Heel Nederland in 3D

met postgis...

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~~Wie~~

Wat

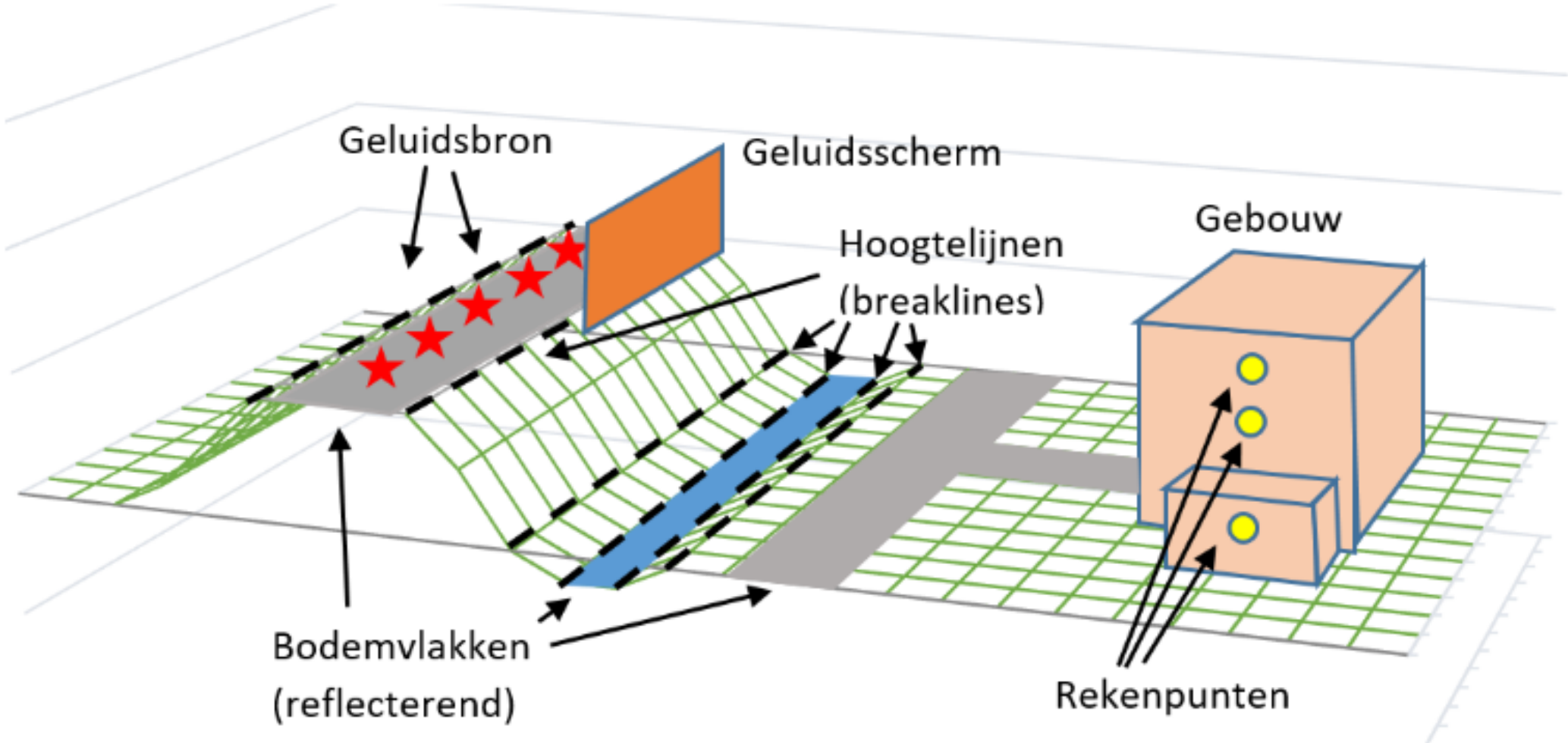
Waarom

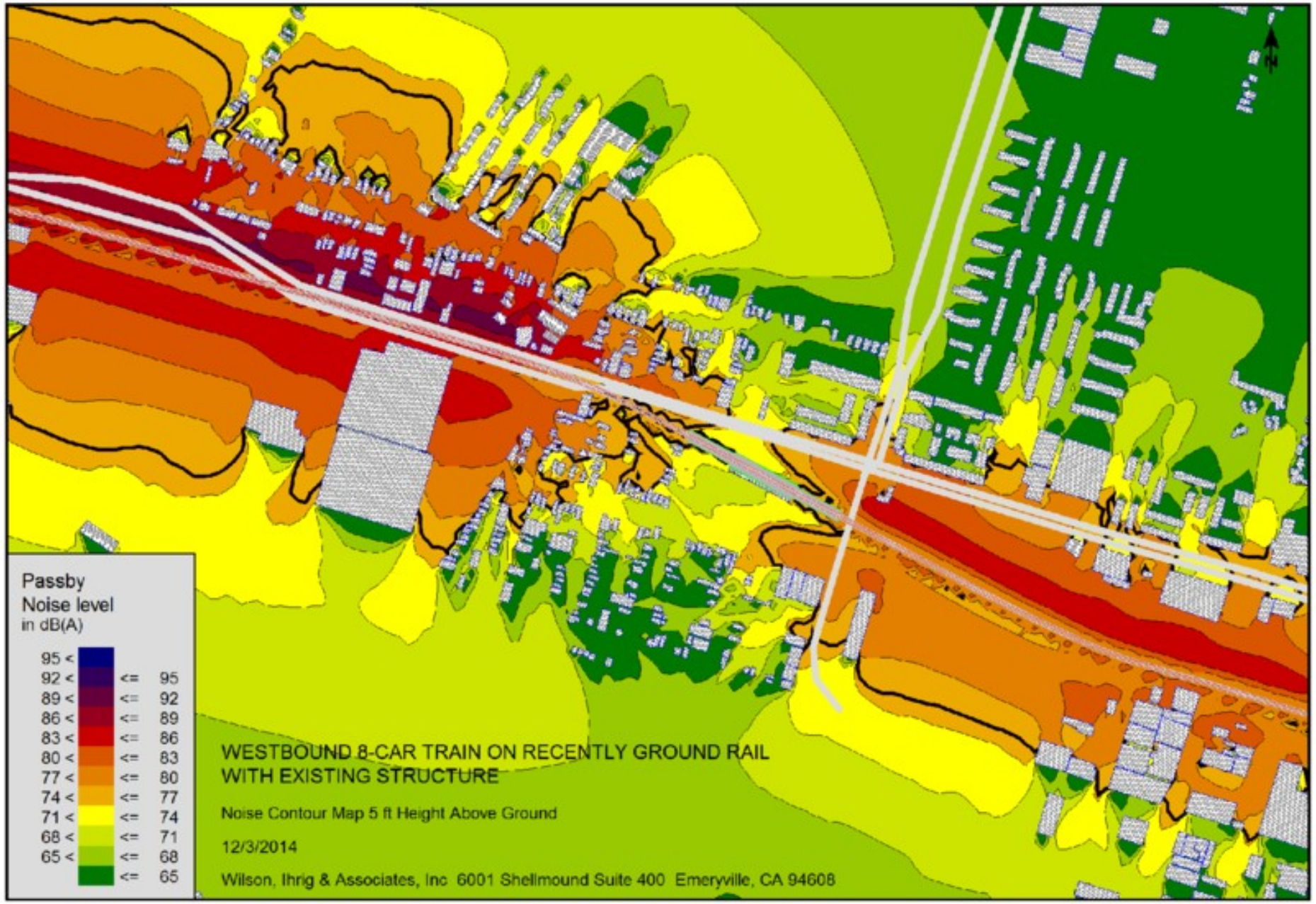
Hoe

Wat?

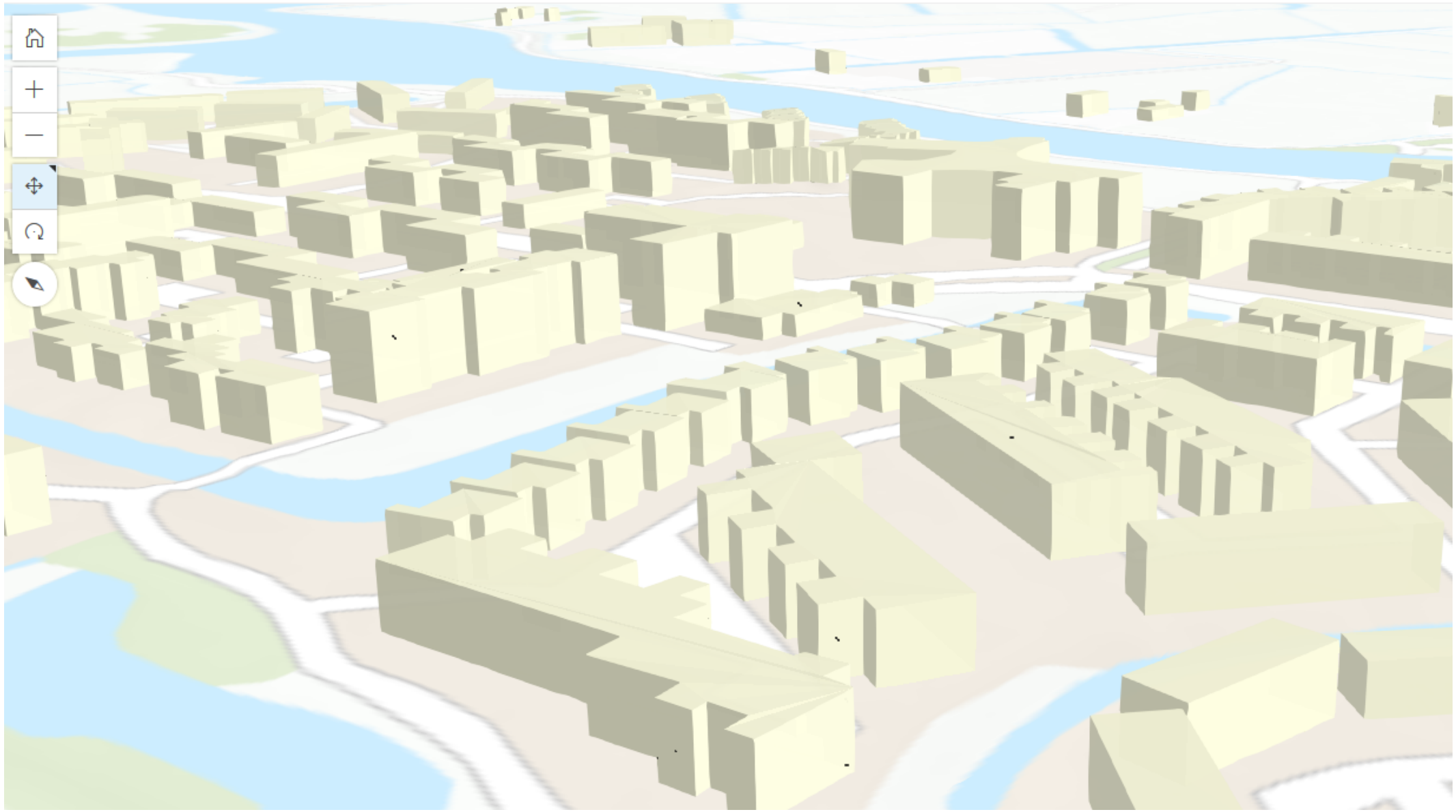
X 10 miljoen

Waarom?


Geluidsbron
Geluidsscherm
Gebouw
Hoogtelijnen
(breaklines)
Bodemvlakken
(reflecterend)
Rekenpunten

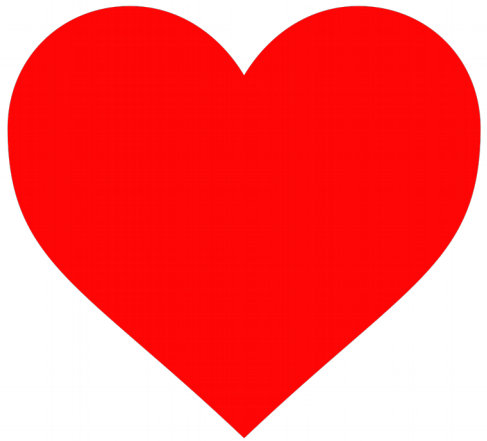

Passby
Noise level
in dB(A)
95 <
92 < <= 95
89 < <= 92
86 < <= 89
83 < <= 86
80 < <= 83
77 < <= 80
74 < <= 77
71 < <= 74
68 < <= 71
65 < <= 68
<= 65
WESTBOUND 8-CAR TRAIN ON RECENTLY GROUND RAIL
WITH EXISTING STRUCTURE
Noise Contour Map 5 ft Height Above Ground
12/3/2014
Wilson, Ihrig & Associates, Inc 6001 Shellmound Suite 400 Emeryville, CA 94608

ArcGIS 3D Gebouwhoogte NL



Maar HOE dan?!

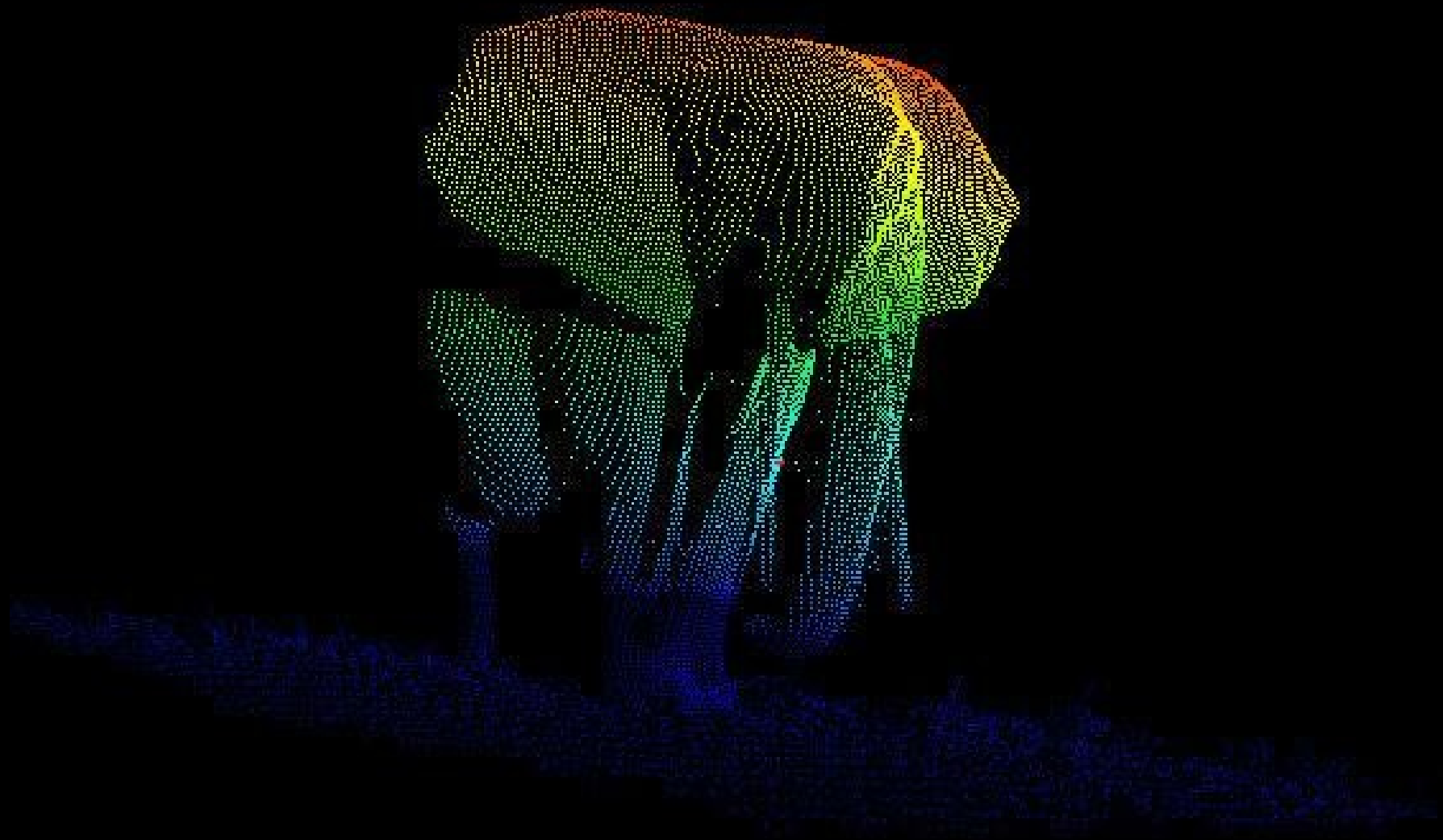
We



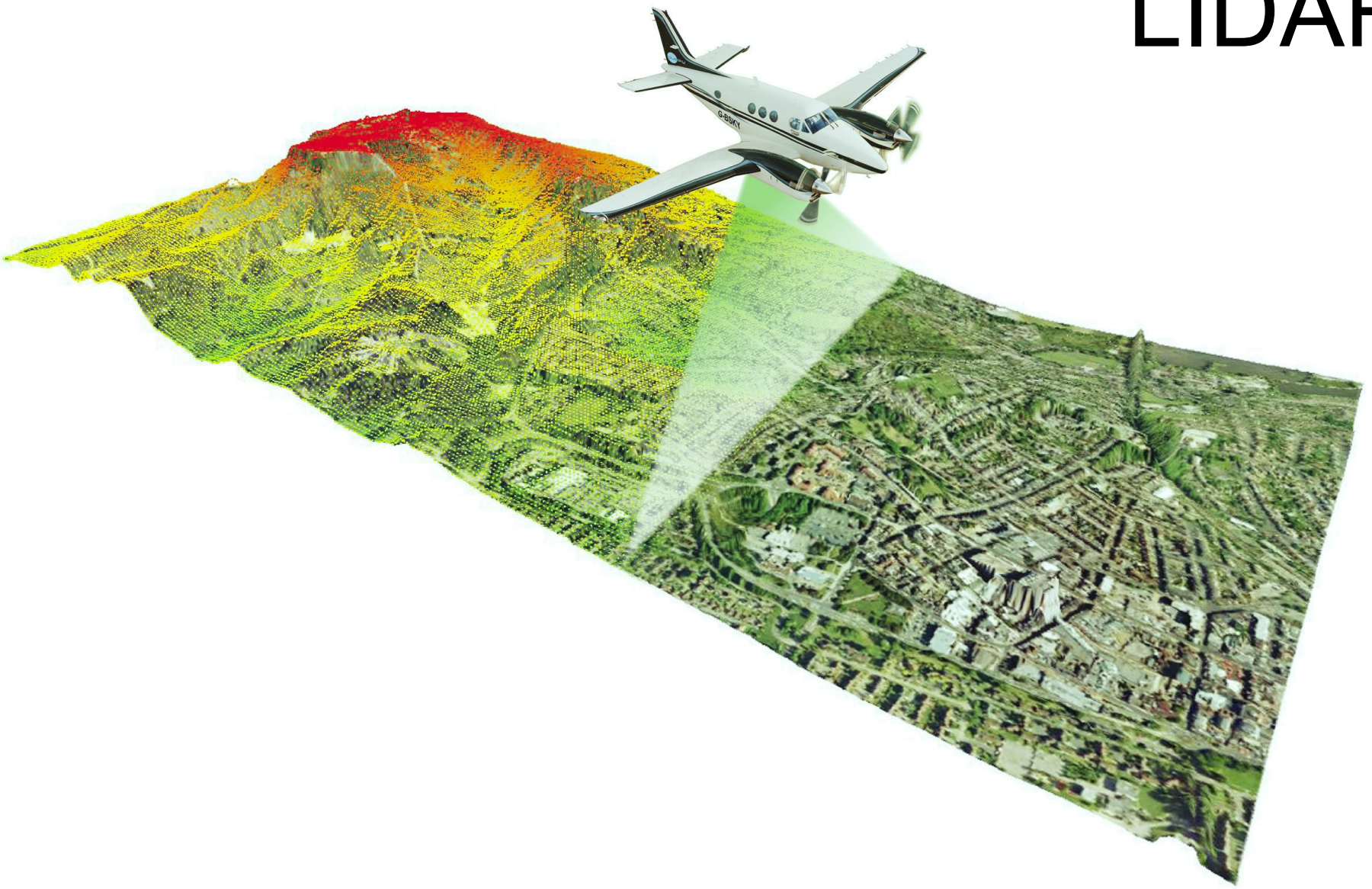
opendata

- AHN
- BGT
- BAG

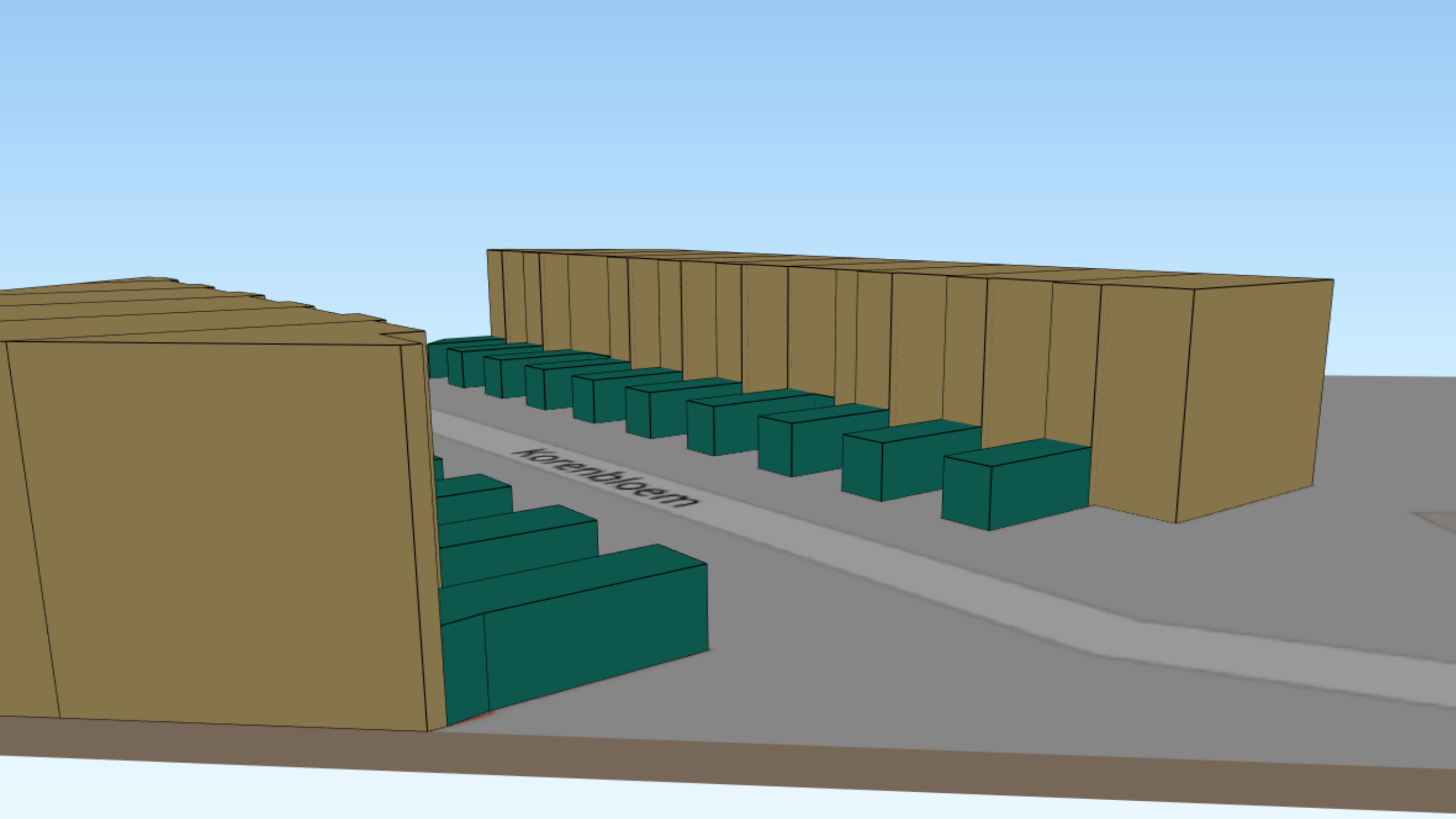
Puntenwolken

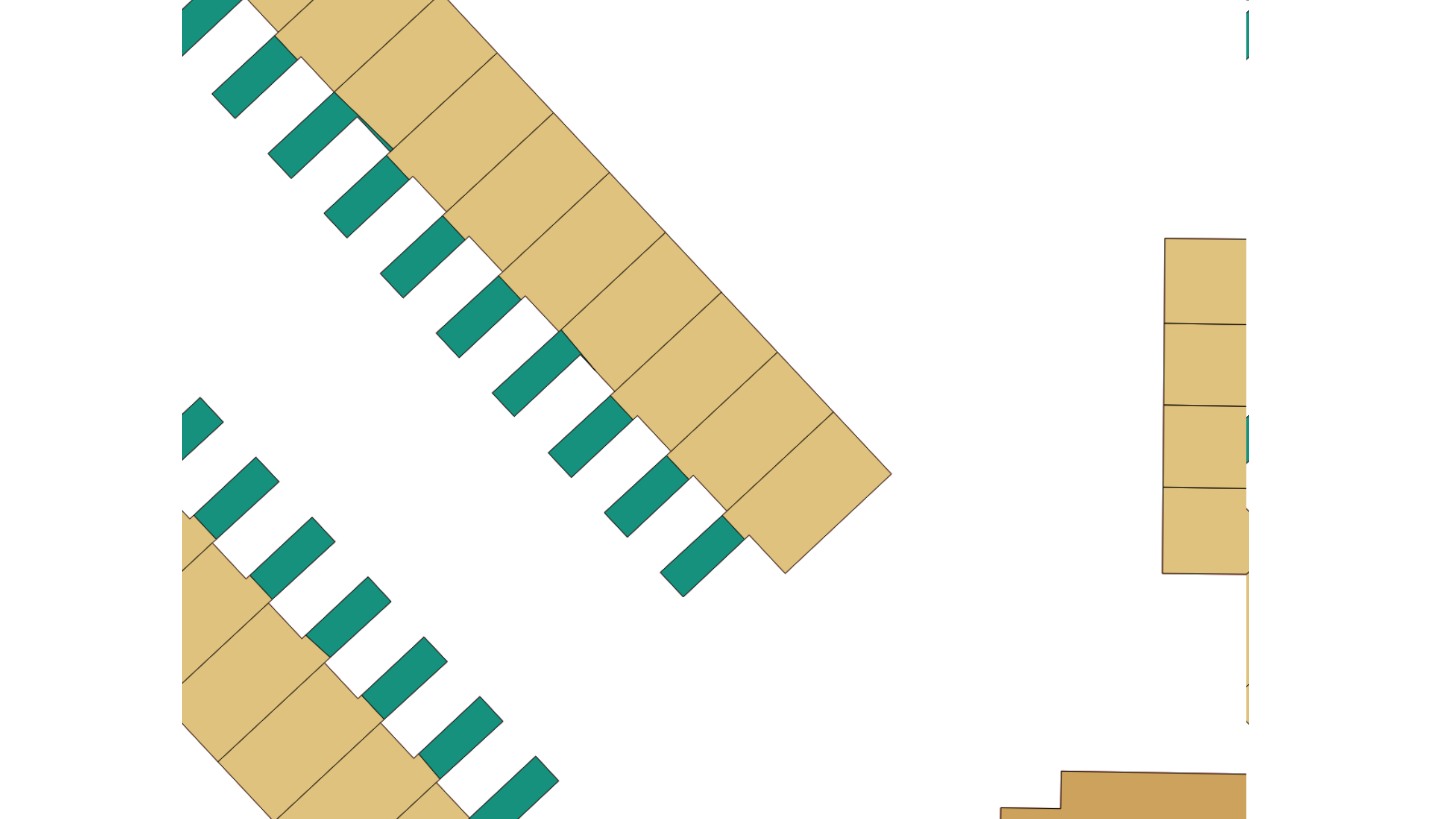


LIDAR




S
N
E


korenbloem



PostGIS

Software

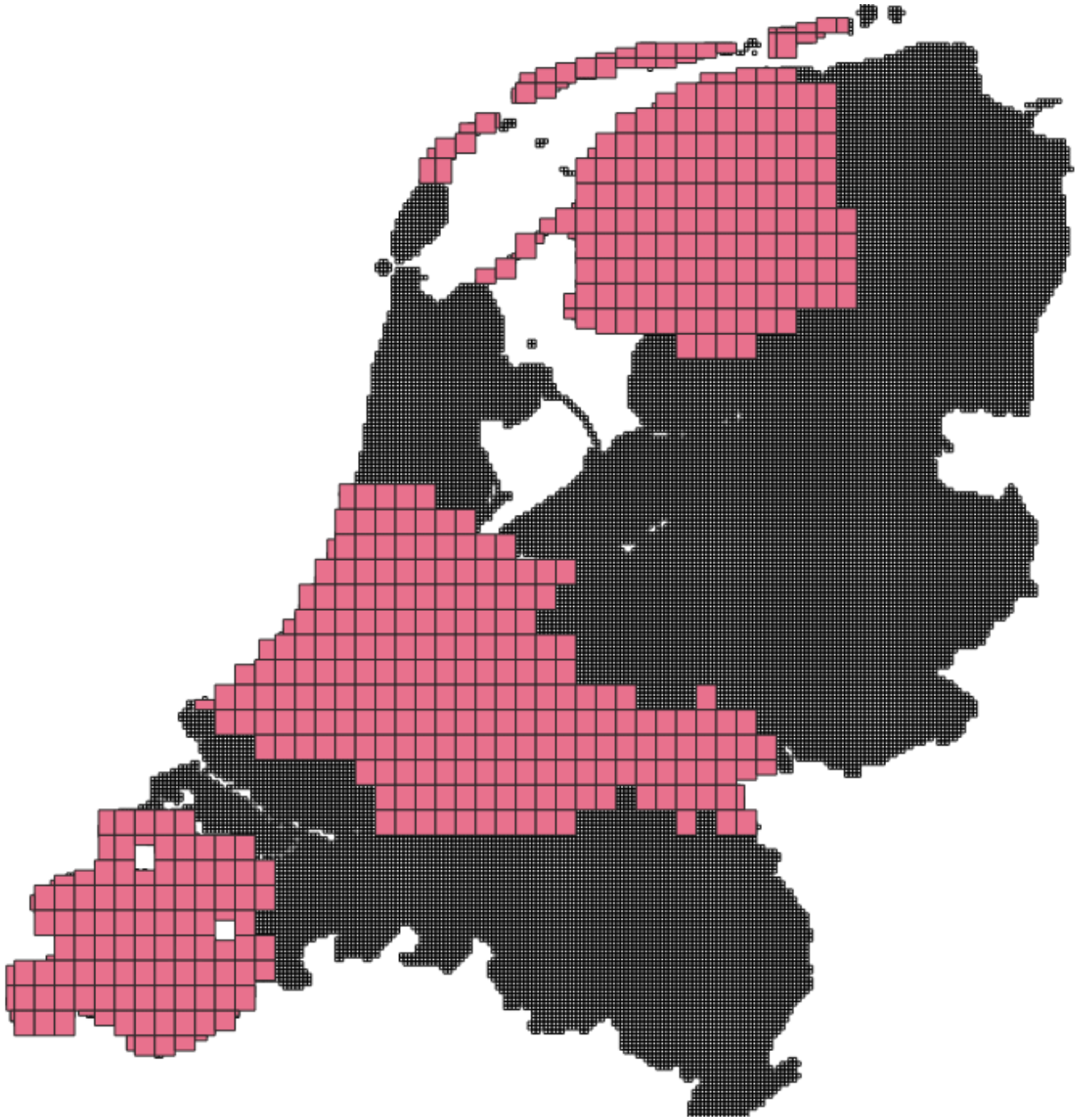
- PDAL
- PGPOINTCLOUD
- SFCGAL
- POSTGIS
- GDAL
- GRASS

Postgres extensies:

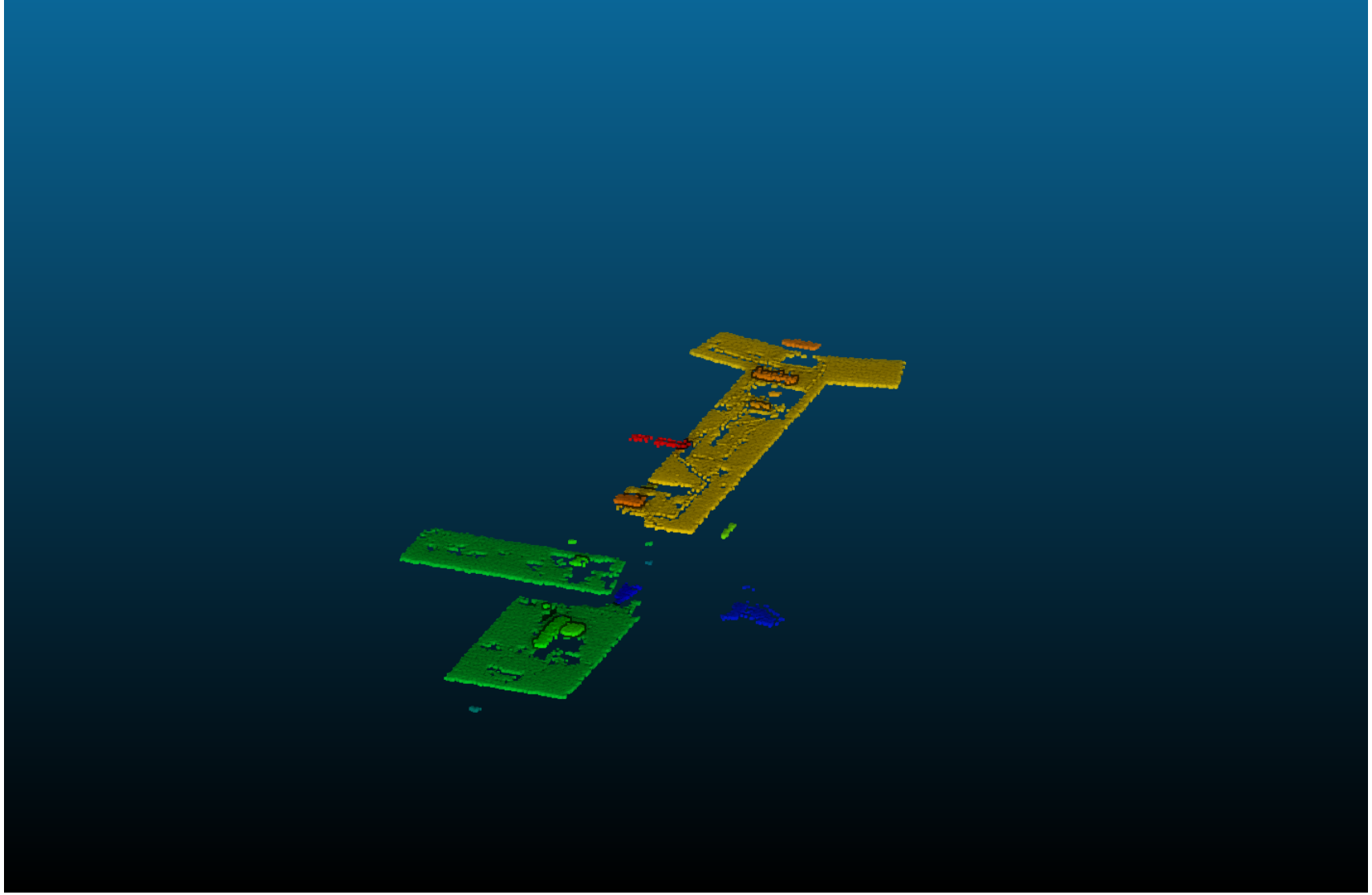
- PLV8
- PLpython

in de python extensie:

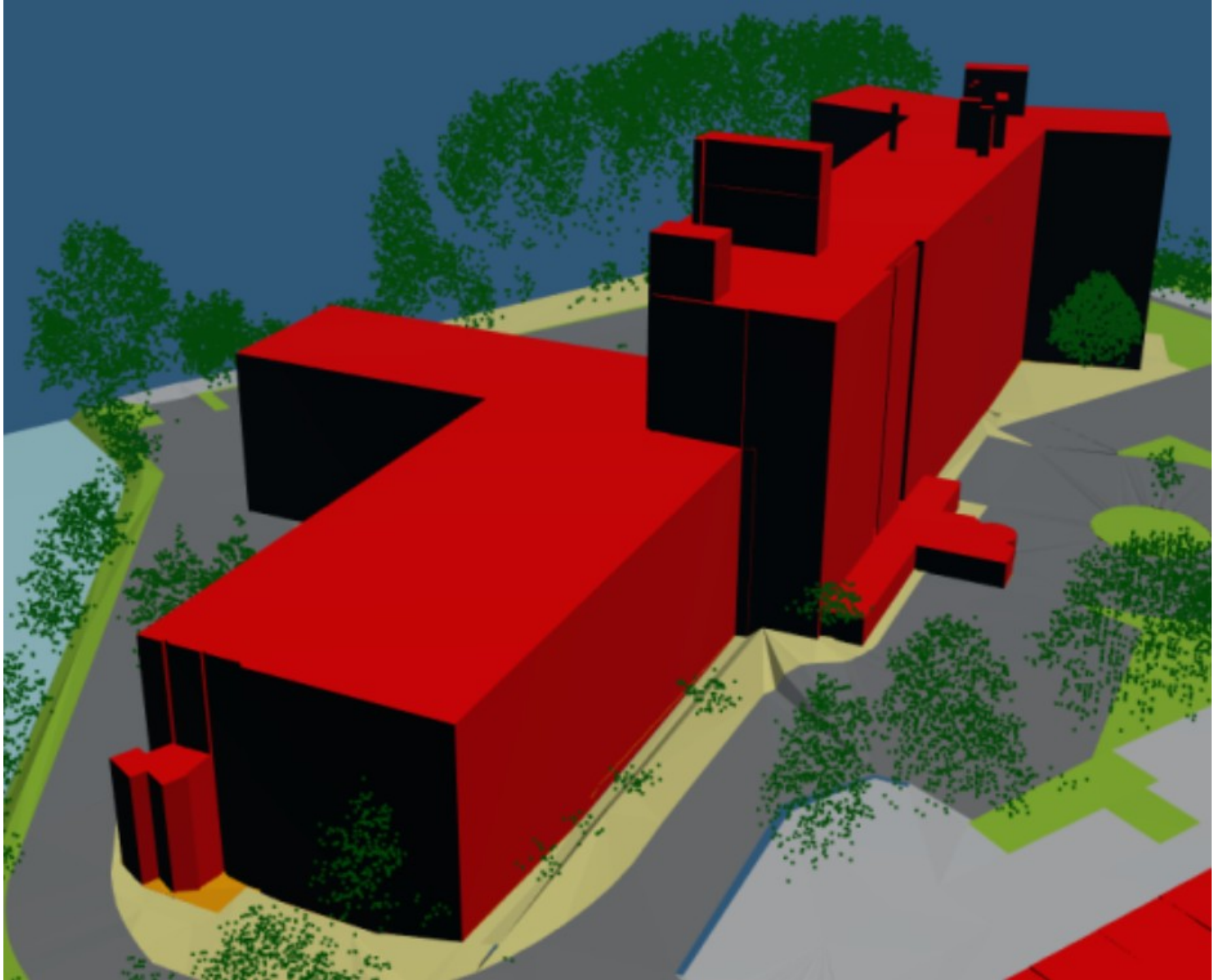
- numpy
- sklearn
- do it yourself algorithms

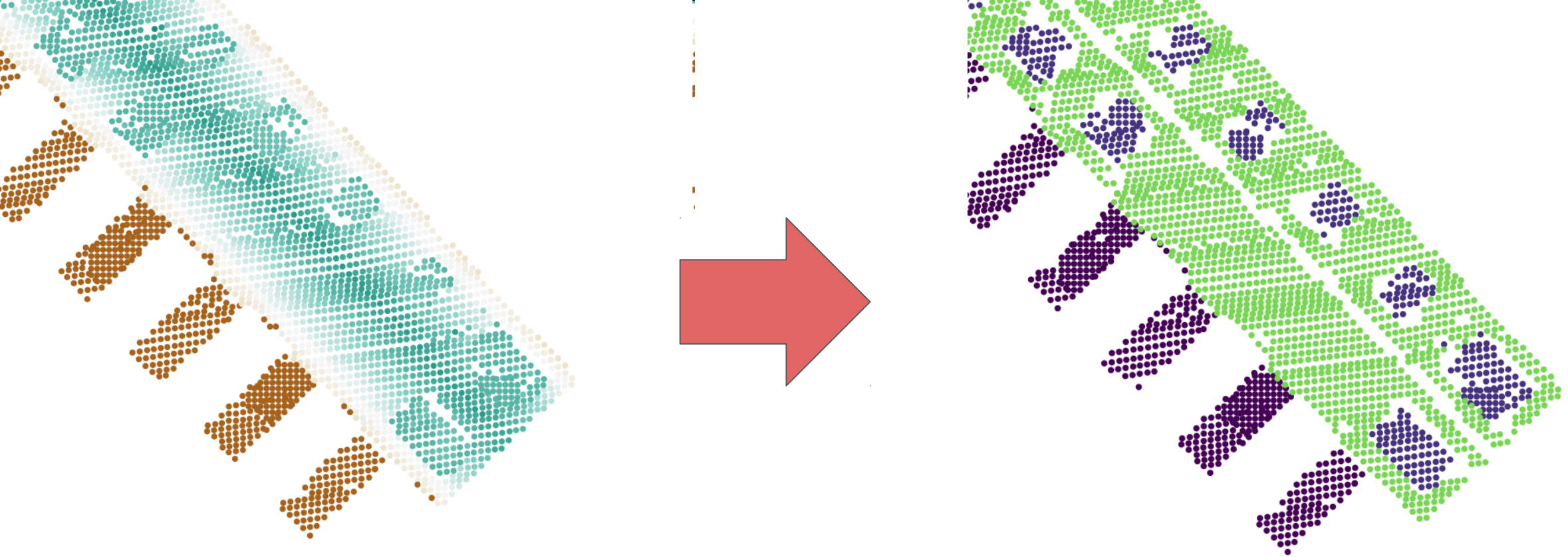


800 gb LAZ files =>
+6 TB database



```
SELECT
     width_bucket(height, minh, maxh, 3) as heightclass
FROM points
```



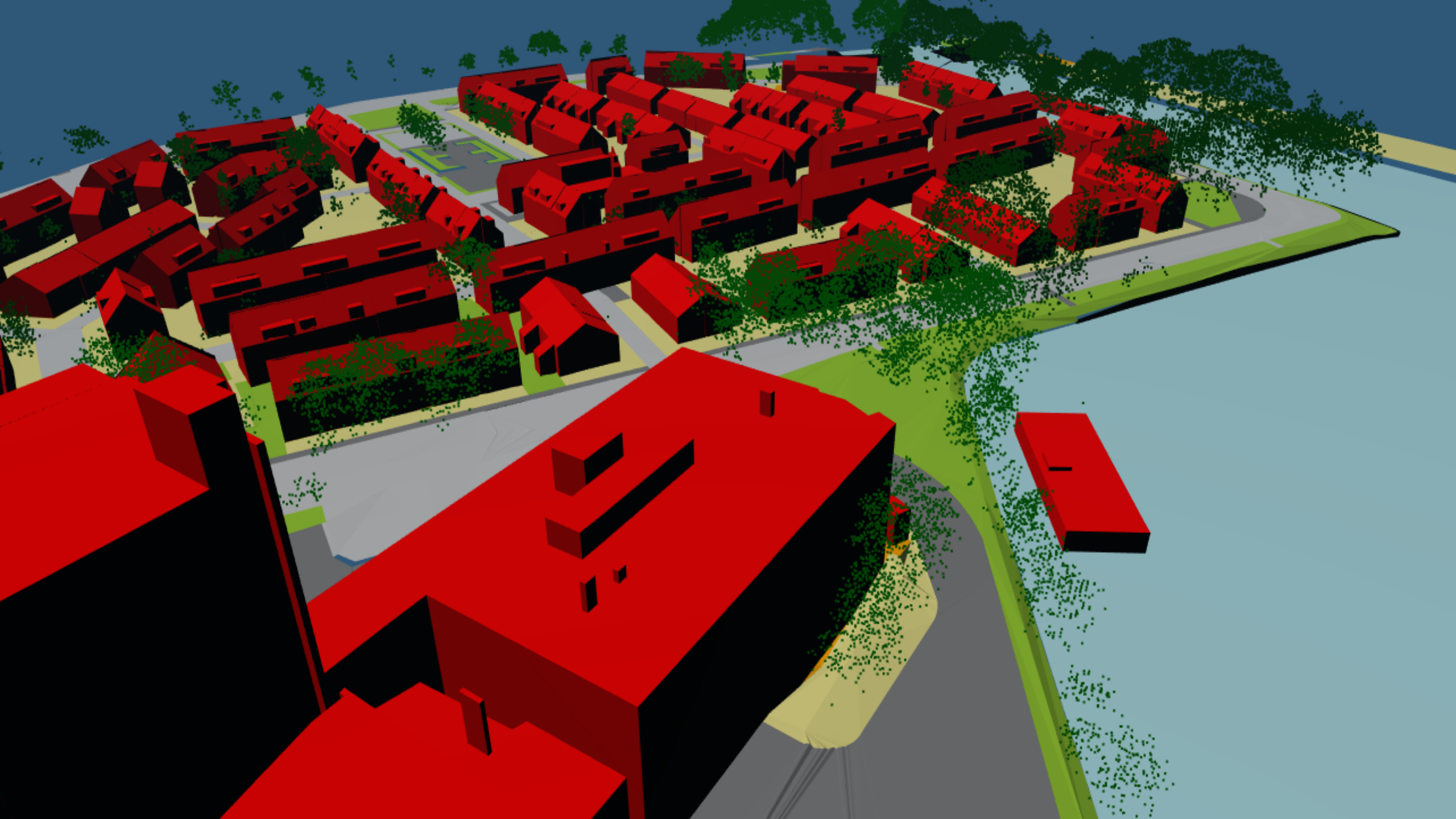


```
SELECT
  dbscan3d(
    string_agg('['|| ST_X(geom) ||','||ST_Y(geom) ||','|| ST_Z(geom) ||',
      '|| id || ']',',')::text,
    eps := 1.1, minpoints := 4
   ) as cluster
```

```
CREATE OR REPLACE FUNCTION noisemodel.dbscan3d(points text, eps double precision, minpoints integer)
RETURNS SETOF float[] AS
$$

from sklearn.cluster import DBSCAN
import numpy as np

def dbscan3d(points, eps=0.5, min_samples=5, metric='manhattan',
            algorithm='auto', leaf_size=30, p=None, n_jobs=1):
   geom = points[:,:3]
   db = DBSCAN(eps, min_samples, metric, algorithm,
               leaf_size, p, n_jobs)
   db.fit(geom)
   labels = np.zeros((len(points), 5))
   labels[:, :4] = points
   labels[:, 4] = db.labels_
   return labels

arrpoints = np.array(eval(points))
return dbscan3d(arrpoints, eps, minpoints)
$$
LANGUAGE plpythonu;
```


N449
A44
N446
Koudenhoorn
't Joppe
Tengnagel
De Strengen
Vrouw Vennepolder
Boterhuispolder
Bedrijventerrein Merenwijk
Ons Buiten
Rhijngeest
Endegeest
Zonneveld
Nieuwenhoven
Leiden Centraal
Medical Center
Park Kweekhof
Plantsoen
N206
Oude Rijn
Churchillaan
Haagweg
Hoflaan
Lammenschansweg
Burgemeesterlaan
Kanaalweg
Viif Meilaan
Utrechtstraat
Nieuwenhuizen

Hoe verder?



FIN