

# Satelliettoepassingen voor gemeenten

Nico van Putten  
Joost van Uum

Netherlands  
**Space**  
Office



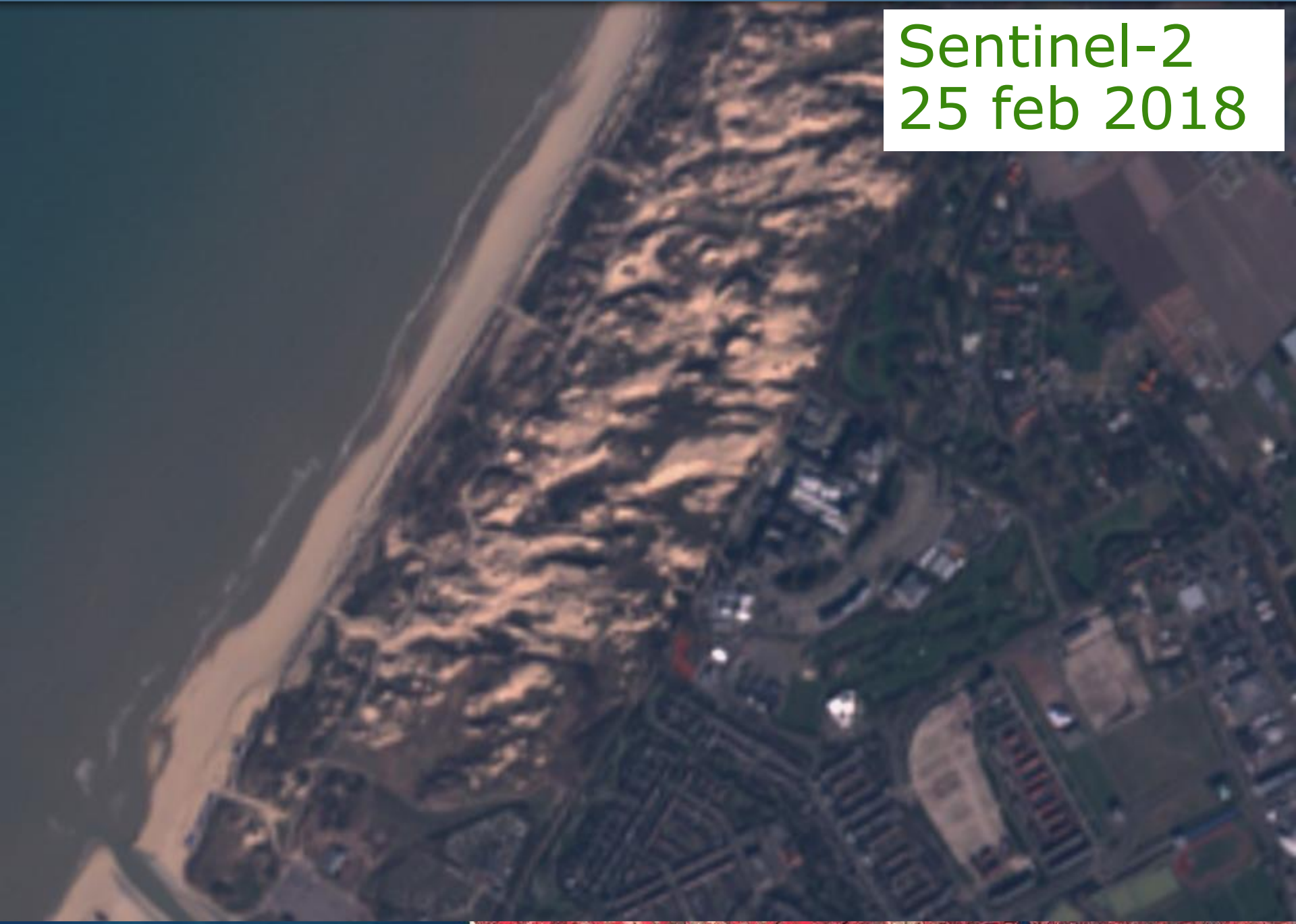
A satellite view of Earth showing a large body of water on the left and a landmass on the right. The landmass has a complex coastline with many inlets and peninsulas. The text 'NL SPACE' is overlaid in a white font on an orange rectangular background in the center of the image.

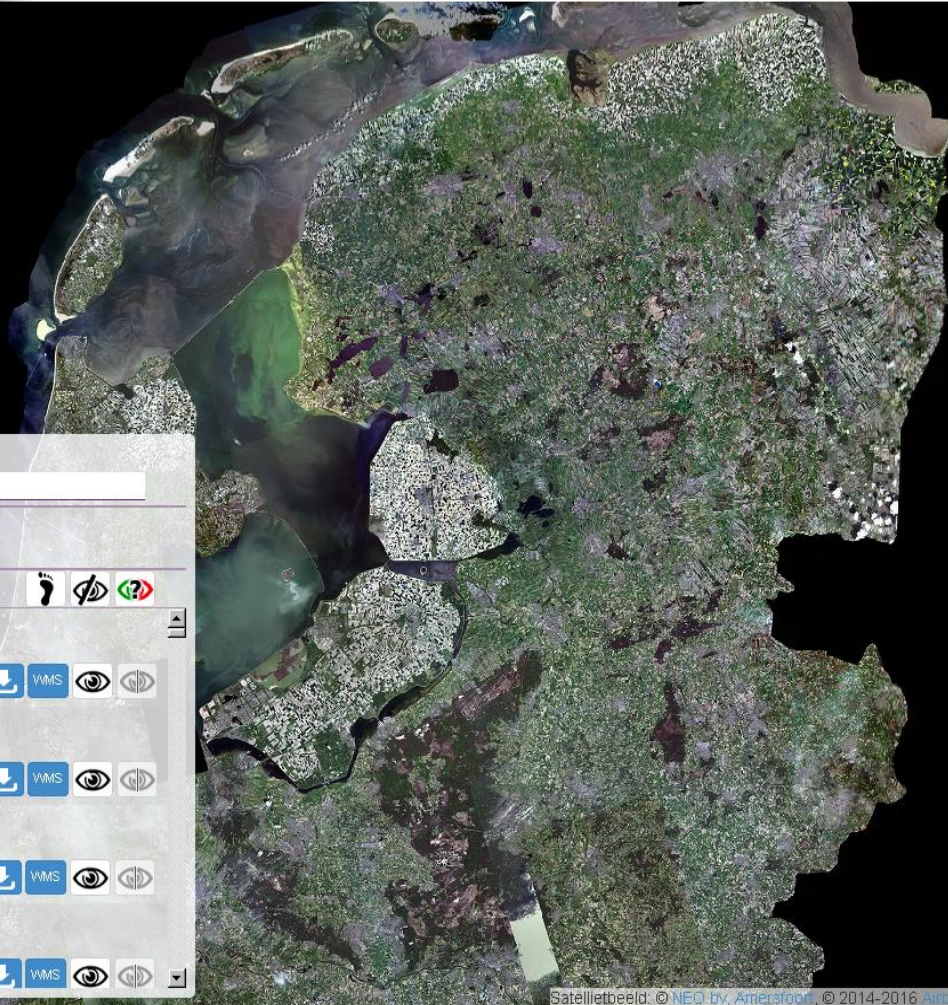
# NL SPACE

Global Challenges, Netherlands Space Solutions



Sentinel-2  
25 feb 2018































Navigeren

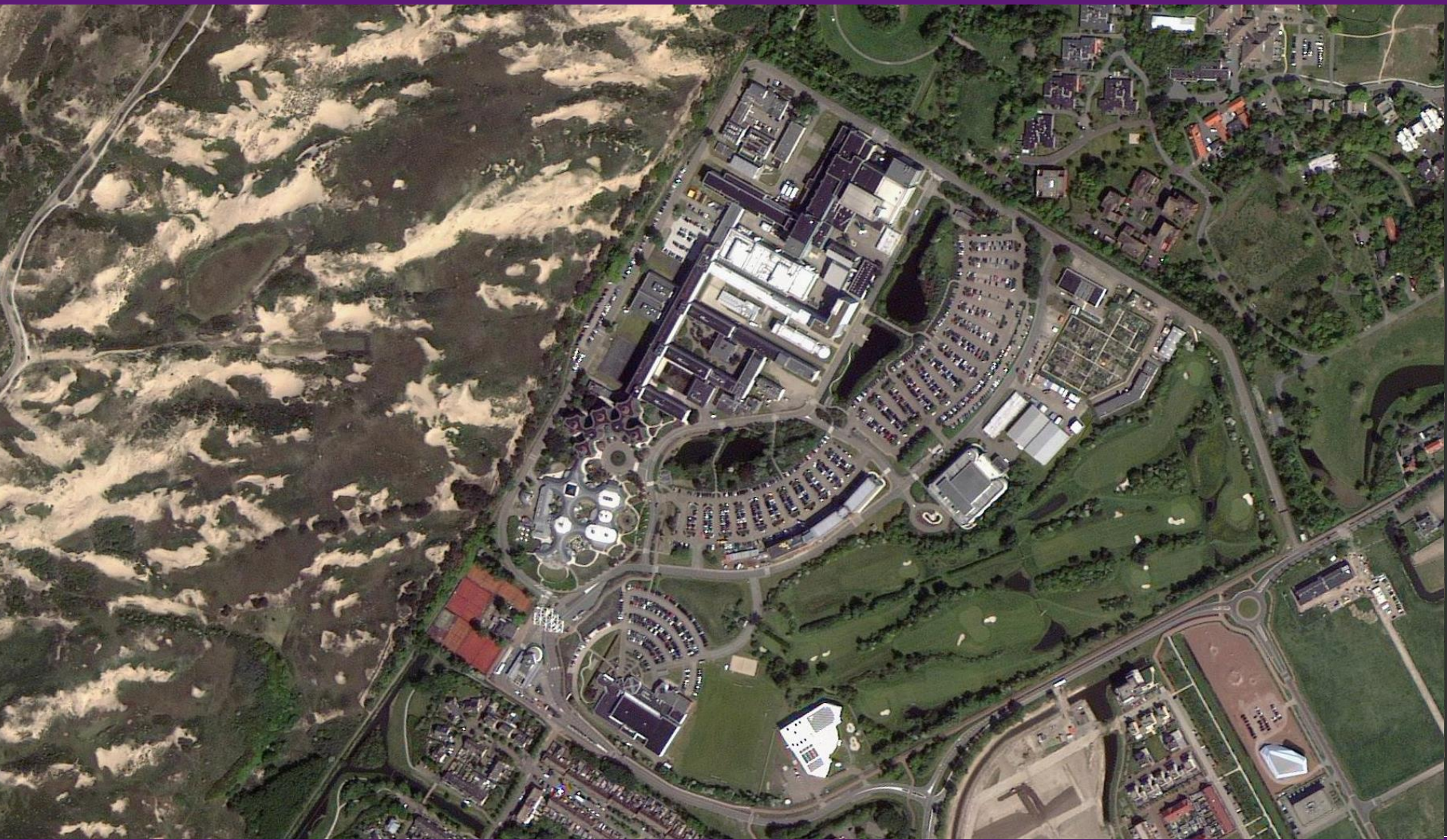
+ Filteren  
Gefilterd: beelden van 1 juni t/m vandaag

- Gevonden beelden:

-      
-  Sentinel-2A R008\_T31UGV (10m)  
Opname datum: 31-08-2017    
-  Sentinel-2A R008\_T31UGU (10m)  
Opname datum: 31-08-2017    
-  Sentinel-2A R008\_T31UFV (10m)  
Opname datum: 31-08-2017    
-  Sentinel-2A R008\_T31UFU (10m)  
Opname datum: 31-08-2017    

- Satellietdataportaal:**
- Actueel
  - 80 cm resolutie
  - Radar + optisch
  - Heel Nederland
  - Gratis









**Navigeren**  
Lent, Nijmegen, Gelderland

**Filteren**

Locatie:  Heel Nederland  
 Zoekgebied, namelijk:  

Tijd: van: 01-03-2017 tot: 11-09-2017

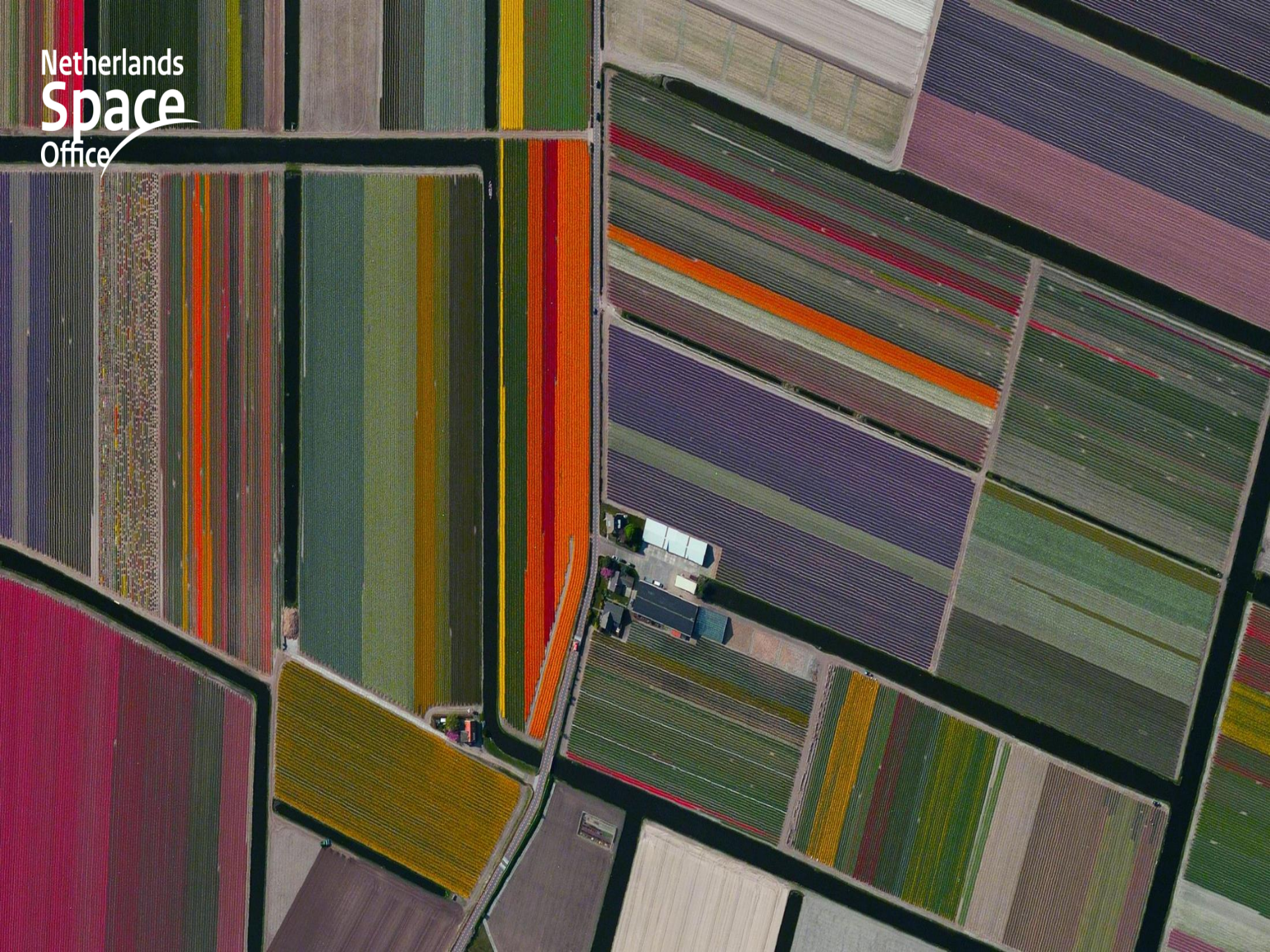
Bewolking:  maximaal 80%

Resolutie:  tussen 0.5m en 0.8m

- Gevonden beelden:**
-  TripleSat-1 001110V1\_001 (0.8m)  
Opname datum: 24-07-2017    
  -  TripleSat-1 0010DBV1\_006 (0.8m)  
Opname datum: 17-07-2017    
  -  TripleSat-1 0010DBV1\_005 (0.8m)  
Opname datum: 17-07-2017    
  -  TripleSat-3 000EA6V1\_004 (0.8m)  
Opname datum: 11-09-2017    



Netherlands  
**Space**  
Office





## Het NEO satelliet signaal

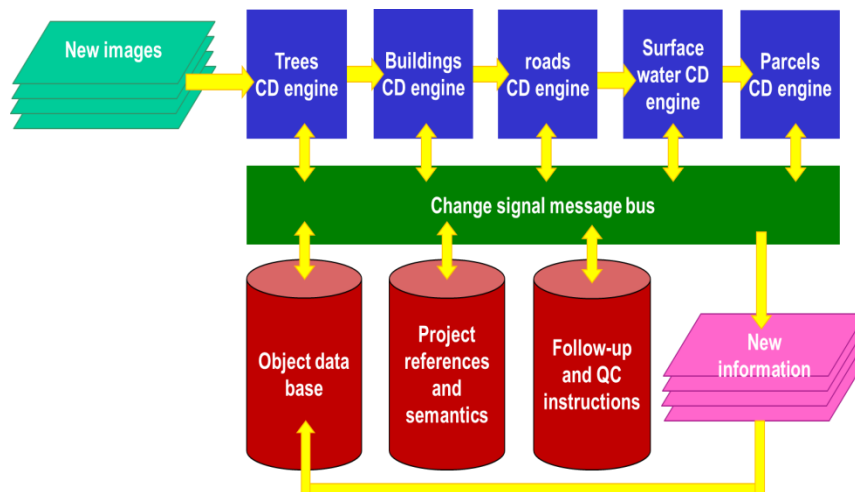
Servicedienst

Gebruik open data

Monitoren objecten

Geautomatiseerde

informatievoorziening



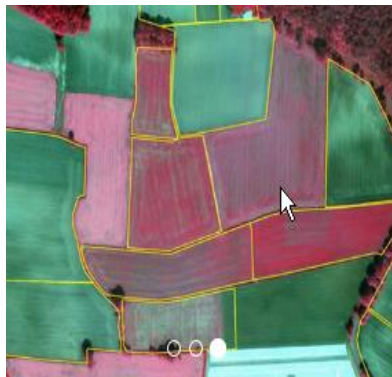
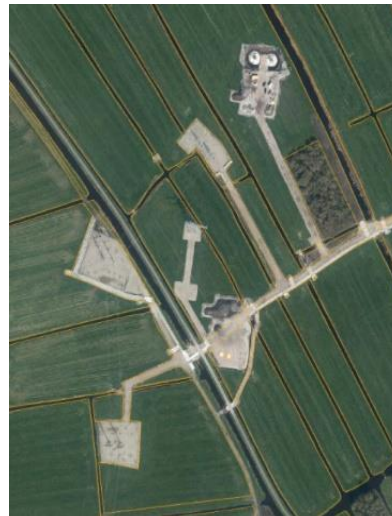




# Mutatieherkenning landelijk gebied



Rijksdienst voor Ondernemend  
Nederland



Bodemgebruik in Nederland, 2012



- Rode ruimte
  - Woonterrein
  - Bouwterrein
  - Overig bebouwd terrein
- Groene ruimte
  - Recreatierrein
  - Agrarisch terrein
  - Bos
  - Natuurlijk terrein
- Blaue ruimte
  - Water

Bron: CBS, Kadaster.

CBS/jam16  
www.clo.nl/nlo06110



- Type vegetatie
- Bodemvocht
- Biomassa
- Terrein karakteristieken

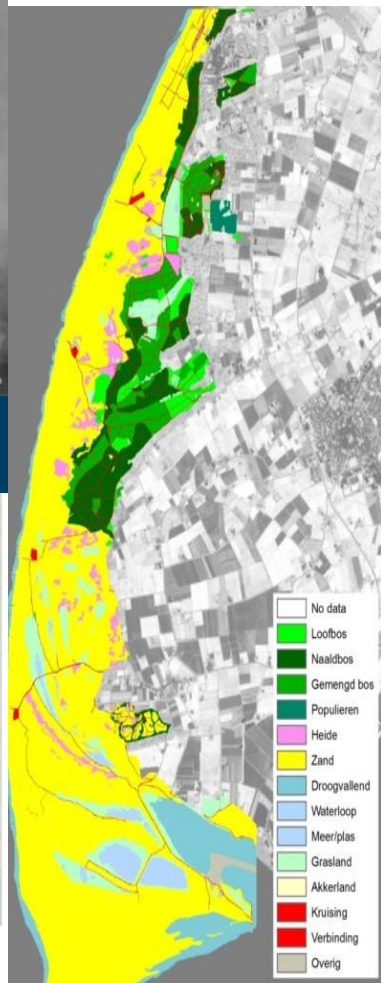
Spring  
Winter

Summer

Fall



standard  
vegetation map



Satellite image



new improved  
vegetation map



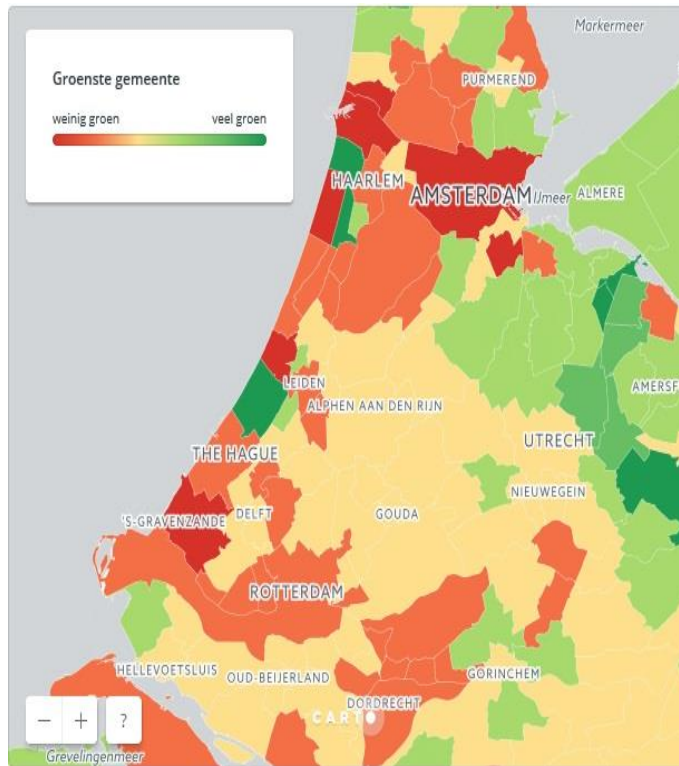




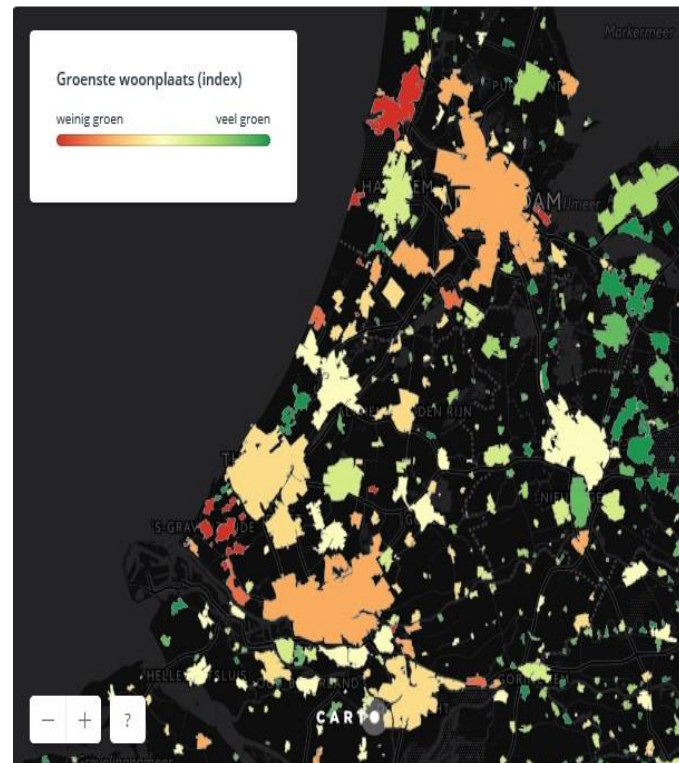
## Groenste gemeente van Nederland

RTLnieuws

28 juli 2017



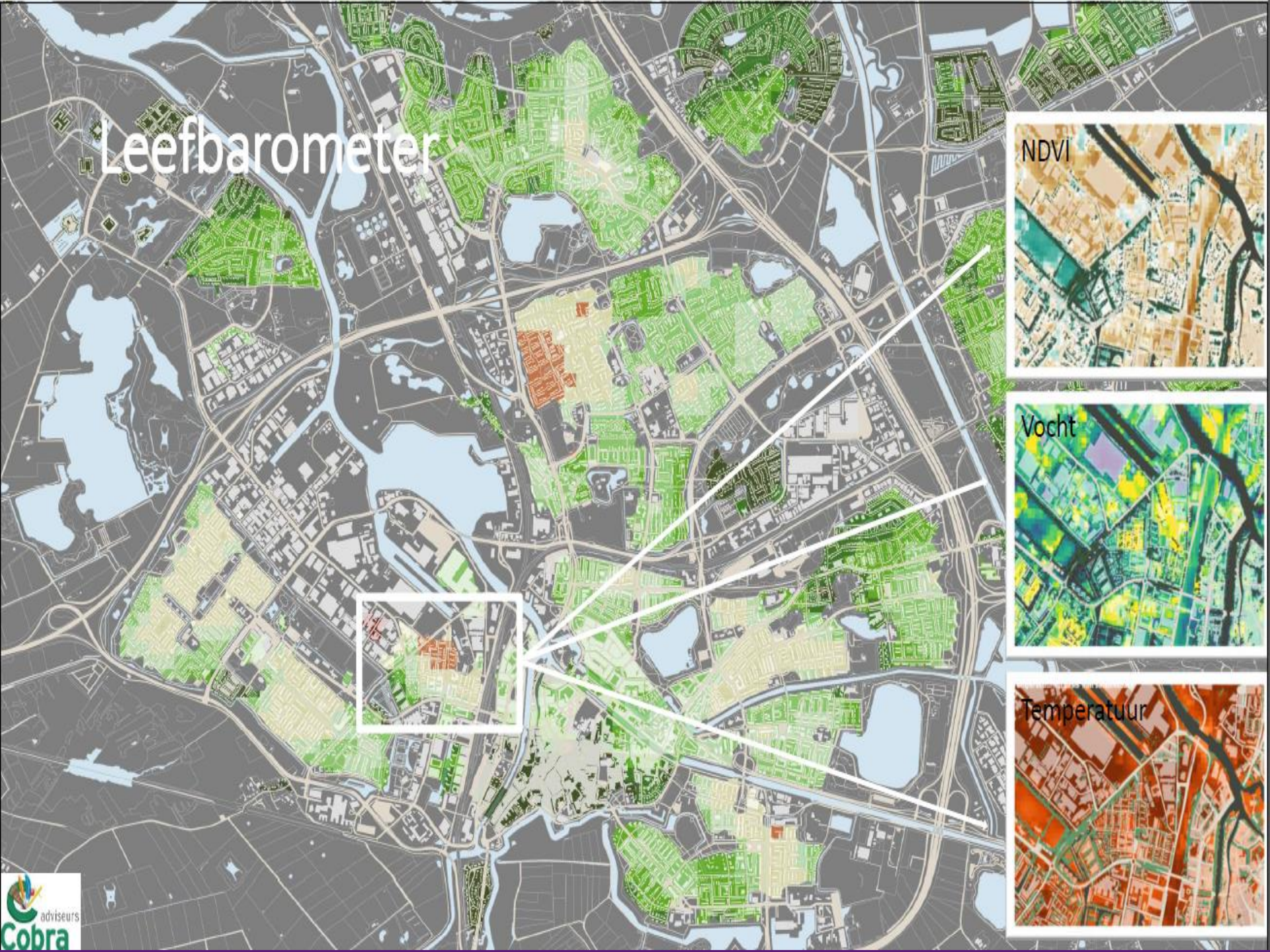
Groen in bebouwde kom per gemeente



Groen in bebouwd gebied



# Leefbarometer

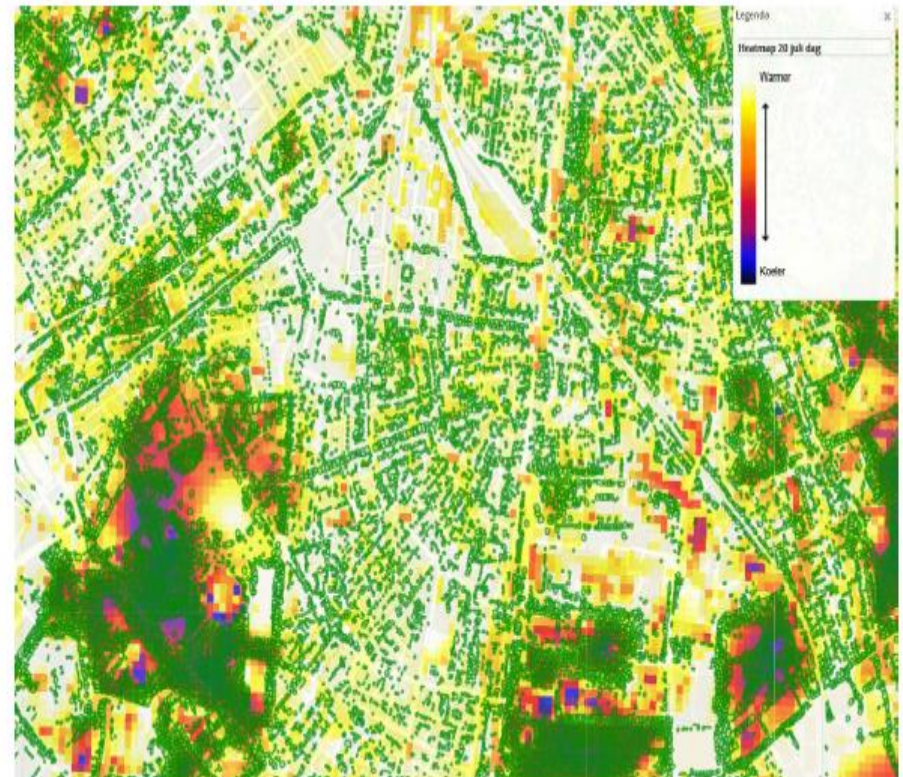
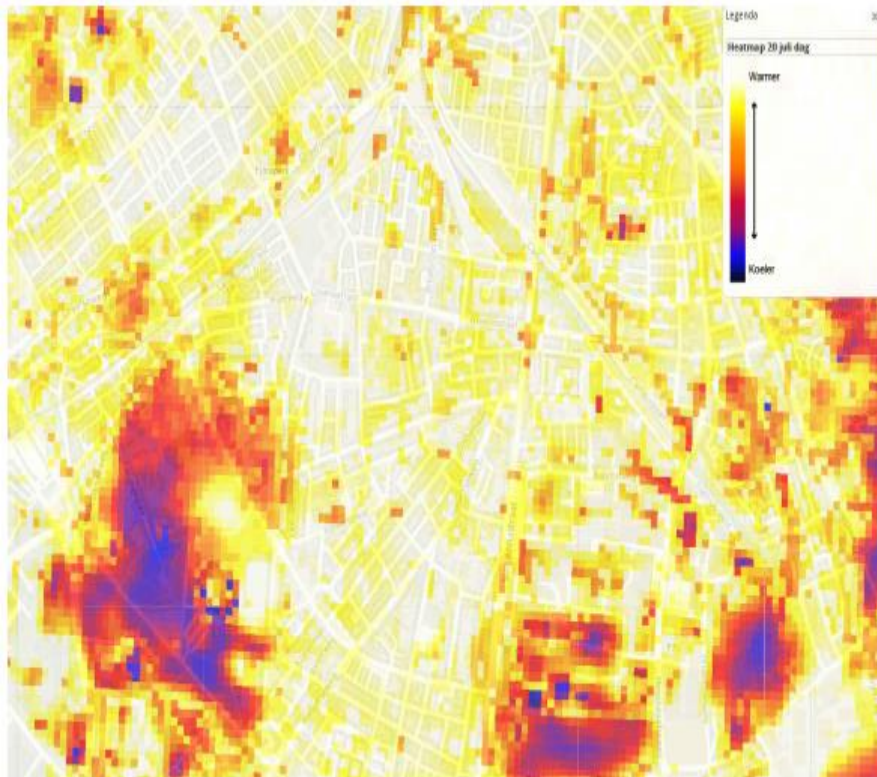
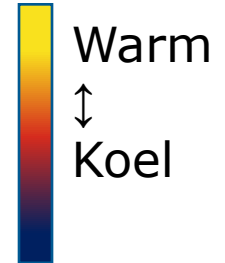






# Hitte-eilanden vs Boomkronen

Op basis van satellietbeelden en boomkronenbestand







# Solar Search



*Gemeenten en wijken in kaart: o.a. wel/geen pv-installatie*



**Sobolt**

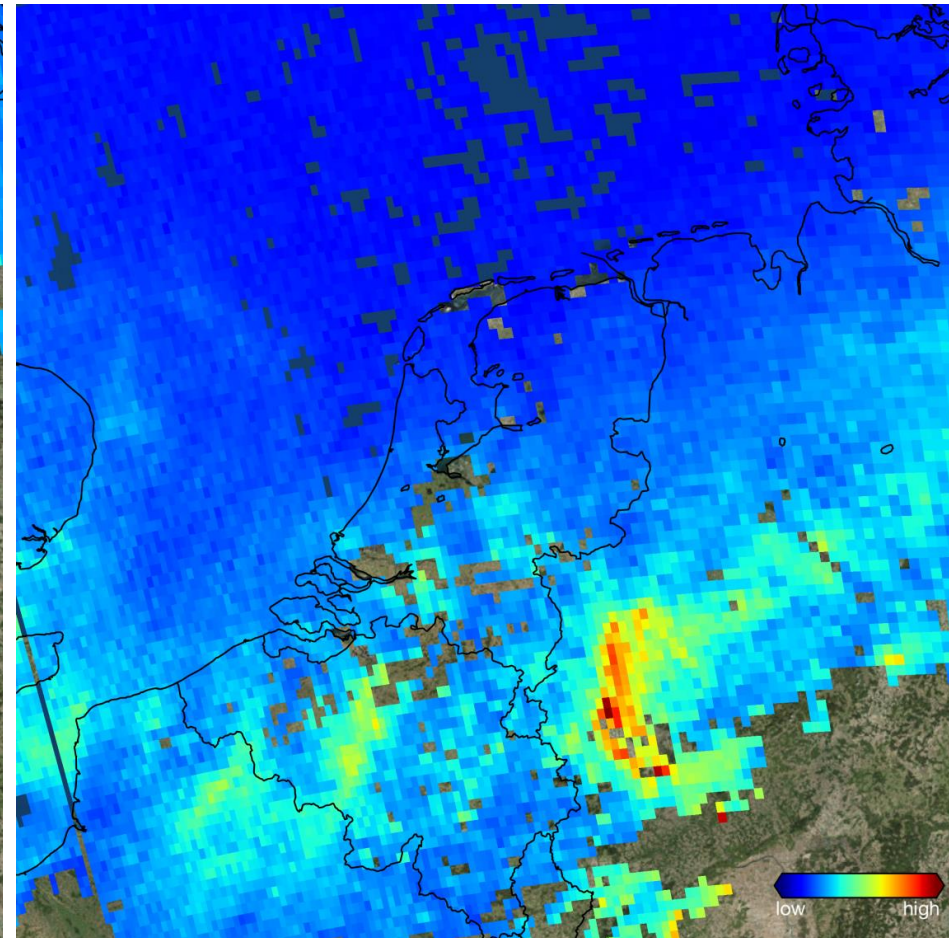
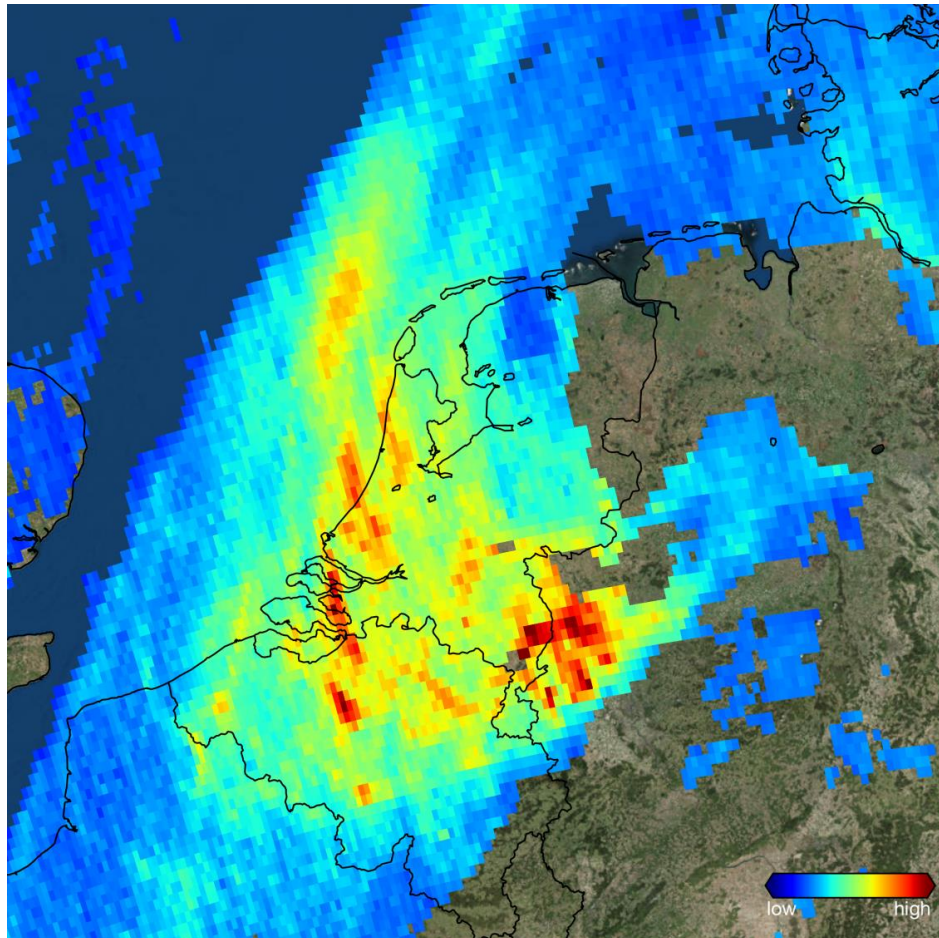


# Luchtkwaliteit (NO2)



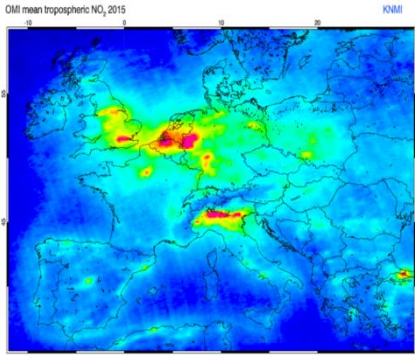
**Stikstofdioxide Nederland  
7 november 2017**

**17 november 2017**

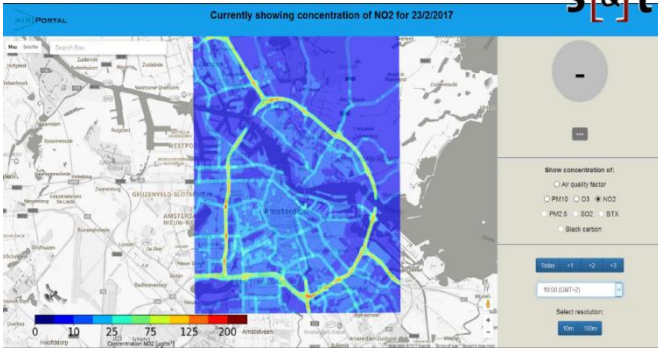




# Luchtkwaliteit (NO2)



S[&]T Air Portal – Demo



S[&]T Air Portal levert historische, actuele en voorspellende luchtkwaliteit data op 100m resolutie

## Air portal

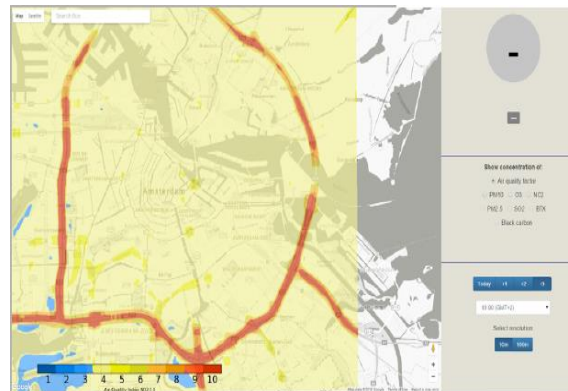


Figure 4: Current POC design of the AIR-Portal system. It shows the air quality on the map and in a location, as well as advice. User can select what pollutant and time to display.

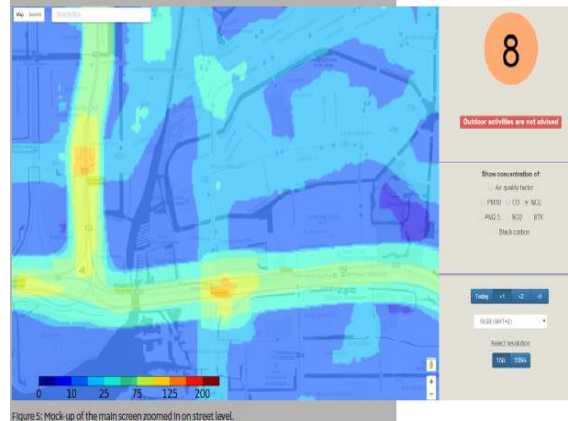
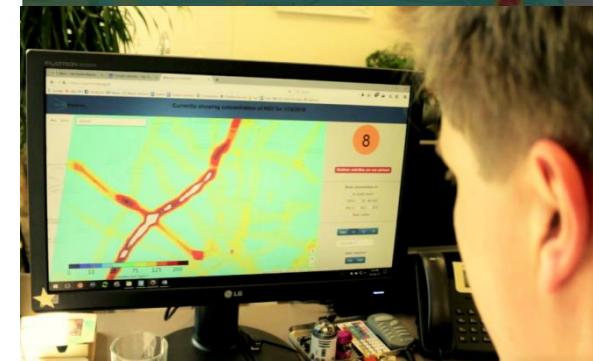
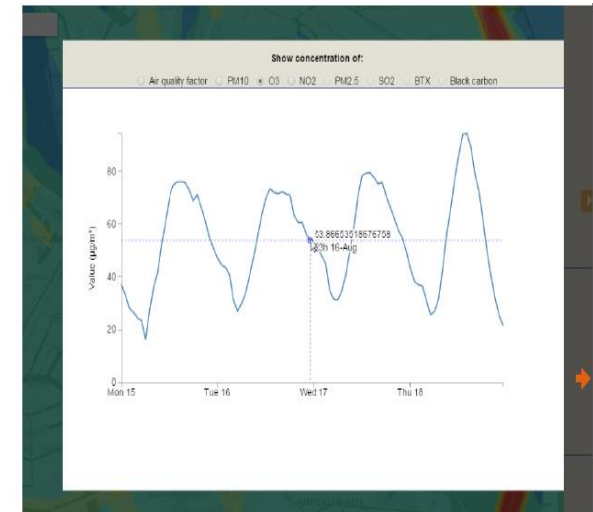


Figure 5: Mock-up of the main screen zoomed in on street level.





# Bodembeweging



**InSAR-puntenwolk**

**Selectie boven leidingen**  
24.000 km gasleidingen

**Informatie per huis**  
15-20% efficiëntie





## Beheer riolering



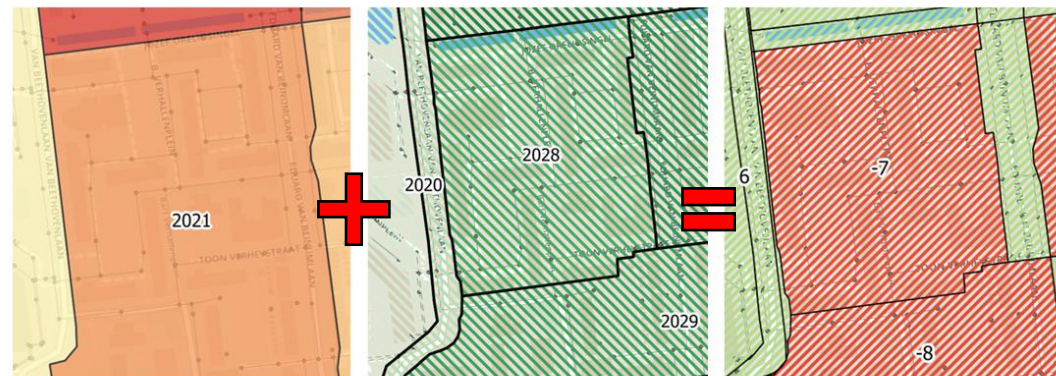
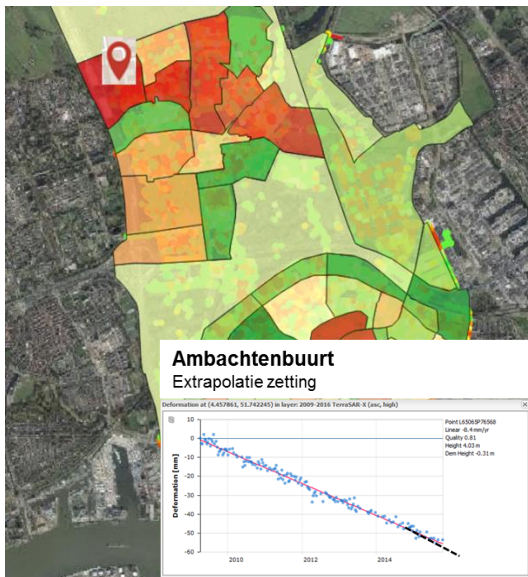
Gemeente  
Schiedam

Nelen & Schuurmans



Signalering:

- Op wijkniveau
- Op leidingniveau
- Integraal met RO/wegbeheer

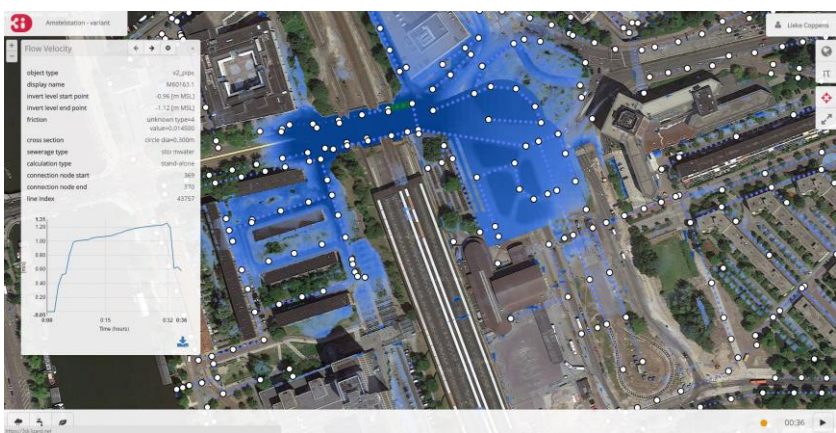
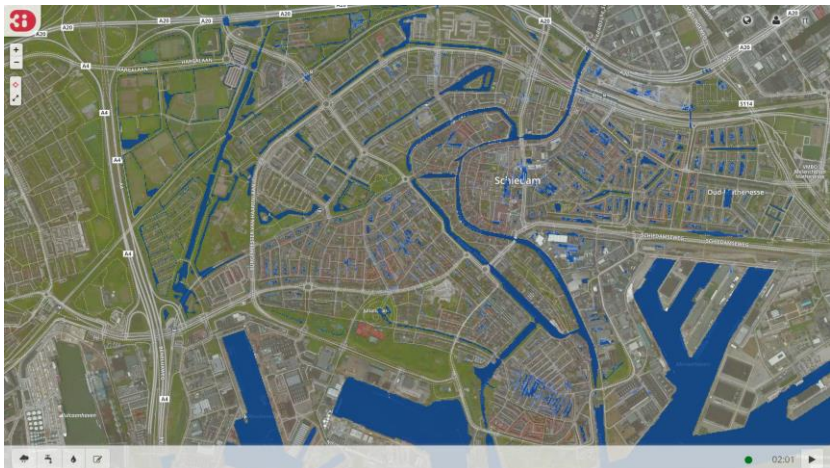






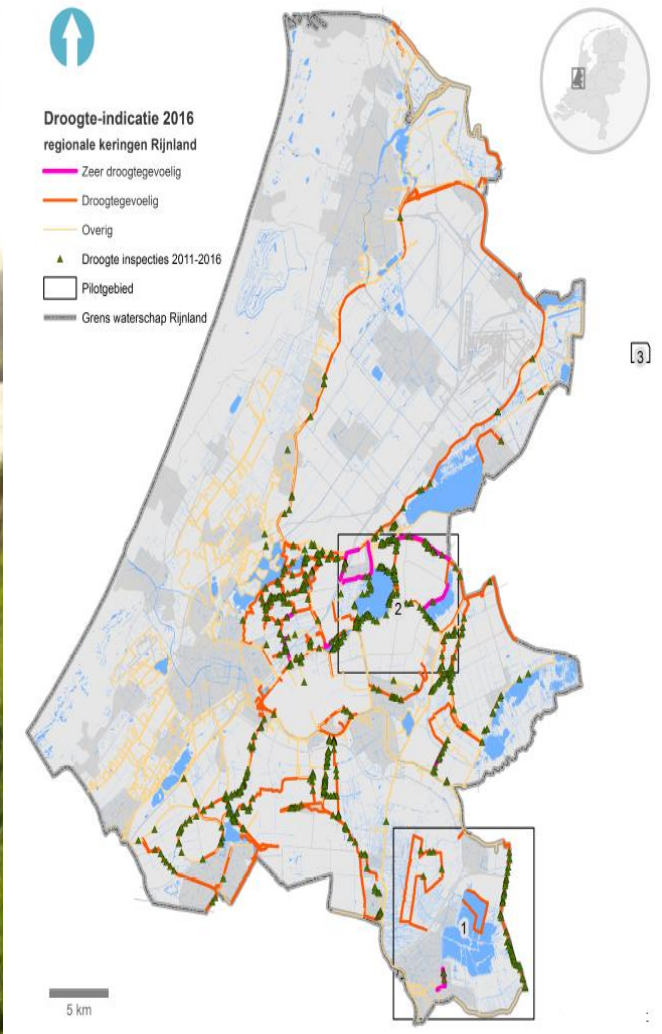
## 3Di Flood modelling and visualisation

Nelen & Schuurmans





# Droogte









## Stimuleringsregelingen

ESA-IAP  
Incubed  
Science for Society  
Navisp



Marktconsultatie



Proeftuin



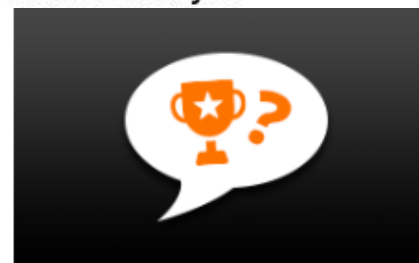
Total Cost of Ownership



Behoeftanalyse



Een prototype laten ontwikkelen



Prijsvraag



# Nationaal



**Water quality**



**Ecosystem Accounting**



**Evaporation**



**PV detection**



**soil criminality**



**Rail deformation**



**Dike monitoring**

## **SBIR** **Innovatietrajecten**



**pipeline monitoring**



**Flood monitoring**



**Air quality**



**wind predictions**



**Agriculture controls**



**Gas pipe deformations**



**Certification**



# SBIR gemeenten

Doe Mee!!



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[www.spaceoffice.nl](http://www.spaceoffice.nl)



***Dank voor uw aandacht***

**Netherlands  
Space  
Office**

**Joost van Uum**  
[j.vanuum@spaceoffice.nl](mailto:j.vanuum@spaceoffice.nl)  
[www.spaceoffice.nl](http://www.spaceoffice.nl)





# Gemeenten



- Martijn Peltenburg, Den Haag
- Martin van Rijn, Leidschendam-Voorburg
- Onno Claassen/Michael Slavenburg, Schiedam



gemeente  
Schiedam

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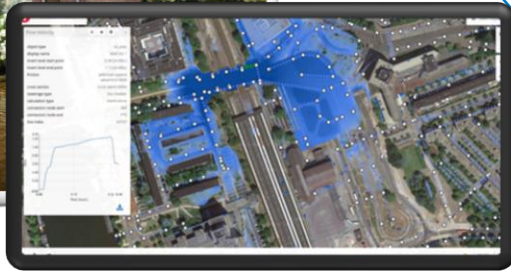


Pitch door bedrijven

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# Waterbeheer Bodembeweging



Nelen & Schuurmans



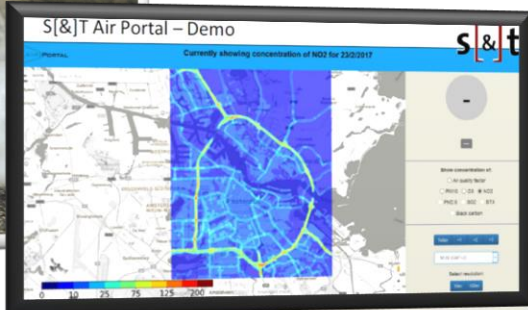
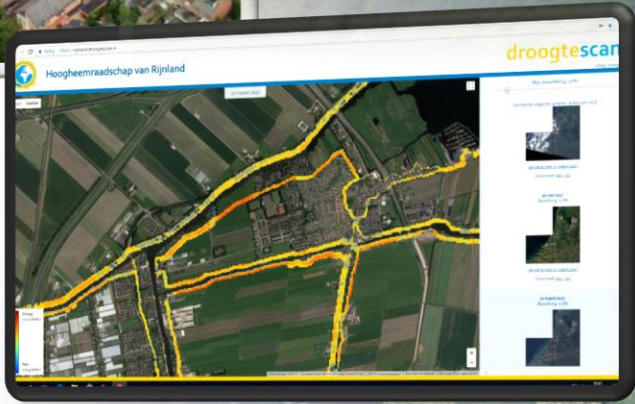
CityScan®



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# Energie Klimaat

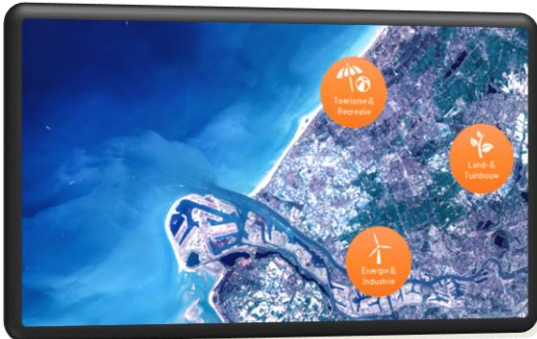




# Ruimtelijke Ordening



## 52°impact







## Netherlands Earth Observation Cluster

Samenwerking in het domein aardobservatie tussen onderwijs, kennisinstellingen (ook bedrijven) & overheid op het gebied van innovatie, opleidingen, tinkering, start-ups (projects) en coaching



### Knowledge

Sharing knowledge in collaboration with Universities, the Dutch Space Office and European remote sensing institutes.



### EO Tinkering

The NEOC Lab serves and assists in spatial data analysis using Geographical Information Systems and remote sensing software.



### Projects

The NEOC coaching network supports parties to bring projects into investment-ready, production-ready & tendering-ready proposition.



### Engagement

The space sector in a dialogue about how space can respond to socio-economic and environmental problems, today, and in the future.

NEOC

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