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OSM2World 3D Rendering for OpenStreetMap

SOTM 2013

Why 3D?

Why 3D? – Mapper's perspective



- lack of visual feedback for many detailed tags
- "complete" maps in many regions
- opportunity to expand our scope

Why 3D? – Use cases

- Many potential applications:
 - improved visuals for maps
 - virtual reality
 - modelling software
 - simulations

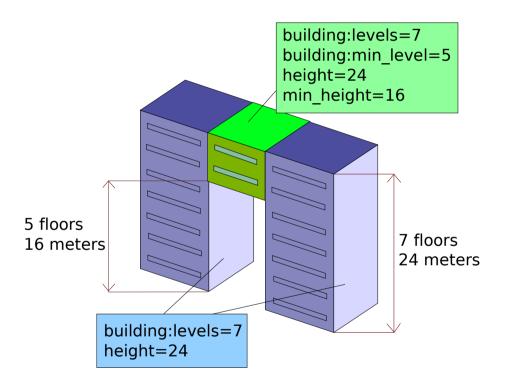
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- video games

3D Mapping

3D Mapping: Buildings

- Basics
 - building=*
 - building:part=*
- Levels and Height
 - height
 - min_height
 - building:levels
 - building:min_level

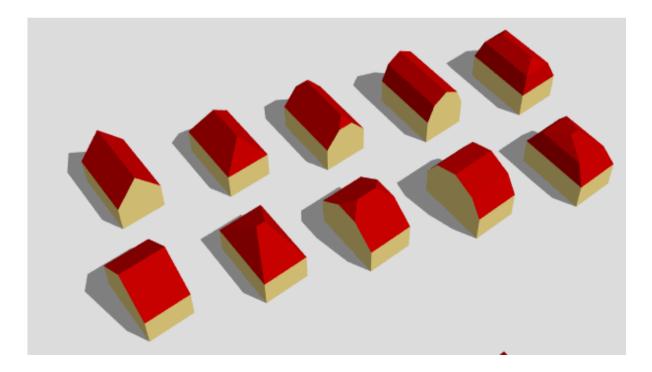


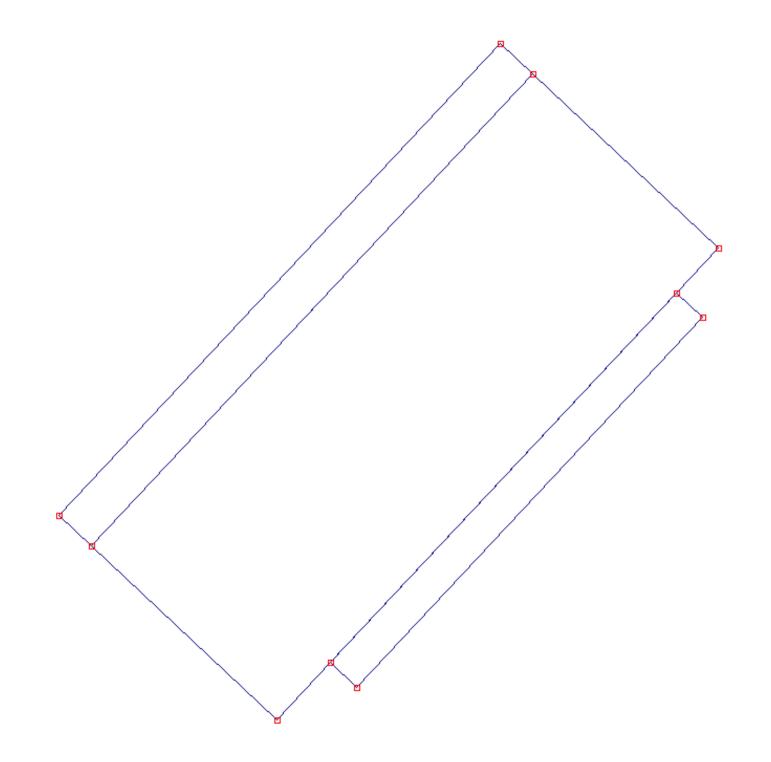
3D Mapping: Buildings

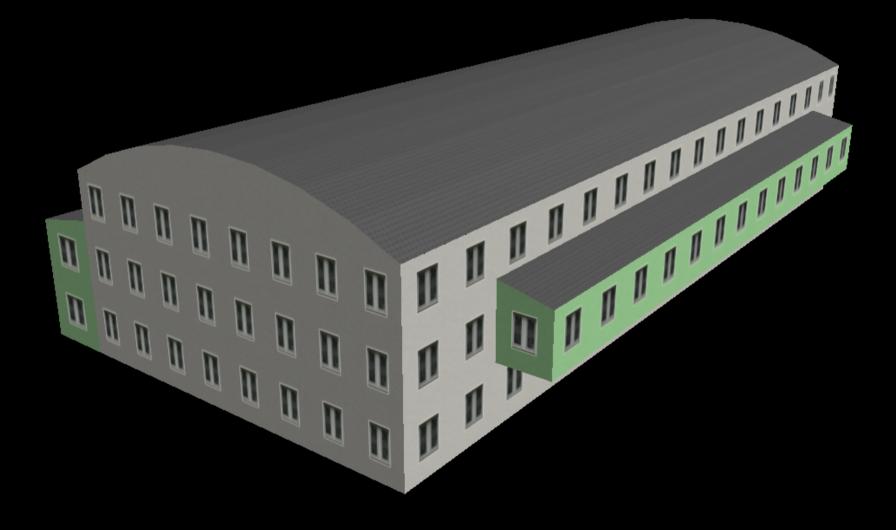
- Materials
 - building:material
 - building:colour
 - roof:material
 - roof:colour

3D Mapping: Buildings

- Roof shapes
 - roof:shape = flat/gabled/hipped/mansard/...
 - roof:orientation or roof:direction

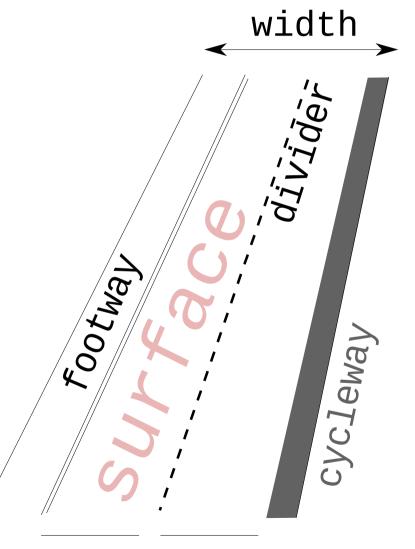






3D Mapping: Highways

highway



lanes

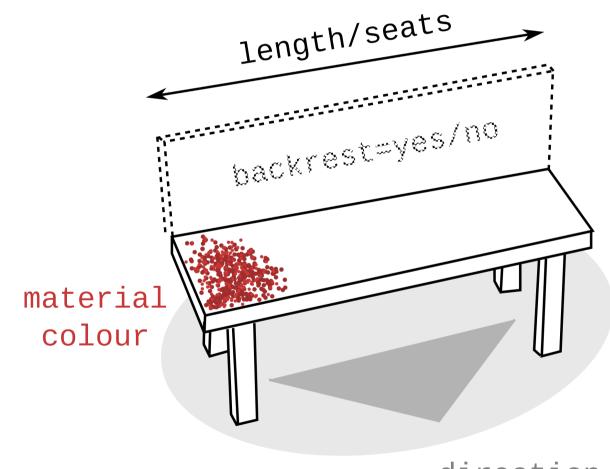
3D Mapping: Highways

- Some information is not specific to 3D:
 - footway, cycleway
 - surface
 - turn lane layout
 - highway=crossing
 - traffic lights
 - ...
- Frequently: 3D as motivation to collect data which is useful elsewhere.



3D Mapping: More Stuff

amenity = bench



direction

. OOL gambrel half-hipped hipped garages hut colour height ga naterial footway generator source wind solar handra nter left highway advertising billboard column menity bench from **king** post_box vending_ma service parking_aisle sidew ste_basket backrest barrier brave p_count surface **tunn** multipolygon erway ending parcel_i ane divide ch drain orientation **ridg** ergency fire hydrant entrance esc th fence_type pillar rive erbank stream width **WOOd** photovoltaic ion motorway motorway_lin oposed steps street_lamp landuse forest lane**lleisure** pitch track man_made f

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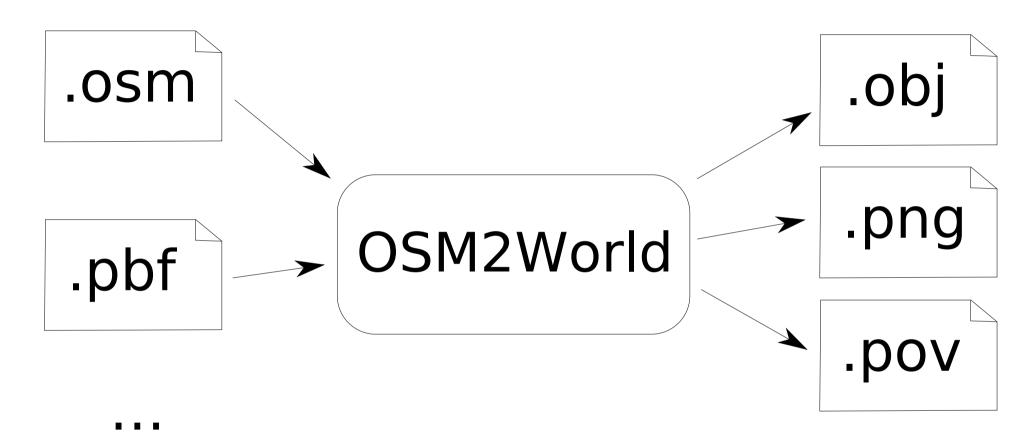
Using 3D Data with OSM2World

OSM2World

http://osm2world.org

- Free Software (LGPL)
- 3D models from OpenStreetMap data
- Flexible use as converter and renderer

OSM2World: Basics



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OSM Data

3D Models

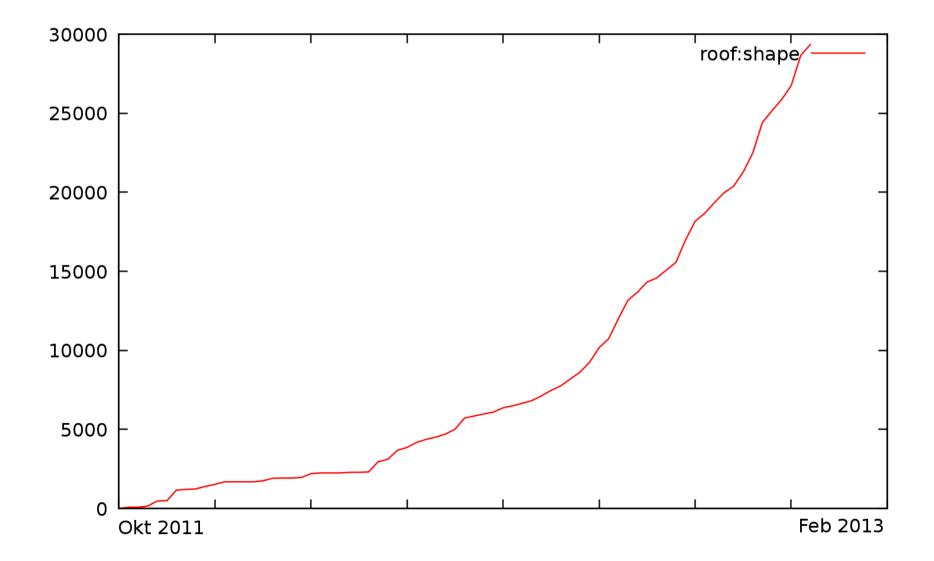


OSM2World: Viewer Application

- locally installed Java application
- loads any .osm, including JOSM output
- configuration through style & config files
- free camera placement and scene exploration
- export to all supported formats
- optional CLI for tile rendering, batch exports ...



OSM2World: Slippy map



OSM2World: Slippy map

- uses OpenLayers
- 4 viewing directions
- pre-rendered tiles (due to slow rendering)
- about 1–2 weeks for each update 🙁
- coverage: D, A, CH only 🙁 🟵
- small areas elsewhere possible: just ask me ... or host SOTM

OSM2World: WebGL

- (probably) the future of 3D web content
- no server-side OpenGL required
 => better coverage and faster updates
- animations, free camera, weather effects ...
- but: WebGL service still under construction



The Future of 3D

The Future: Tagging improvements

- hints for elevation (currently mostly SRTM):
 - incline, (physical) maxheights, river directions, ...
- bridge/tunnel areas or relations
- bridge classification
- lane transitions
- road areas, junction details
- some additional building tags

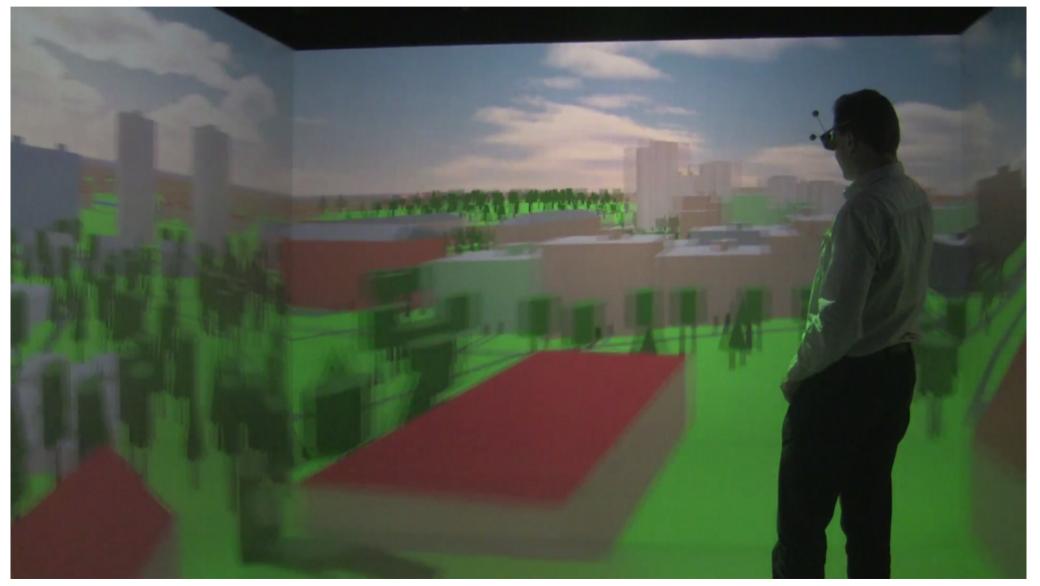
The Future: Model Repository



The Future: Creative Experiments



The Future: Creative Experiments



http://forum.osm.org/viewtopic.php?id=20012

The Future: Creative Experiments

???

