

OpenStreetMap

Ateliê Vertical – FURB – 10/05/2017

Cássio R. Eskelsen





O OpenStreetMap (OSM) não é propriamente um mapa, mas uma **base de dados VETORIAIS georreferenciados**. A maior do mundo em dados abertos.

Estes dados, então, normalmente são exibidos sob a forma de mapas web, aplicativos mobile, sites específicos de um assunto, etc

Status do OSM em 10/05/2017



Usuários	3.734.921
Pontos de GPS enviados	5.672.943.790
Nós cadastrados	3.877.630.703
Vias cadastradas	410.573.451

É bom?

Map Compare

blumenau

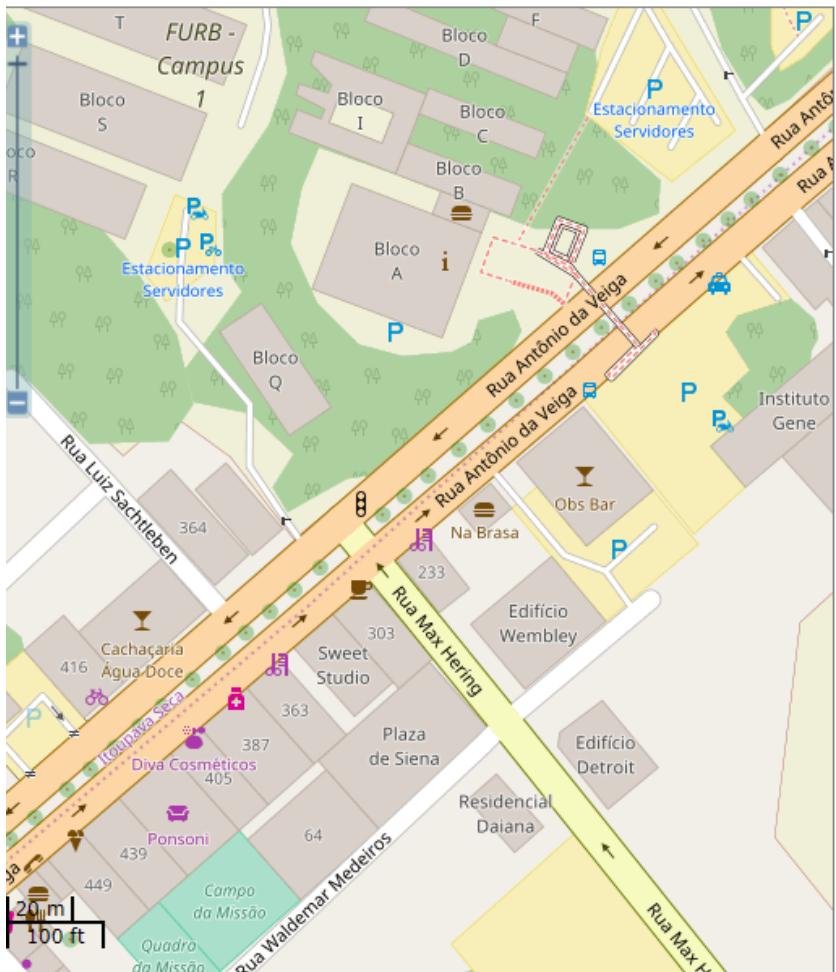
search



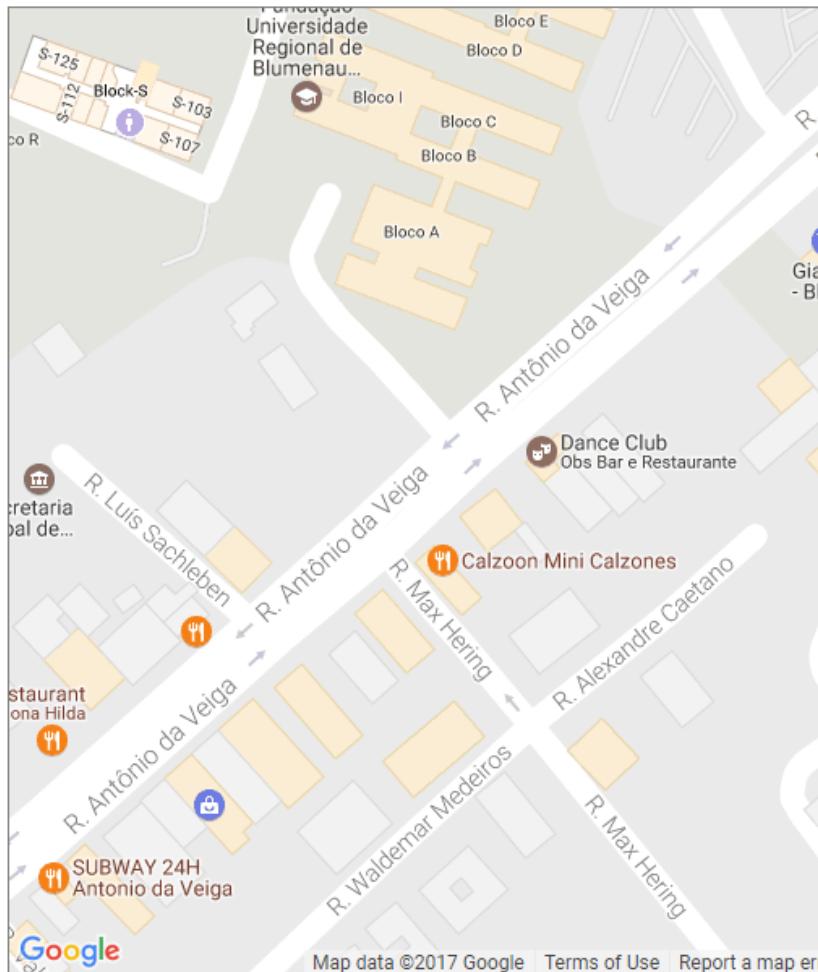
GEOFABRIK[®] tools

Switch tool...

Choose map type: OSM Carto



Choose map type: Google Map



Map data ©2017 Google Terms of Use Report a map error

zoom=18 number of maps: 1 2 3 4 5

All maps except Bing/Google/HERE based on OSM data. © OpenStreetMap (Licence: ODbL 1.0). OSM Tiles licensed CC BY SA 2.0. help contact full screen

EXEMPLOS DE WEB MAPAS COM OSM



<http://www.openstreetmap.org>

OpenStreetMap

Buscar Onde estou? Ir

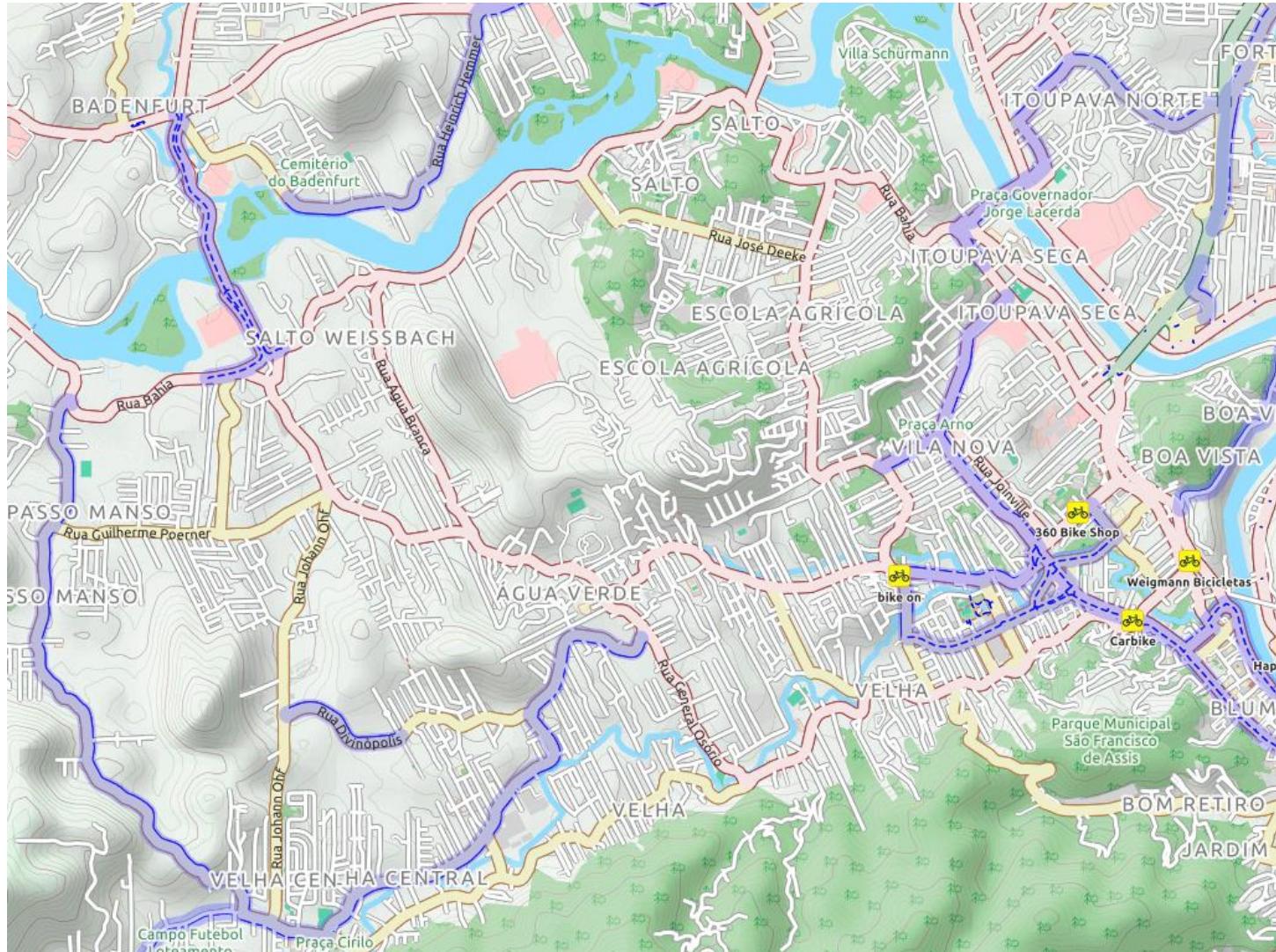
Editar Histórico Exportar

This screenshot shows a detailed OpenStreetMap of the city of Blumenau, Brazil. The map features a dense network of streets in orange and yellow, with green areas representing parks and water bodies. Various neighborhoods are labeled, such as Vila Nova, Itoupava Norte, Fortaleza, Boa Vista, Ponta Aguda, and Blumenau. Rivers like Rio Itajaí-Açu and Ribeirão Jaraíba are shown. The interface includes a search bar at the top left, a location status bar with 'Onde estou?' and 'Ir' buttons, and standard map controls. The bottom of the map shows a legend with symbols for buildings, roads, and other geographical features.

EXEMPLOS DE WEB MAPAS COM OSM



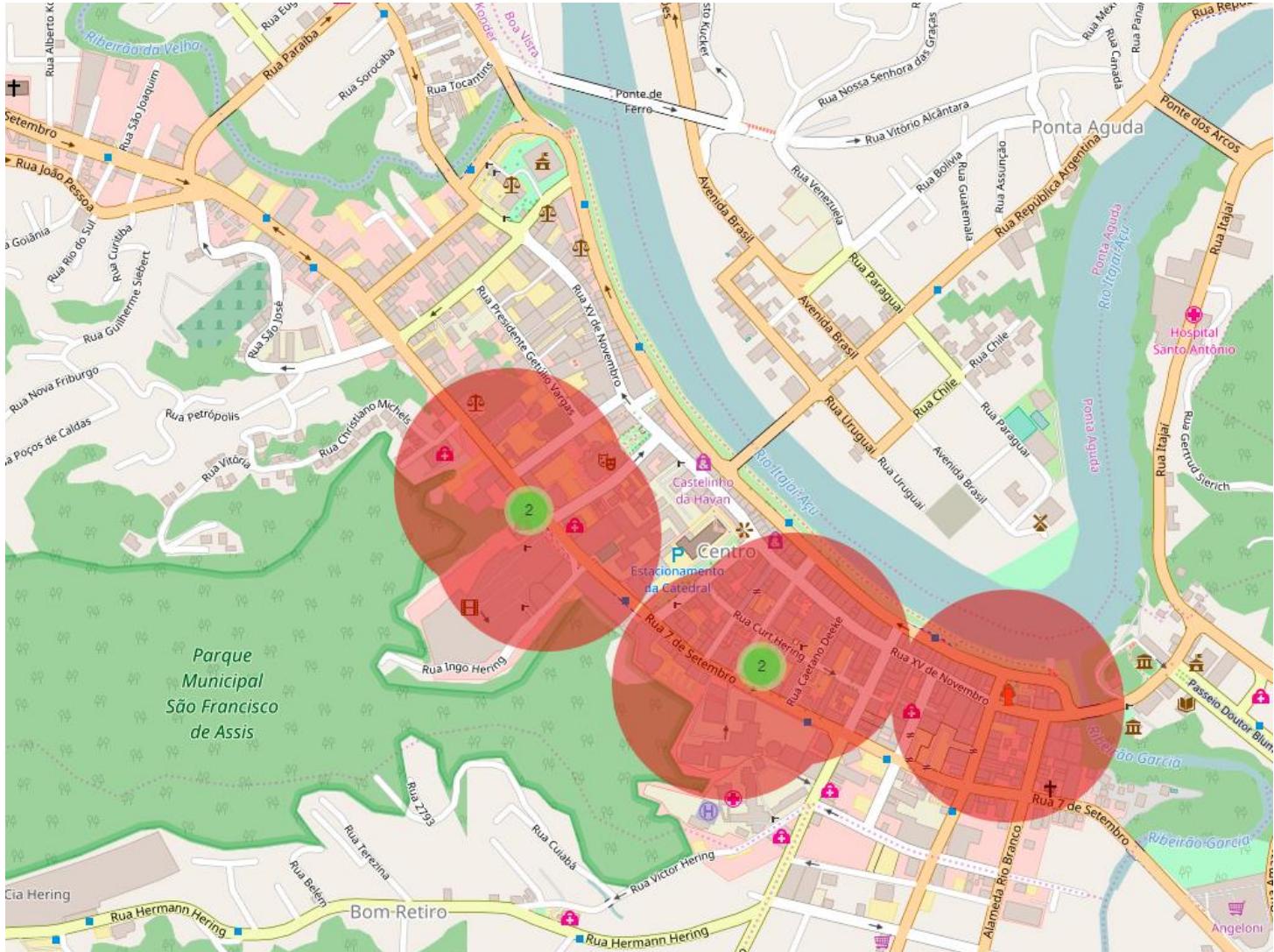
<https://www.opencyclemap.org>



EXEMPLOS DE WEB MAPAS COM OSM



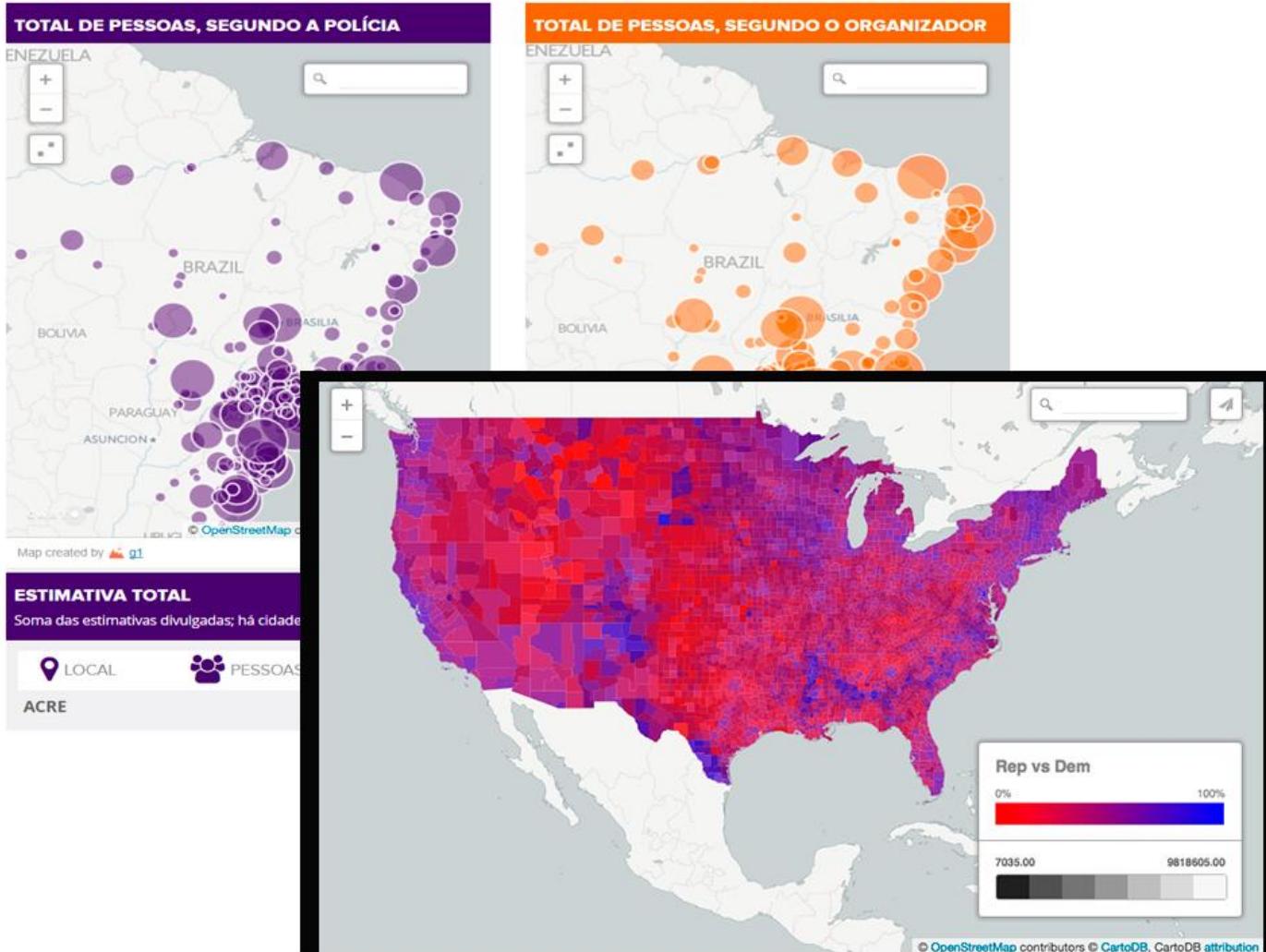
<https://www.osmhydrant.org>



EXEMPLOS DE WEB MAPAS COM OSM



● ATO CONTRA DILMA



EXEMPLOS DE WEB MAPAS COM OSM



<http://demo.f4map.com>



EXEMPLOS DE WEB MAPAS COM OSM



<https://www.hotosm.org/>

The image shows a split-screen comparison of two versions of an OpenStreetMap map of Tacloban, Philippines. The left side, labeled "BEFORE", depicts the city's street network and landmarks as they were prior to the disaster. The right side, labeled "AFTER", shows the same area after Hurricane Haiyan, with significant portions of the city reduced to rubble, indicated by red X marks and destroyed buildings. The map includes labels for major streets like Jones, Lopez Jaena, and Paterno, along with various buildings and landmarks. A legend at the top right of the "AFTER" map indicates different colors for roads (orange, yellow, green) and other features.

BEFORE

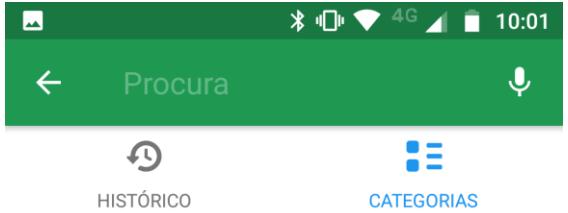
Furacão Haiyan
Filipinas, 2013

AFTER

Leaflet | Map Data & Map Image © OpenStreetMap Contributors. CC BY-SA 2.0, tile by Paul Norman, hosted on Mapbox

Leaflet | Map Data & Map Image © OpenStreetMap Contributors. CC BY-SA 2.0

APLICATIVO BASEADO NO OSM



HISTÓRICO

CATEGORIAS



Alimentação



Hotel



Vistas



WiFi



Transporte



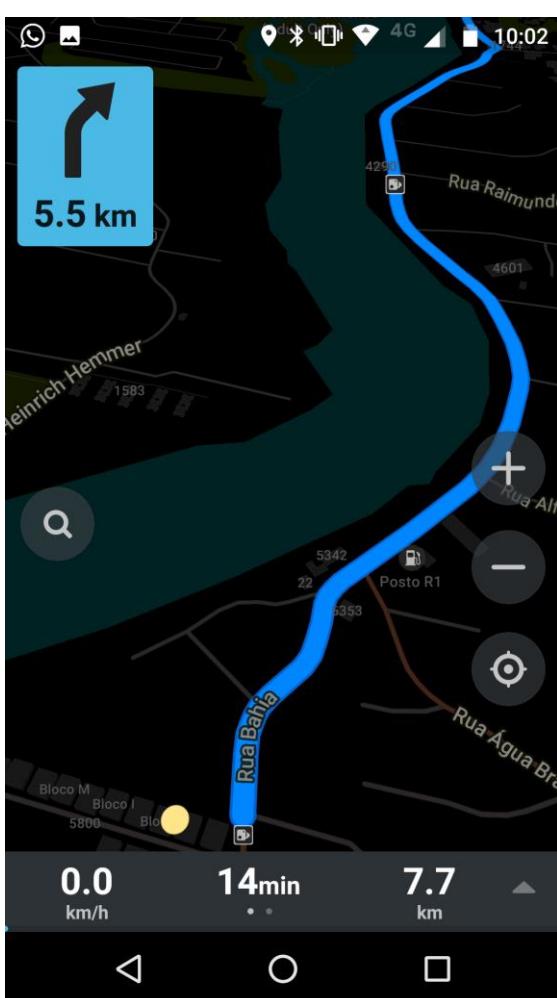
Combustível

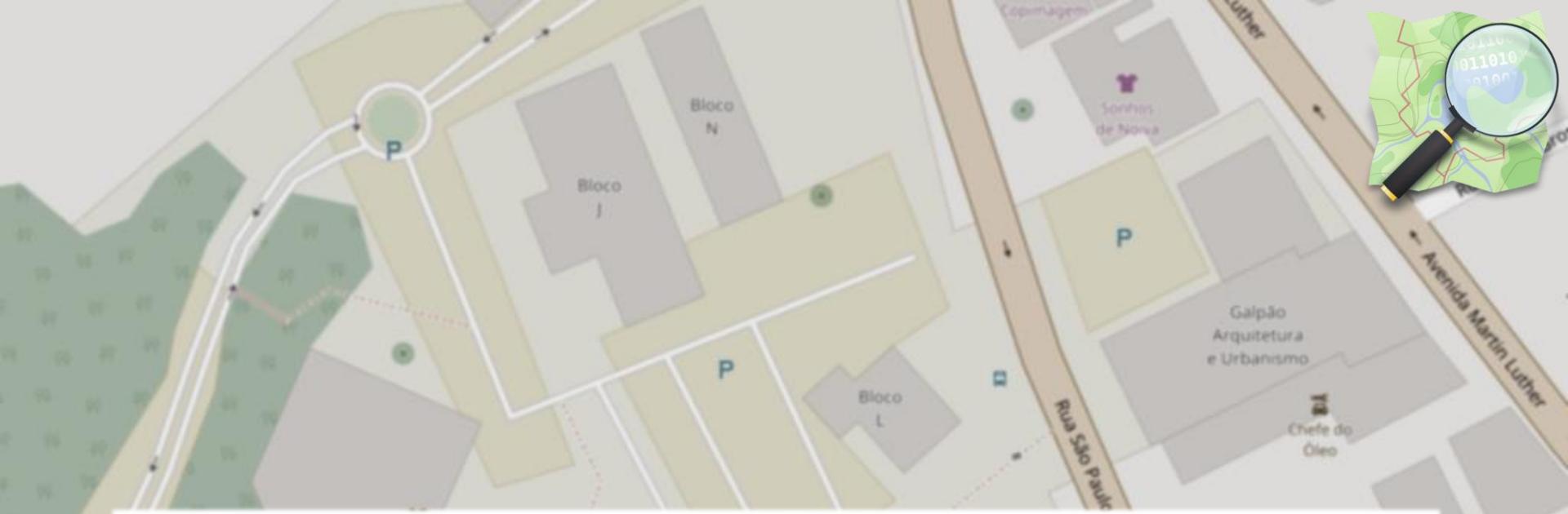


Estacionamento



Compras





Como usar os dados do OSM?



FONTES DE DADOS DO OSM



<http://www.openstreetmap.org/export>

map_furb.osm - Bloco de notas

Arquivo Editar Formatar Exibir Ajuda

```
<?xml version="1.0" encoding="UTF-8"?><osm version="0.6" generator="CGIosm 0.6.0 (20810 thorn-02.openstreetmap.org)" copyright="8901067" lon="-49.0821734"/> <node id="95933562" visible="true" version="6" changeset="36942455" timestamp="2016-02-01T18:16:06" lon="26.8802204" lon="-49.0876803"/> <node id="95934402" visible="true" version="4" changeset="9130441" timestamp="2011-08-26T15:05:lon="-49.0592213"/> <node id="95935601" visible="true" version="4" changeset="9130441" timestamp="2011-08-26T15:05:38Z" user="J0953028"/> <node id="95936825" visible="true" version="3" changeset="2112473" timestamp="2009-08-11T21:00:48Z" user="Andre68" u74143"/> <node id="95938108" visible="true" version="3" changeset="7295776" timestamp="2011-02-15T15:18:33Z" user="André Alvare076325"/> <node id="95939307" visible="true" version="3" changeset="7295776" timestamp="2011-02-15T15:18:32Z" user="André Alvaren=-49.0596106"/> <node id="95941415" visible="true" version="3" changeset="7295776" timestamp="2011-02-15T15:18:35Z" user="And=-49.0961811"/> <node id="95942837" visible="true" version="3" changeset="6866293" timestamp="2011-01-04T21:45:55Z" user="delt.0883647"/> <node id="95944036" visible="true" version="3" changeset="6866293" timestamp="2011-01-04T21:45:55Z" user="deltabras659"/> <node id="95944530" visible="true" version="3" changeset="36725022" timestamp="2016-01-21T17:39:21Z" user="adrianojbr" u63549"/> <node id="95945102" visible="true" version="3" changeset="9765815" timestamp="2011-11-07T15:38:34Z" user="DrSeuthberg"81856"/> <node id="95945656" visible="true" version="3" changeset="7295776" timestamp="2011-02-15T15:18:33Z" user="André Alvare-49.0996519"/> <node id="95946835" visible="true" version="2" changeset="14195622" timestamp="2012-12-08T04:20:44Z" user="dbuss"-49.0894724"/> <node id="95947562" visible="true" version="2" changeset="9765815" timestamp="2011-11-07T15:38:38Z" user="DrSeu"-49.0881914"/> <node id="656516450" visible="true" version="8" changeset="32012834" timestamp="2015-06-16T18:21:32Z" user="adroision="10" changeset="45191046" timestamp="2017-01-15T14:10:32Z" user="adrianojbr" uid="2339960" lat="-26.9071005" lon="-49.0787lat="-26.9115635" lon="-49.0718240"/> <tag k="public_transport" v="stop_position"/> </node> <node id="660065825" visible="true"828" timestamp="2016-09-18T03:17:07Z" user="adrianojbr" uid="2339960" lat="-26.9065279" lon="-49.0750106"/> <node id="660065851angeset="31651920" timestamp="2015-06-02T01:01:52Z" user="adrianojbr" uid="2339960" lat="-26.9078685" lon="-49.0756664"/> <node834" timestamp="2015-06-16T18:21:31Z" user="adrianojbr" uid="2339960" lat="-26.9106886" lon="-49.0823456"/> <node id="663137011drianojbr" uid="2339960" lat="-26.9102507" lon="-49.0819694"/> <node id="663137020" visible="true" version="4" changeset="316528:19Z" user="adrianojbr" uid="2339960" lat="-26.9120254" lon="-49.0701189"/> <node id="663137054" visible="true" version="3" champ="2016-04-23T04:01:34Z" user="André Alvarenga" uid="94659" lat="-26.9034994" lon="-49.0773374"/> <node id="663137065" visible=_ref" v="zebra"/> <tag k="direction" v="forward"/> <tag k="highway" v="crossing"/> <tag k="side" v="up"/> <tag k="supervise820796" timestamp="2010-12-31T15:38:43Z" user="André Alvarenga" uid="94659" lat="-26.9099845" lon="-49.0759780"/> <node id="663version="9" changeset="48545076" timestamp="2017-05-09T22:11:11Z" user="adrianojbr" uid="2339960" lat="-26.9092570" lon="-49.06-49.0809016"/> <node id="664643867" visible="true" version="4" changeset="31651920" timestamp="2015-06-02T01:01:53Z" user="adri.09076656" lon="-49.0830969"/> <node id="666595807" visible="true" version="3" changeset="31652998" timestamp="2015-06-02T02:52:6" timestamp="2017-01-04T03:32:09Z" user="André Alvarenga" uid="94659" lat="-26.8999407" lon="-49.0767553"/> <node id="6666520165"/> <node id="666652020" visible="true" version="4" changeset="31678555" timestamp="2015-06-02T21:47:35Z" user="adrianojbr" u0" lon="-49.1049712"/> <node id="667635465" visible="true" version="7" changeset="32341677" timestamp="2015-07-01T21:18:17Z" usat="-26.9055255" lon="-49.0769468"/> <node id="668460981" visible="true" version="7" changeset="32293765" timestamp="2015-06-29:20:37:23Z" user="adrianojbr" uid="2339960" lat="-26.9099506" lon="-49.0672054"/> <node id="679635205" visible="true" version="4t="-26.9101412" lon="-49.0776860"/> <node id="679635215" visible="true" version="3" changeset="29896636" timestamp="2015-04-01Tp="2015-06-02T01:01:54Z" user="adrianojbr" uid="2339960" lat="-26.9090474" lon="-49.0756015"/> <node id="679639288" visible="tr
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FONTES DE DADOS DO OSM



<http://download.geofabrik.de>

Download OpenStreetMap data for this region:

South America

[One level up](#)

Commonly Used Formats

- [southamerica-latest.osm.pbf](#), suitable for Osmium, Osmosis, imposm, osm2pgsql, mkgmap, and others. This file was last modified 5 hours ago and has a MD5 sum: [f7636538b3ed23a06ccc57c6179d9067](#).
- [southamerica-latest.osm.bz2](#) is not available for this region; try one of the sub-regions.

Other Formats and Auxiliary Files

- [southamerica-latest.osm.bz2](#), yields OSM XML when decompressed; use for programs that cannot process the .pbf format. This file was last modified : [89cf6a7768d1556f4ebfcc3f5dea09a15](#).
- [southamerica.osm.pbf](#), a file that contains the full OSM history for this region for processing with e.g. osmium. This file was last modified 1 day ago. File size: 1.1 GB.
- [.poly](#) file that describes the extent of this region.
- [.osc.gz](#) files that contain all changes in this region, suitable e.g. for Osmosis updates
- [raw directory index](#) allowing you to see and download older files

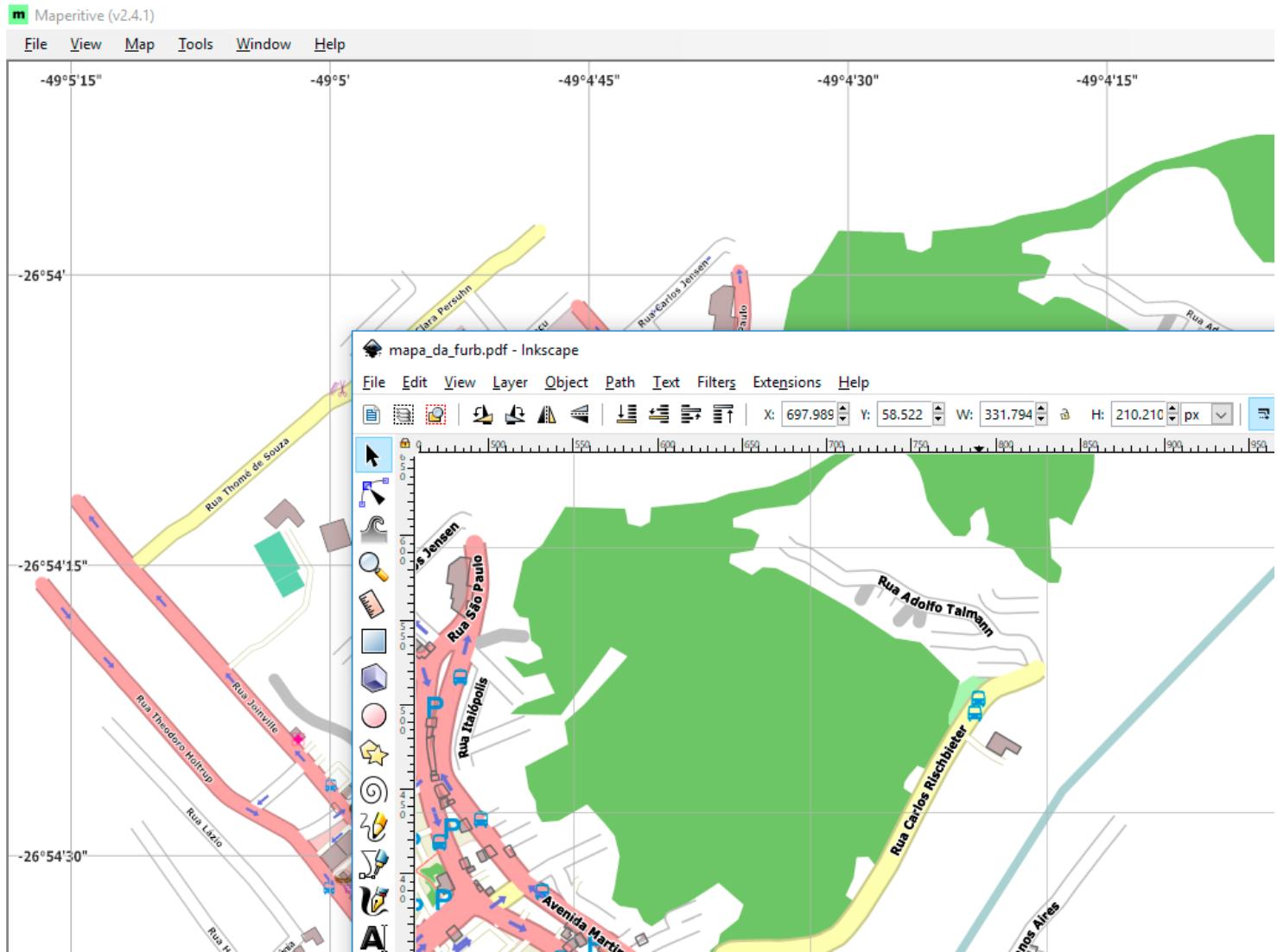
Sub Regions

Click on the region name to see the overview page for that region, or select one of the file extension links for quick access.

Sub Region	Quick Links		
	.osm.pbf	.shp.zip	.osm.bz2
Argentina	[.osm.pbf] (139 MB)	[.shp.zip]	[.osm.bz2]
Bolivia	[.osm.pbf] (58 MB)	[.shp.zip]	[.osm.bz2]
Brazil	[.osm.pbf] (460 MB)	[.shp.zip]	[.osm.bz2]
Chile	[.osm.pbf] (113 MB)	[.shp.zip]	[.osm.bz2]
Colombia	[.osm.pbf] (91 MB)	[.shp.zip]	[.osm.bz2]
Ecuador	[.osm.pbf] (54 MB)	✗	[.osm.bz2]
Paraguay	[.osm.pbf] (28.6 MB)	[.shp.zip]	[.osm.bz2]
Peru	[.osm.pbf] (67 MB)	[.shp.zip]	[.osm.bz2]
Suriname	[.osm.pbf] (4.5 MB)	[.shp.zip]	[.osm.bz2]
Uruguay	[.osm.pbf] (20.6 MB)	[.shp.zip]	[.osm.bz2]

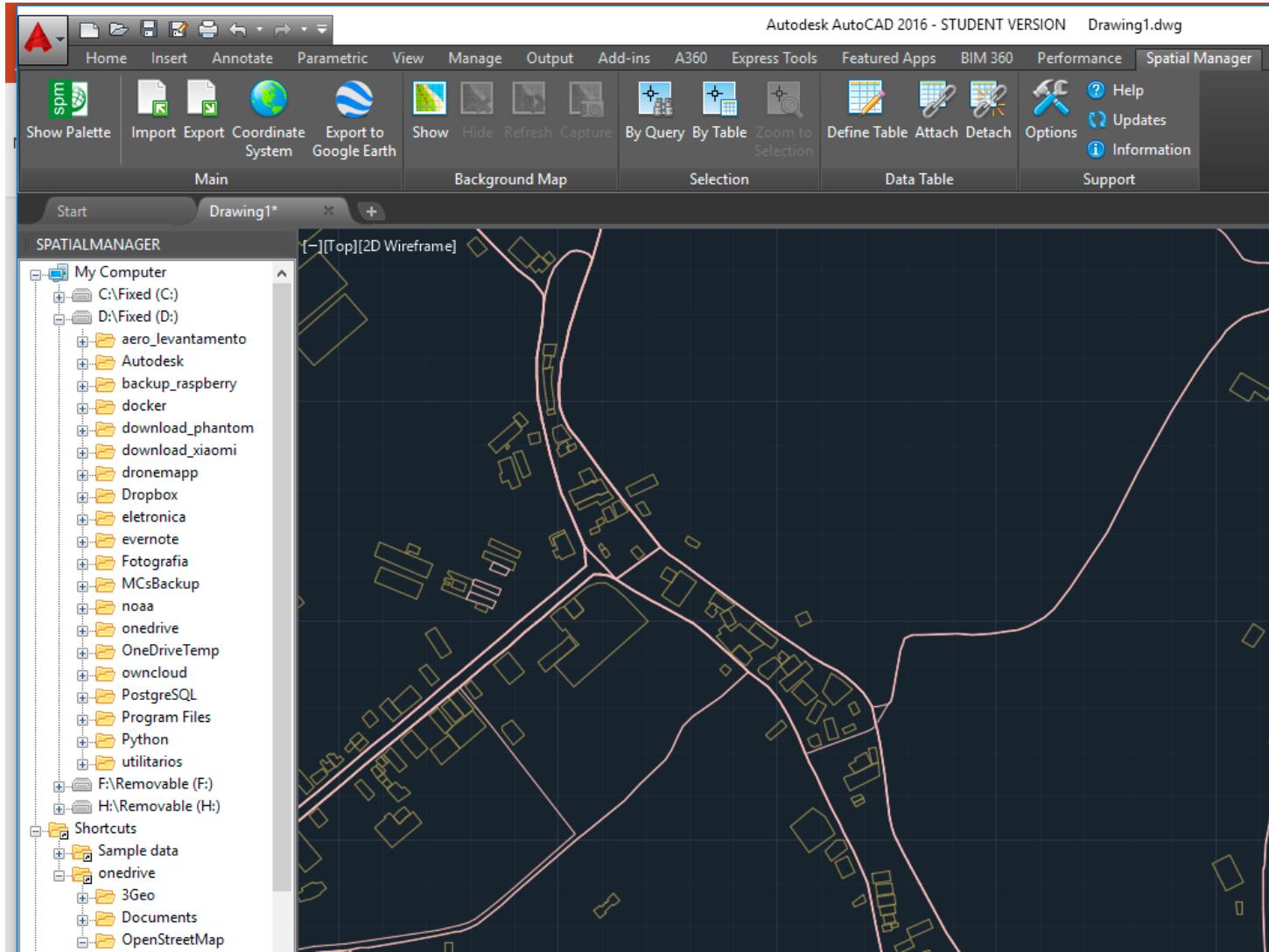
Demonstração – MAPERITIVE/INKSCAPE

<http://maperitive.net/>



Demonstração – AUTOCAD

[\(Video no Youtube\)](#)



Demonstração - QGIS



Demonstração - Lumion



Demonstração – umap



<https://umap.openstreetmap.co>

Editing Untitled map (?)

Cancel Save

+ - More

The screenshot shows a map of southern Brazil with a light blue background. Overlaid on the map are several green areas, likely representing land parcels or specific regions of interest. The map includes place names such as Curitiba, Paranaguá, Joinville, Blumenau, Itajaí, Brusque, Florianópolis, Lages, and Tubarão. On the left side, there is a vertical toolbar with icons for zooming (+/-), location (location pin), and more options (More). On the right side, there is another vertical toolbar with icons for selection (square), navigation (compass), location (pin), orientation (circle with arrow), settings (gear), layers (stacked layers), and a key (key icon). At the bottom left, there is a scale bar showing 50 km and 30 mi. At the bottom right, there is a link to "OSM — About".

50 km
30 mi

OSM — About

Licença de Uso



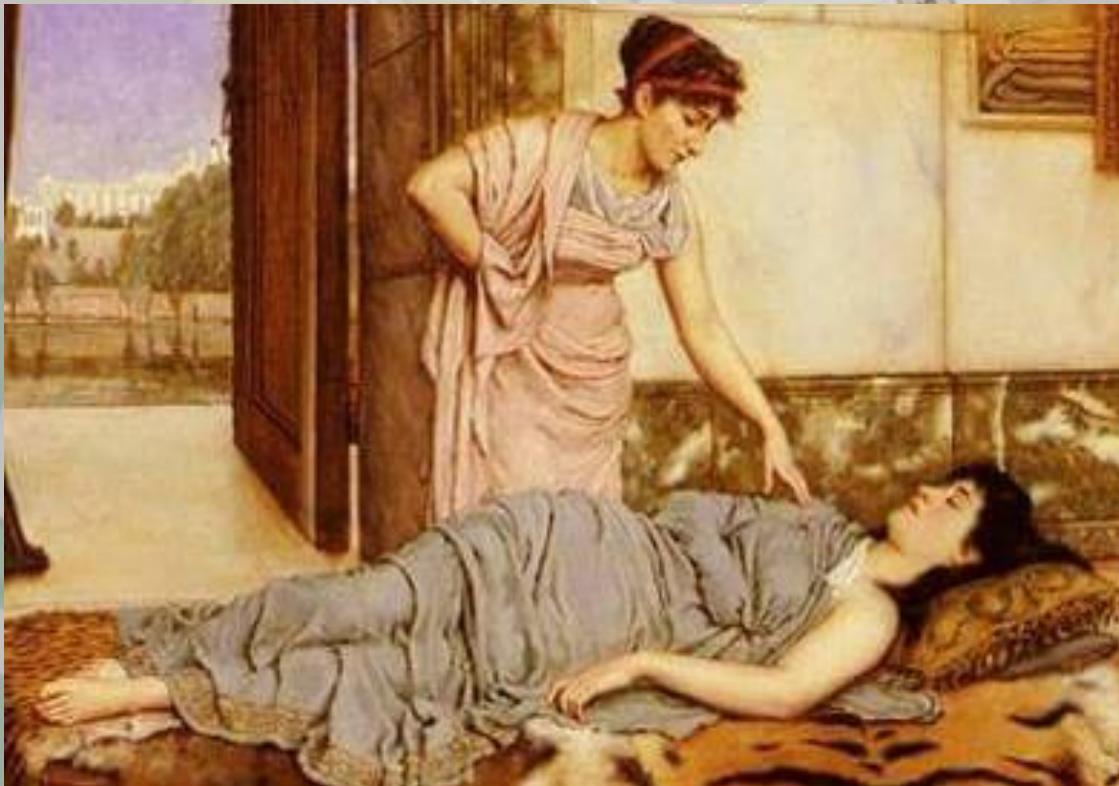
1. É livre o acesso, uso, difusão, adaptação, dos dados do OSM, sob licença [ODbL 1.0](#), requerendo-se que os créditos constem visíveis.
2. A cartografia dos mapas, renderização, tiles e documentação, sujeitam-se à licença [Creative Commons / Attribution-ShareAlike 2.0 Generic \(CC BY-SA 2.0\)](#), requerendo-se que, em nova produção sobre ou usando o material, os créditos constem visíveis.

O modo de atribuir os créditos, eventualmente discriminando o que foi utilizado (se mapa base renderizado ou somente dados), é fazer constar em material publicado (se possível com o link ali de cima): © Contribuidores do OpenStreetMap

<http://www.openstreetmap.org/copyright>



Vamos levantar que os dados não caem do céu

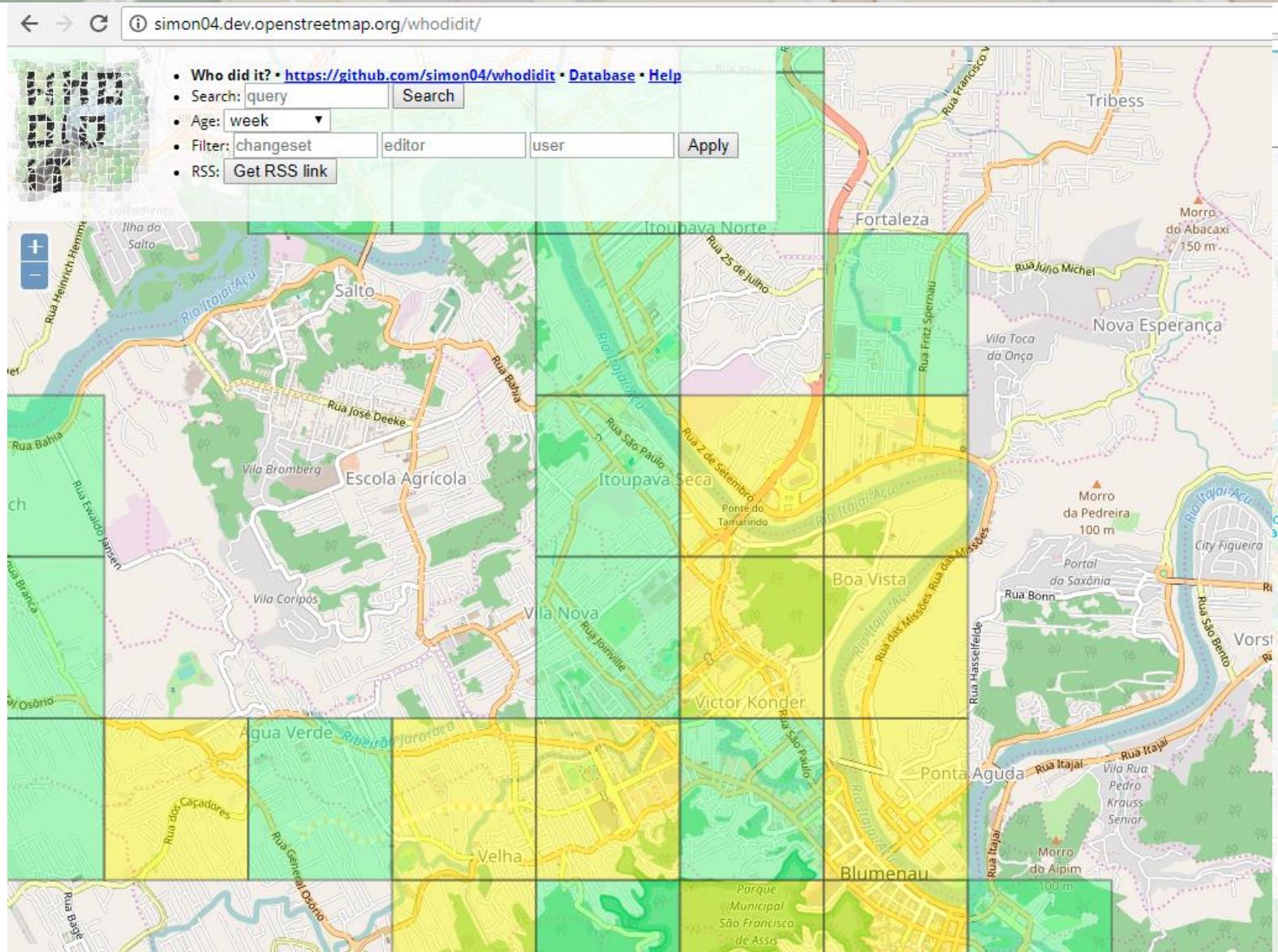


REGRAS BÁSICAS



1. Mapeie o que há em campo, o que você conhece; on the ground rule: o que se pode ver e ser verificado por outros no local.
- 2. Não mapeie usando dados de fontes com direitos autorais resguardados ou não compatíveis com os do OSM (ODbL / CC-BY-SA 2.0). (Ex.: com Google Street View, Google Earth, etc).**
3. Identifique os objetos mapeados com as classes de etiquetas (tags) adequadas e convencionadas no OSM;
4. Importações em massa devem ser previamente comunicadas e discutidas com a comunidade local/regional.
5. Deve sempre ser citada a fonte dos dados adicionados

Controle de Qualidade



Mapeando



3 tipos de elementos geométricos básicos (vetoriais):

- Nós (nodes);**
- Linhas (ways):** abertas (ex: vias) ou fechadas (polígonos; ex: áreas, praças, etc)
- Relações (relations):** entre nós, entre ways, entre ambos.

Nota: O nó é o elemento básico de tudo no OSM. Todos os elementos contém nós com coordenadas (nós georreferenciados).



Mapeando



Pt-br:Elementos de Mapa

← → C Segun

Alguns exemplos de tags:

key=value

KEY	=	VALUE (exemplo)	Descrição
-----	---	-----------------	-----------

BÁSICAS: ao menos 1 tag básica é indispensável para identificar o que é o elemento

highway	=	tertiary	(via e classificação)
amenity	=	restaurant	
shop	=	supermarket	
leisure	=	park	
landuse	=	residential	(p/ loteamento, vilas; não usado para bairro,etc)
office (e outras...)	=	architecture	

COMPLEMENTARES: informações importantes, úteis, podem ser acessadas por apps

name	=	xxxx	
phone	=	+55 51 33331111	(neste formato)
addr:street	=	Avenida Protásio Alves	
addr:housenumber	=	1000	(número do prédio)
addr:door	=	201	(número da sala/apto.)
website	=	www.aaaa.bbb	
(e outras...)			

amenity restaurant



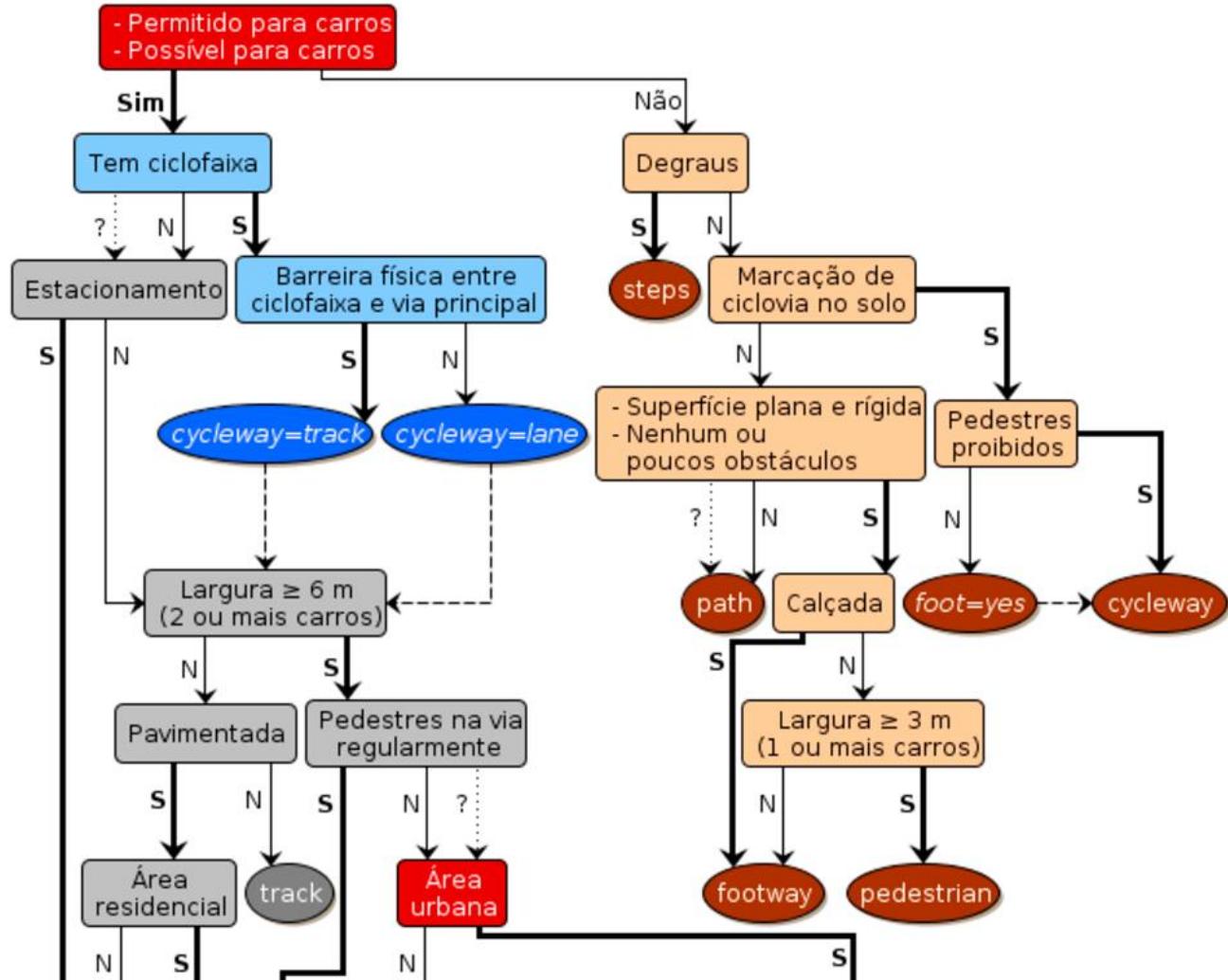
Restaurante: estabelecimento que confereceia e serve refeições. O tipo de comida servida pode ser marcado com **cuisine=***. Caso sirva apenas comida rápida/*fast food* deve-se usar antes a

Cássio Rogério



Atenção na Classificação de VIAS

https://wiki.openstreetmap.org/wiki/Pt:How_to_map_a



Ferramentas de Edição



https://wiki.openstreetmap.org/wiki/Pt:How_to_map_a

ID:

Browser online;
Recomendável para iniciantes ou edições curtas;
Realiza todas as operações básicas;
Tem todas as imagens de satélite necessárias;
Mostra históricos;
exporta dados;
Inclui camadas do IBGE para auxílio no
mapeamento; etc...

End: <http://www.openstreetmap.org/>

Help: <https://wiki.openstreetmap.org/wiki/ID>

JOSM: Java OpenStreetMap Editor

Recomendável para usuários mais experientes e
para todo que pretende se aprofundar no OSM;
realiza todas as operações básicas e tem mais
ferramentas de edição, busca, composição,
exportação de dados, plugins, etc;
Inclui camadas do IBGE para auxílio no
mapeamento.

Plugins para abrir dados externos (.shp, etc):

<https://wiki.openstreetmap.org/wiki/JOSM/Plugins/OpenData>

End: <https://josm.openstreetmap.de/>

Help: <https://wiki.openstreetmap.org/wiki/JOSM>

Demonstração - iD

OpenStreetMap

Editar Histórico Exportar

Selezione o tipo de elemento

Procurar

> Tipos de Uso do Solo...

> Tipos de Edificações...

> Cursos d'Água...

> Elementos Naturais...

Parque ou Praça

Hospital

Local de Prática Religiosa

Cafeteria

Ponto Linha Área

Salvar

Avenida Martin Luther

Rua Oscar Gross

Copimagem

Sonhos de Nova

ether

011010X
0100

Demonstração - JOSM



A screenshot of the Java OpenStreetMap Editor application. The interface features a top menu bar with Portuguese labels: Arquivo, Editar, Visualizar, Ferramentas, Seleção, Predefinições, Camadas, Janelas, Áudio, and Ajuda. Below the menu is a toolbar with various icons for file operations, selection tools, and map editing. The main window displays a map of a university campus with several buildings labeled as 'Bloco' (Block) A through T. Other labeled locations include 'FURB - Campus', 'Estacionamento servidores', 'Posto Telefônico', 'Correios', 'Farmácia', 'Cia e Sabor', 'Biblioteca Universitária Professor Martinho Cardoso da Veiga', 'Escola Técnica do Vale do Itajaí', and 'FIESC IEL'. The map also shows streets like 'Rua Osvaldo Goss' and 'Rua Desembargador'. A scale bar indicates distances up to 50.0 m. The map is styled with different colors for building footprints and includes green cross-hatching for certain areas.



PERGUNTAS?

Contatos



Baixar apresentação: https://github.com/cassioeskelsen/apresentacao_osm (goo.gl/7Go1do)

E-mail: eskelsen@gmail.com

Comunidade brasileira: https://wiki.openstreetmap.org/wiki/WikiProject_Brazil

As imagens estão com sua fonte referenciada nos slides.

Alguns textos foram baseados na excelente apresentação do colaborador do OSM Sérgio(smapsrs): "[O que é o OSM](#)" e "[Como funciona](#)"