

OpenStreetMap

Source for Worldwide, Seamless, Crowdsourced Geospatial Feature Data
Education Session at the Geolnt Symposium 2015
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Participant Notes

General:

OpenStreetMap(OSM) website: www.openstreetmap.org

OSM wiki: wiki.openstreetmap.org

Types of data not in OpenStreetMap: elevation, overhead imagery, street level photos thematic data, popularity ratings. Data has no particular scale, no specific cartography, no feature classes, not broken into cells or by country, no event data.

Types of data in OpenStreetMap: streets (34 million km as of 2013); traffic signals/signs; paths/tracks/trails; public transportation/stops/routes; railways; utilities power/pipelines/water treatment; public safety/police/fire; education primary/secondary/university; healthcare; ski lifts; airports runways/terminals/taxiways; cemeteries; places of worship; barriers fences/walls; boundaries administrative/protected areas; buildings; construction; land use; recreation/stadiums; maritime; hydrography; names (16 million unique); generally only persistent features; worldwide data; GPS traces; map notes.

- More information: https://wiki.openstreetmap.org/wiki/Map_Features

Structure:

- <https://wiki.openstreetmap.org/wiki/Elements>
- Tags
 - Key/value pairs, e.g. highway=primary
 - Anyone can make up any tag they want
 - Presently 53,000 different keys in OSM, 500 different keys appear at least 50,000 times in the database.
 - Values are always strings. Allows flexibility, e.g. maxspeed=80, maxspeed=40 mph, maxspeed=signals
 - Taginfo.openstreetmap.org – list frequency of keys and values in the data.
 - Keys and values are documented on the wiki, e.g. <https://wiki.openstreetmap.org/wiki/Key:highway>
- History of each element in the OSM database is available. E.g. within the JOSM editor, select the element, press <ctrl>+H.

Size:

- 2.9 billion nodes, 294 million ways, 3.5 million relations, ~400 million features in total. 1.2 billion tags, 4.7 billion GPS points. Planet file (all data) uncompressed is 575 GB. Planet file with full history is 1TB. 2.1 million registered contributors, 25,000 contribute in any given month.
- More information:
 - www.openstreetmap.org/stats/data_stats.html

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- taginfo.openstreetmap.org/reports/database_statistics

How data gets into OSM:

- First hand observations of the world – “surveying” This is the preferred method for accuracy and currency reasons.
 - No mobile technology? https://wiki.openstreetmap.org/wiki/Field_Papers
- “Armchair Mapping” – Mapping from secondary sources which OSM is legally allowed to use, such as Bing imagery.
- “Imports” – bulk uploads of existing data from other sources. Controversial. Must be discussed with the community, the data must have a compatible license, the import must be documented and reviewed.
- Over 20 different editing software apps:
 - iD – browser based, current default on OSM website. Intended to be easy to use.
 - Potlatch 2 – Another browser based editor available on OSM website
 - Potlatch 1 – Browser based editor. Can view and undelete deleted elements.
 - JOSM (Java OpenStreetMap editor) – Powerful offline editor. The preference of many experienced contributors. Extensible with “plugins”
 - Others: <https://wiki.openstreetmap.org/wiki/Editing>

Getting the Data:

- OpenStreetMapData.com – coastline, landforms, water bodies.
- Mapzen.com/data – metro extracts, borders, “transitland” (not from OSM).
- Download.geofabrik.de – Nations, states/provinces
- Osm.wno-edv-service.de/boundaries – boundaries
- extract.bbbike.org/ - User defined AOI.
- Overpass API - https://wiki.openstreetmap.org/wiki/Overpass_API
- Overpass Turbo (https://wiki.openstreetmap.org/wiki/Overpass_turbo) – aids in building Overpass Queries and visualizing their results.
- Creating shapefiles from OSM data:
http://wiki.openstreetmap.org/wiki/Shapefiles#Create_your_own_shapefiles

License: <http://opendatacommons.org/licenses/odbl/>

Visualizing:

- <http://resultmaps.neis-one.org/>
- <http://simon04.dev.openstreetmap.org/whodidit/>
- <http://www.itoworld.com/map/main>
- <http://maps.stamen.com/>

Who uses: Craigslist, Geocaching.com, Financial Times, Foursquare, Pinterest, The Washington Post, Skobbler, Telenav’s Scout, Garmin, FCC, Mapquest Open, Wheelmap.org, OpenSeaMap, Mapbox, CartoDb, Geofabrik.

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Humanitarian:

- HOT - https://wiki.openstreetmap.org/wiki/Humanitarian_OSM_Team
 - Philippines before / after visualization:
<http://pierzen.dev.openstreetmap.org/hot/leaflet/OSM-Compare-before-after-philippines.html#16/11.2459/125.0039>
 - West Africa before / after visualization:
<http://www.economist.com/blogs/graphicdetail/2014/11/daily-chart-8?fsrc=rss>
 - Who drive time analysis in West Africa based on OSM data:
maps.who.int/networkanalysis
- Missing Maps - <http://www.missingmaps.org/>
- HOT Tasking Manager: <http://tasks.hotosm.org/>

Other Projects: Wikimapia, Mapillary, OpenAddresses, Natural Earth, Wikidata, Open Terrain,