

# YYT-C3001 Management of environmental data and information

## Lecture 9: Finnish data producers



Aalto University  
School of Engineering

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14.10.2020

# Contents of this lecture

**Some more Finnish data producers and data sets**

**Finnish Environment Institute (SYKE)**

**Helsinki region spatial data (HSY)**

**City of Helsinki spatial data (hel.fi)**

**Digiroad**

# Learning goals for this lecture

**Familiarize yourself with the breadth of spatial data providers in Finland**

**Remember where you can go to look for spatial data**

# Suomen Ympäristökeskus (SYKE) – Finnish Environment Institute

# Spatial data infrastructure at Syke

## **Syke has collected all their open data sets into one service**

- Available at [https://www.syke.fi/en-US/Open information](https://www.syke.fi/en-US/Open_information) ([https://www.syke.fi/fi-FI/Avoin tieto](https://www.syke.fi/fi-FI/Avoin_tieto))
- Material are also available at <https://syke.maps.arcgis.com/home/index.html>
- Data available through download, map view, and API services

## **Syke also manages their research datasets**

- Published research data sets are available at <https://ckan.ymparisto.fi/>
- Not limited to just spatial data

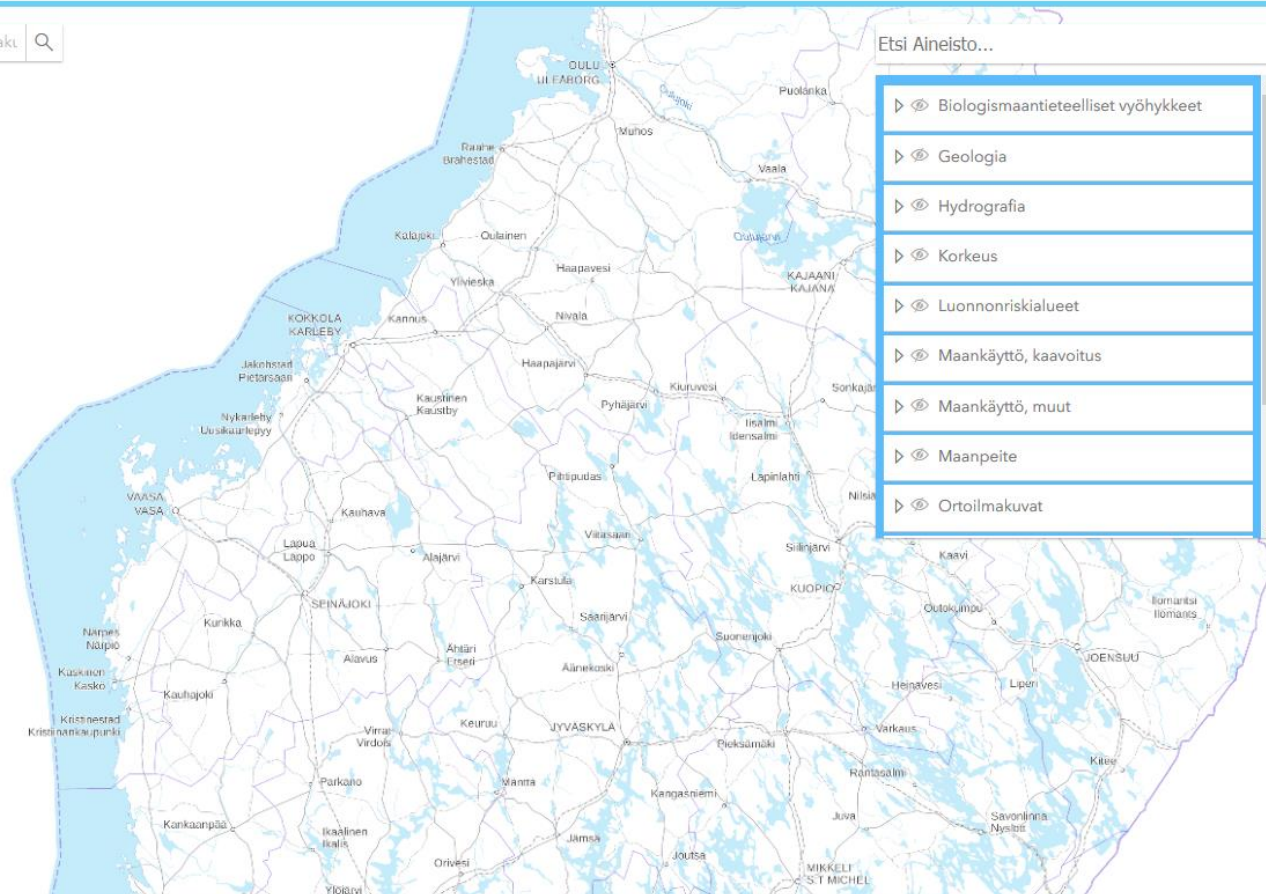
# The Syke spatial data download service: Lapio



## Latauspalvelu LAPIO

[Ohjeet](#) | [Syke/avoindata](#)

Paikan nimi, osoite, kunta tai maak. 🔍



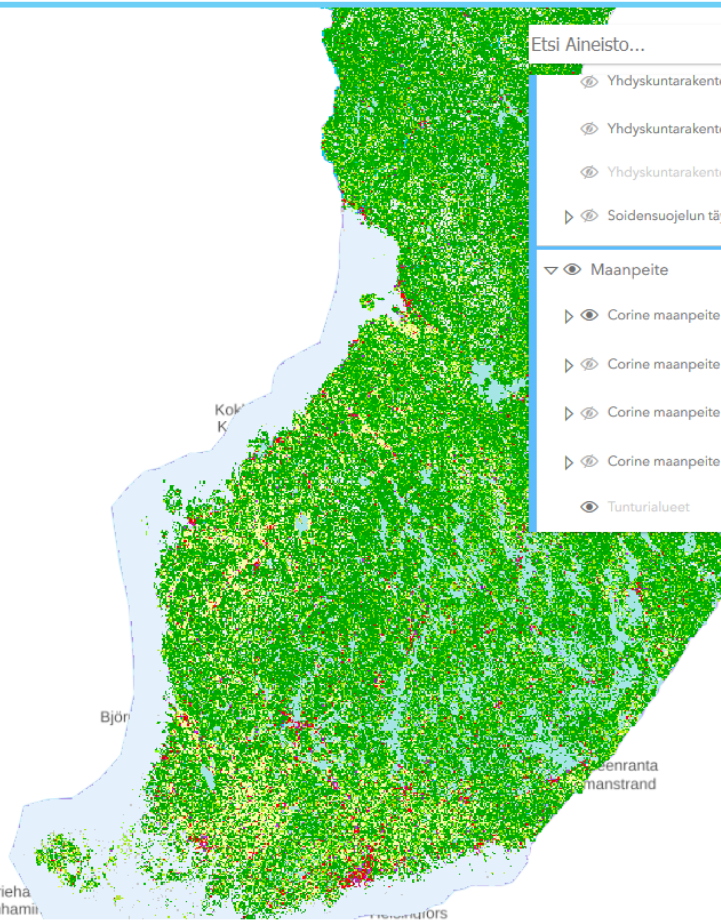


## Maanpeite

Corine maanpeite 2018

CLC2018 maanpeite 20m

- Kerrostaloalueet
- Pientaloalueet
- Palveluiden alueet
- Teollisuuden alueet
- Liikennealueet
- Satama-alueet
- Lentokenttäalueet
- Maa-ainesten ottoalueet
- Kaivokset
- Kaatopaikat
- Pienkyläalueet



## Etsi Aineisto...

- Yhdyskuntarakenteen vyöhykkeet 2015 ...
- Yhdyskuntarakenteen vyöhykkeet 2010 ...
- Yhdyskuntarakenteen vyöhykkeet 2017 ...
- Soidensuojelun täydennysehdotus ...
- Maanpeite
- Corine maanpeite 2018 ...
- Corine maanpeite 2012 ...
- Corine maanpeite 2006 ...
- Corine maanpeite 2000 ...
- Tunturialueet ...



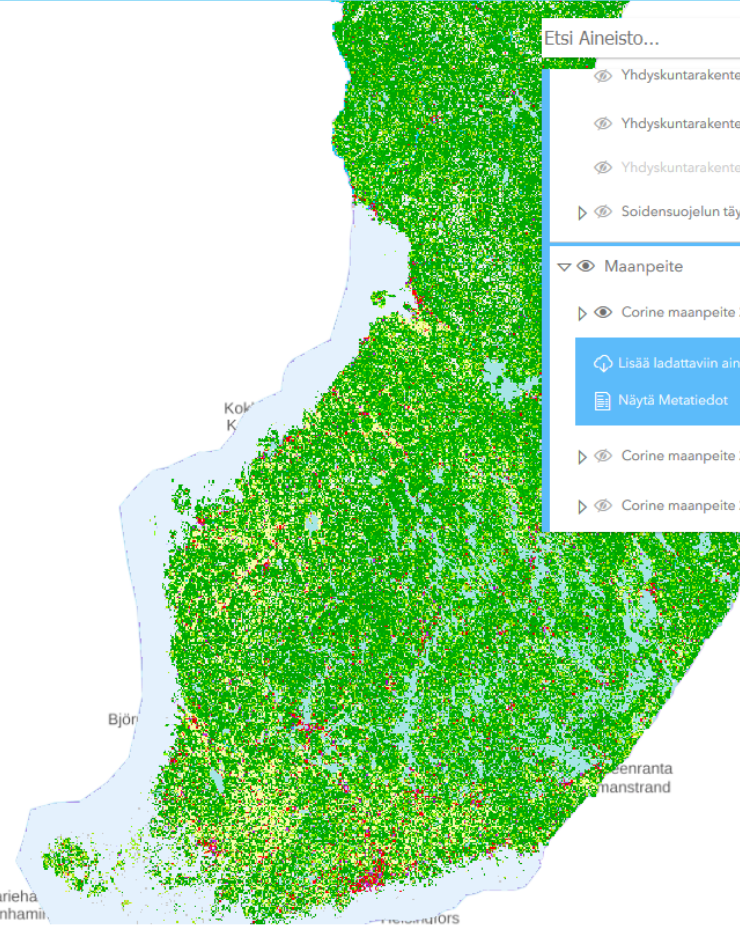
▼ Paikan nimi, osoite, kunta tai maak. 🔍



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- ▼  Maanpeite
  - Corine maanpeite 2018 ...
  - Lisää ladattaviin aineistoihin
  - Näytä Metatiedot
  - Corine maanpeite 2012 ...
  - Corine maanpeite 2006 ...

**A**



# Syke example: CORINE land cover

<https://paikkatieto.ymparisto.fi/lapio/latauspalvelu.html>

# CORINE Group work

**Take a look at what is CORINE land cover.**

**First, spend 10 minutes looking at what CORINE is by yourself**

**Then, I'll divide you into breakout rooms to discuss your findings. Spend 10 minutes discussing CORINE**

**After that we'll discuss the topic together**

**Then we can take a look at the material I've compiled on CORINE**

**If you want to make notes, you can use jamboard:**

**<https://jamboard.google.com/d/1jd4lbTHby7iXELJ4MdrkqV0WVKeEKt15KwkMNQhAEos/edit?usp=sharing>**

# CORINE

## Coordination of Information on the Environment

EU-wide program for gathering and managing important land cover data

The program was started in 1985 and the first CORINE data set was delivered in 1990



- Finland started participating in 2000
- The program is older than EU in its current form

**CORINE contains over 40 different land cover classes**





## Corine land cover classes

### 1. Artificial surfaces




#### 1.1 Urban fabric

-  1.1.1. Continuous urban fabric
-  1.1.2. Discontinuous urban fabric



#### 1.2 Industrial, commercial and transport units

-  1.2.1. Industrial or commercial units
-  1.2.2. Road and rail networks and associated land
-  1.2.3. Port areas
-  1.2.4. Airports

#### 1.3 Mine, dump and construction sites




-  1.3.1. Mineral extraction sites
-  1.3.2. Dump sites
-  1.3.3. Construction sites

#### 1.4 Artificial, non-agricultural vegetated areas




-  1.4.1. Green urban areas
-  1.4.2. Sport and leisure facilities

### 2. Agricultural areas

#### 2.1 Arable land




-  2.1.1. Non-irrigated arable land
-  2.1.2. Permanently irrigated land
-  2.1.3. Rice fields

#### 2.2 Permanent crops





-  2.2.1. Vineyards
-  2.2.2. Fruit trees and berry plantations
-  2.2.3. Olive groves

### 3. Forest and seminatural areas






#### 3.1 Forests

-  3.1.1. Broad-leaved forest
-  3.1.2. Coniferous forest
-  3.1.3. Mixed forest

#### 3.2 Shrub and/or herbaceous vegetation associations



-  3.2.1. Natural grassland
-  3.2.2. Moors and heathland
-  3.2.3. Sclerophyllous vegetation
-  3.2.4. Transitional woodland shrub

#### 3.3 Open spaces with little or no vegetation




-  3.3.1. Beaches, dunes, and sand plains
-  3.3.2. Bare rock
-  3.3.3. Sparsely vegetated areas
-  3.3.4. Burnt areas
-  3.3.5. Glaciers and perpetual snow

### 4. Wetlands

#### 4.1 Inland wetlands

-  4.1.1. Inland marshes
-  4.1.2. Peat bogs

#### 4.2 Coastal wetlands

-  4.2.1. Salt marshes
-  4.2.2. Salines
-  4.2.3. Intertidal flats

# CORINE in Finland

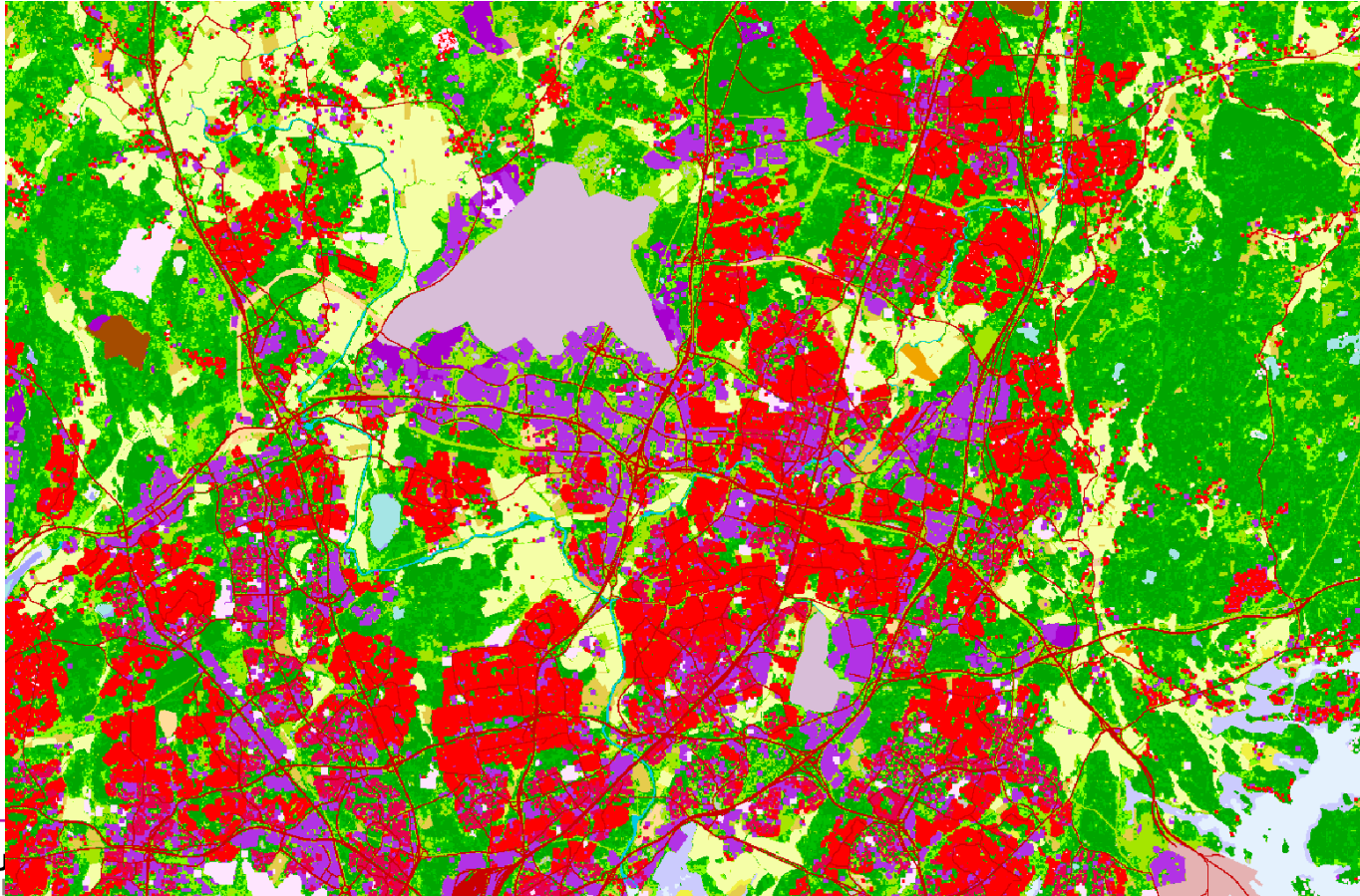
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Kaivokset  
Kaatopaikat  
Rakennustyöalueet  
Vapaa-ajan asunnot  
Muut urheilu- ja vapaa-ajan toiminta –alueet  
Golfkentät  
Raviradat  
Pellot  
Hedelmäpuu- ja marjapensasviljelmät  
Laidunmaat  
Luonnon laidunmaat

Käytöstä poistunut maatalousmaa  
Puustoiset pelto- ja laidunmaat  
Lehtimetsät kivennäismaalla  
Lehtimetsät turvemaalla  
Havumetsät kivennäismaalla  
Havumetsät turvemaalla  
Havumetsät kalliomaalla  
Sekametsät kivennäismaalla  
Sekametsät turvemaalla  
Sekametsät kalliomaalla  
Luonnonniityt  
Varvikot ja nummet  
Harvapuustoiset alueet, cc <10%  
Harvapuustoiset alueet, cc 10-30%, kivennäismaalla  
Harvapuustoiset alueet, cc 10-30%, turvemaalla  
Harvapuustoiset alueet, cc 10-30%, kalliomaalla  
Harvapuustoiset alueet, sähkölinjan alla  
Rantahietikot ja dyynialueet  
Kalliomaat  
Niukkakasvustoiset kangasmaat

Sisämaan kosteikot maalla  
Sisämaan kosteikot vedessä  
Avosuot  
Turvetuotantoalueet  
Merenrantakosteikot maalla  
Merenrantakosteikot vedessä  
Joet  
Järvet  
Meri

Luokkia, joita ei Suomesta löydy ovat mm.  
Viinitarhat  
Oliivitarhat  
Jokien suistot  
Vuorovesialueet

# CORINE map example: a Finnish city



# CORINE details

**Created as 20m \* 20m GeoTIFF files**

**Data delivered to EU as 25 hectare (500m\*500m) shapefiles created from the raster data**

**Each data set contains age-related metadata files**

- The metadata contains information about the age of the input data and thus establishes the temporal range for the actual data

**Each new CORINE data set also contains data that summarizes the changes between this and previous data set**

**Current CORINE in Finland is from 2018**

- Earlier data sets are from 2000, 2006, and 2012 so the next publication should be in 2024

# CORINE input data sets

## Earlier CORINE land cover data sets

- 2000, 2006, 2012

**National land survey topographic database (Maastotietokanta)**

**Building information (rakennus ja huoneistorekisteri)**

**Digiroad**

**Shore data**

**Satellite data**

**The Finnish forest inventory**

**Field parcel register**

**Fell (tunturi) data**

**The data is combined in various ways**

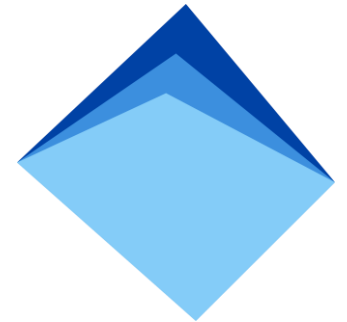
**Other input is also used (e.g. for mining sites)**



# Capital region spatial data

# Capital region public sector

- Helsinki Region Environmental Services Authority (HSY)
- Capital region cities
  - Helsinki, Espoo, Vantaa, Kauniainen
- Helsinki-Uusimaa regional council (Uudenmaan liitto)



Uudenmaan liitto  
Nylands förbund

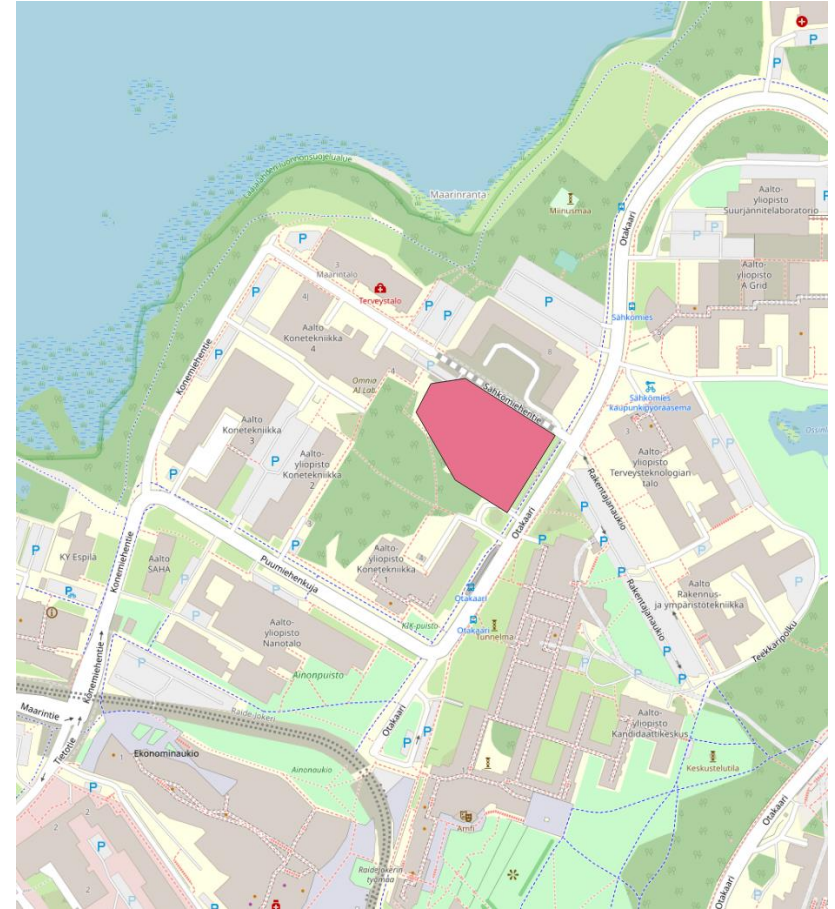
**Vantaa**

# HSY

- **Waste management and water services authority for the capital region**
- **Also provides regional and environmental information services**
- **HSY provides several spatial data sets**
  - Some are open data, some are limited
  - SeutuRuutu (RegionTile) and SeutuData (RegionData) are the most relevant data products

# SeutuData (previously SeutuCD)

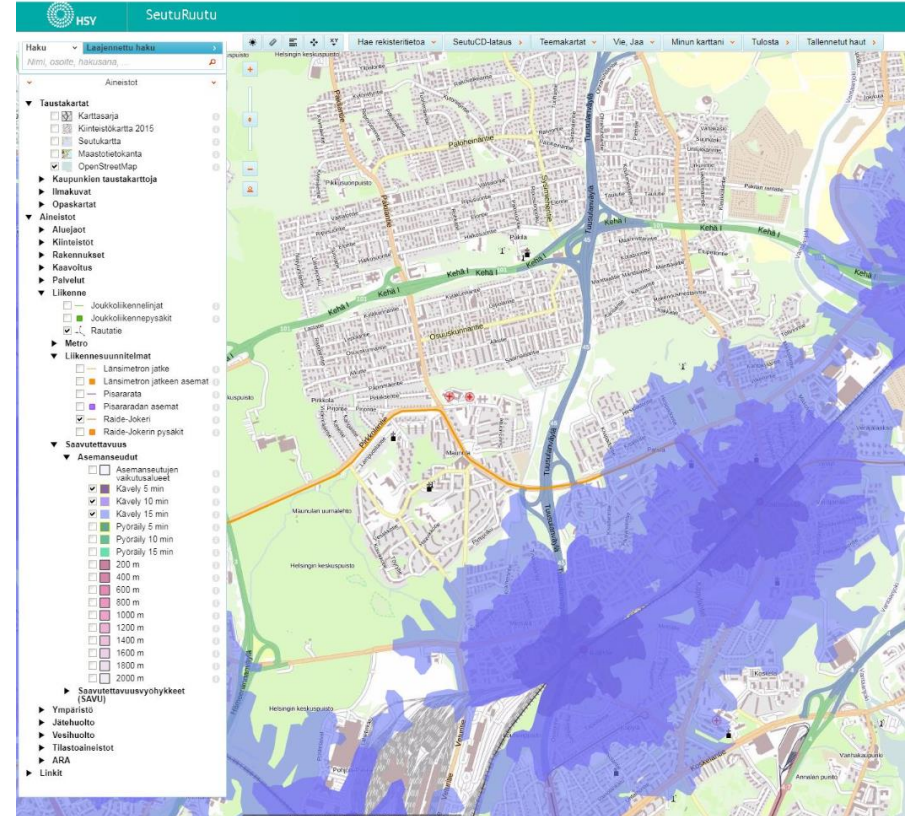
- SeutuData contains a number of spatial data layers covering capital region
- Contains material that falls under **protection of privacy** and thus available for
  - Municipality planners and their contractors
  - HSY and HSL personnel
  - For educational purposes
- **Some of the material is also available as open data**
  - Additional value comes from combining all the data together



SeutuData example: areas where hazardous chemicals are handled

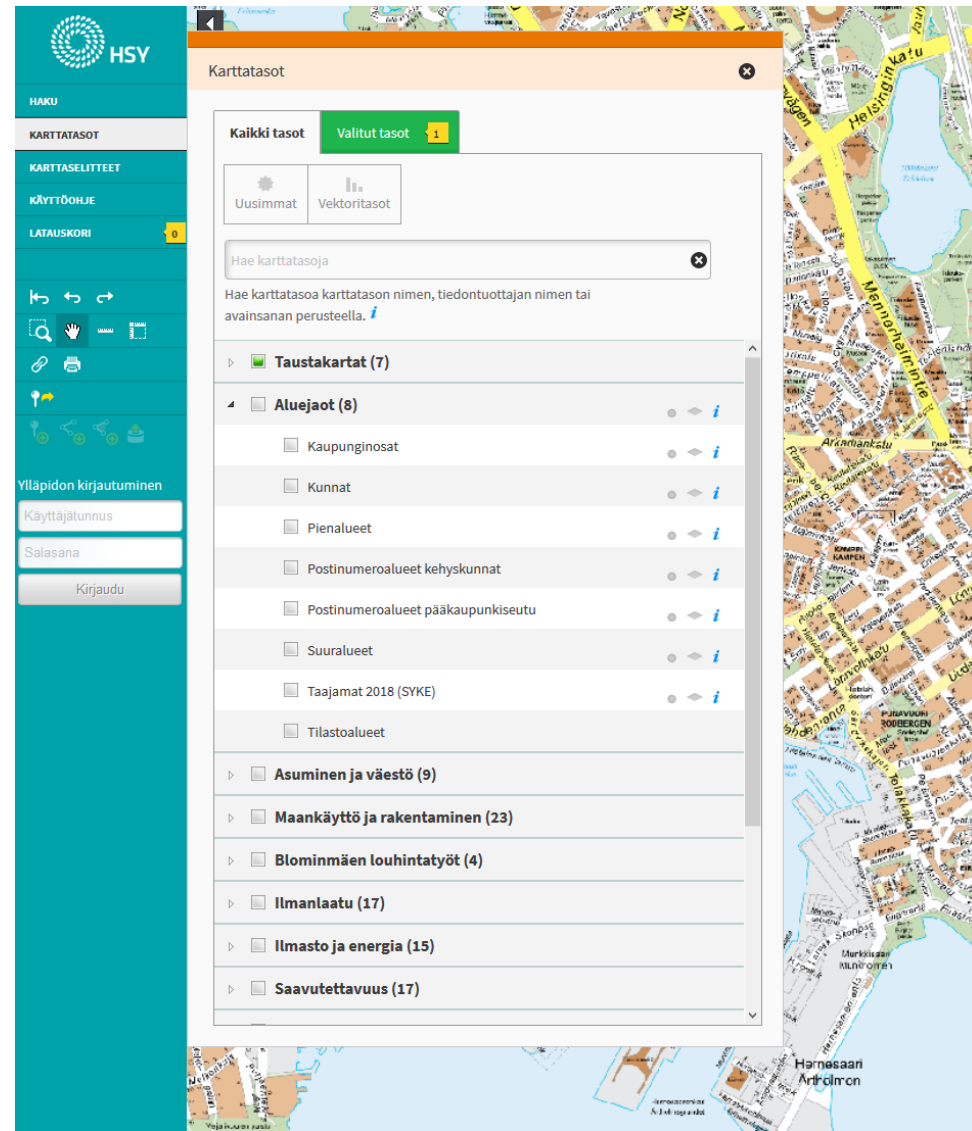
# SeutuRuutu

- **Web-based service for official municipality use**
- **Includes information about individual objects and elements at the capital region**
- **Contains material that falls under **protection of privacy****
  - Not available for educational purposes



# HSY Open Data

- HSY hosts a number of open data sets
- There is not much overlap with the SeutuData materials
  - Probably significant with SeutuRuutu, which is a service, not just data set
- Available through a map service or through API (WMS/WFS)
- <https://kartta.hsy.fi/>



# Helsinki Region Infoshare (HRI)

- **Open data service for the capital region municipalities**
- **Not just spatial data**
  - Museum of the hearing impaired is the least visited of Helsinki museums
- **Spatial data (esp. maps) are a very popular part of the service**



# Helsinki Spatial Data Services



# Helsinki measurement and spatial data services

- All Finnish municipalities require spatial data services
- Cadastre (kiinteistörekisteri), master plan (yleiskaava) and city plan (asemakaava) are needed
  - Not all municipalities maintain this data themselves
- Large cities like Helsinki put a lot of resources into these in order to be able to properly plan and govern the city
  - Because the capital area is one large urban area, capital area cities work in close cooperation
- The Helsinki city Urban Environment Division (kaupunkimittauspalvelut) provides these services in Helsinki
  - And are a central actor in the whole capital region
- The create and maintain a lot of spatial data sets
  - Many of which are available as open data



# Helsinki open data

- <https://kartta.hel.fi/avoindata/>
- **Data available for**
  - Viewed over web browser
  - Raster data over WM(T)S
  - Vector data over WFS
  - Direct download (some datasets)
- **Number of data layers available is large**
  - Historical
  - Planning
  - Services, etc
  - <https://kartta.hel.fi/paikkatietohakemisto>

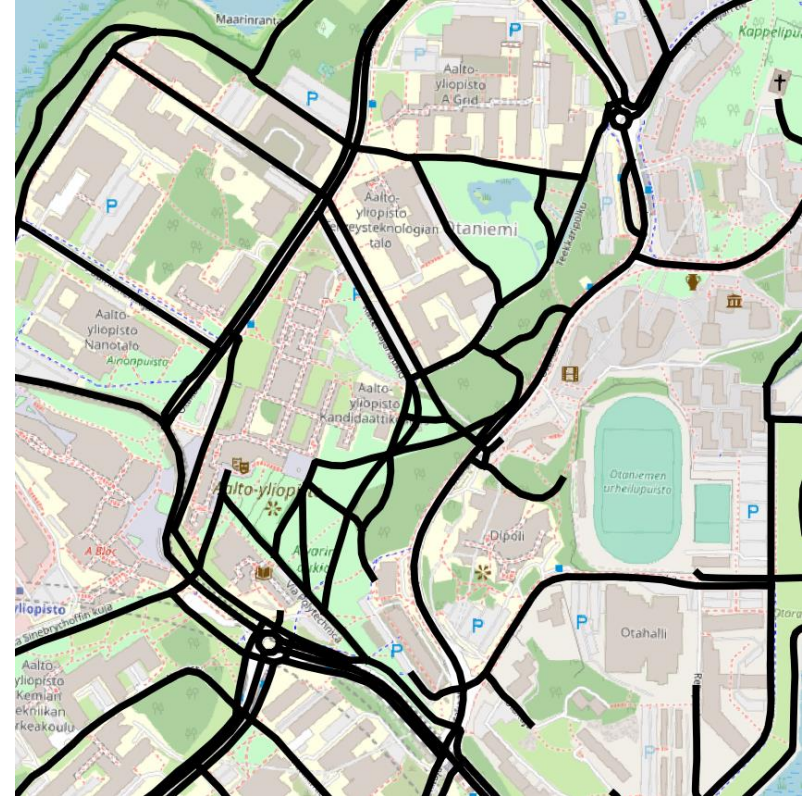


Map of Helsinki, 1900

# Digiroad

# The National Road and Street Database

- <https://vayla.fi/web/en/open-data/digiroad>
- Road geometry and attribute data
- Available as
  - GeoPackage covering whole Finland
  - ShapeFile covering each region
- **Two distinct versions**
  - In Digiroad R each link is from intersection to intersection
  - In Digiroad K each link is area where all road attributes stay the same (e.g. road type)



Digiroad over OSM background map

# For the next time...

**Tomorrow Juha Saarentaus from Geowise will give us a presentation on the basics of spatial data business.**

**Remember to finalize your learning diary. Submission deadline is on Wednesday, October 21 at 10.00AM.**

**This is a hard deadline, late submissions will not be accepted without prior agreement!**