

# Crowdsourcing Geodata

Looking back on 5 years of



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# *OpenStreetMap*

- Started 5 years ago in the UK
- 150k users today, about 10% of them active
- 1.5bn GPS track points
- 500m objects (roughly edited manually)
- 40 national mailing lists on 6 continents



# *Crowdsourcing*

User generated content



# Crowdsourcing

User generated content



# Crowdsourcing

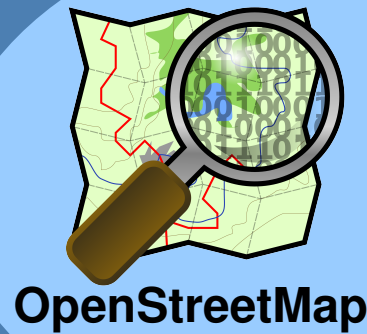
User generated content



Crowdsourcing



Volunteered Geographic Information



Map Share

Wikimapia

# *Crowdsourcing: open / closed*

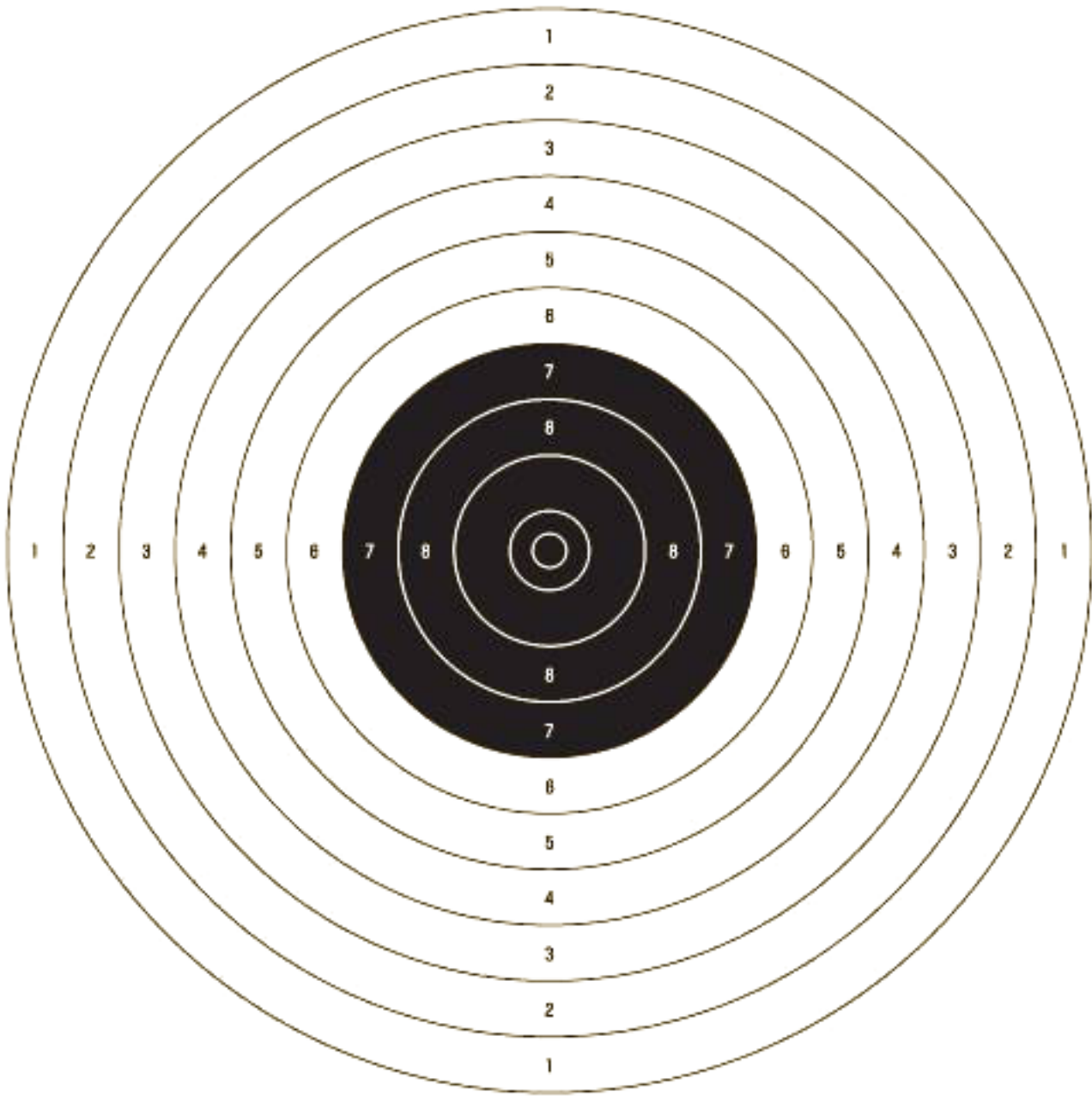
- “closed” crowdsourcing:  
users as cheap labour, controlled by central organisation
- “open” crowdsourcing:  
users as partners and decision makers;  
building a community



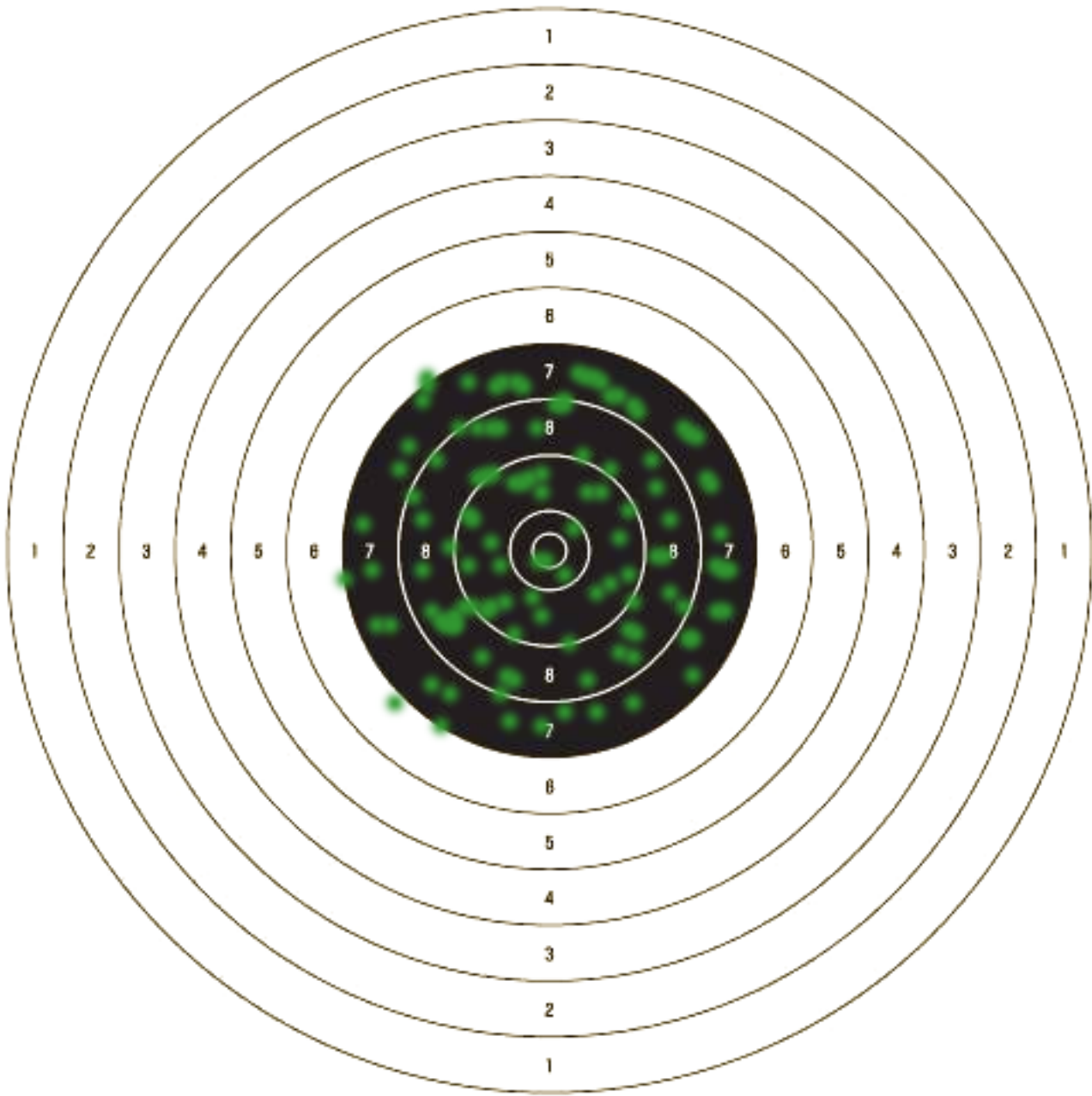
## BAUTEN DES FÜNEJAHRPLANES

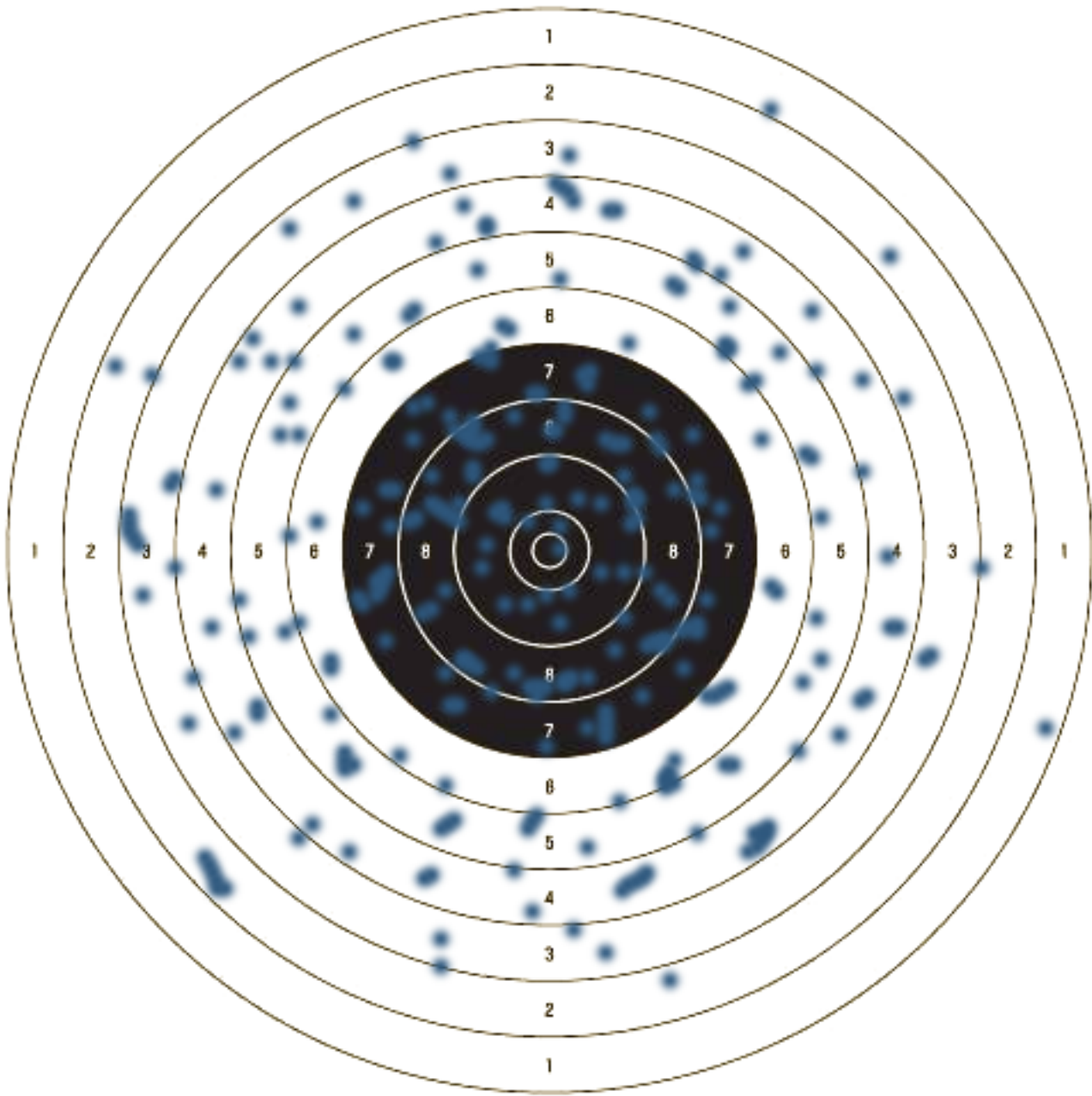


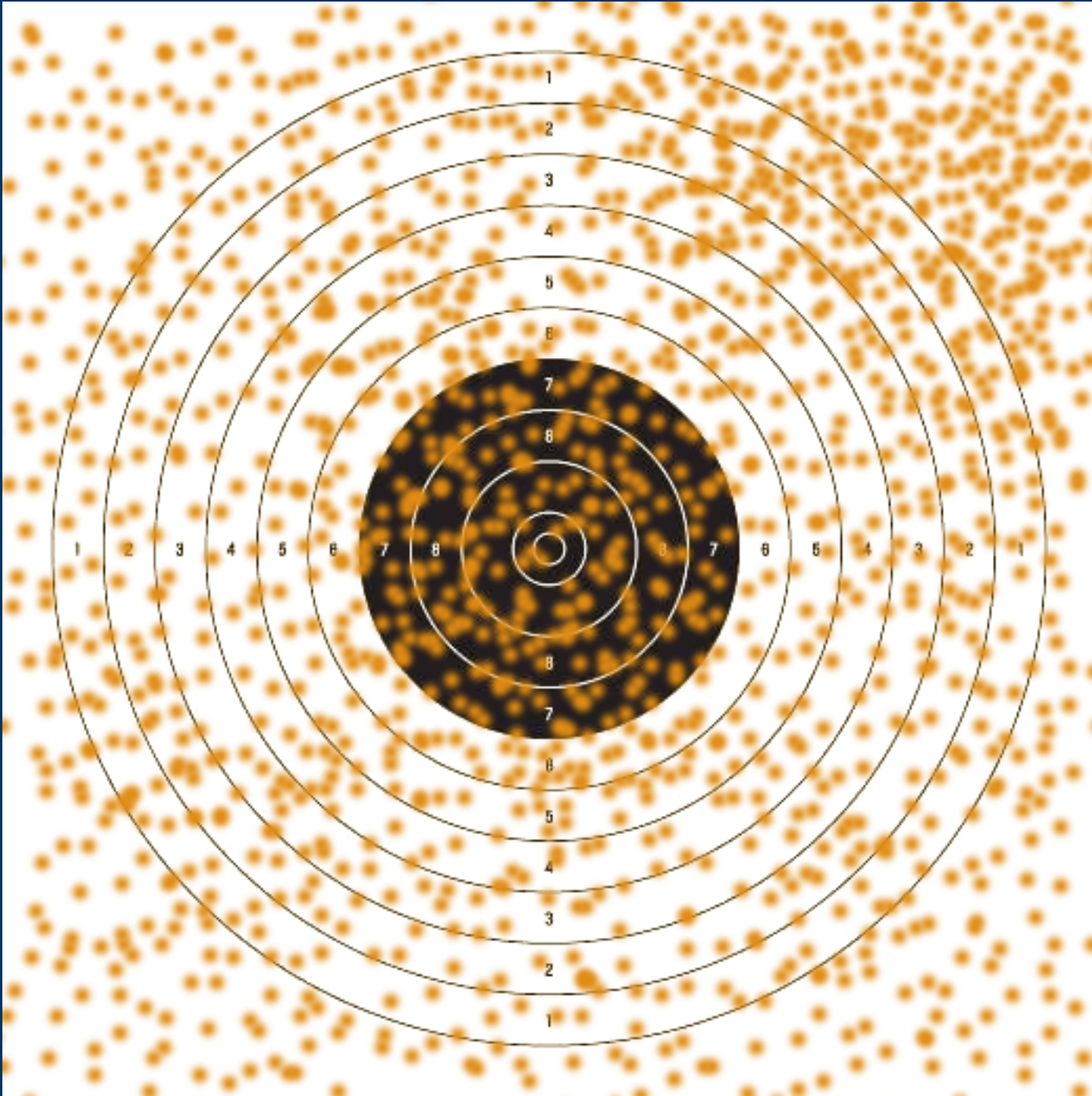
EISENHÜTTENKOMBINAT OST (EKO)  
Aus sowjetischem Erz und polnischer Kohle  
wird deutscher Friedensstahl

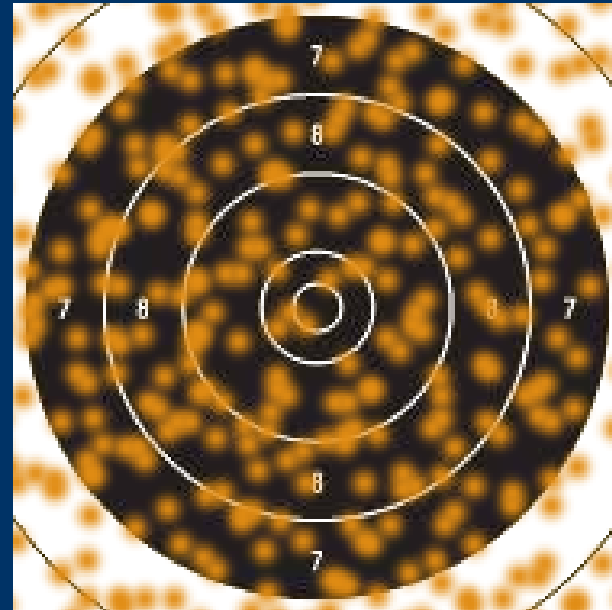
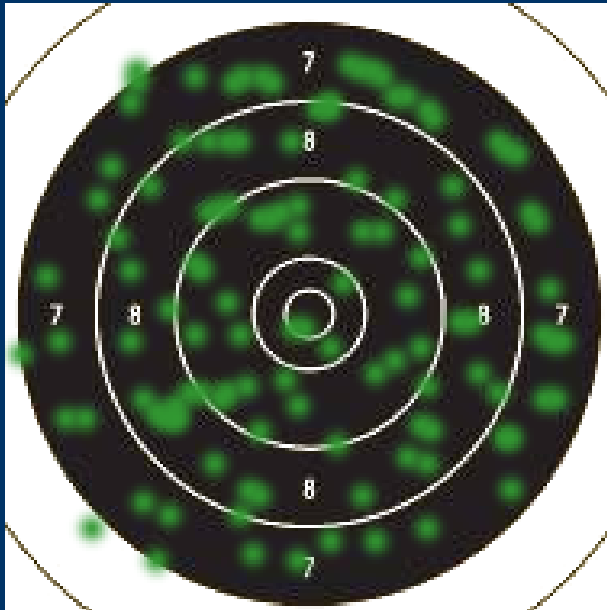












*What  
motivates  
150.000 people?*



OpenStreetMap | Way | Nile Road (695) - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.openstreetmap.org/browse/way/695

Most Visited Smart Bookmarks The Mozilla Organiz... Latest Builds Up-to-Date Anwenden

View Edit History Export GPS Traces User Diaries [log in](#) | [sign up](#)

## Way: Nile Road (695)


< 694 | 696 >

**Edited at:** Fri, 03 Oct 2008 16:16:19 +0000  
**Edited by:** [Shepard](#)  
**Version:** 2  
**In changeset:** [47628](#)

**Tags:**  
 bicycle = yes  
 created\_by = Potlatch 0.10c  
 foot = yes  
 highway = residential  
 horse = yes  
 motorcar = yes  
 name = Nile Road

**Nodes:** [388865](#) (also part of way [Omdurman Road \(1673\)](#))  
[388866](#) (also part of way [Highfield Lane \(8125305\)](#))

[Download XML](#) | [view history](#) | [edit](#)



[View area on larger map](#)  
[View way on larger map](#)

**OpenStreetMap**  
 The Free Wiki World Map


OpenStreetMap is a free editable map of the whole world. It is made by people like you.

OpenStreetMap allows you to view, edit and use geographical data in a collaborative way from anywhere on Earth.

OpenStreetMap's hosting is kindly supported by the [UCL VR Centre](#) and [bytemark](#).

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Done





OpenStreetMap Statistics - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.openstreetmap.org/stats/data\_stats.html

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## Number of users editing over the past...

Data Type Day Week Month

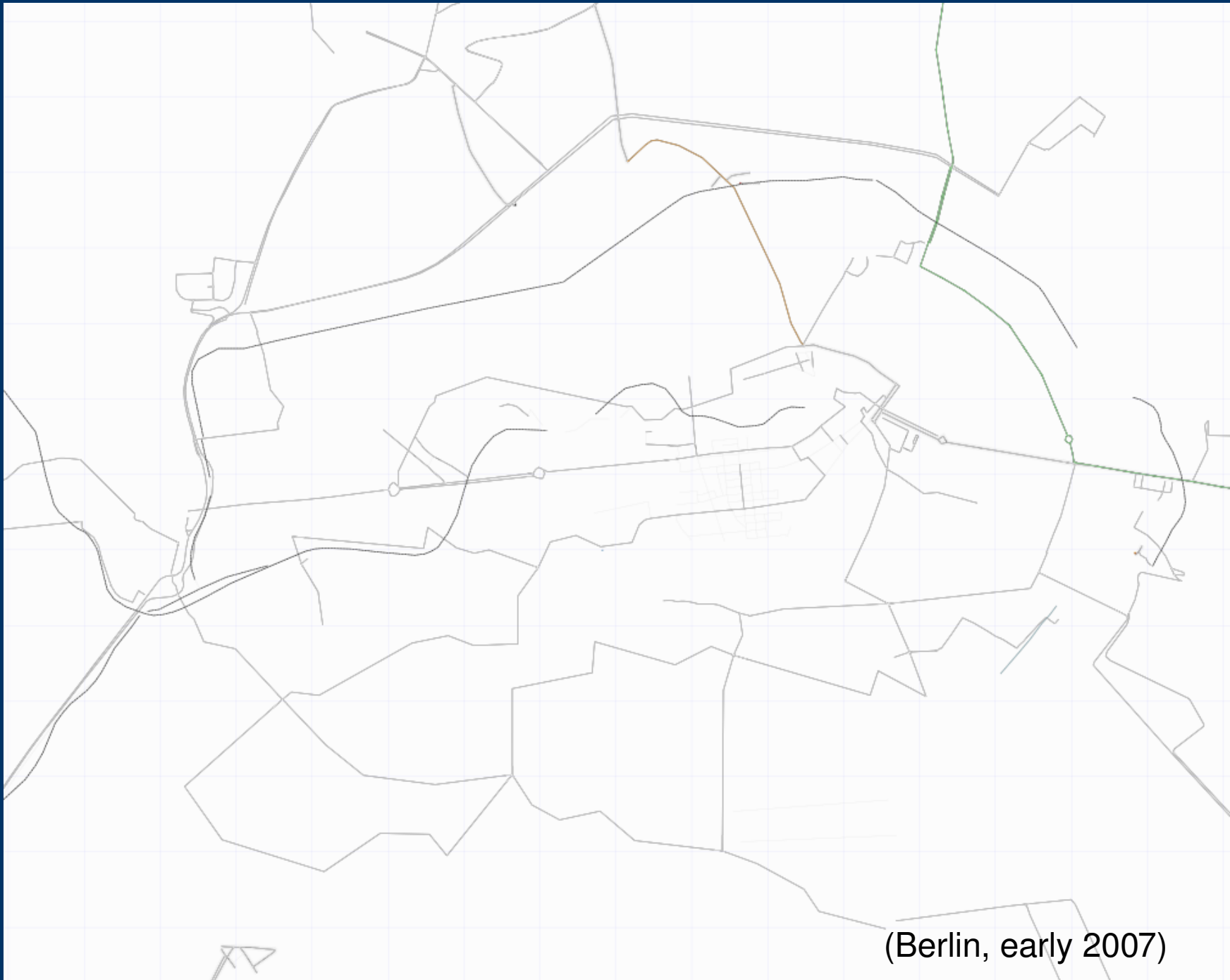
GPX Files	368	1780	4563
Nodes	1544	5551	12604

## Top users editing over the past...

Day	Week	Month
1246724 <a href="#">woodpeck_fixbot</a>	8935314 <a href="#">woodpeck_fixbot</a>	32528440 <a href="#">woodpeck_fixbot</a>
336597 <a href="#">jumbanho</a>	2074652 <a href="#">jumbanho</a>	8490532 <a href="#">jumbanho</a>
237405 <a href="#">NJDataUploads</a>	1053080 <a href="#">MikeNBulk</a>	1761524 <a href="#">MikeNBulk</a>
196977 <a href="#">SK53_bulk</a>	699379 <a href="#">NJDataUploads</a>	1427074 <a href="#">Yan Morin</a>
48536 <a href="#">ChucklinMonkey</a>	476551 <a href="#">SK53_bulk</a>	796269 <a href="#">NJDataUploads</a>
41196 <a href="#">nemmer</a>	367929 <a href="#">rw__</a>	742605 <a href="#">SK53_bulk</a>
21625 <a href="#">yellowbkpk</a>	306895 <a href="#">geobase_stevens</a>	731141 <a href="#">TIGERcnl</a>
20617 <a href="#">Bilbo</a>	188389 <a href="#">Bilbo</a>	443588 <a href="#">rw__</a>
18917 <a href="#">Apo42</a>	86796 <a href="#">green525</a>	306895 <a href="#">geobase_stevens</a>
16043 <a href="#">PHerison</a>	82489 <a href="#">woodpeck_repair</a>	276425 <a href="#">alexrudd (NHD)</a>
15622 <a href="#">katpatuka</a>	74117 <a href="#">nemmer</a>	242542 <a href="#">Apo42</a>
14255 <a href="#">geobase_fsteggink</a>	73660 <a href="#">ChucklinMonkey</a>	241120 <a href="#">katpatuka</a>
13848 <a href="#">iizio</a>	72921 <a href="#">Apo42</a>	204614 <a href="#">Bilbo</a>
12088 <a href="#">mk67</a>	66269 <a href="#">katpatuka</a>	204264 <a href="#">nadena</a>
11007 <a href="#">...</a>	52501 <a href="#">...</a>	174014 <a href="#">iizio</a>

http://www.openstreetmap.org/user/pfoten-weg





(Berlin, early 2007)



Map Compare | Geofabrik Tools - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://tools.geofabrik.de/mc/

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# Map Compare

Help GEOFABRIK tools Switch tool...

Choose map type: OSM Mapnik Choose map type: Google (Map)

The image shows a side-by-side comparison of two maps of Tórshavn, Faroe Islands. The left map is OSM Mapnik, showing detailed street layouts, green spaces, and various colored road types. The right map is Google (Map), showing a much simpler, less detailed view of the same area. The OSM map includes labels for streets like Sundsvegur, Eystan Ringvegur, and Tórshavn, as well as landmarks like Hoyvik. The Google map shows the coastline and the city name Tórshavn. A zoom level of 13 is indicated at the bottom right.

zoom=13 [Permalink](#)

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Done



User:Lambertus - OpenStreetMap - Mozilla Firefox

File Edit View History Bookmarks Tools Help


http://wiki.openstreetmap.org/wiki/User:Lambertus

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## Things to do

- Downloading OSM data using the OSM webserver (through the API) seems to result in only partial data retrieval. So the best results were made using the file import function, though it is less user friendly.
- Importing the 800kb osm file required almost 900MB RAM, so the code needs to be tweaked before entire countries can be imported properly.
- Reviewing the RoadNav code shows heavy use of the [double data type](#) for storing the coordinates and calculations. This will be a show stopper for RoadNav if it has ambitions to run on embedded devices like PDA's. These devices mostly use ARM (like) processors which are almost always FPU-less. Rewriting the code to use 32bit integers for handling coordinates will be a priority. Converting to integers will probably be beneficial to the performance of the desktop/server version as well and should reduce the amount of memory required for storing the coordinates by half.
- Allow different views on the data to allow car- or cycle centric navigation.

## MegaStar



Lambertus is awarded a MegaStar for uploading one million track points.

Categories: [Users in the Netherlands](#) | [Users in Gelderland](#) | [Users in Apeldoorn](#) | [MegaStar recipients](#)

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Done





# *People*



# *People*

- worker bees



# *People*

- worker bees
- mayflies



# *People*

- worker bees
- mayflies
- professionals



# *People*

- worker bees
- mayflies
- professionals
- ideologues





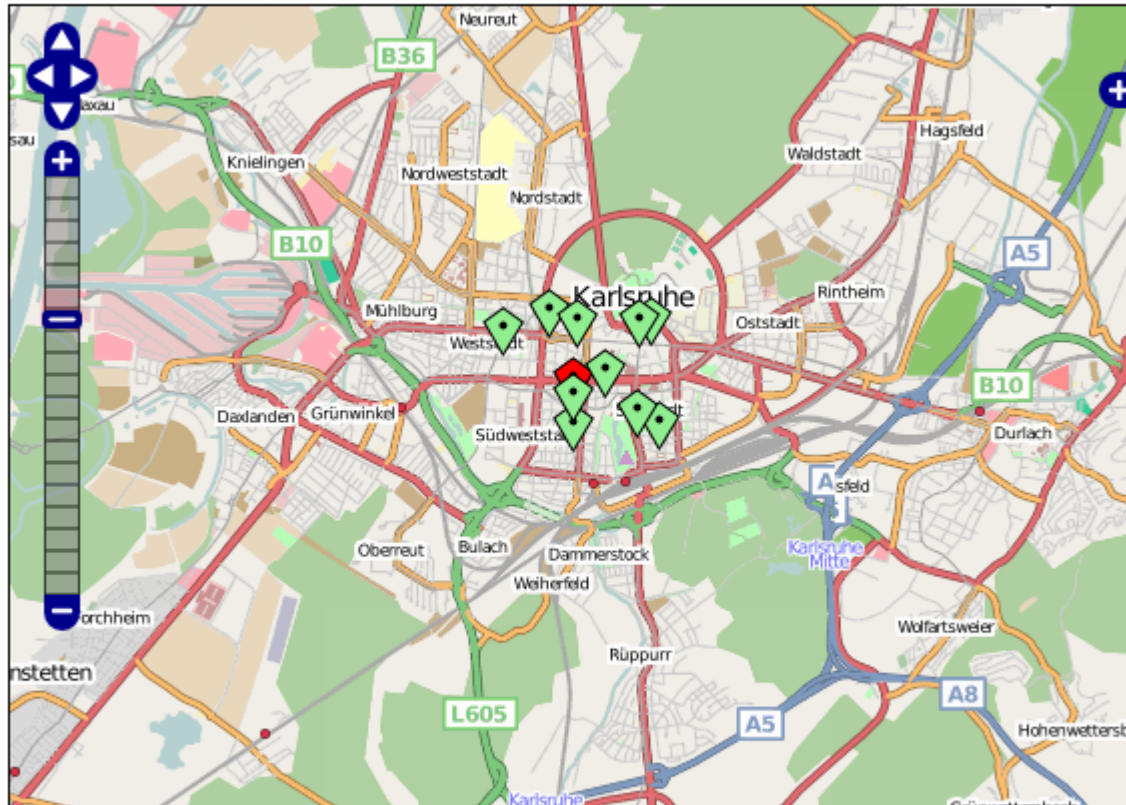


# *People have different...*

- technical skills
- thematic expertise
- patience and endurance
- social behaviour
- ...

# Community Care

## Nearby users:



yamduc	0km away ( <a href="#">send message</a> )
Helmut	0km away ( <a href="#">send message</a> )
SlowRider	1km away ( <a href="#">send message</a> )



# Community Care

Event Calendar <sup>+/-</sup>		
Recent big events: <a href="#">SOTM</a> , <a href="#">AGM</a> & <a href="#">5th Anniversary</a>		
<b>2009</b>		
	Sep 3	<a href="#">Stammtisch Dresden, Germany</a>
	Sep 3	<a href="#">Lübecker Mappertreffen, Germany</a> (1st Thursday of each month)
	Sep 4	<a href="#">Stammtisch Essen, Germany</a>
	Sep 5	<a href="#">Mini-Mapping and OSM Birthday Party, Stockholm</a> <a href="#">↗</a> <a href="#">Sweden</a>
MAP	Sep 5	<a href="#">First Romanian Mapping Party</a> <a href="#">↗</a> <a href="#">Buzău, Romania</a>
MAP	Sep 5	<a href="#">Santiago Mapping Party, Santiago, Chile</a>
	Sep 6	<a href="#">Mappertreffen Dortmund, Germany</a>
	Sep 7	<a href="#">Rostocker Treffen, Germany</a>
CONF	Sep 7-9	Several OSM presenters at <a href="#">Society of Cartographers</a> <a href="#">↗</a> , <a href="#">Southampton, UK</a>
	Sep 8	<a href="#">Hamburger Mappertreffen, Germany</a>
	Sep 9	<a href="#">6. Wiener Stammtisch, Austria</a>
	Sep 10	<a href="#">Stammtisch Berlin, Germany</a>
	Sep 11	<a href="#">2. Innsbrucker Usertreffen, Austria</a>
MAP	Sep 12	<a href="#">Washington D.C. (Mapping the National Zoo)</a>

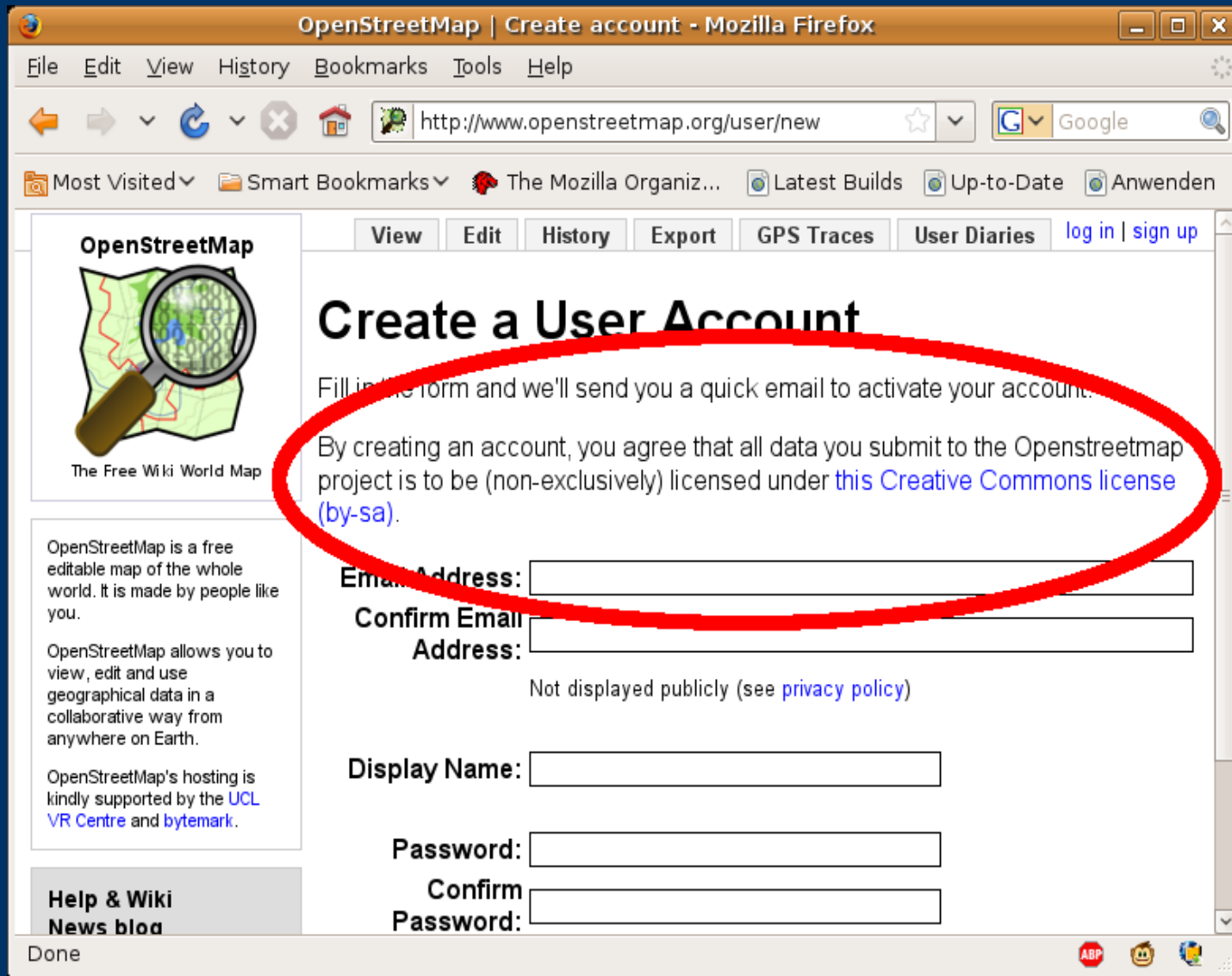
# Who owns the project?

The screenshot shows a Mozilla Firefox browser window titled "Index of / - Mozilla Firefox". The address bar contains the URL "http://planet.openstreetmap.org/". The browser's menu bar includes "File", "Edit", "View", "History", "Bookmarks", "Tools", and "Help". The toolbar shows navigation buttons (back, forward, home, stop, refresh) and a search engine dropdown set to "Google". Below the toolbar, there are "Most Visited", "Smart Bookmarks", and "The Mozilla Organiz..." sections. The main content area displays a list of files with columns for file names, dates, times, and sizes. The files are listed in descending order of size.

File Name	Date	Time	Size
<a href="#">planet-090701.osm.bz2.md5</a>	01-Jul-2009	14:26	56
<a href="#">planet-090708.osm.bz2</a>	09-Jul-2009	06:33	6.2G
<a href="#">planet-090708.osm.bz2.md5</a>	09-Jul-2009	06:53	56
<a href="#">planet-090722.osm.bz2</a>	23-Jul-2009	02:12	6.3G
<a href="#">planet-090722.osm.bz2.md5</a>	23-Jul-2009	03:00	56
<a href="#">planet-090729.osm.bz2</a>	29-Jul-2009	13:49	6.4G
<a href="#">planet-090729.osm.bz2.md5</a>	29-Jul-2009	14:33	56
<a href="#">planet-090805.osm.bz2</a>	05-Aug-2009	14:19	6.5G
<a href="#">planet-090805.osm.bz2.md5</a>	05-Aug-2009	14:44	56
<a href="#">planet-090819.osm.bz2</a>	19-Aug-2009	16:37	6.6G
<a href="#">planet-090819.osm.bz2.md5</a>	19-Aug-2009	17:08	56
<a href="#">planet-090826.osm.bz2</a>	27-Aug-2009	06:27	6.7G
<a href="#">planet-090826.osm.bz2.md5</a>	27-Aug-2009	06:43	56
<a href="#">planet-090902.osm.bz2</a>	03-Sep-2009	03:14	6.7G
<a href="#">planet-090902.osm.bz2.md5</a>	03-Sep-2009	03:44	56
<a href="#">planet-latest.osm.bz2</a>	03-Sep-2009	03:14	6.7G
<a href="#">planet-latest.osm.bz2.md5</a>	03-Sep-2009	03:45	56

The status bar at the bottom shows "Done" and several icons including "ABP", "B", and "G".

# Who owns the project?



OpenStreetMap | Create account - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.openstreetmap.org/user/new

Most Visited Smart Bookmarks The Mozilla Organiz... Latest Builds Up-to-Date Anwenden

View Edit History Export GPS Traces User Diaries log in | sign up

## Create a User Account

Fill in the form and we'll send you a quick email to activate your account.

By creating an account, you agree that all data you submit to the Openstreetmap project is to be (non-exclusively) licensed under [this Creative Commons license \(by-sa\)](#).

Email Address:

Confirm Email Address:


Not displayed publicly (see [privacy policy](#))

Display Name:

Password:

Confirm Password:

OpenStreetMap



The Free Wiki World Map

OpenStreetMap is a free editable map of the whole world. It is made by people like you.

OpenStreetMap allows you to view, edit and use geographical data in a collaborative way from anywhere on Earth.

OpenStreetMap's hosting is kindly supported by the [UCL VR Centre](#) and [bytemark](#).

Help & Wiki  
News blog

Done

# Quality and control

The Information Freeway :: A map of the planet - Iceweasel

File Edit View History Bookmarks Tools Help

http://informationfreeway.org/ Google

Disable CSS Forms Images Information Miscellaneous Outline Resize Tools

Beuthener Straße  
Hagsfeld  
Karlshuter Straße  
Brückenstraße  
Herdweg  
A5  
B3

Permalink

Render requests At zoom 12: r=render, i=info, l=land, s=sea, x=mixed. At zoom 8: r=render.

Lat: 49.0363 Lon: 8.4807 Zoom: 14

Done



## *... all in a nutshell:*

- no hurdles for joining
- user = stakeholder – relinquish control
- assume good faith
- “instant reward”
- patience







[www.openstreetmap.org](http://www.openstreetmap.org)  
[www.geofabrik.de](http://www.geofabrik.de)

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