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Generating WUDAPT's Specific Scale-dependent Urban Modelling and Activity Parameters: Collection of Level 1 and Level 2 Data

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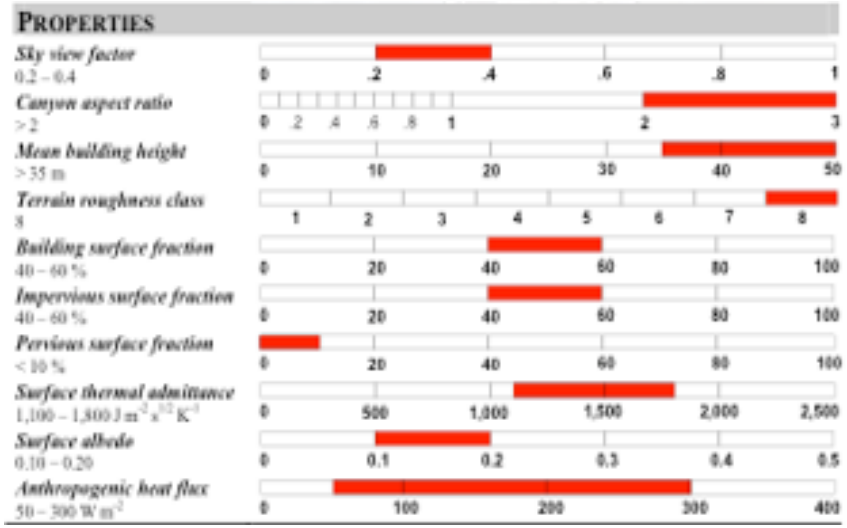
Context

- The need for WUDAPT
- Local Climate Zones (LCZs)
  - Appropriate scheme
  - Range for UCPs
  - Workflow for creation
  - Workshop on Wed
- Levels of data collection



Levels of Data Collection

- Level 0 – LCZ mapping
- Level 1 – Sampling to refine parameter ranges, e.g. sky view factor ranges between 0.2 and 0.4 for LCZ1
- Level 2 – Wall-to-wall approaches

➡ Need standardized methods and protocols

➡ Need data collection tools + experts

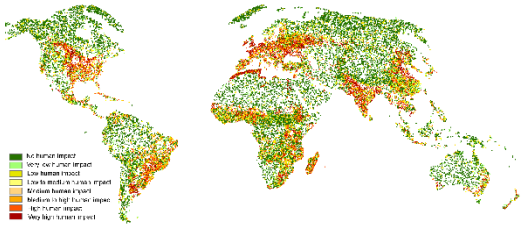
Information Needed on Urban Form and Function

Feature	Variable
Cover	Land cover, vegetation type, vegetation organization
Geometry	Building height, width of streets, contiguous or isolated buildings, roof geometry
Material	Wall type, roof type, window type, road materials, window fraction on the wall, colour/albedo
Function	Building use, irrigation, road type, temperature settings, occupancy, air conditioning, shutters or shading, window opening, building age, building renovation post 1990

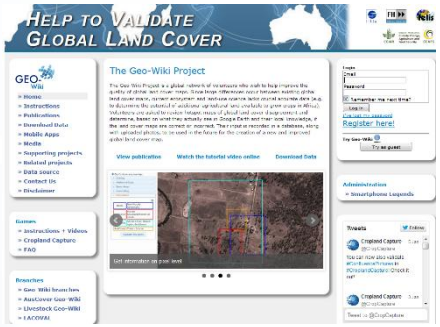
www.geo-wiki.org

Visualization of Global Land Cover, Biomass, Photos, etc.

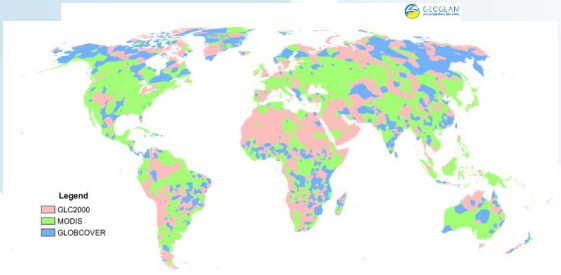
Crowdsourcing of Land Cover (Google Earth, Bing Maps)



Geo-Wiki



Creation of Hybrid Land Cover Maps

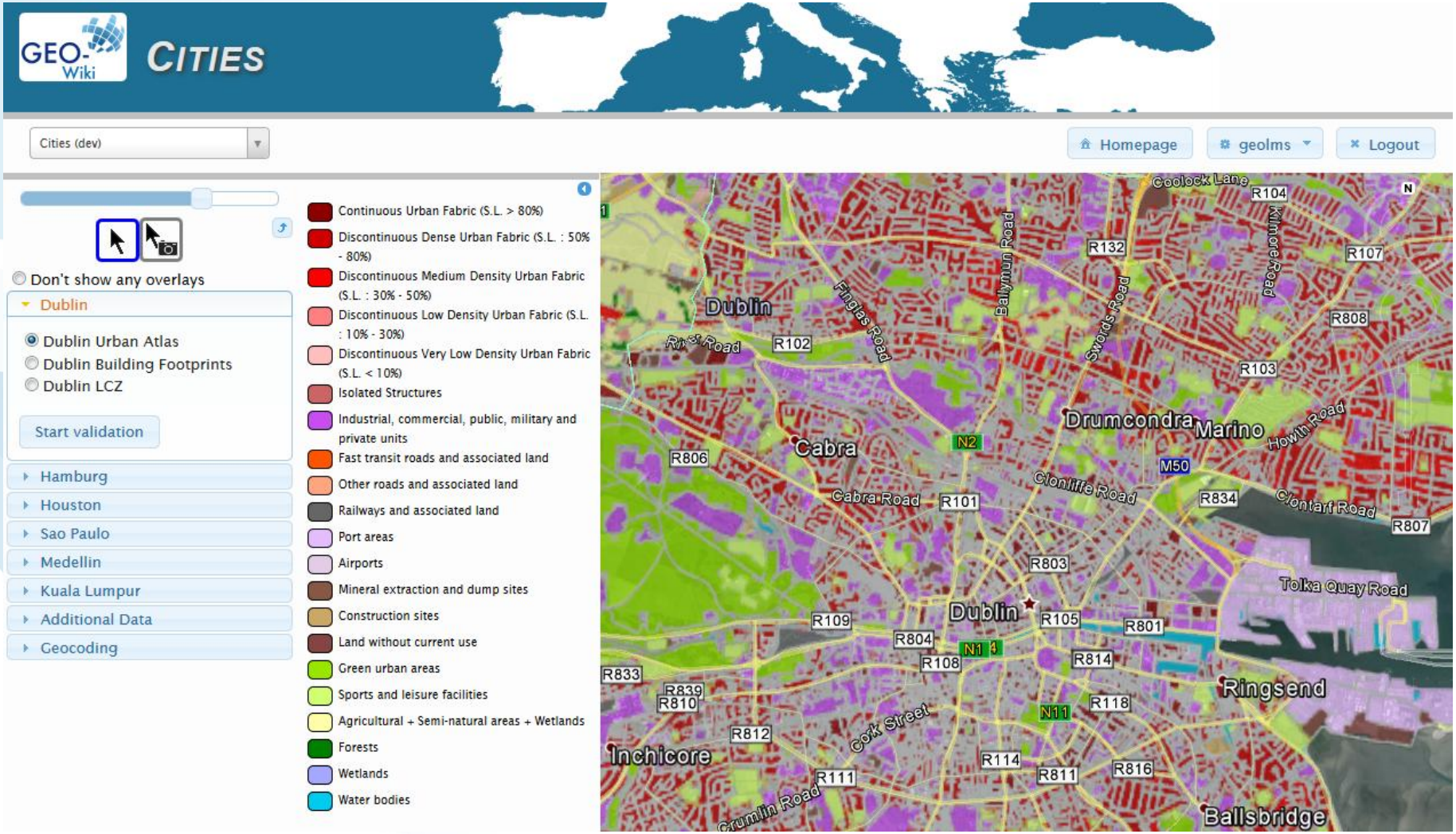


Validation of Land Cover Maps

In-situ Data via Geo-Wiki Pictures app

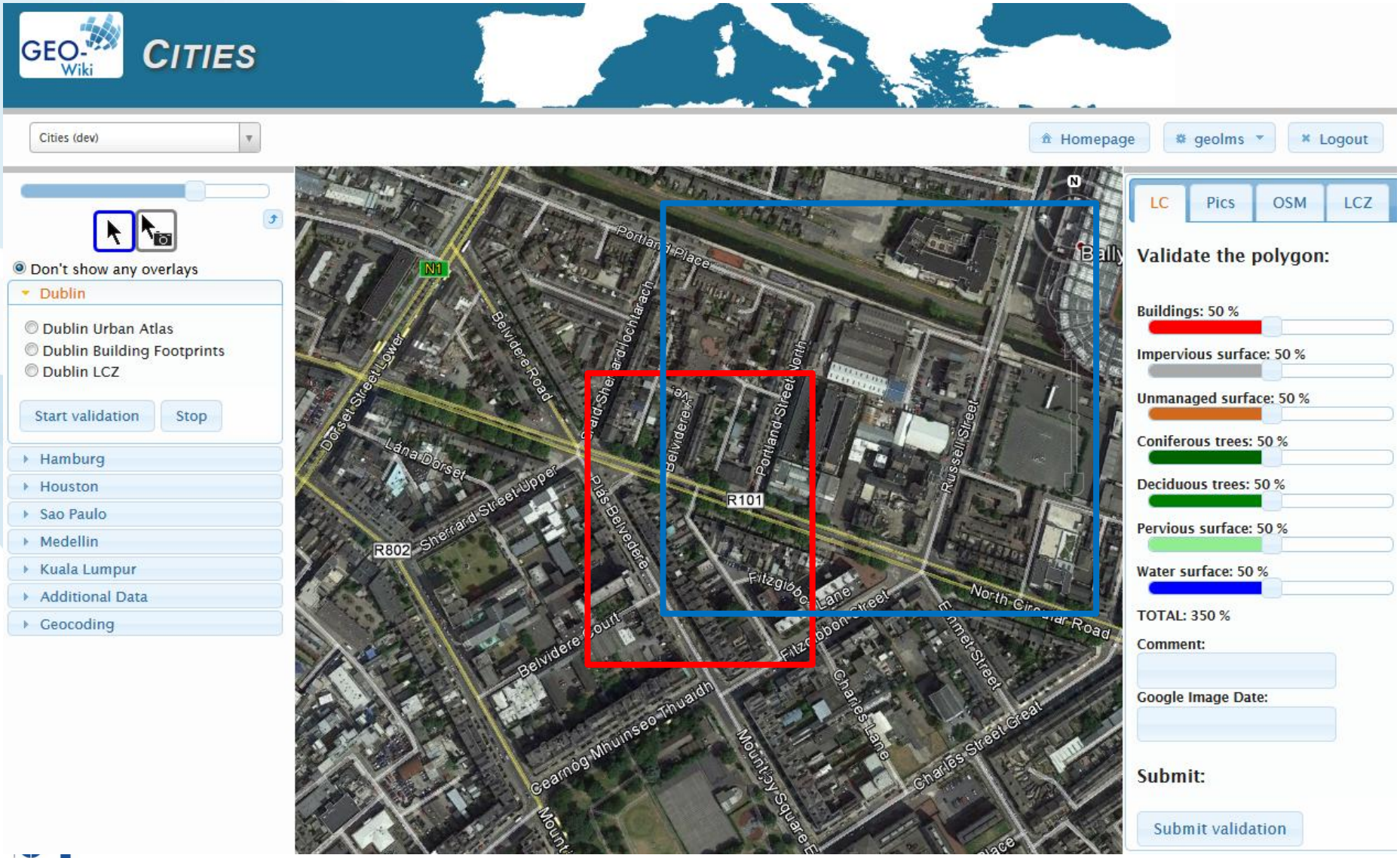
Serious Games (Cropland Capture)

Cities Geo-Wiki



Validating the LCZ Map

Level 1: Sampling Across LCZs



Level 1: Point sampling

- Sampling at a regular spaced grid across Dublin using Geo-Wiki - completed
- Allows you to create % land cover types for any type of grid size
- Need to determine the optimal spacing & sensitivity of model results
- Experimenting with OSM to reduce sampling

Information Needed on Urban Form and Function – Level 1

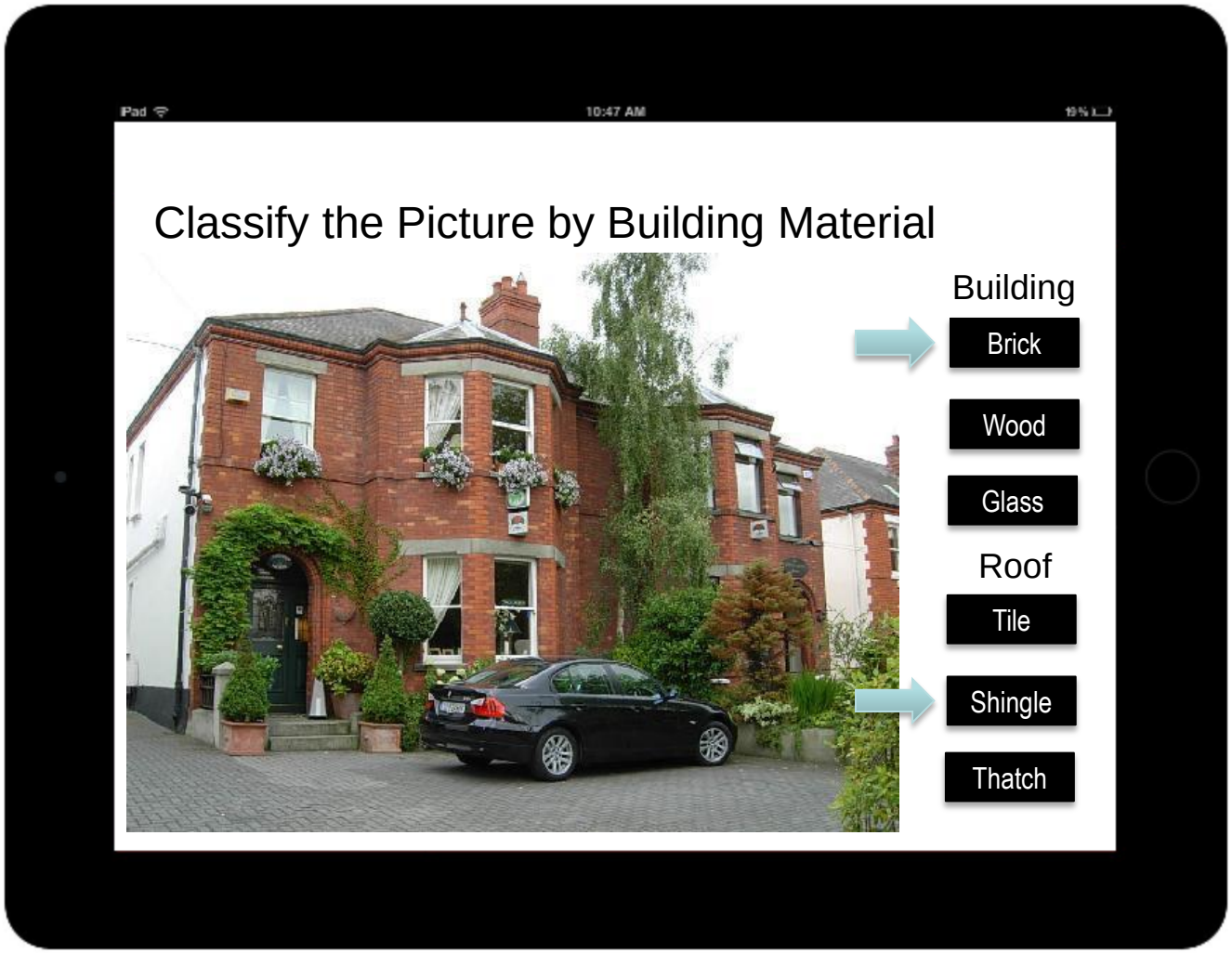
Feature	Variable
Cover	Land cover, vegetation type, vegetation organization
Geometry	Building height, width of streets, contiguous or isolated buildings, roof geometry
Material	Wall type, roof type, window type, road materials, window fraction on the wall, colour/albedo
Function	Building use, irrigation, road type, temperature settings, occupancy, air conditioning, shutters or shading, window opening, building age, building renovation post 1990

Using Pictures to Extract Data

Example Serious Game Interfaces

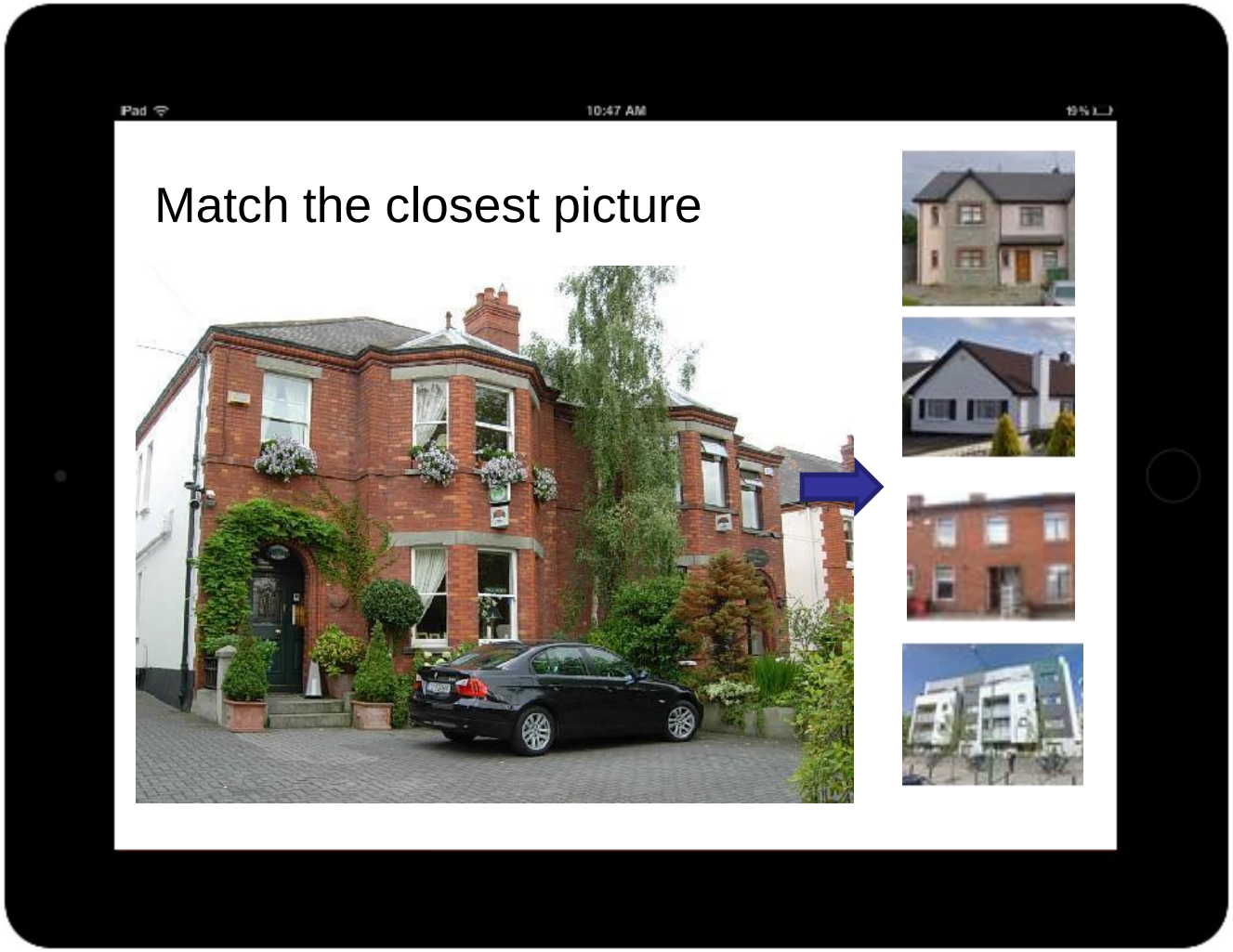
Follow us on twitter to get the latest news about Cropland Capture!

App to Gather Information from Photos: Type 1



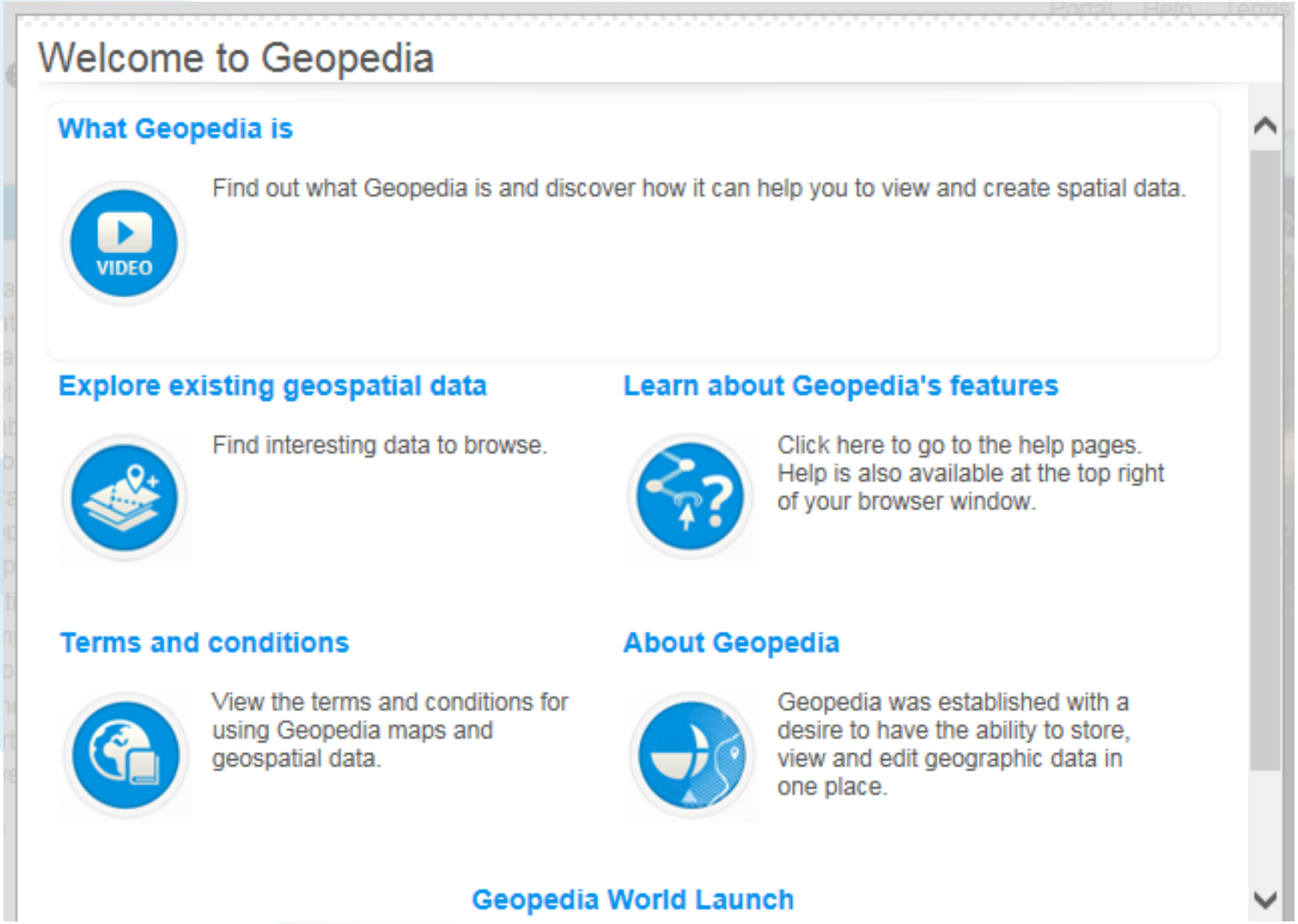
- Geotagged pictures from different sources (e.g. Flickr, crowsourcing, Streetview)
- User would identify building materials and roof types
- Automatic translation to UCPs for each LCZ
- App could also be used to take pictures and classify buildings and roof materials

App to Gather Information from Photos: Type 2



- Typical photos collected by city experts
- Could have photos on a wheel on the right to encompass more than 4 photos
- Automatic translation to UCPs for each LCZ

Geopedia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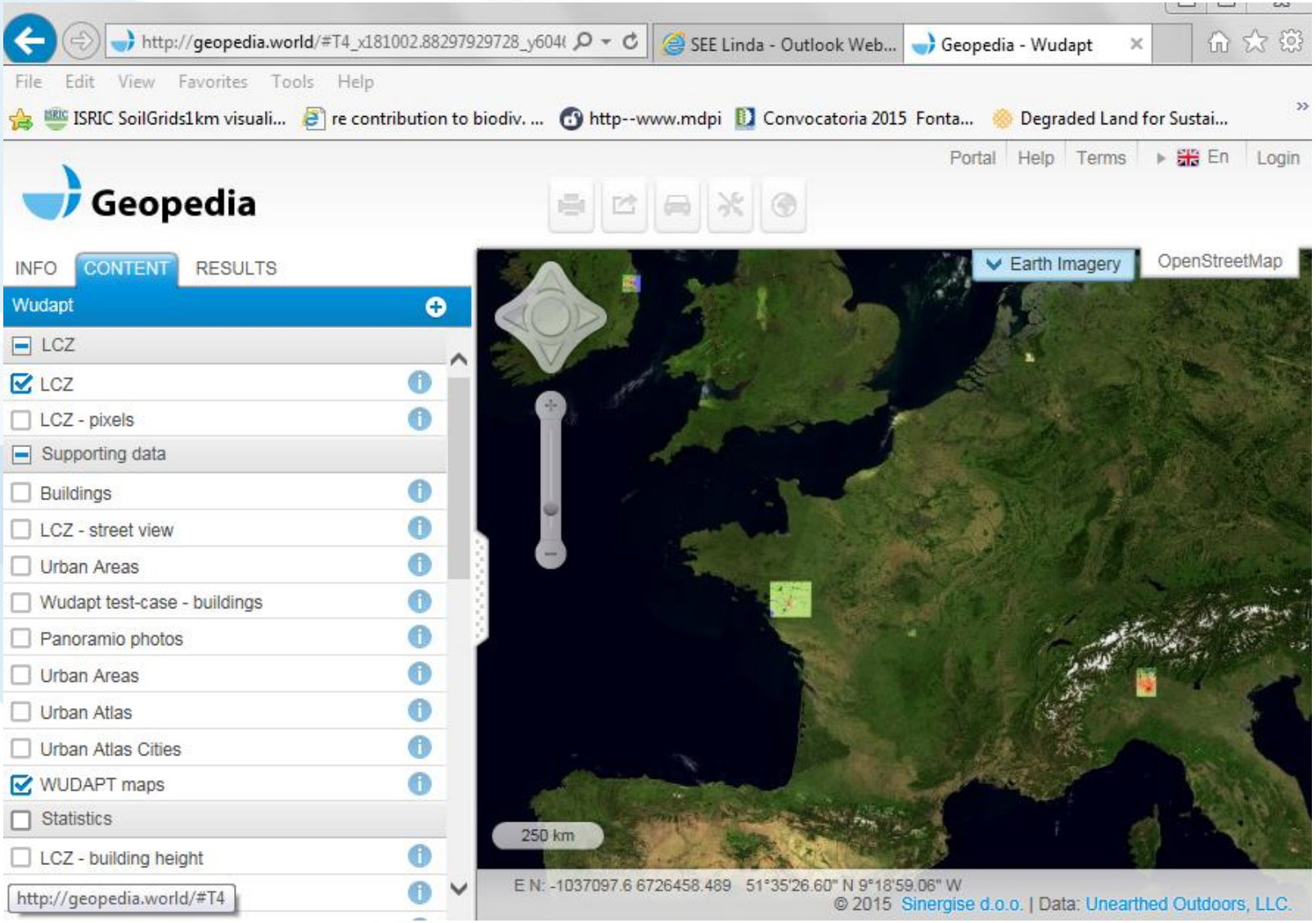
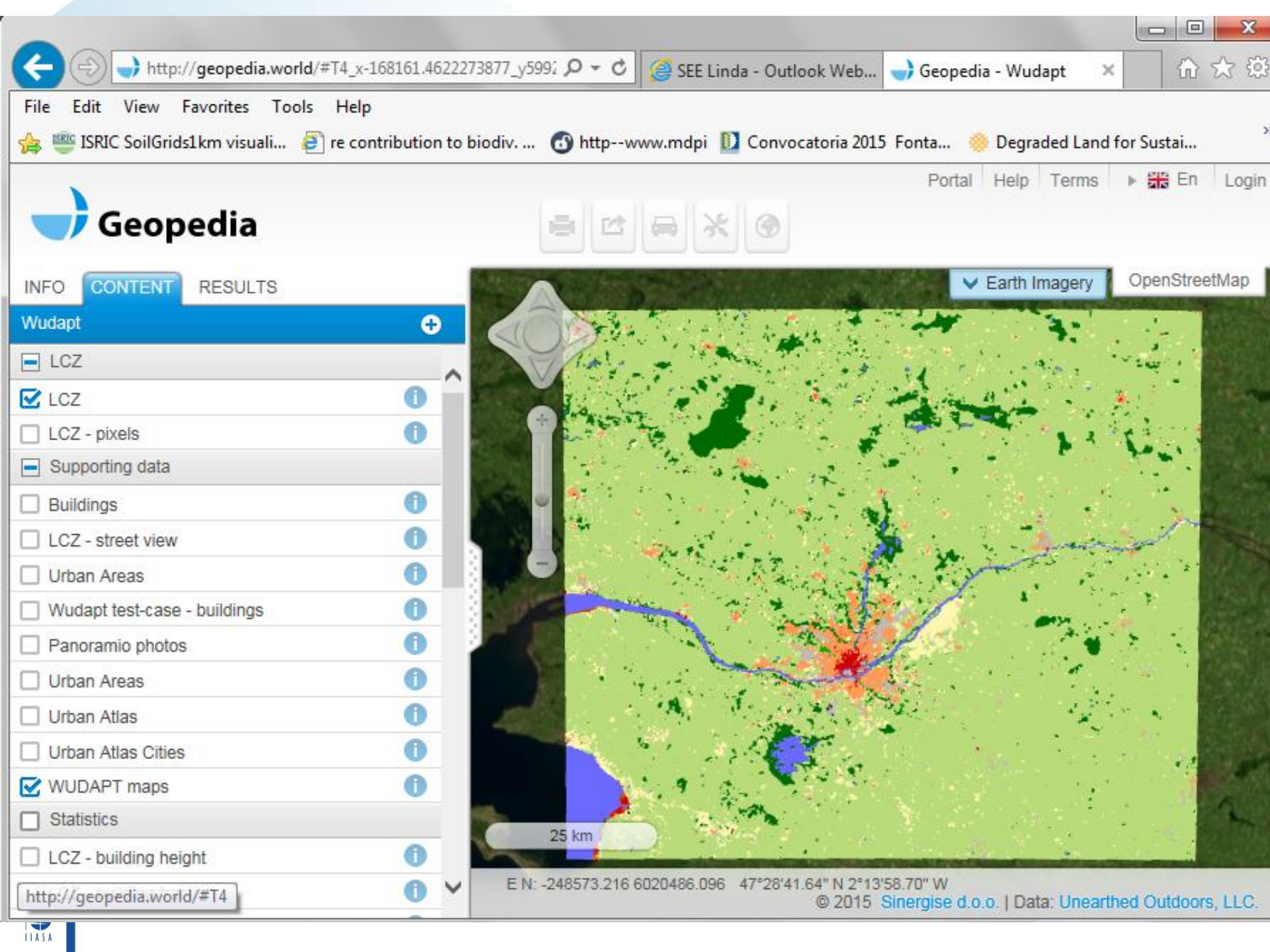
Geopedia was established with a desire to have the ability to store, view and edit geographic data in one place.
Geopedia World Launch

Visualization of LCZs

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Earth Imagery
OpenStreetMap
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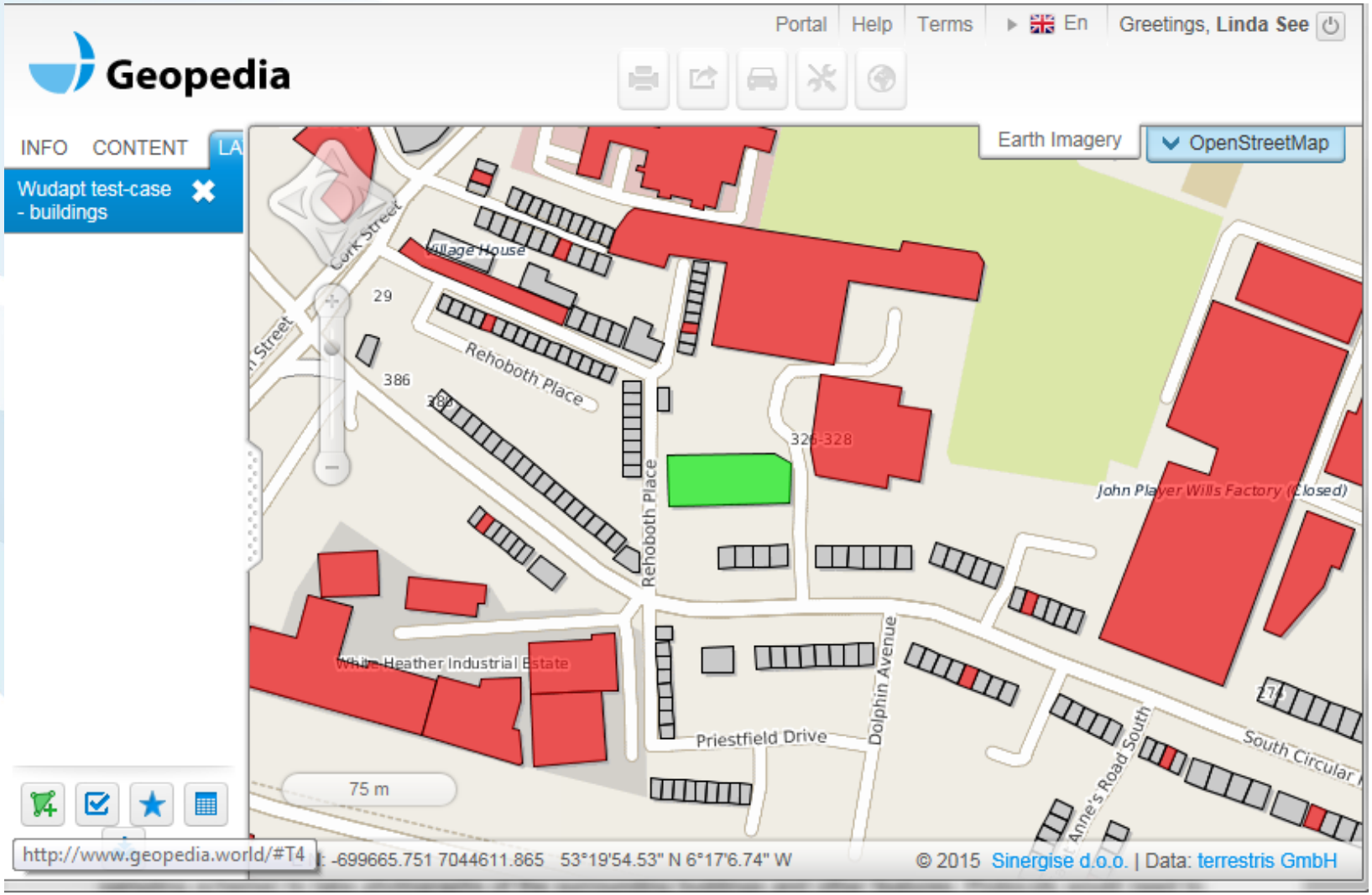
Collection of Level 1 Data



Collecting Data on Individual Buildings

Number of storeys: *

Building material: *

Roof: *

Type of building: *

Type of building - Other:

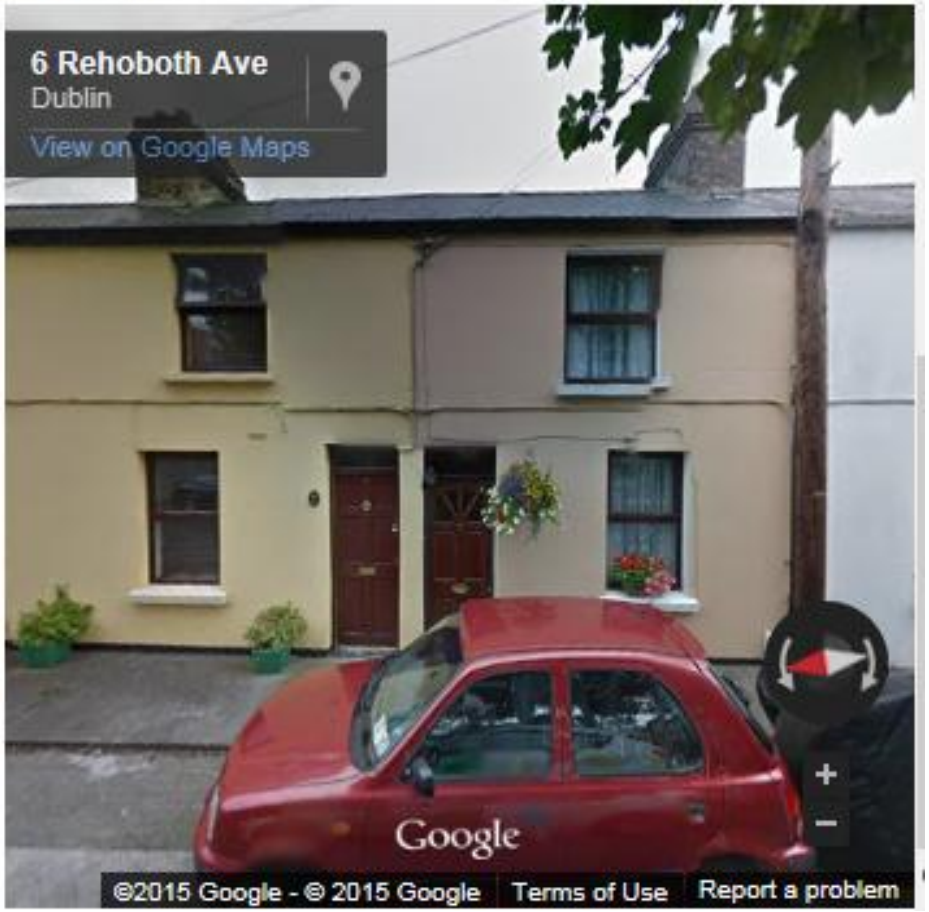
Detached?: *

Proportion of front that has windows: *

Age of building:

Albedo:

Street view:



FotoQuest Austria

- Part of the ERC CrowdLand project
- Combines science with photography and outdoor exploration (photocaching)
- Month long citizen science campaign
- Mobile phone app to take pictures at specific locations using a protocol
  - 4 directions
  - Questions about the land cover

Information Needed on Urban Form and Function – Level 2

Feature	Variable
Cover	Land cover, vegetation type, vegetation organization
Geometry	Building height, width of streets, contiguous or isolated buildings, roof geometry
Material	Wall type, roof type, window type, road materials, window fraction on the wall, colour/albedo
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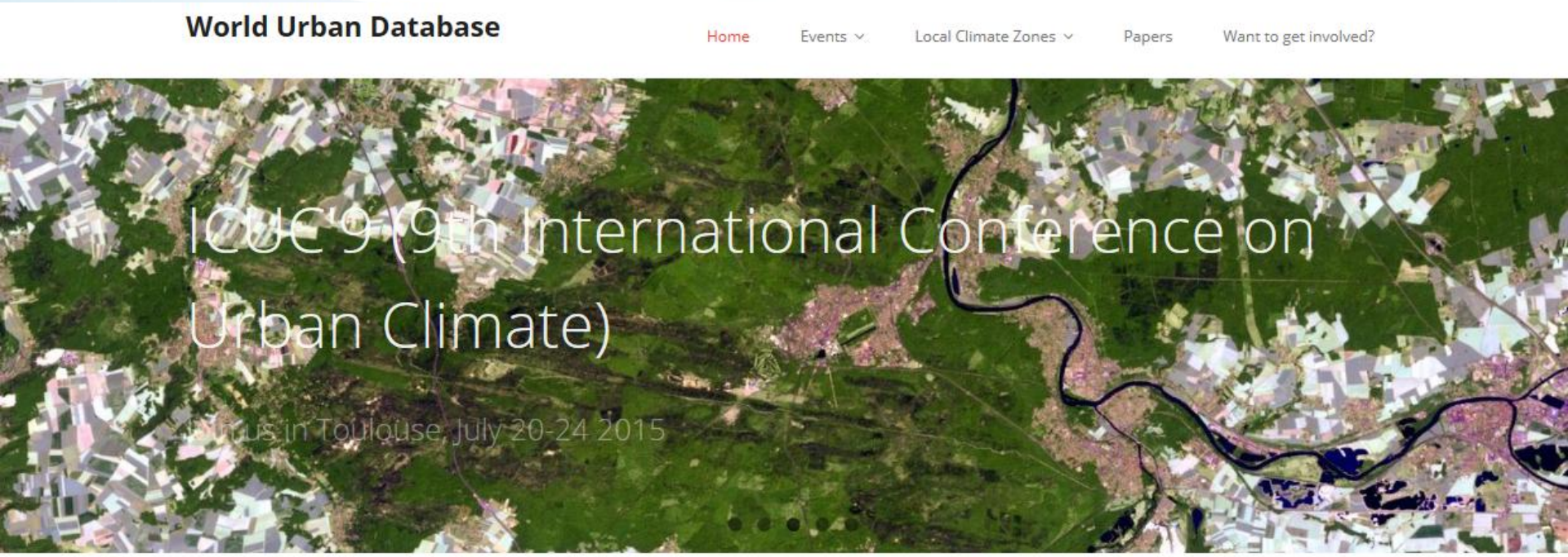
Next Steps

- Expand LCZ classifications to as many cities as possible
- Begin level 1 data collection (Geo-Wiki / expert-sourcing to sample land cover types for cities with LCZs)
- Use Geopedia to extract information on buildings, roads, vegetation
- Further develop methods, protocols and tools for Level 1 data collection

Wudapt.org: Join mailing list for more info



The World Urban Database and Access Portal Tools (WUDAPT) is an initiative to collect data on the form and function of cities around the world.

The impact of cities on the climate at urban, regional and global scales is a topic of considerable debate. Much of the relevant research to date has been focused on mapping urban centers using demographic and administrative information, often supplemented by remote sensing. However, these data provide no information on the internal make-up of cities, which is important for understanding their impact on the environment as well as their vulnerability to change. The most recent report from the Intergovernmental Panel on Climate Change (IPCC) notes the dearth of information on urban areas. The WUDAPT initiative is designed to fill this gap.

Wudapt.org

Create LCZ Training Areas

Follow the simple steps outlined here to create LCZ training areas for your city

Read More »

Classify your City

Follow the step-by-step instructions to create an LCZ classification of your city

Read More »

View LCZ maps

Access LCZ maps for different cities around the world using Geopedia

Read More »

- Missing a way to:
  - contribute or upload maps / data
  - download data (‘access’ part)
  - process data (‘portal’ part)

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See you at the workshop!

Questions?

Funding by CROWDLAND