# Master topics 09-09-2016

… on top of what is published

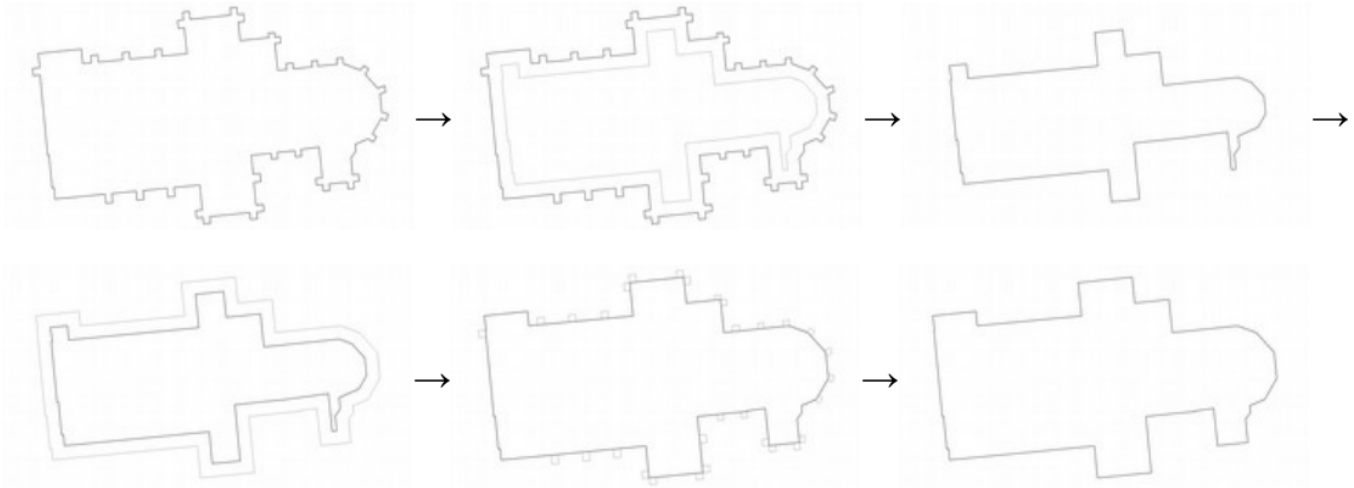
TU Delft

# Master topics 3D-GISt

.. some more ideas

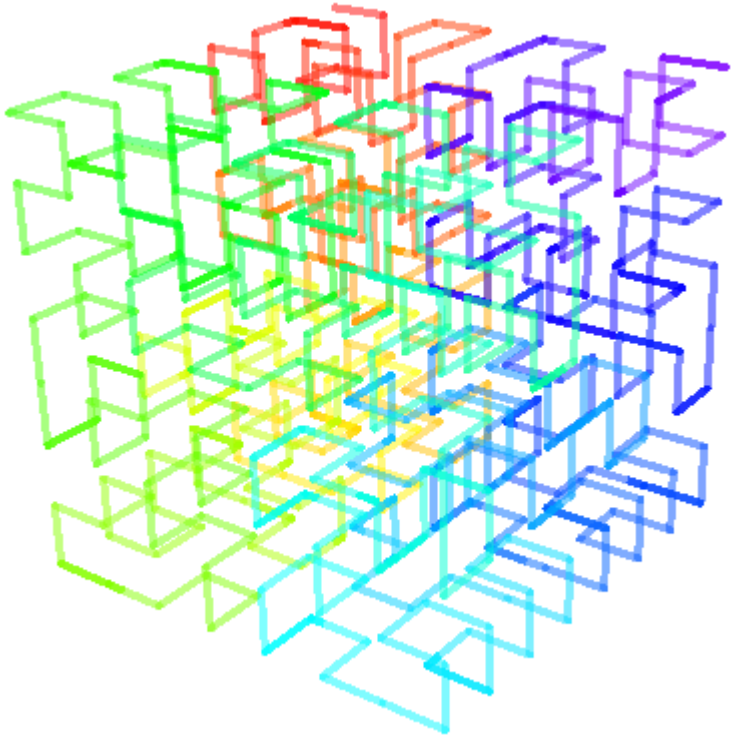
# Straight skeletons for vario-scale maps

- What we can do with the Straight Skeleton as supporting data structure for vario-scale map generalization?



# Using nD data in a web services setting

- This project tests whether a generic spatial access method for nD data (based on grouping the nD objects into a Hilbert Rtree) can be used in a web service environment.



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# Master topics GISt

In cooperation ..

# Geonovum


GEONOVUM
Geonovum in vogelvlucht
GEONOVUM
www.geonovum.nl

# Geonovum in one slide


Improving
Accessibility

Improving
Usability

Spatial enabled government


Co-creation as strategy

# Various topics

- Semantic repository with all spatial data of NL
  - Create semantic repository of all open spatial data in the NL to:
    - Geocoding: find ‘Palace op de Dam’ regardless of typos or knowing whether it is a street name or other point of interest.
    - Public service: Provide all relevant information of a building to a fireman that is going to save lives.
- Linking Big data and the sensor web
  - Geonovum is participating in the Platform Making Sense for Society. Many opportunities here to experiment with
  - New tooling BIG geo-data, sensors networks
- Interactive development of specifications
  - Via Mapbox or Cartodb visualize UML diagrams of datasets.
  - Automatically convert existing data into the new model so that users can validate the model by working with data instead of looking at a UML diagram.

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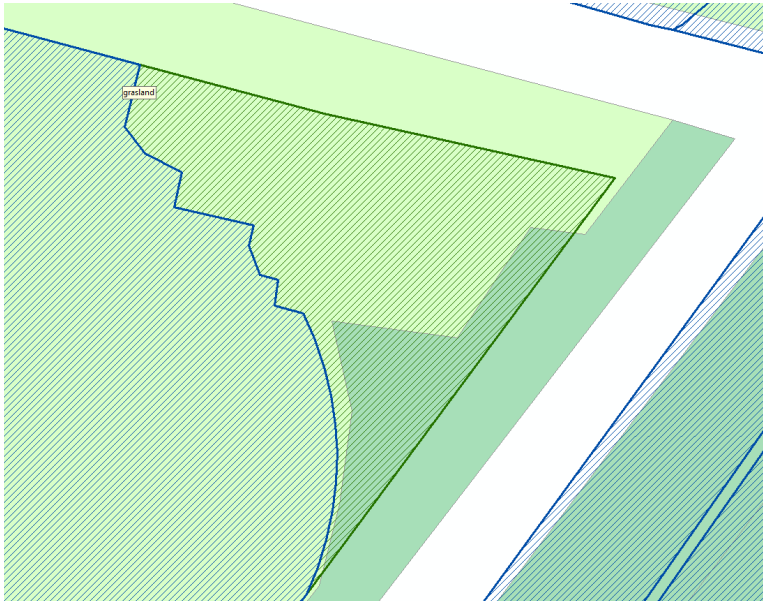
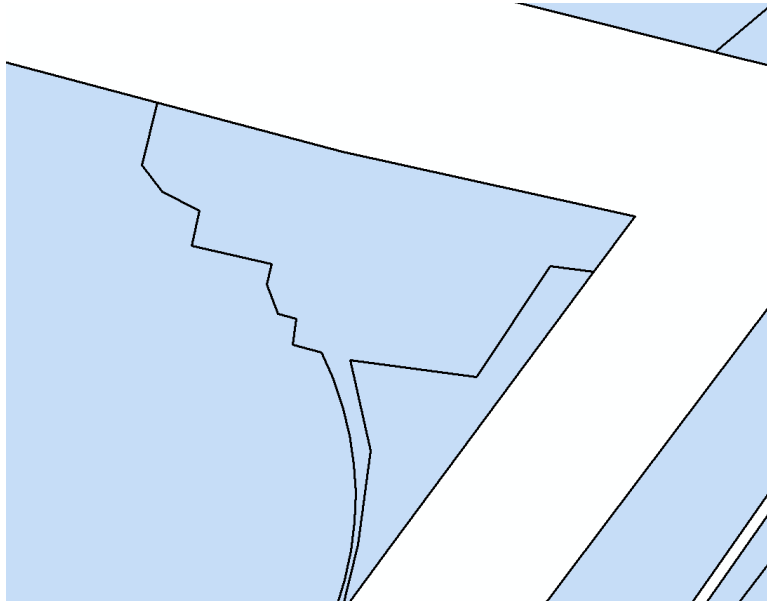
kadaster

# Kadaster: BGT performance



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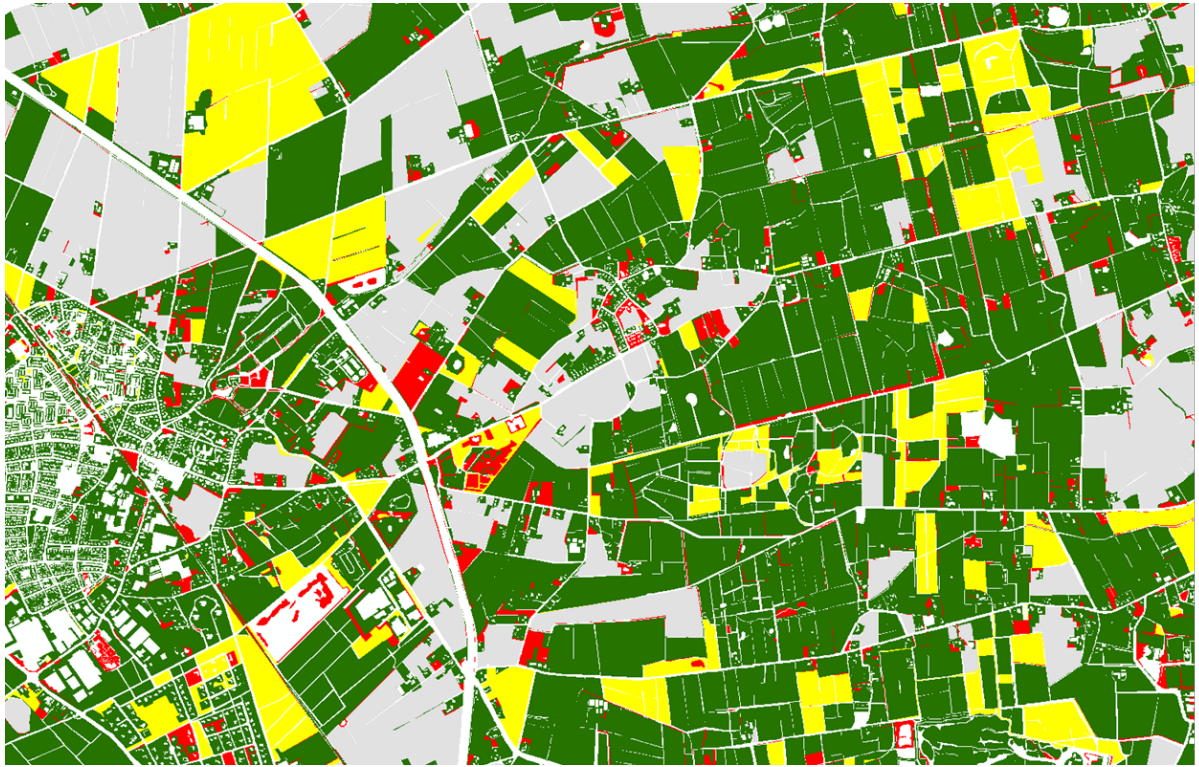
# Kadaster: BGT perfomance

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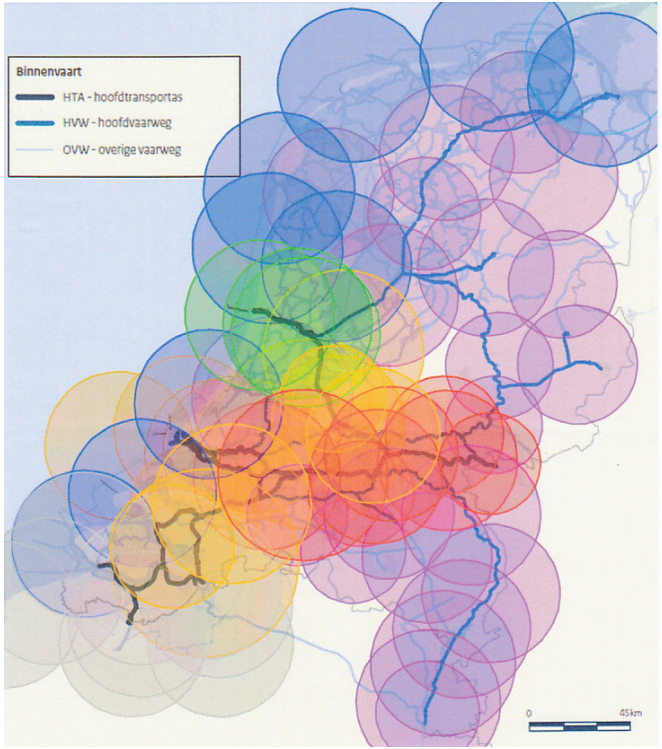
# RWS topic: anonymization of ships locations

- RWS collects locations of all ships in NL for traffic management (Via AIS)
- Privacy issues makes re-use hard.

**Possible questions:**

- Can we anonymize the data?
- What are the legal obligations for re-use?



# Point Clouds

- Spatio Temporal
  - It's melting …



# Geomatics Thesis Subjects at Fugro

## Geo-ICT & Data Management

# Dense Matching in industrial environments

Industrial plants require frequent updates of 3D information for asset management and regulatory compliance.

Dense Matching is a technology to retrieve point clouds from images. However, this is hard because of the smooth surfaces in an plant.

However, prior knowledge about shapes is present: pipes are cylindrical, steel beams have a H-shape, etc. This knowledge can be applied in the Dense Matching process.

As part of the thesis, we expect you to visit a plant and collect the required images yourself.

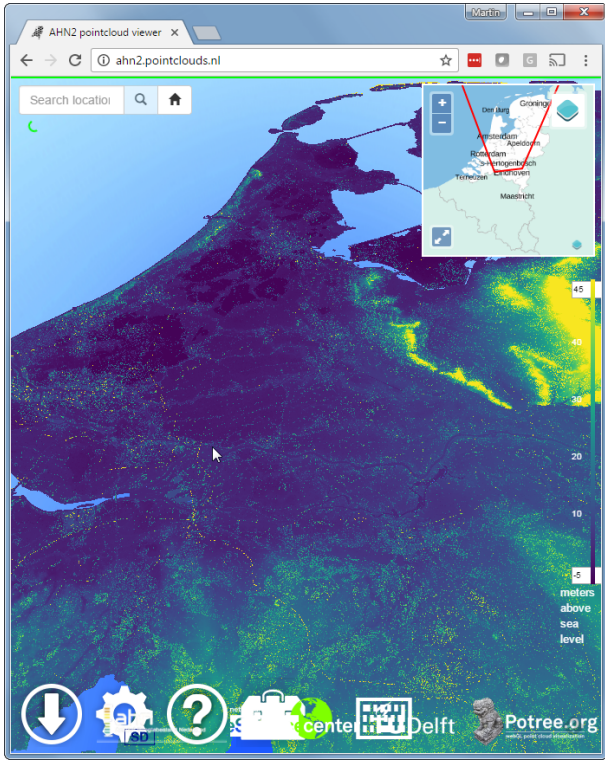
# Open Point Cloud Map

Last year, the website ahn2.pointclouds.nl was developed by TU Delft, eScience Center, Rijkswaterstaat, Oracle and Fugro

The site uses open source tooling to host and visualise the entire AHN2 in the browser

We would like to extent this project to built the Open Point Cloud Map. One environment where all open point cloud data sets from around the world can be hosted.

This poses many challenges, including data management, indexing, coordinate reference systems and 3D visualisation



# Automatic Point Cloud Matching

Mobile Mapping is a very common and popular way to collect 3D data

The position accuracy of these data sets is typically in the order of a few cm. This is too big for most practical applications. Hence matching of point clouds is applied.

Various methods for point cloud matching exist, but applying them on massive data sets requires parallelization and high performance computation clusters.

In this research you will work with our HPC cluster to develop a method to automatically match massive point clouds.

# MSc. Thesis at Fugro

Fugro is the world's largest integrator of survey and geotechnical services.

From our main office in Leidschendam, you will work in a large team of Geomatics Engineers, many of them being alumni from Delft University.

We provide an internship position at Fugro during your research and lots of supervision from our technical experts.

You will learn a lot about employing Geomatics innovations in the real world. And above all, you will have a lot of fun in our young and motivated team.

Thank you for your attention

For more information:
Martin Kodde
Manager Geo-ICT & Data Management

m.kodde@fugro.com
+31 70 3170928