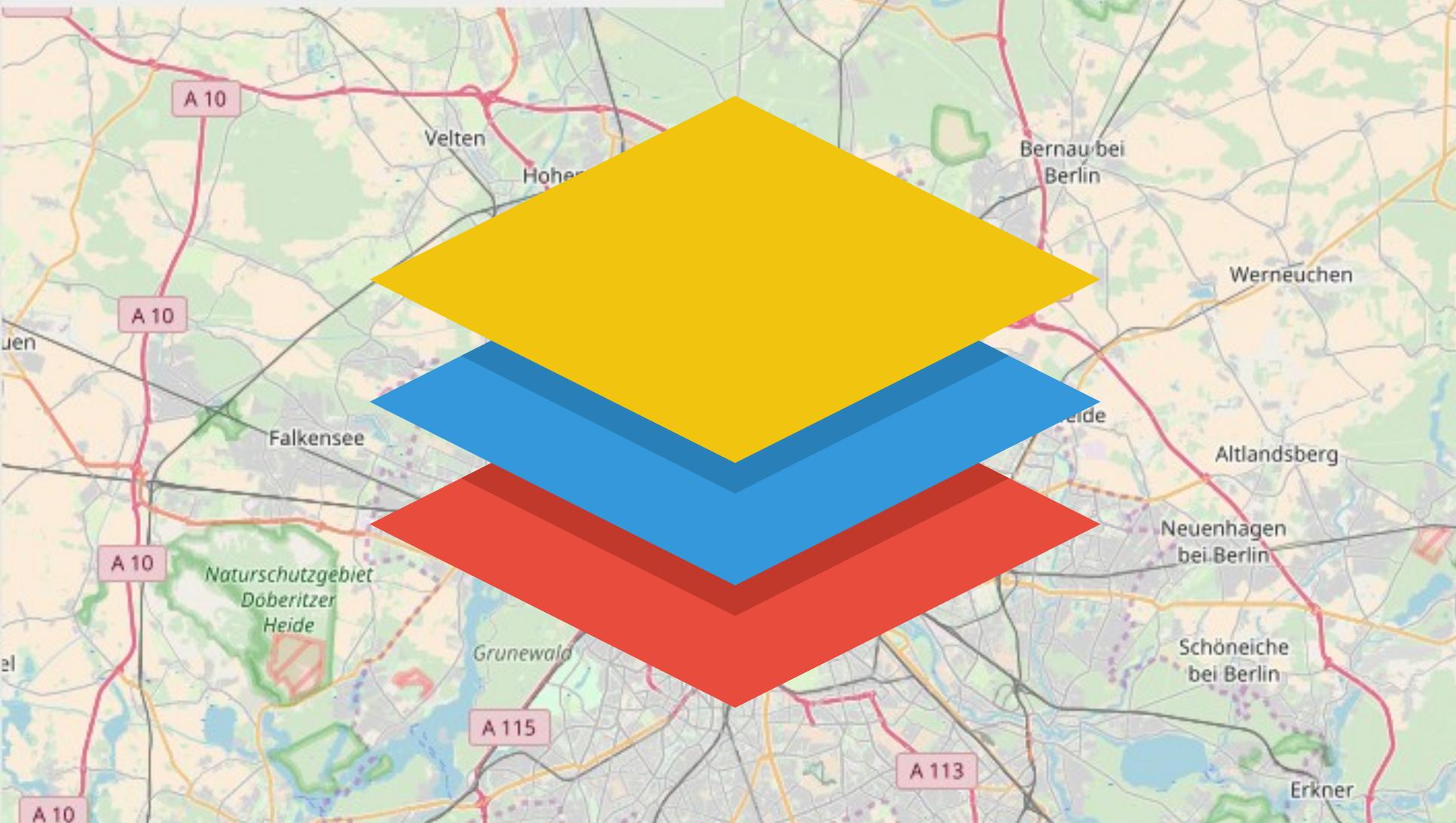
## — Mailing list

[lists.openstreetmap.org/listinfo/hot](https://lists.openstreetmap.org/listinfo/hot)

## — Write me

[felix@delattre.de](mailto:felix@delattre.de)





A 10

Velten

Hohe

Bernau bei  
Berlin

Werneuchen

A 10

Falkensee

Heide

Altlandsberg

A 10

Naturschutzgebiet  
Döberitzer  
Heide

Grunewald

Neuenhagen  
bei Berlin

Schöneiche  
bei Berlin

A 115

A 113

A 10

Erkner

# Open Data Kit

Mobile data surveys  
(with or without OSM)

[opendatakit.org](http://opendatakit.org)  
[openmapkit.org](http://openmapkit.org)

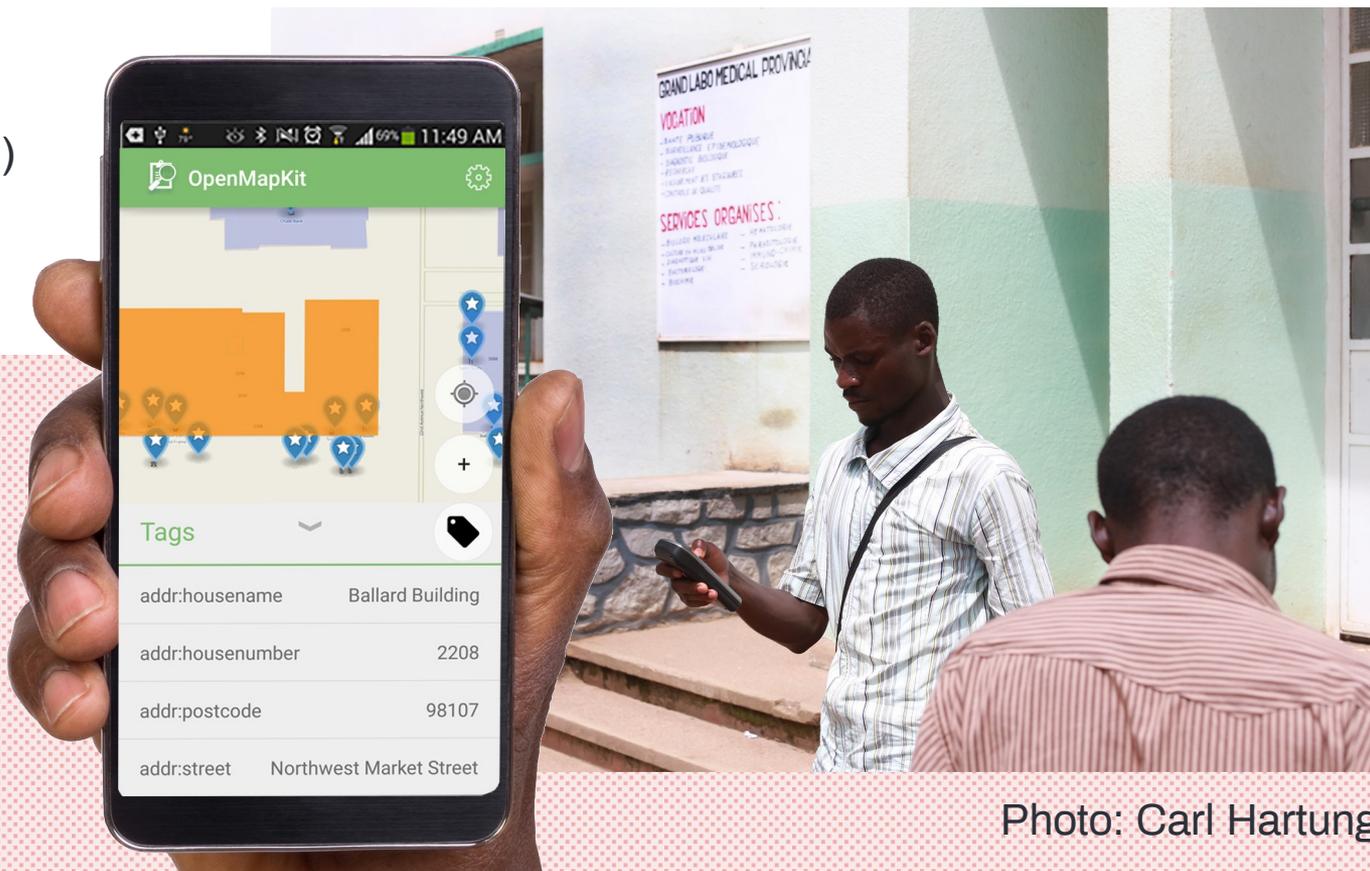


Photo: Carl Hartung



# OPEN GEODATA FOR HUMANITARIAN ACTION

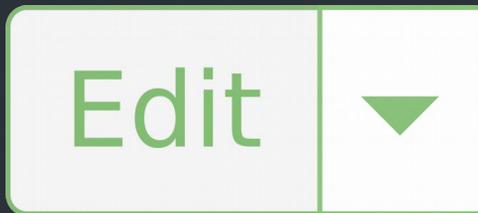
**June 8, 2019 – MiniDebConf Hamburg**  
**Felix Delattre**

felix@delattre.de  
@xamanu

Focus on digital maps  
And particularly the places in the world where there is no map



- There are still remaining surprisingly many places on this planet without a map.
- What does this mean?
  - You can't just look up, how to come from one place to another,
  - Doctor, hospital
  - Access to jobs
  - Leisure
- Plan in case of a disaster. An emergency hit the place, and there is no map how to get evacuated or where to find the next water supply.

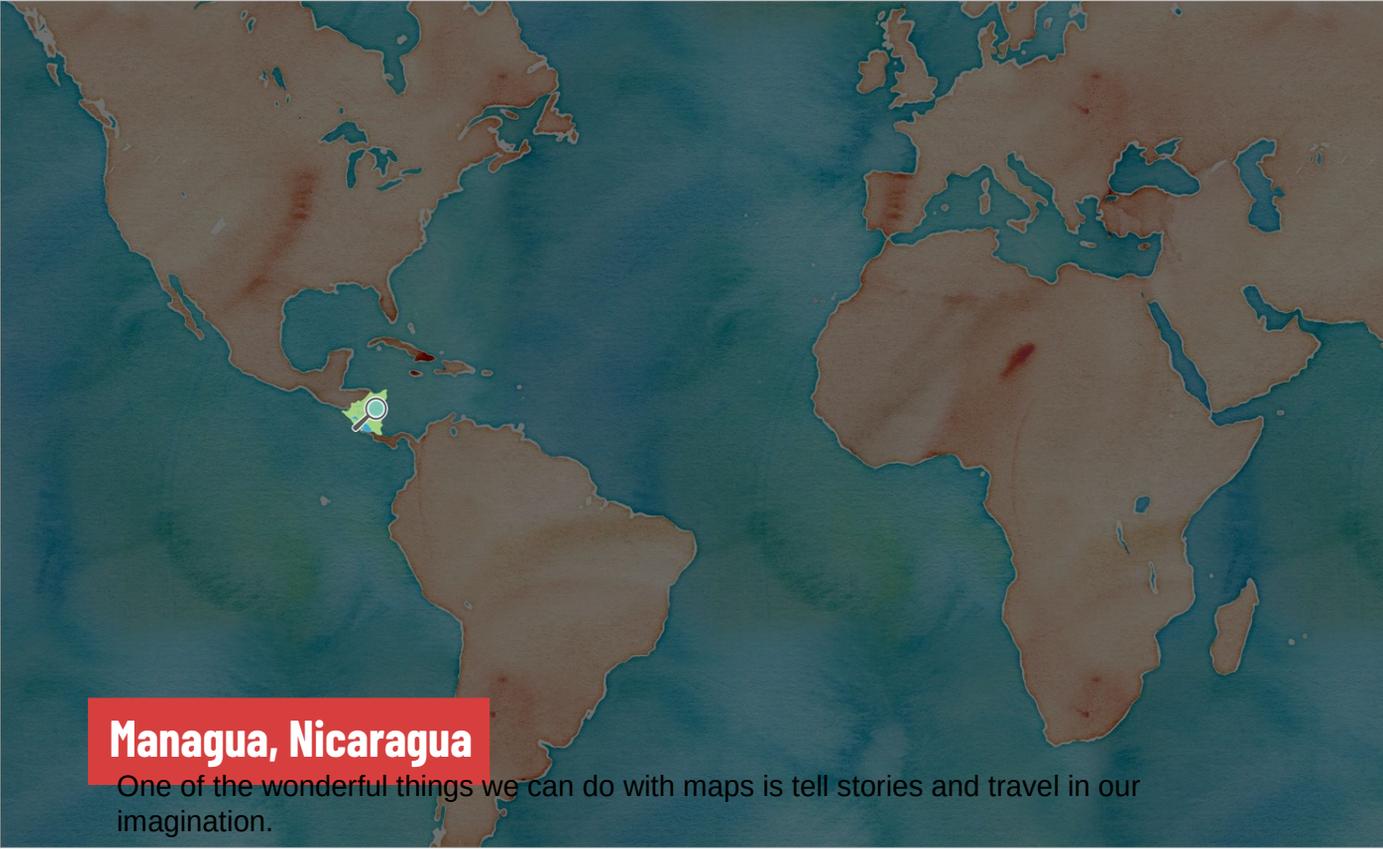


What if one could change that?

Go online, and add the information.

The parts that matter to each and everyone:

- The neighbourhood, the streets around the home
- Important points
  - infrastructure like public transport
  - power lines
  - waste dumps
  - areas of floodings

A world map with a red location pin on Managua, Nicaragua. The map is dark blue and brown, with a red location pin on the northern coast of Central America. The text "Managua, Nicaragua" is overlaid on the map in a red box.

## Managua, Nicaragua

One of the wonderful things we can do with maps is tell stories and travel in our imagination.

First, I want to invite you to come with me and to Nicaragua. This is not an example of a strict humanitarian use of geodata, but it is for local progress and there are more aspects to which I will come back later.

And I used to live quite some years in this beautiful country, and this is also a way to share with you a little bit more about myself.

Nicaragua is also a place where there are many maps missing. Over the years we have built a living initiative around OpenStreetMap there.



## Managua, Nicaragua

For example was there no public transportation map of the capital with 2 million inhabitants

A World Bank study estimates that 35% of the world's largest cities and even 92% when considering only the largest cities in low and middle-income countries do not have complete transit maps for planning or passenger information.

Implications:

- People know only a few routes
- Mobility in the city is a huge problem and big cities will continue to grow.
- A blocker for the working population and general progress in the town.



## Managua, Nicaragua

We wanted to change this!

With paper, GPS devices and smartphones, we started collecting the data of the bus routes

We organized open workshops and over 200 interested people participated in the creation of this map.



## Managua, Nicaragua

Together we created the first map of public transport in the city and even the whole region of Central America.

We printed it and gave it to the people. And we made the information available online and in smartphone app.



Ok, ok., but what if not only one, but the whole world would change it together?

Over one million in the world, already.



OpenStreetMap

Bearbeiten

Chronik

Export

Mehr

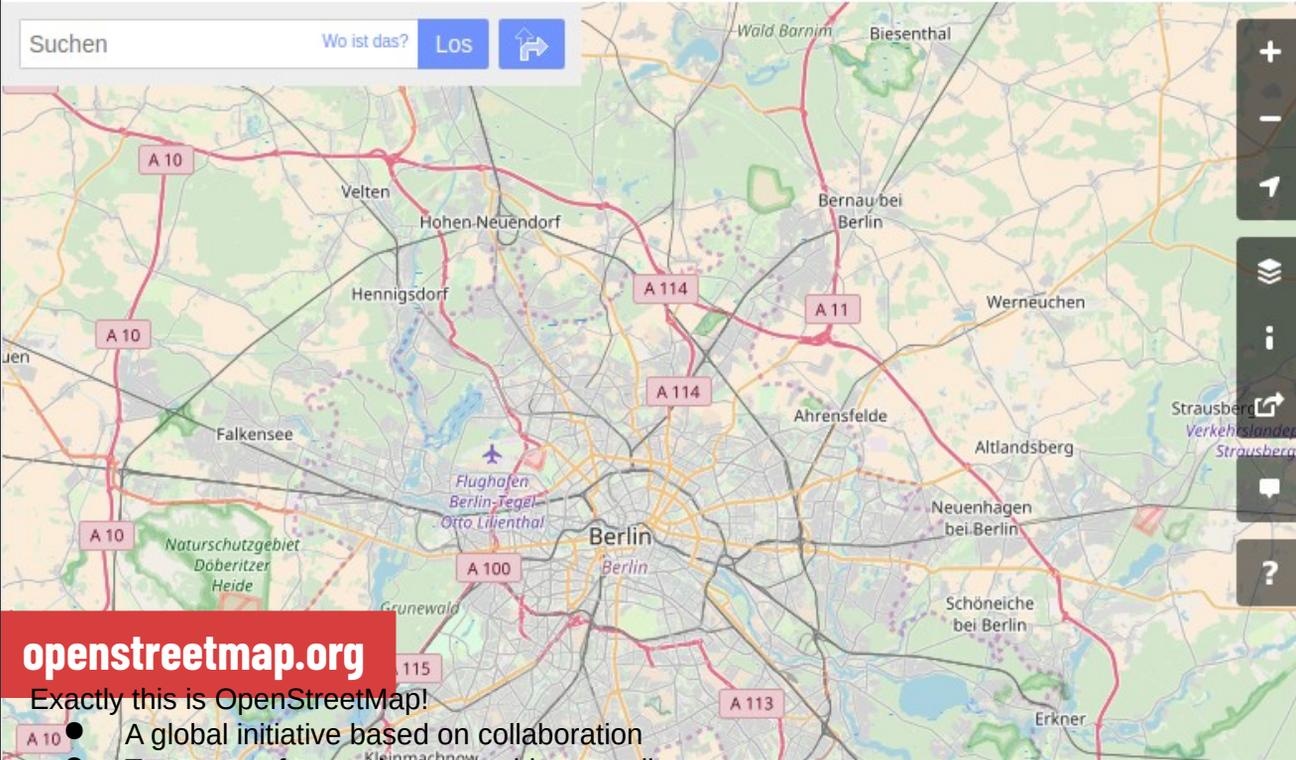


xamanu

Suchen

Wo ist das?

Los



**openstreetmap.org**

Exactly this is OpenStreetMap!

- A global initiative based on collaboration
- To create a free and open world map online
- The maps belong to everybody and can be edited by anybody.
- It's data are for every and for everybody available.\



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It is not the perfect comparison. But probably the closest:

OpenStreetMap is kind of the Wikipedia for maps.

Especially because of the low entry level.



WIKIPEDIA  
Die freie Enzyklopädie

- Hauptseite
- Themenportale
- Von A bis Z
- Zufälliger Artikel
- Mithmachen
- Artikel verbessern
- Neuen Artikel anlegen
- Autorenportal
- Hilfe
- Letzte Änderungen
- Kontakt
- Spenden
- Werkzeuge
- Links auf diese Seite
- Änderungen an verlinkten Seiten
- Datei hochladen
- Spezialseiten
- Permanenter Link
- Seiteninformationen
- Wikidata-Datenobjekt
- Artikel zitieren
- Drucken/exportieren
- Buch erstellen
- Als PDF herunterladen
- Druckversion
- In anderen Projekten

# Berlin

Dieser Artikel befasst sich mit der deutschen Hauptstadt. Zu weiteren Bedeutungen siehe [Berlin \(Begriffsklärung\)](#).

**Berlin** [bɛˈʁʲiːn] ist die Bundeshauptstadt der Bundesrepublik Deutschland<sup>[14]</sup> und zugleich eines ihrer Länder. Die Stadt Berlin ist mit gut 3,5 Millionen Einwohnern die bevölkerungsreichste und mit 892 Quadratkilometern die flächenmäßig größte Stadt Deutschlands. Sie ist die Hauptstadt von Berlin/Brandenburg (4,5 Millionen Einwohner) und Berlin (4,5 Millionen Einwohner) in vier Bezirken. Neben dem Stadtgebiet kleinerer Städte und Dörfer umschließt sie Waldgebiete.

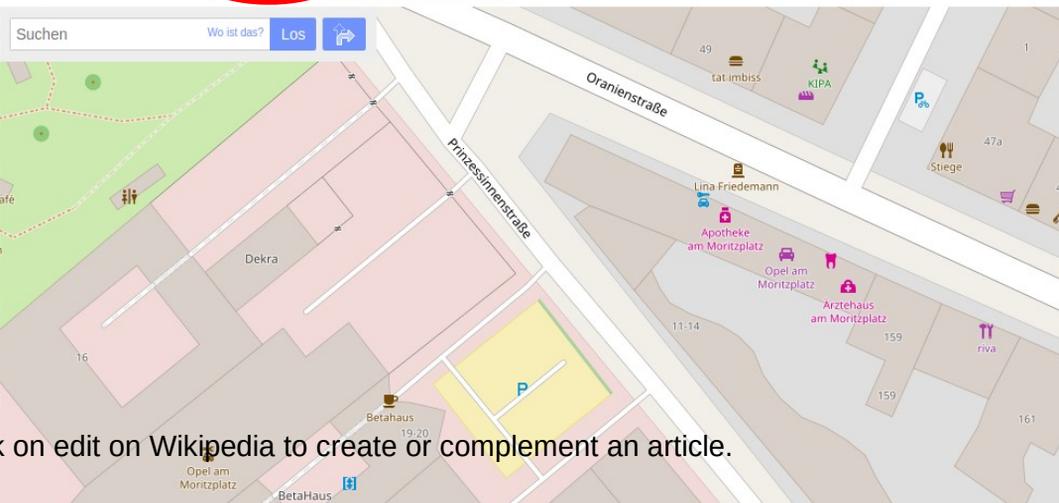
Urkundlich erste Erwähnung im Verlauf der Geschichte des Residenz- und Hauptortes des Deutschen Reichs. Hauptstadt der Deutschen Wiedergebundenen Gesamtheit, der Bundesregierung, des Bundesrates sowie der Bundesämter und Botschaften.

Zu den bedeutendsten Sehenswürdigkeiten gehören unter anderem der Touristenmarkt am Gendarmenmarkt, die Biotechnologie und Pharmazie am Potsdamer Platz sowie der pharmazeutische

**Land Berlin**

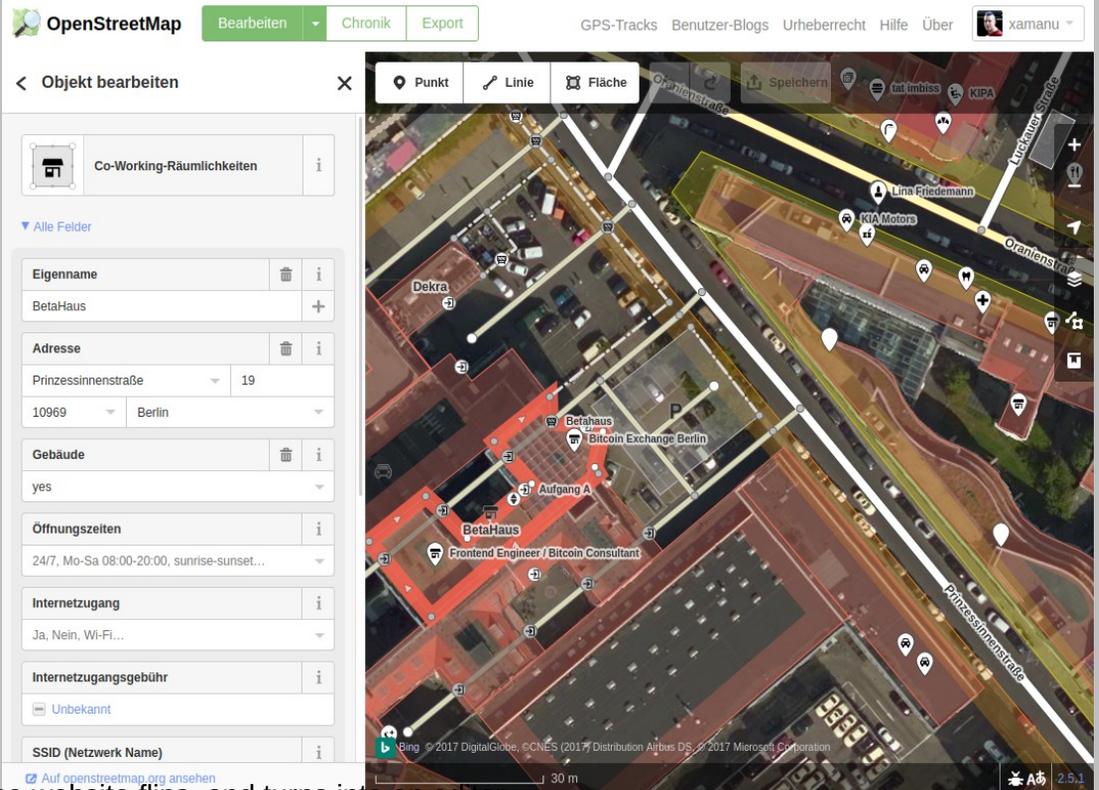
**OpenStreetMap** **Bearbeiten** Chronik Export

GPS-Tracks Benutzer-Blogs Urheberrecht Hilfe Über



As you can click on edit on Wikipedia to create or complement an article.

People can click "edit" on OpenStreetMap...



And the website flips, and turns into an editor

Where points can be put on the map, streets can be drawn and buildings located or just improved the existing data.

This is super simple and everybody can do.

# Planet OSM

The main and hugest source for open geographic data.

Many people see only the website, with limited functionalities.

But actually OSM is the biggest source for downloadable and useable geographic information.

The whole planet is around 80 gigs (compressed), or around 1 TB (uncompressed).



## Planet OSM

The files found here are regularly-updated, complete copies of the OpenStreetMap.org database, and those published before the 12 September 2012 are distributed under a Creative Commons Attribution-ShareAlike 2.0 license, those published after are Open Data Commons Open Database License 1.0 licensed. For more information,

[see the project wiki.](#)

### Complete OSM Data

#### [Latest Weekly Planet XML File](#)

**76 GB**, created 6 hours ago.

md5: 62ecb5598d7711eac0b4c4821c40c7af.

#### [Latest Weekly Changesets](#)

**2.7 GB**, created 6 hours ago.

md5: 53d9d1c417c8cf90833a94831d56b102.

#### [Latest Weekly Planet PBF File](#)

**45 GB**, created 6 hours ago.

md5: 2902cd16865257c661d7b1745584c10e.

Each week, a new and complete copy of all data in OpenStreetMap is made available as both a compressed XML file and a custom PBF format file. Also available is the ['history'](#) file which contains not only up-to-date data but also older versions of data and deleted data items.

A smaller file with complete metadata for all changes ('changesets') in XML format is also available.

### Using The Data

You are granted permission to use OpenStreetMap data by [the OpenStreetMap License](#), which also describes your obligations.

You can [process the file](#) or extracts with a variety of tools. [Osmosis](#) is a general-purpose command-line tool for converting the data among different formats and databases, and [Osm2pgsql](#) is a tool for importing the data into a Postgis database for rendering maps.

[Processed coastline data](#) derived from OSM data is also needed for rendering usable maps, and can be found in a [single shapefile](#) (360MB).

Use the data!



<http://www.flickr.com/photos/harrywood/>



<http://www.flickr.com/photos/harrywood/>



<http://www.flickr.com/photos/harrywood/>



<http://www.flickr.com/photos/kachkaev/>



<http://www.flickr.com/photos/padorange/>

- The data can be used either as a base map (with your style)
- They can be used in an application
- The can be used in different media, print, mobile phone, special devices

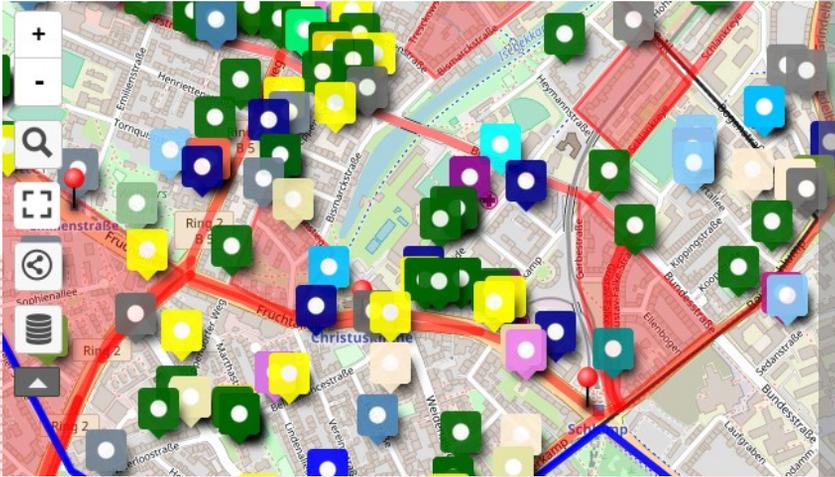
## Printed maps



[wiki.openstreetmap.org/wiki/OSM\\_on\\_Paper](http://wiki.openstreetmap.org/wiki/OSM_on_Paper)

Photos: H

# Online maps

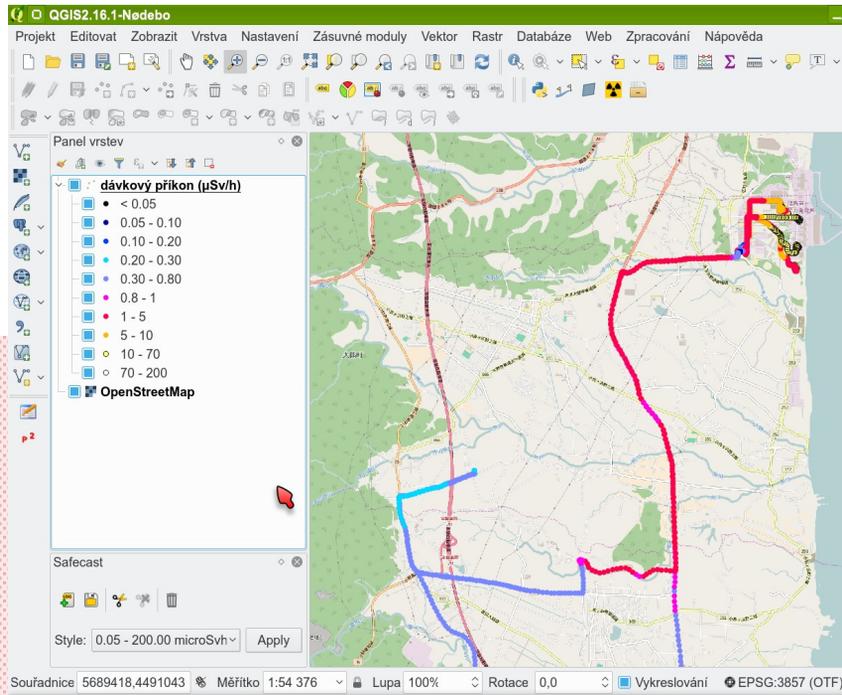


[umap.openstreetmap.de](http://umap.openstreetmap.de)



QGIS

qgis.org



A world map with a dark blue background and brownish-tan landmasses. A red rectangular box is positioned in the upper left quadrant, containing the text "Port-au-Prince, Haiti". A small green magnifying glass icon is placed over the island of Haiti in the Caribbean Sea.

## Port-au-Prince, Haiti

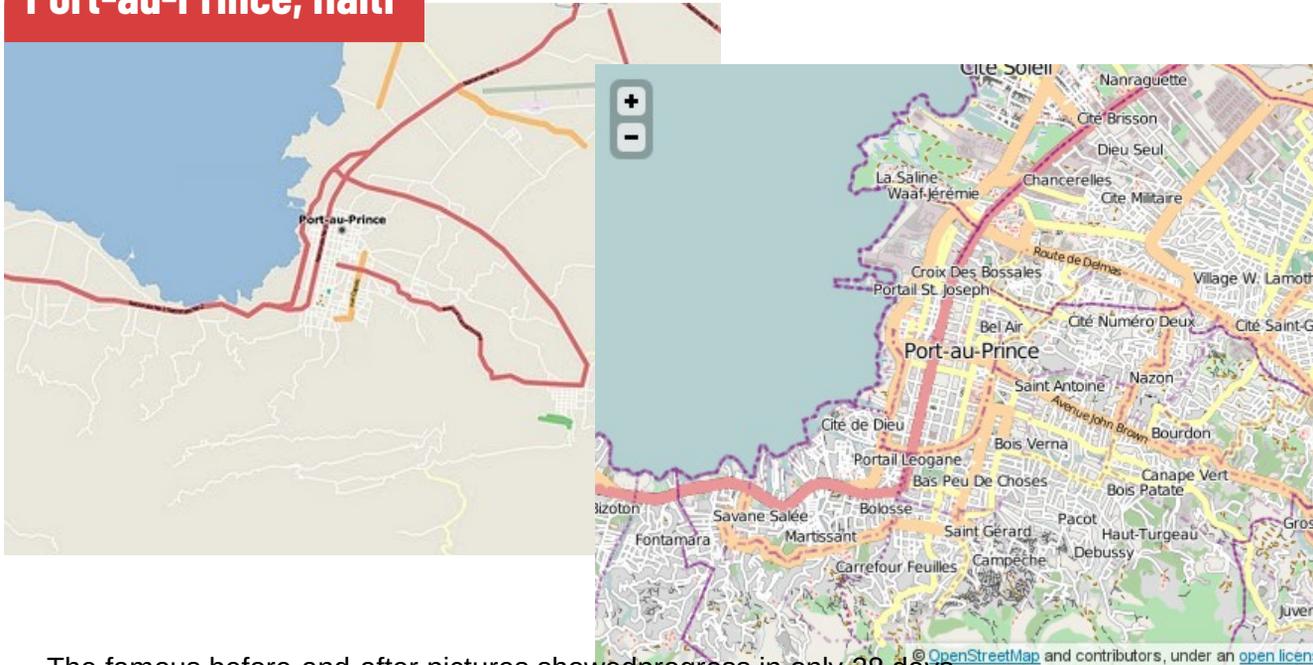
- It began 2010 after a strong earthquake hit Haiti.
- In this poorest country at this moment there was no suitable map, to be used by the humanitarian organizations on the ground.
- Moved by the need to support, a few hundred people started using OSM to generate this data.
- Using a satellite imagery quickly they were able to produce a somehow usable map.

## Port-au-Prince, Haiti

[https://www.youtube.com/watch?v=oNZ\\_ZBCTRqc](https://www.youtube.com/watch?v=oNZ_ZBCTRqc)

This video show the evolution of the map.  
As you can observe in only a few days large parts of the capital and within less than two weeks almost the whole country got a map.

## Port-au-Prince, Haiti



The famous before-and-after pictures showed progress in only 28 days.

From a few lines to a quite usable map.

## Port-au-Prince, Haiti



- This data is available (almost) immediately and can be used without restrictions.
- They can be easily converted and used in all kind of devices.
- And support the people helping on the ground.
- To orient themselves and the international aid.
- In this particular case where to find water distribution points.

Photo:



[www.cartong.org](http://www.cartong.org)



[www.hotosm.org](http://www.hotosm.org)

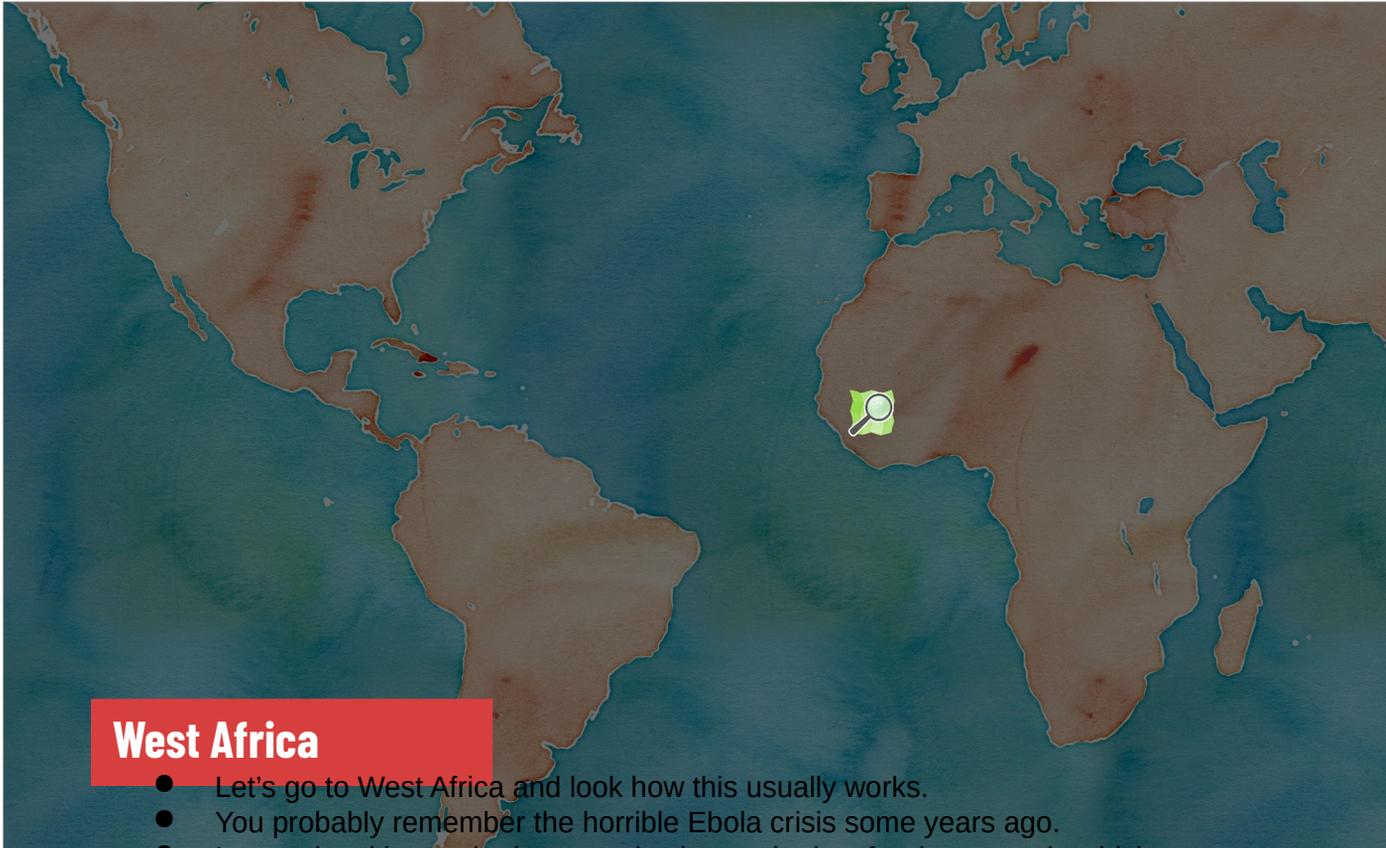
[lists.openstreetmap.org/listinfo/hot](http://lists.openstreetmap.org/listinfo/hot)

*Les Libres Géographes*



- We needed to coordinate better. And created more and more convenient tools for remote mapping and (larger) groups.
- We also train organizations, schools and companies to conduct so called mapathons.
- Where people meet physically, to learn and map.

Photo:



## West Africa

- Let's go to West Africa and look how this usually works.
- You probably remember the horrible Ebola crisis some years ago.
- International humanitarian organizations asked us for data – again which wasn't really largely existent in this part of the world.



## West Africa

- To successfully combat Ebola it is required to to have information on the house level.
- So it can be marked and respective means can be taken
- Disinfection teams go and clean the place and sourroundings.

Photo:Red

# Tasking Manager

Coordination for  
groups of mappers.

tasks.hotosm.org

- I want to give you an idea how this concretely works.
- A certain region is defined as a project and it will be split into tasks.
- The tasks can be locked, meaning that one person is working on a small area and other should take another, in order to avoid editing conflicts.
- Works online.

The screenshot displays the Hotosm Tasking Manager interface. At the top, there is a navigation bar with the Hotosm logo, the text 'TASKING MANAGER', and links for 'Contribute', 'Learn', 'About', and 'What is New?'. The user's language is set to 'English' and their name is 'xamaniu'. Below the navigation bar, there are tabs for 'Instructions', 'Map', 'Validate', and 'Questions and Comments'. The 'Instructions' section is active, showing 'Entities to map' (Buildings) and a 'Changeset Comment' for a project. The 'Project Specific Mapping Notes' section contains three bullet points: 1. Bing imagery is recommended but may need alignment with GPS or existing roads. 2. Users should improve existing incorrectly mapped elements by moving and adjusting, rather than deleting. 3. A corresponding roads and waterways project (#5852) should be avoided. The 'Imagery' section contains two bullet points: 1. Use Bing imagery (the default in iD editor) and check other imagery if older or offset. 2. Mark tasks as 'Bad imagery' if cloudy or low-resolution. The right side of the interface shows a map grid with a legend and an 'ACTIVITY AND STATS' panel. The legend includes categories: Ready (white), Mapped (yellow), Bad imagery (green), Validated (purple), Invalidated (red), Locked (blue), Locked by you (dark blue), and Priority area (orange). The map shows a grid of tasks with various colors indicating their status.



## West Africa

- Usually, it starts with a satellite imagery.
- Which is usually provided by generous donors.
- (some times easier after a disaster)



Using the imagery people can draw in the observable.

Like here in this case for Ebola the streets and houses of several countries in West Africa  
(Sierra Leone here, Liberia and Guinea)

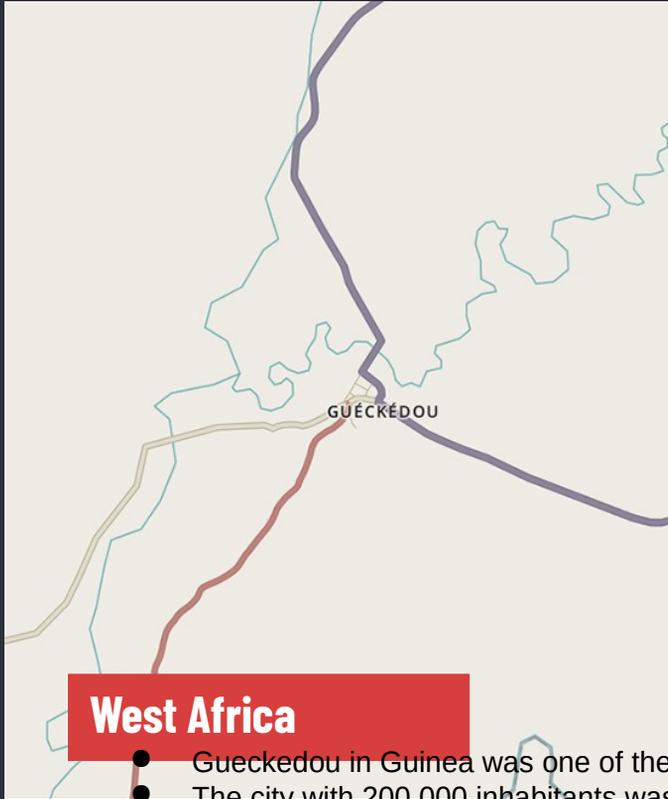
This is the result of remote mapping.



## West Africa

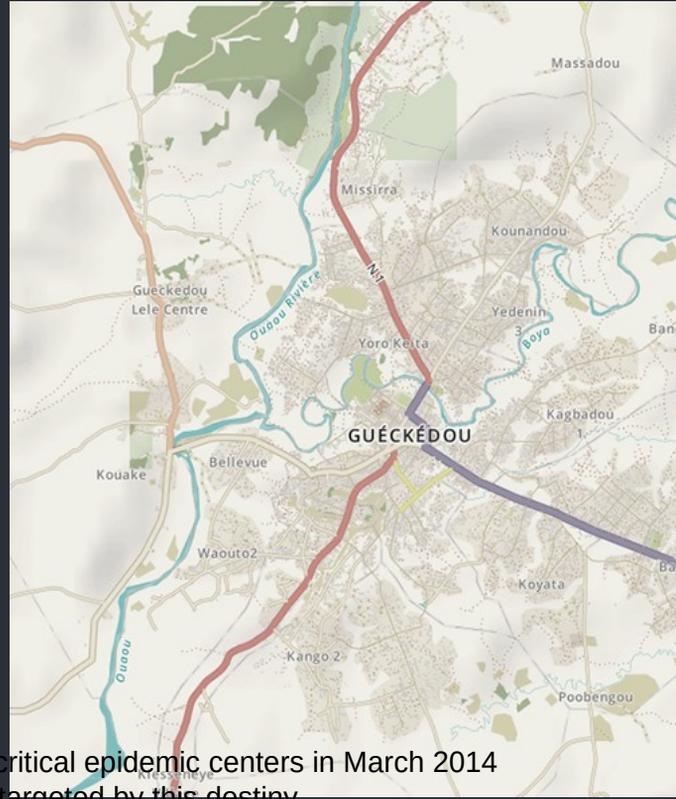
This data are available as vector data and can be used in all kind of programmes like Geographic Information Systems.

This opens many opportunities on what to do with this data. In the crisis, afterwards and before the next.



## West Africa

- Gueckedou in Guinea was one of the critical epidemic centers in March 2014
- The city with 200,000 inhabitants was targeted by this destiny.
- Suddenly the data was urgently needed and 244 mappers made a difference in 5 days.





Photos:HC



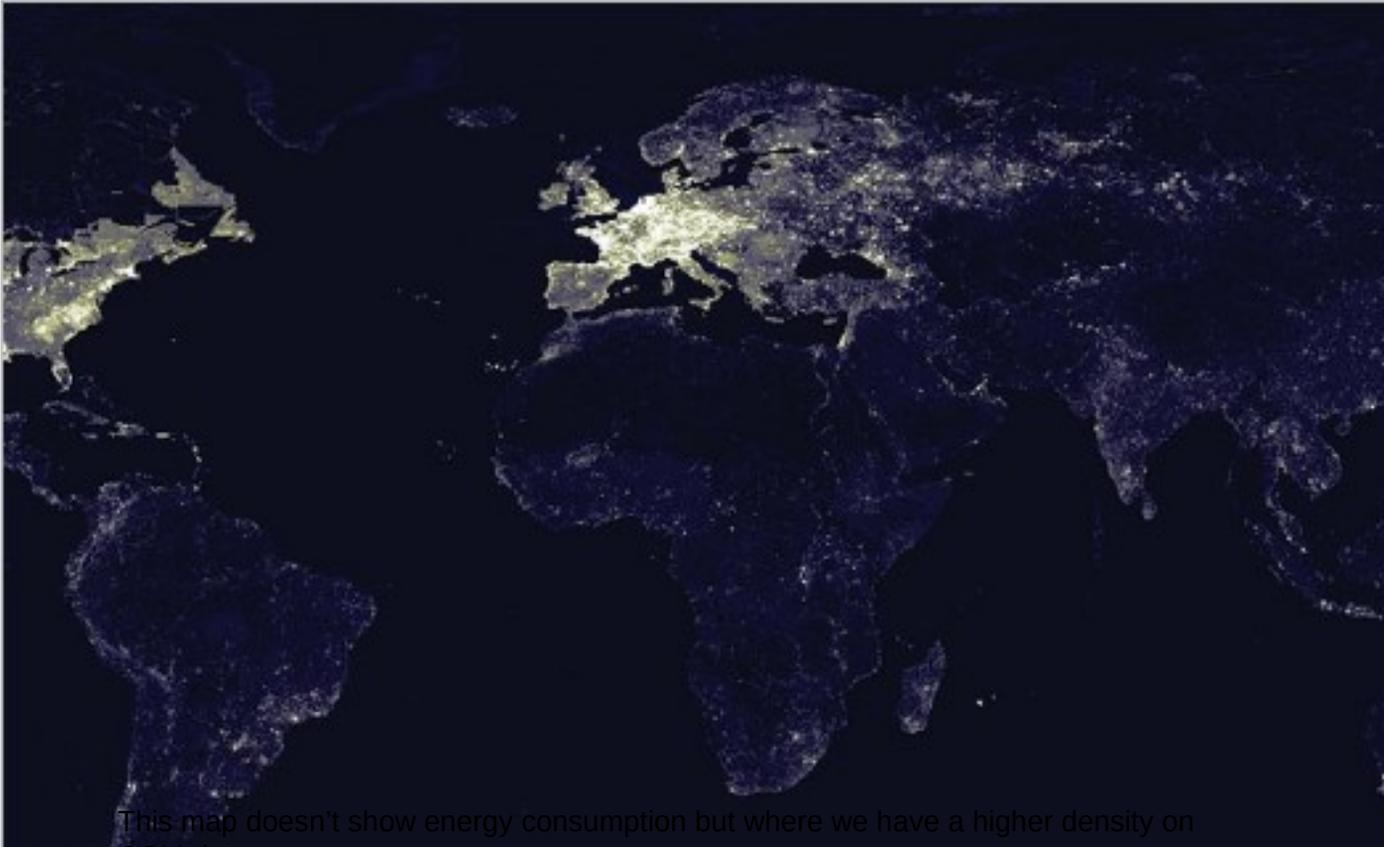
- Throughout the one whole year around 2000 volunteers mapped for the Ebola crisis.
- And created the probably best map of west africa (Sierra Leone, Guinea and Libera) that every existed.
- Our partner organizations were able to integrate data now into their workflow and the information was immediately used for the actions on the ground.



BNPB



- Many international and humanitarian organizations, and also governments, like Indonesia, discovered the benefit for their work by using OSM and rely on it heavily.
- These are really just a few of them, the non-profit HOT is collaborating with.



This map doesn't show energy consumption but where we have a higher density on OSM data.

Specifically the whole are around India, China. There live 3 billion people, but it doesn't look like that



[www.missingmaps.org](http://www.missingmaps.org)

And often times there is a correlation that the most vulnerable places on earth are the ones that prospect less economic interest, and there are not maps.

Because of this reason we teamed up with the humanitarian world and created Missing Maps, to put the people who most need it on the map.



# Mapathons

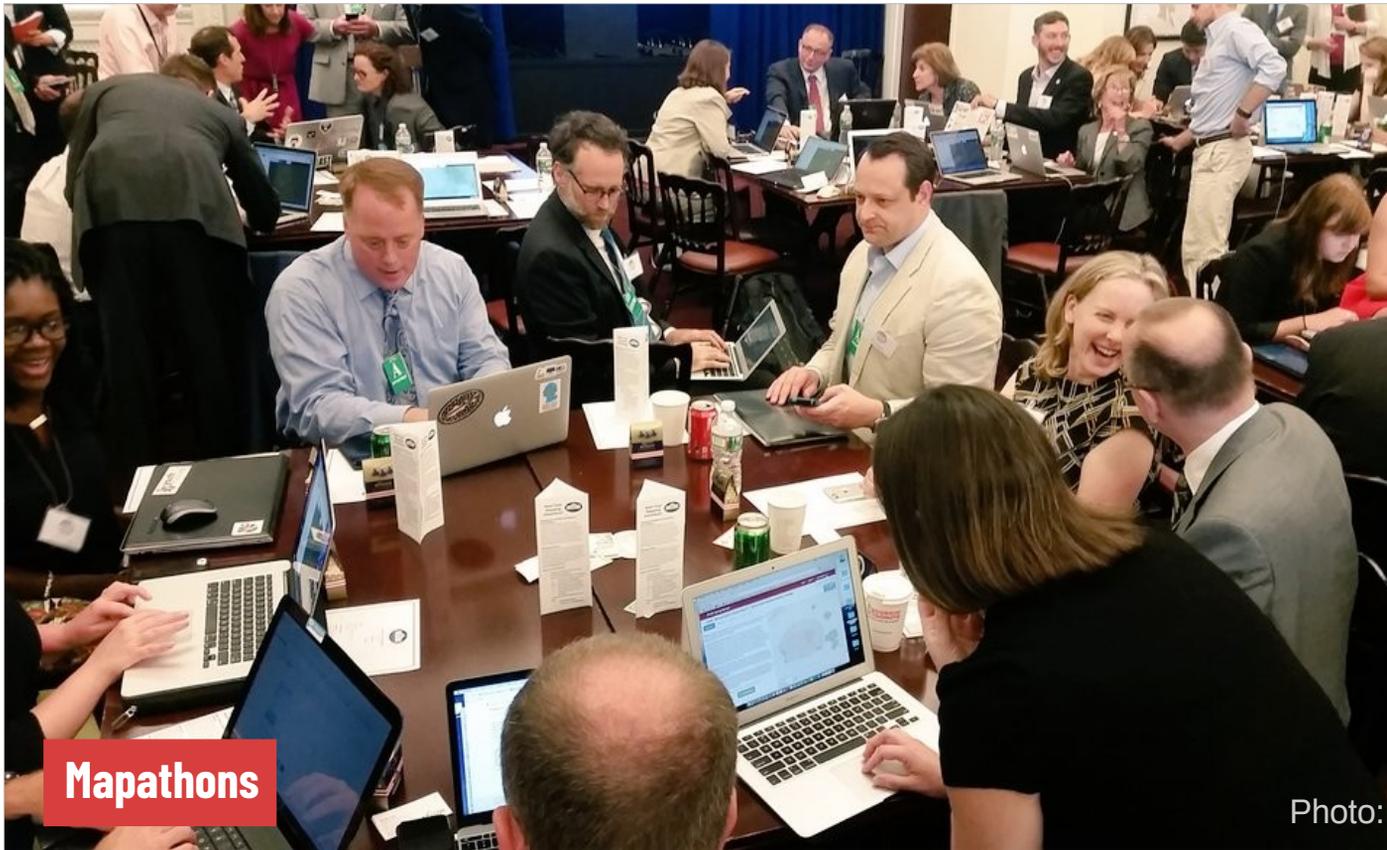
Ärzte ohne Grenzen @MSF\_austria · Nov 7  
From the comfort of the armchair people from all over the world can contribute.  
Osterr. Rotes Kreuz, CartONG and Missing Maps project #Simbabwe auf die Landkarte! #MissingMaps

- Or find each other in mapathons.
- Like this mapathon in Vienna by MSF



## Mapathons

Of course, mapathons are done everywhere in the world, even in Nicaragua.



Even in the white house (not this president).

I think this is particularly interesting, because participation in OSM is always connected to learning. And I see here some people doing great progress.



Ärzte ohne Grenzen @msf\_de

Follow

Für Nothilfe in #Mosambik nach Zyklon #Idai haben wir zum @TheMissingMaps Mapathon aufgerufen. Wir freuen uns, dass so viele von euch unserem Aufruf gefolgt sind & geholfen haben. Mit eurer Hilfe konnten wir 330.000 Gebäude und 34.000 km Straßen kartieren! Danke!



https://twitter.com/msf\_de/status/1121375852015575041

4:30 AM - 25 Apr 2019

19 Retweets 36 Likes

19 36



Ärzte ohne Grenzen @msf\_de

Ärzte ohne Grenzen leistet medizinische Nothilfe, wenn in Kriegsgebieten oder nach Naturkatastrophen das Leben vieler Menschen bedroht ist.

Berlin (www.msf.de/impressum)

aerzte-ohne-grenzen.de

Joined June 2010



Photo:

It is nice that remote mapping is possible. But it is not the suitable form of mapping. Obviously from satellite imagery many things can not be observed (street names, type of store or purpose of a building, etc.)

Every place is different and OSM embraces these differences and this needs people who care about the map, who care about the data and care about the software.

When we talk about a map - This can only be the people that live in a certain place. The local experts. These are the knowledgeable persons.



## Local knowledge and expertise

Knowledge versus information versus data.

People creating the map, defining the data structure and how to map, is going through a valuable knowledge creation process.

They become part of the system, and don't just consume it.

## Data, data, data



Node



Way



Relation

### — Three types

Points (Nodes), Lines (Ways), Relations

### — Classification with tags

Key-Value-Paar

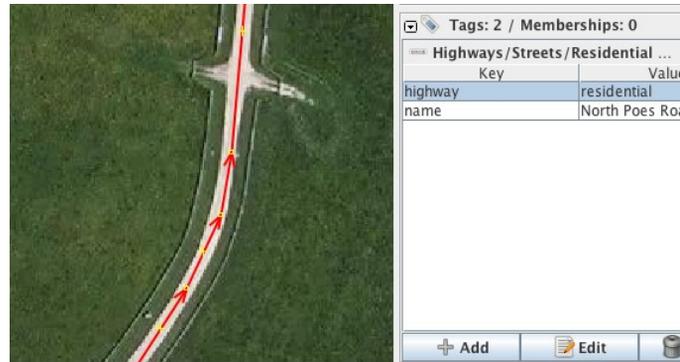
### — Volatile data structure defined

continuously by the community

Documentation and exchange in the OSM wiki

Focus on local communities and particularities

Highly participatory aspects.



It is not just about collecting the data, but to form how the data structure evolves.

Local approaches: certain complexity – not all data sets are necessarily comparable.

No real last instance for definition (no benevolent dictator, no real process on definition) – BUT we have a POLICE (DWG) and many responsible eyes, and some bots that detect weird things.

## Three aspects of Openness

— Open Data  
Artifact



— Data literacy  
Knowledge



— Free Software  
Tool



From: Open Knowledge Found  
(Saadya Windhauer)

Two particularities about OSM:

- Low entry barrier for a full Open contribution cycle
- Tackling all three pillars of Openness in an equal amount. (most other projects tend to address some more than others)
- level of collaboration: from craft mappers, to all silicon valley (minus the big G), development agencies, UN and humanitarian organizations like our partners.
- All had to (and had the opportunity to) learn about each of the three aspects.



**Dar es Salaam, Tanzania**

Photo:

Let's look at some more examples and tools:

A lot of humanitarian actions can be done before a catastrophe happens.

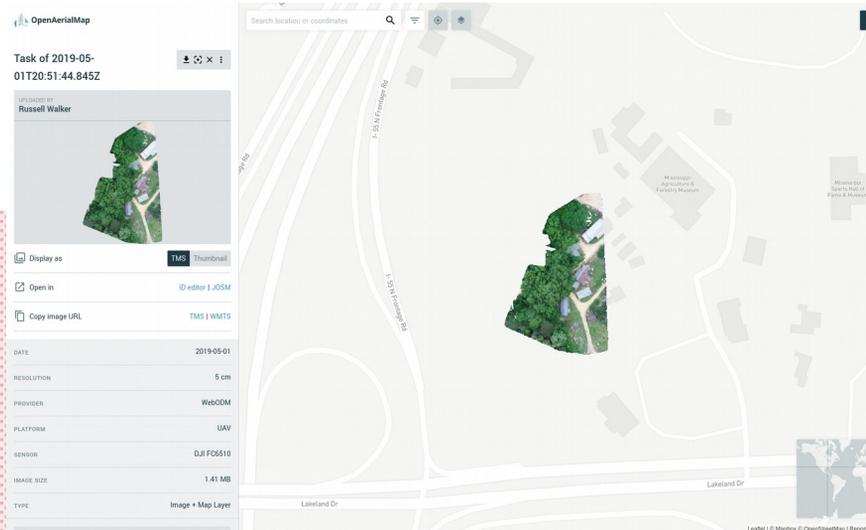
In the city there have been regular floodings and dirty water issues, that have been identified to cause sicknesses for the population.

For them it is essential to guide the water out of their neighbourhoods.

# Open Aerial Map

Collection of open  
aerial images.

[openaerialmap.org](https://openaerialmap.org)



In Dar es Salaam we worked with drone imagery and used the therefore developed tool - Open Aerial Map (and Open Drone Map).

This allows to host and easily use layers obtained from (private or not) airborne imagery

## Dar es Salaam, Tanzania

We trained 160 university students

Photo:

The more we were exciting when these people formalized themselves in an association - Dar Ramani Huria. This is standing on its own and started supporting their neighbourcountry Mozambique.



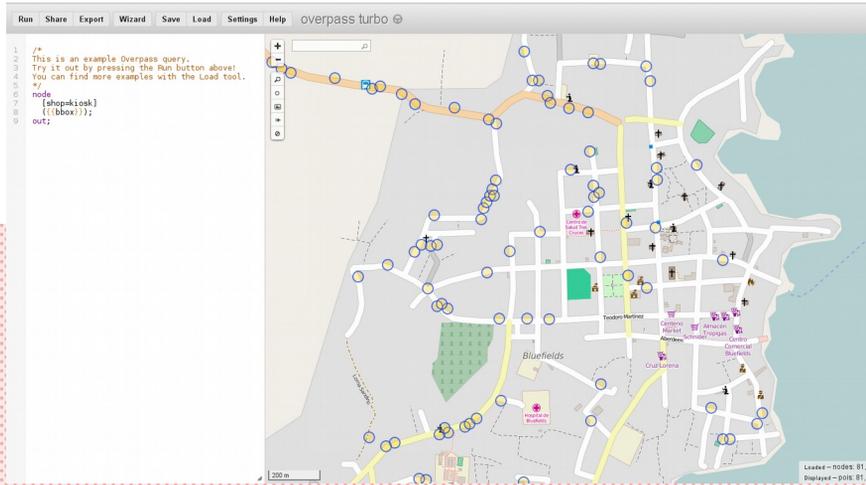
## Dar es Salaam, Tanzania

- This kind of maps have an effect on decision takers and local politicians in a constructive way to implement the needed changes.
- For example the created maps analyses the water situation and propose concrete solutions.
- This is another aspect of local importance, it needs local people to enrich the data and use the maps to do the changes.
- Now authorities in Dar es Salaam are using the maps to improve live for the population in the city and avoid more and more humanitarian incidents.

Foto:H

# Daten export

Query API for geodata



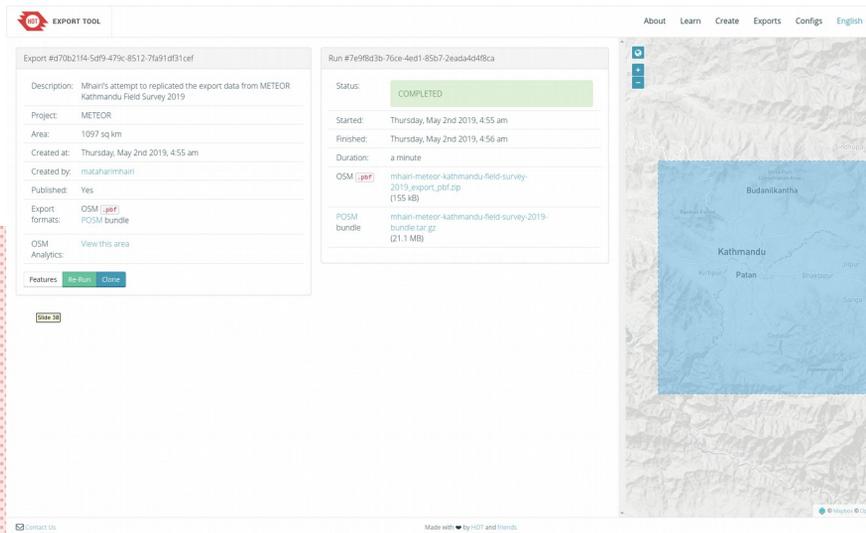
overpass-turbo.eu

# Export Tool

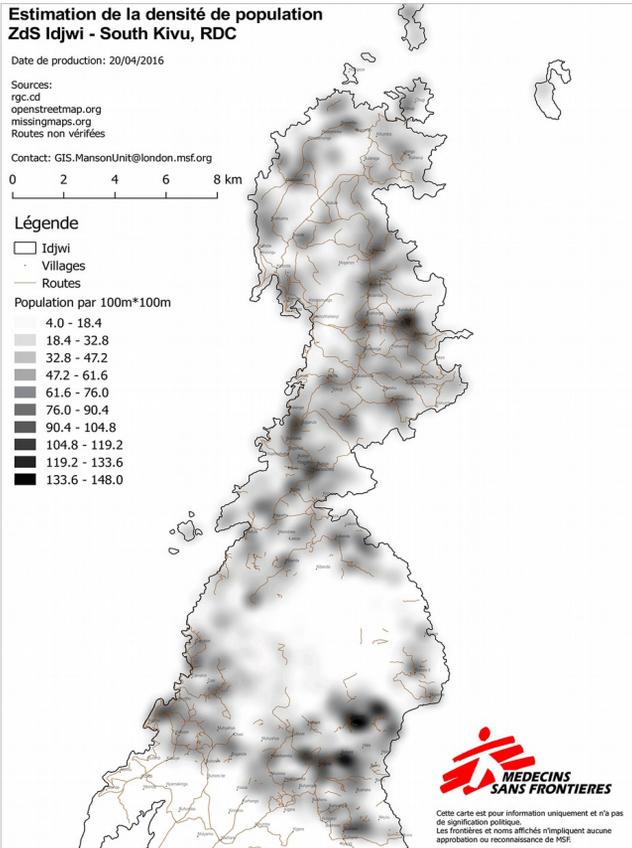
User interface to  
select focus on data  
and export it in usable  
layers.

[export.hotosm.org](https://export.hotosm.org)

Diese Daten, sobald sie aufgenommen sind, können für Humanitäre Hilfe eingesetzt werden.



HOT entwickelte spezielle Werkzeuge, die schnell und flexibel die Daten exportieren lassen, sodass unsere Partner diese für ihre wichtige Arbeit sofort einsetzen können.



Now, three last examples on things that can be done:

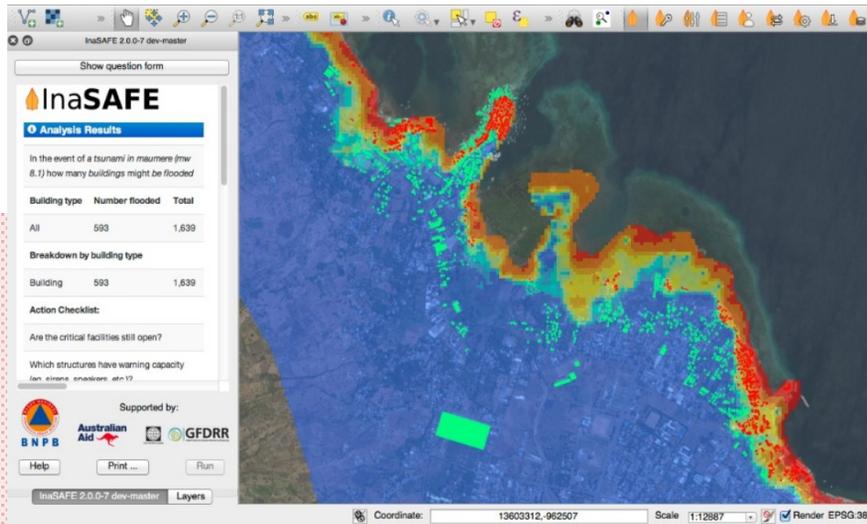
We see doctors (MSF) that used OSM data on buildings to estimate population and coordinate vaccinations.

Thanks to the map, they can calculate how many people are expected to live in certain areas and take adequate amount of vaccination there.

# InaSAFE

Simulations of risk  
scenarios

[inasafe.org](http://inasafe.org)

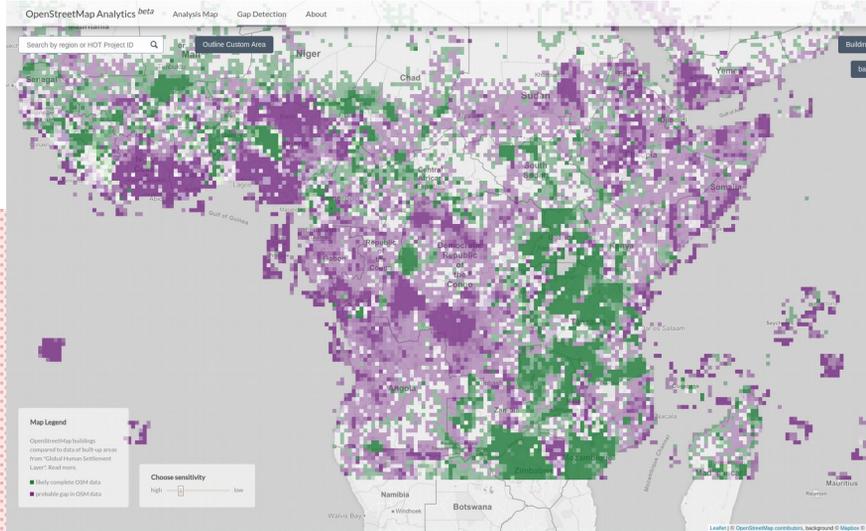


Tsunami in the Philippines.  
Risk scenario simulation.  
Preventive measures before a disaster strikes.

# OSM Analytics

Analysis of changes and gap estimations based on deep learning.

[osm-analytics.org](https://osm-analytics.org)



## OSM Ecosystem

- Uncountable applications and libraries around geographic information and digital maps.
- Some more oriented to tie into OpenStreetMap others for all kind of Geographic Information Systems.



[wiki.openstreetmap.org](http://wiki.openstreetmap.org)

## Interessiert?

- Support mapping!

[tasks.hotosm.org](http://tasks.hotosm.org)

- Learn how to map

[www.learnosm.org](http://www.learnosm.org)

[wiki.openstreetmap.org](http://wiki.openstreetmap.org)

- Mailing list

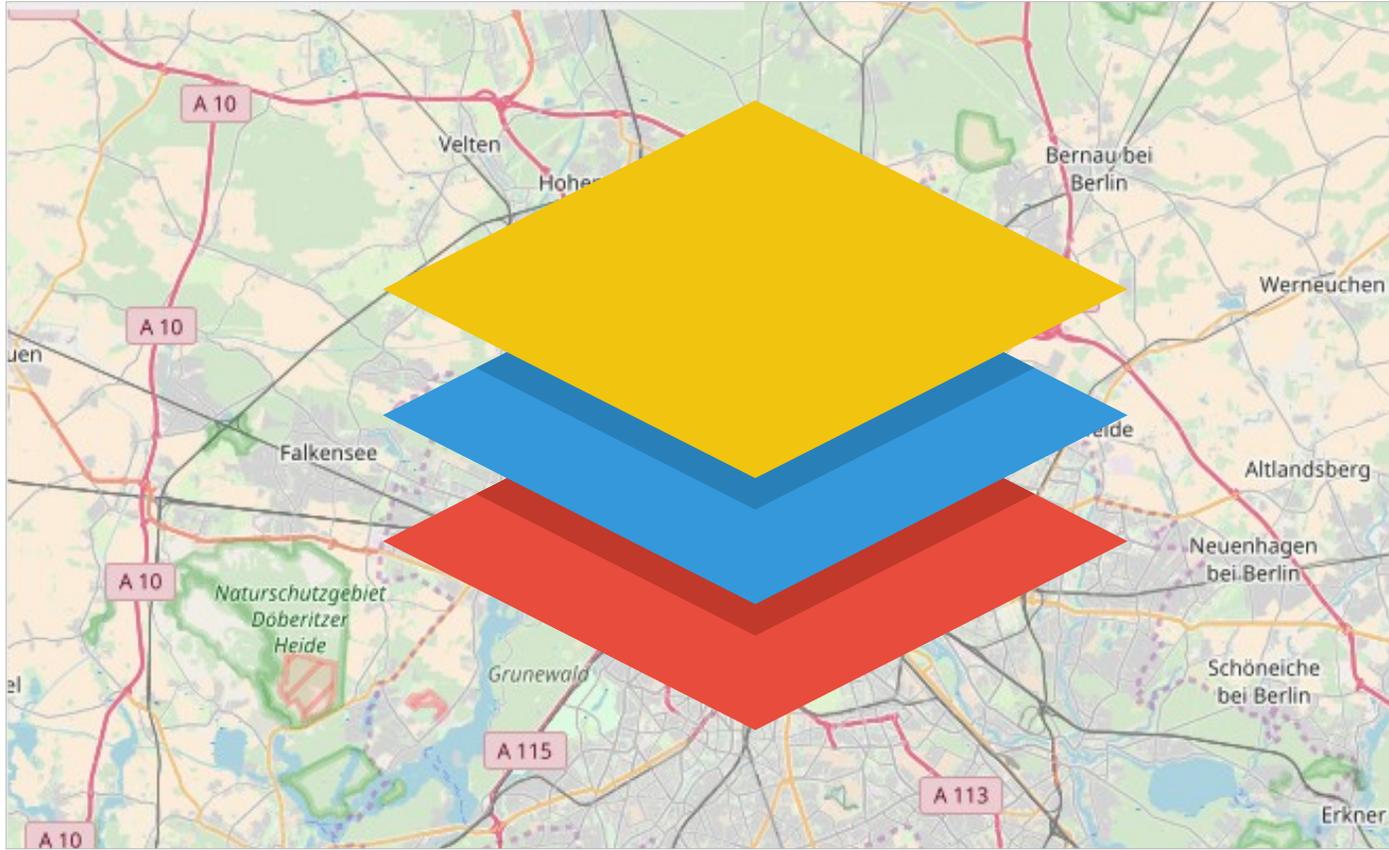
[lists.openstreetmap.org/listinfo/hot](http://lists.openstreetmap.org/listinfo/hot)

- Write me

[felix@delattre.de](mailto:felix@delattre.de)



Open geodata for humanitarian actions by Felix Delattre is licensed under a Creative Commons Attribution-Share Alike 3.0 Unported License.  
<http://www.felix.delattre.de>



# Open Data Kit

Mobile data surveys  
(with or without OSM)

[opendatakit.org](http://opendatakit.org)  
[openmapkit.org](http://openmapkit.org)



Photo: Carl Ha