KML & indoorOSM

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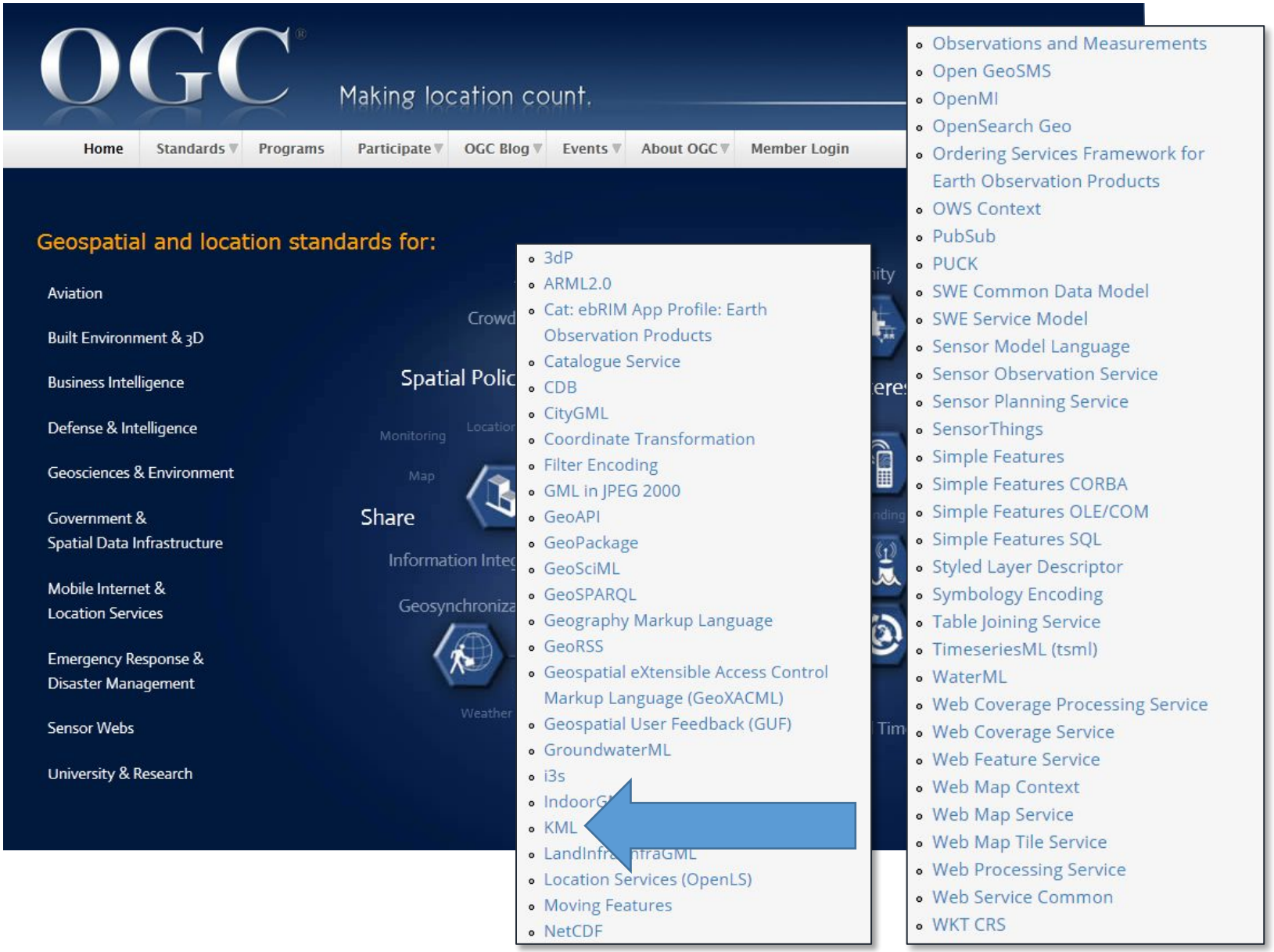
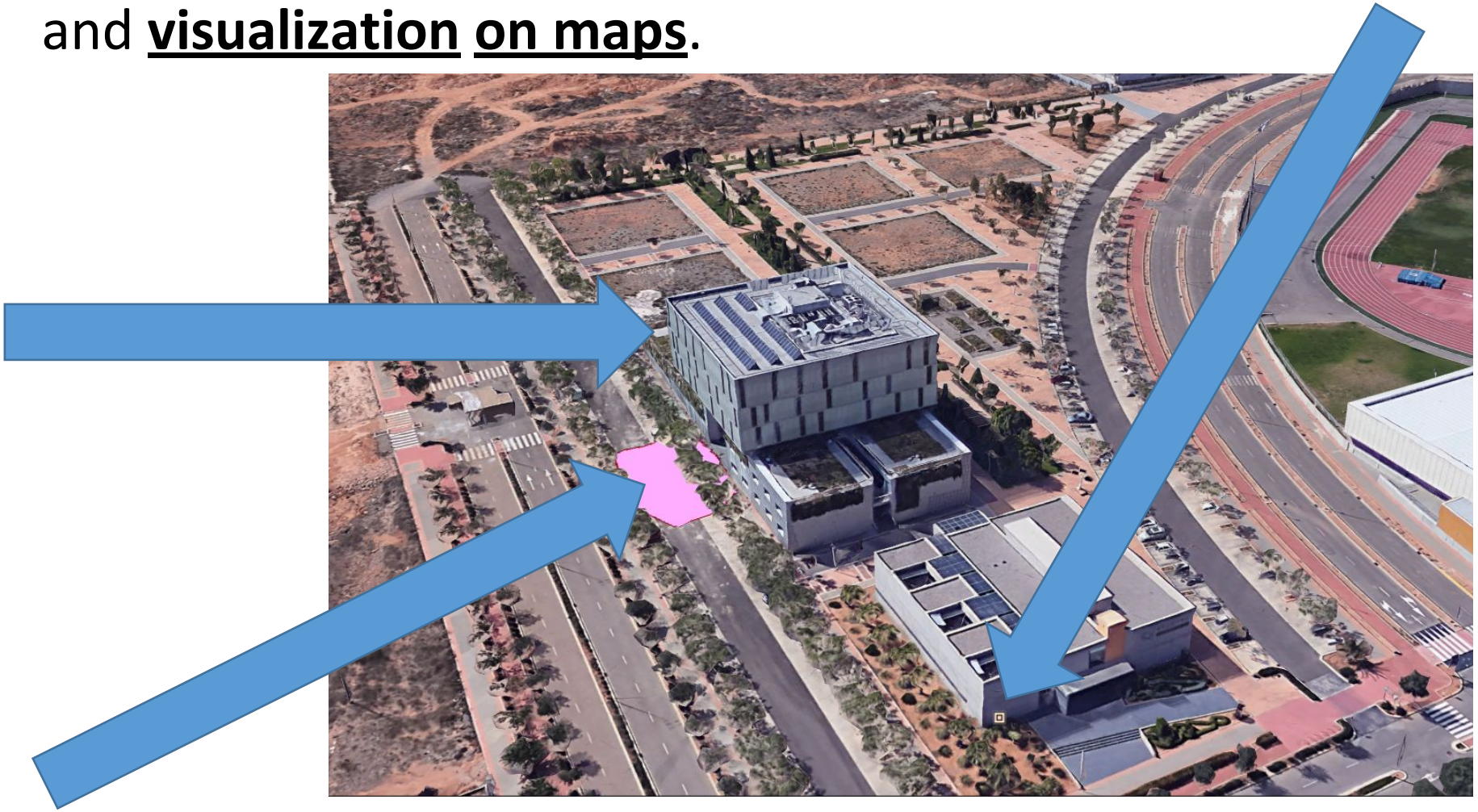
KML

0. OGC – Open Geospatial Consortium



1. Introduction

- KML expresses geographical **annotation** and **visualization on maps**.



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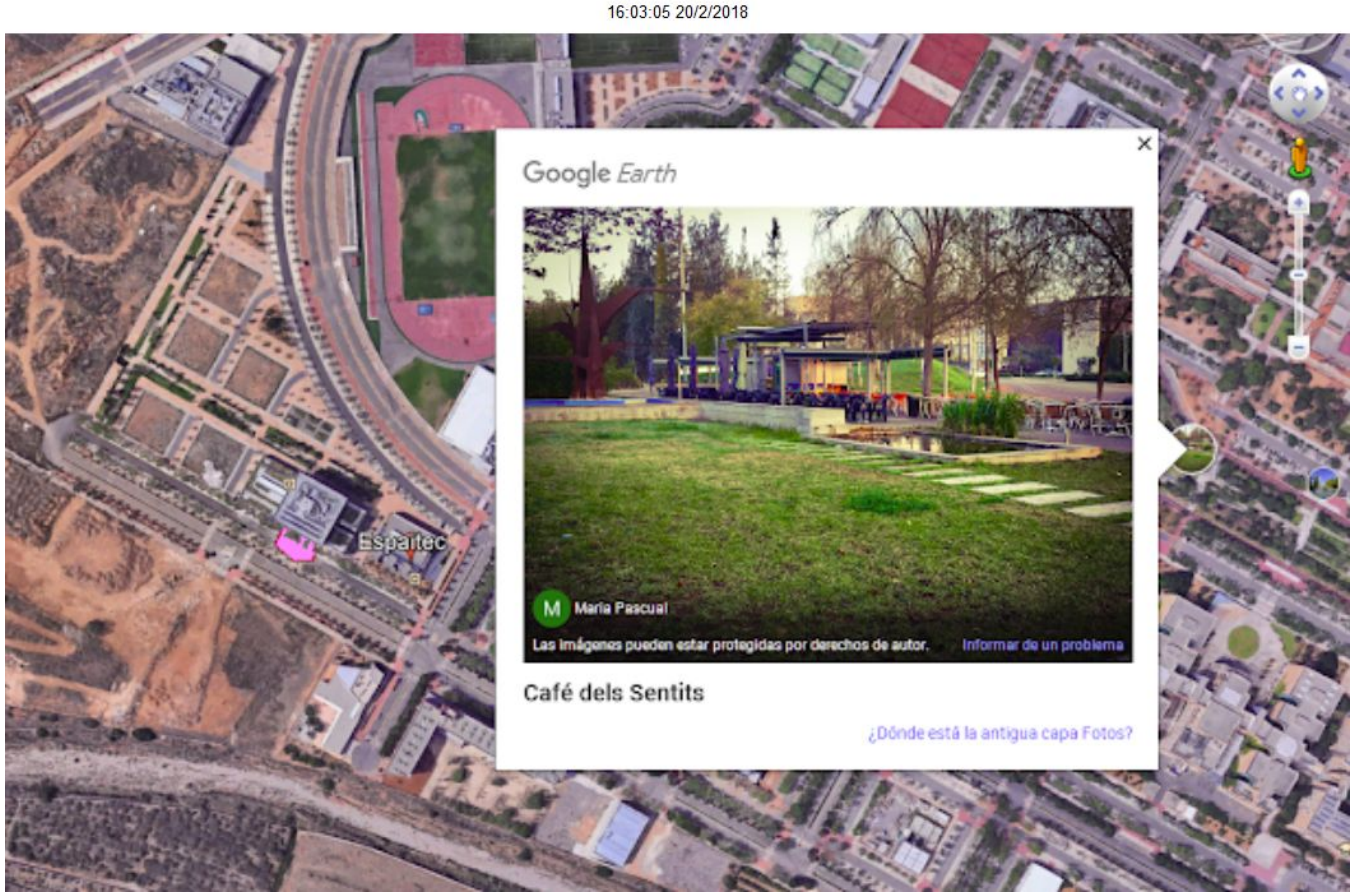


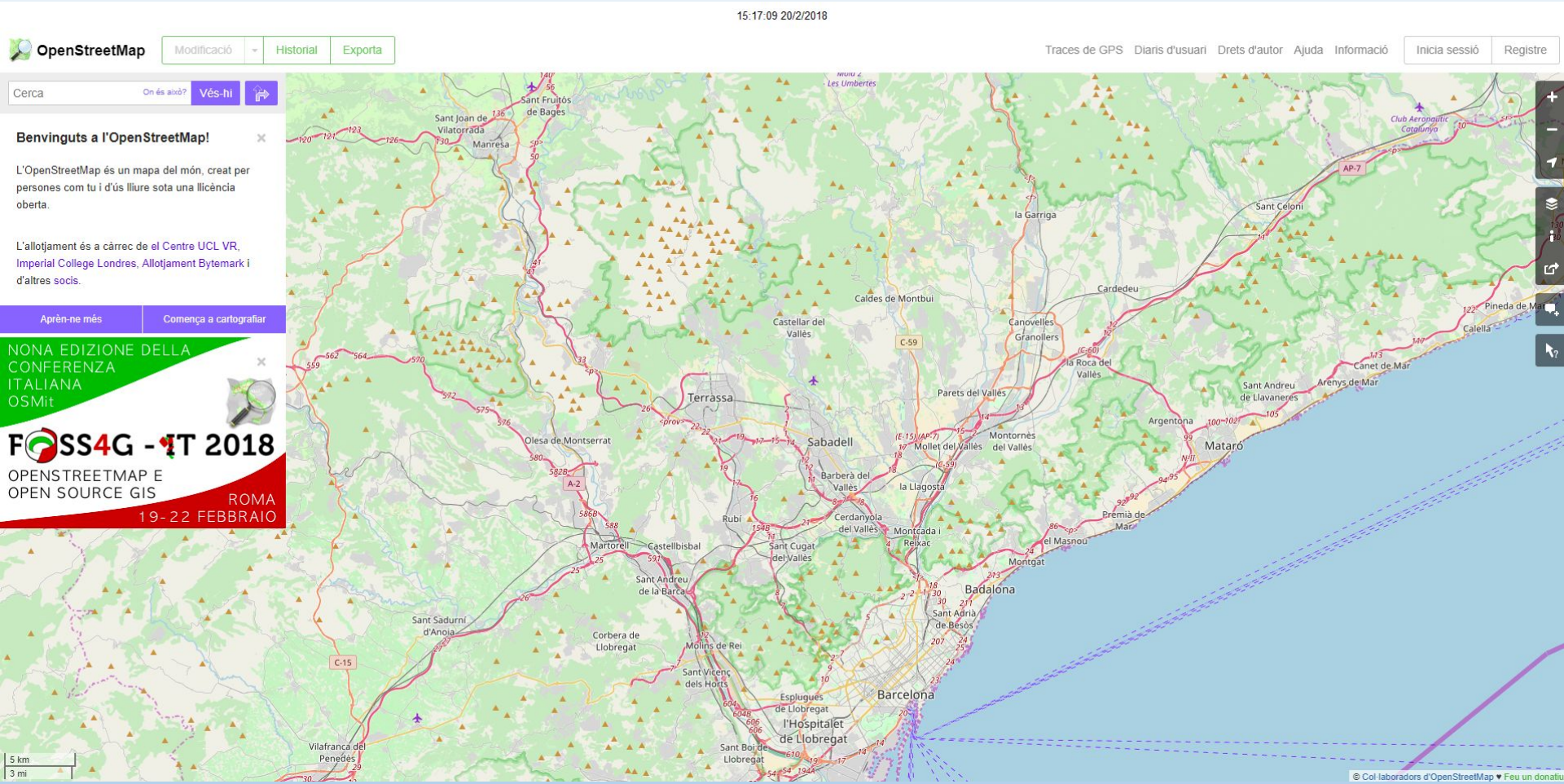
1. Introduction

- KML expresses geographical **annotation** and **visualization on maps:**
  - Annotate the Earth
  - Specify icons and labels to identify locations on the surface of the planet
  - Create different camera positions to define unique views for KML features
  - Define image overlays to attach to the ground or screen
  - Define styles to specify KML feature appearance
  - Write HTML descriptions of KML features, including hyperlinks and embedded images
  - Organize KML features into hierarchies
  - Locate and update retrieved KML documents from local or remote network locations
  - Define the location and orientation of textured 3D objects

- Point
- LineString
- LinearRing
- Polygon
- MultiGeometry
- Model

indoorOSM

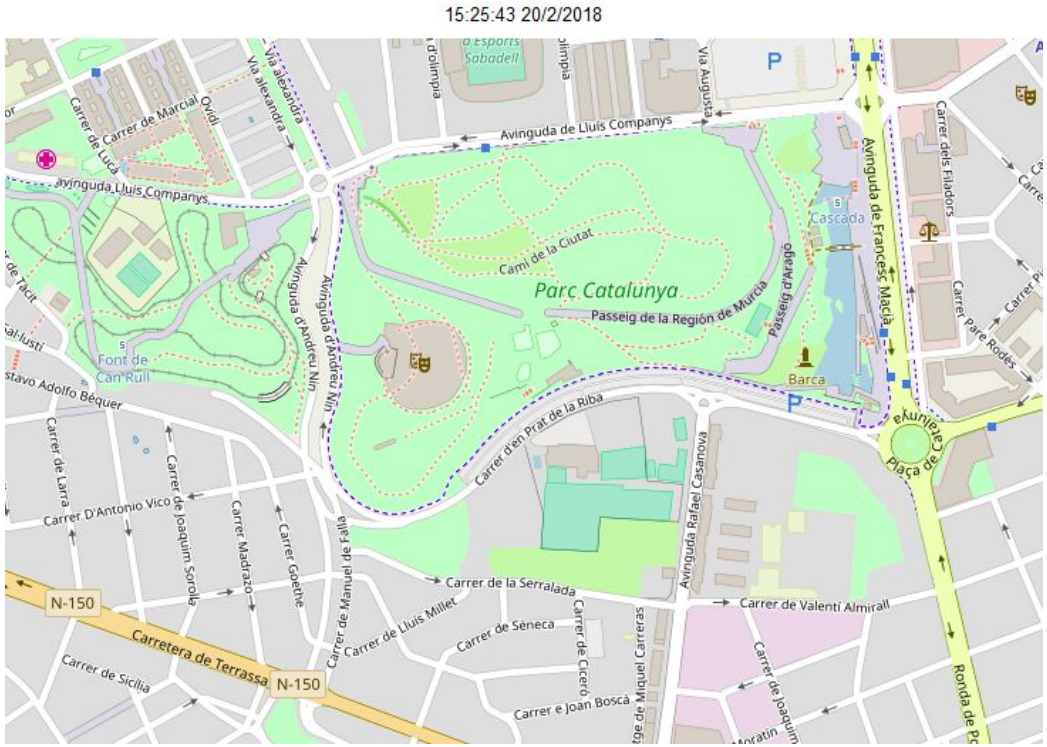
0. OSM – Open Street Maps



OpenStreetMap is a free, editable map of the whole world that is being built by volunteers largely from scratch and released with an open-content license.

0. OSM Map creation

- Maps are created from:
  - Other maps
  - Ortophotos
  - GPS



0. OSM Map creation

- Tagging system

15:31:09 20/2/2018

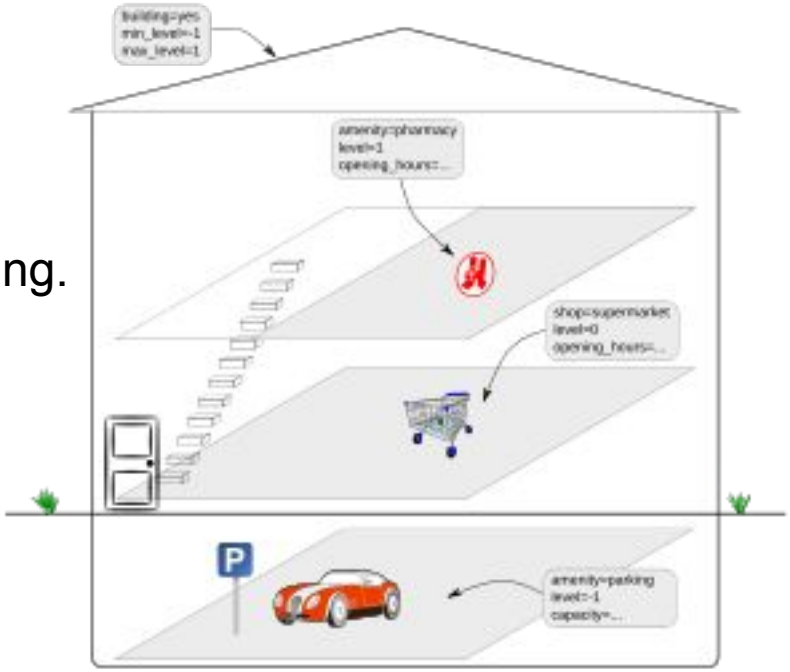
amenity	brothel		An establishment specifically dedicated to prostitution		
amenity	casino		A gambling venue with at least one table game(e.g. roulette, blackjack) that takes bets on sporting and other events at agreed upon odds.		
amenity	cinema		A place where films are shown (US: movie theater)		
amenity	community_centre		A place mostly used for local events, festivities and group activities; including special interest and special age groups. .		
amenity	fountain		A fountain for cultural / decorational / recreational purposes.		
amenity	gambling		A place for gambling, not being a `shop=bookmaker`, `shop=lottery`, `amenity=casino`, or `leisure=adult_gaming_centre`. Games that are covered by this definition include bingo and pachinko.		
amenity	nightclub		A place to drink and dance (nightclub). The German word is "Disco" or "Discothek". Please don't confuse this with the German "Nachtclub" which is most likely amenity=stripclub.		
amenity	planetarium		A planetarium.		
amenity	social_centre		A place for free and not-for-profit activities.		

1. OSM Goes indoor

- Maps are created from:
  - Arquitect plans
  - Other maps
  - Ortophotos??
  - GPS ??
- Process include:
  - Convert DWG & PDF to images
  - Georeference
  - Produce tiles

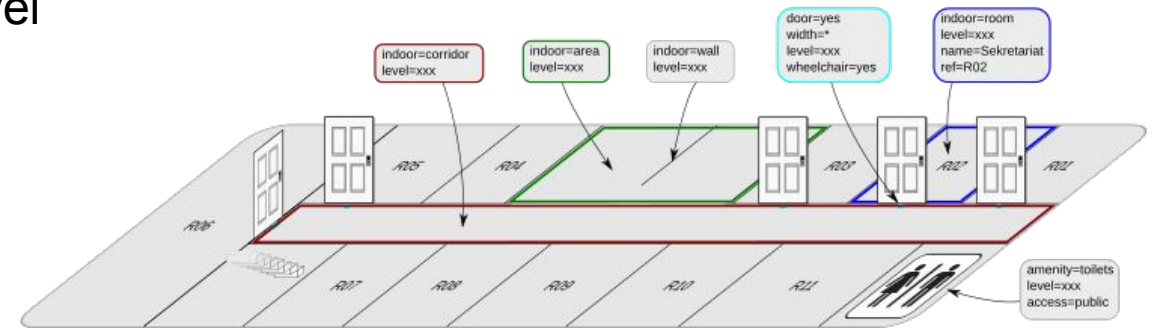
2. Simple indoor tagging

- Step 0: Building:
  - min_level
  - max_level
  - non_existent_levels
- Step 1: Simple POI mapping.
  - level=*



2. Simple indoor tagging

- Step 2: indoor elements
  - indoor:
  - room
  - area
  - wall
  - corridor
  - Level



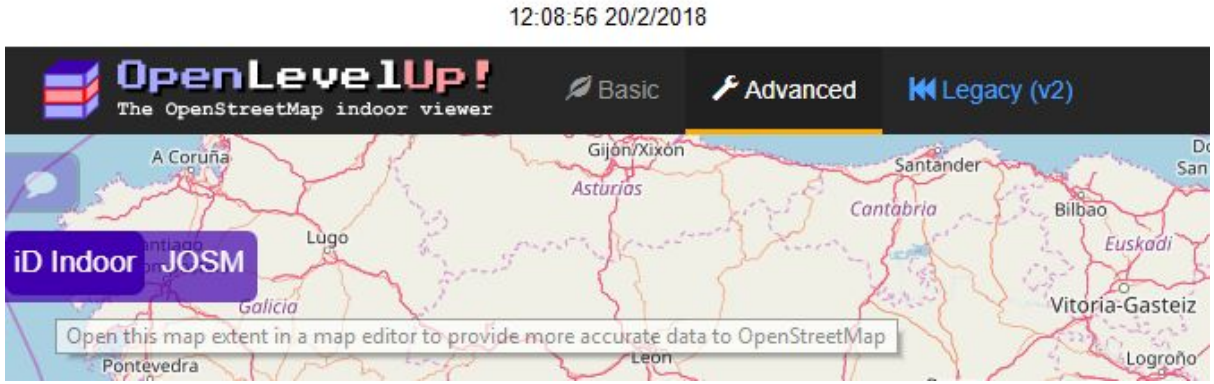
2. Simple indoor tagging

- Step 2.5? Door node is not clear if it is defined.
  - door= (connect corridors with rooms and rooms).
- Step 3: multilevel. Duplicate the same node in several levels:
  - repeat_on=
  - Not decided how to represent stairs or escalators

Stairs	stairs=yes indoor=room or indoor=area when there are no walls.
Escalators	stairs=yes conveying=yes indoor=room or indoor=area when there are no walls.
Elevators	highway=elevator indoor=room or in special cases indoor=area when there are no walls.

3. Tools

- OpenLevelUp
  - https://openlevelup.net/
  - https://wiki.openstreetmap.org/wiki/OpenLevelUp
  - Tool to check the result.
  - Allows to introduce the Open Street Maps features.
  - Although it has an IDindoor option, options seem generic and are not exactly the same than in indoor tag.
  - The tool is extremelly low.
  - Filters does not work



3. Tools

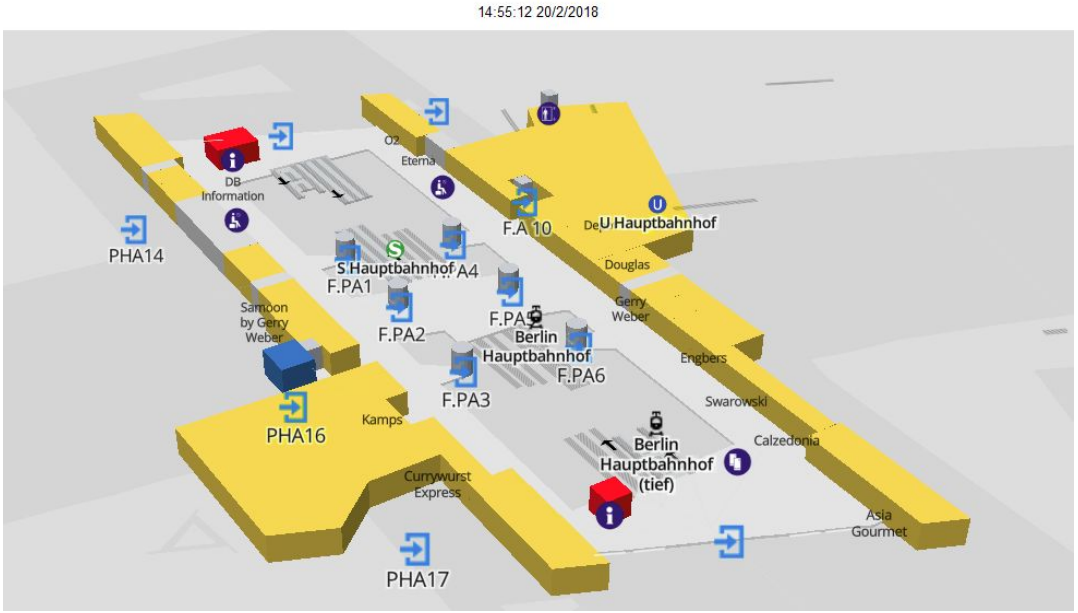
- Vespucci
  - http://vespucci.io/
  - Tool for getting and managing data from OSM.
  - Although indoor part is not completely developed, it can be used for testing.

3. Tools

- Osiris
  - http://osiris-indoor.github.io/
  - Osiris is an Open Source server for Indoor Maps based on OSM.
  - The architecture of Osiris consists of three different elements:
    - a data layer,
    - a set of public REST web services
    - a client application.
  - The data layer persistence is relayed to MongoDB.
  - The data layer is accessed by the public REST web services
  - Process:
    - First, all spaces and access structures have to be drawn.
    - Then, every room, stair, elevator, etc. has to be tagged in order to provide its name and type.
    - Finally the resultant file is uploaded to the server and processed to be stored in a MongoDB storage.
  - API available

4. Some projects

- https://www.openstationmap.org



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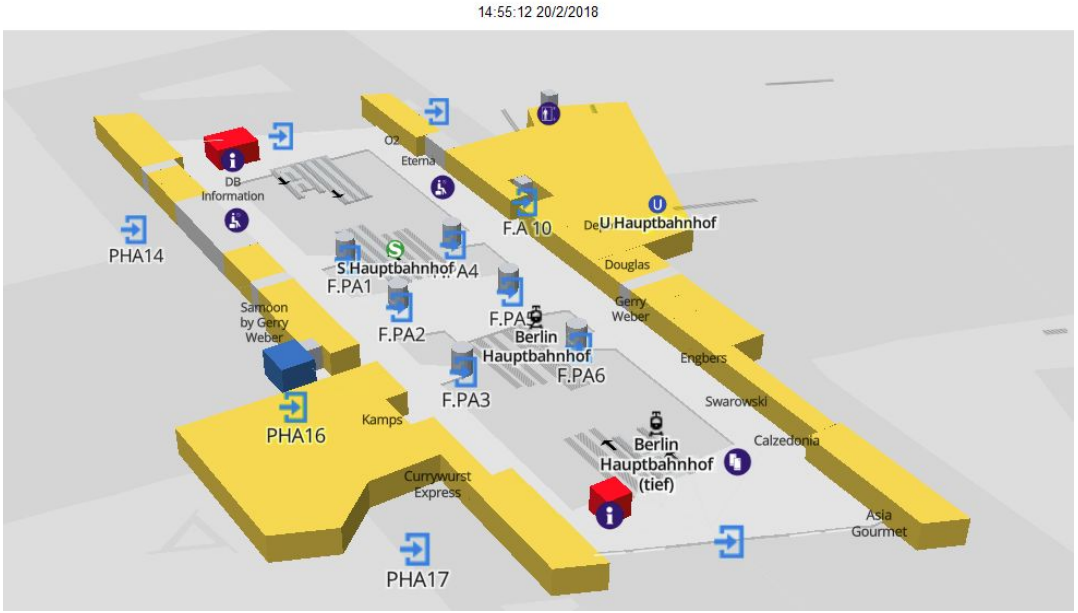

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5. Pros

- Very simple data model
- Several implementations
- Many tools available
- Open source

6. Cons

- Incomplete:
  - Some tags for indoor pending to define
  - Topology for indoor pending to define
  - Routing model for indoor pending to define
- Difficult to know whether the project is alive or not.
- Difficult to now the current state

Links

- https://wiki.openstreetmap.org/wiki/Proposed_features/IndoorOSM
- http://2016.stateofthemap.org/2016/osm-goes-indoors/
- http://2016.stateofthemap.org/2016/osm-goes-indoors-2/
- http://2016.stateofthemap.org/2016/station-indoor-routing-and-mapping-in-practice-with-openstationmap/
- https://wiki.openstreetmap.org/wiki/Proposed_features/IndoorOSM (says it is obsoleted)
- https://wiki.openstreetmap.org/wiki/Simple_Indoor_Tagging