

kadaster

GEO samenwerking

XYZ



Rijkswaterstaat
Ministerie van Infrastructuur en Milieu

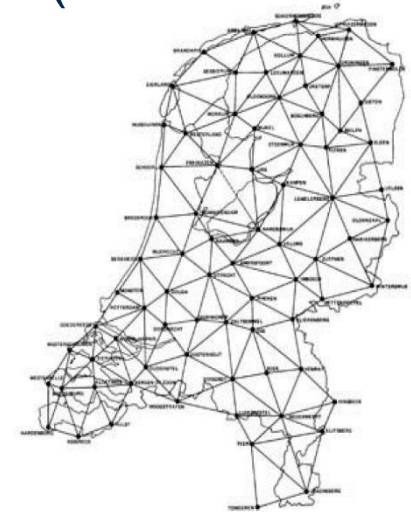
National report of the Netherlands 2015

EUREF 2015

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GEO-Samenwerking Organisation

- Official cooperation between Kadaster and Rijkswaterstaat (horizontal and vertical) on Geodetic Infrastructure
- Future:
 - Participation of
 - Royal Netherlands Hydrographic Office (Northsea Continental Shelf)
 - Delft-University (R&D)



GEO-Samenwerking Mission

The GEO-Samenwerking (GSW) between Kadaster and Rijkswaterstaat for the Geodetic Infrastructure (GDI) ensures this GDI and the realization of the national and international coordinate reference systems (CRS) on land, for inland waters and at sea.

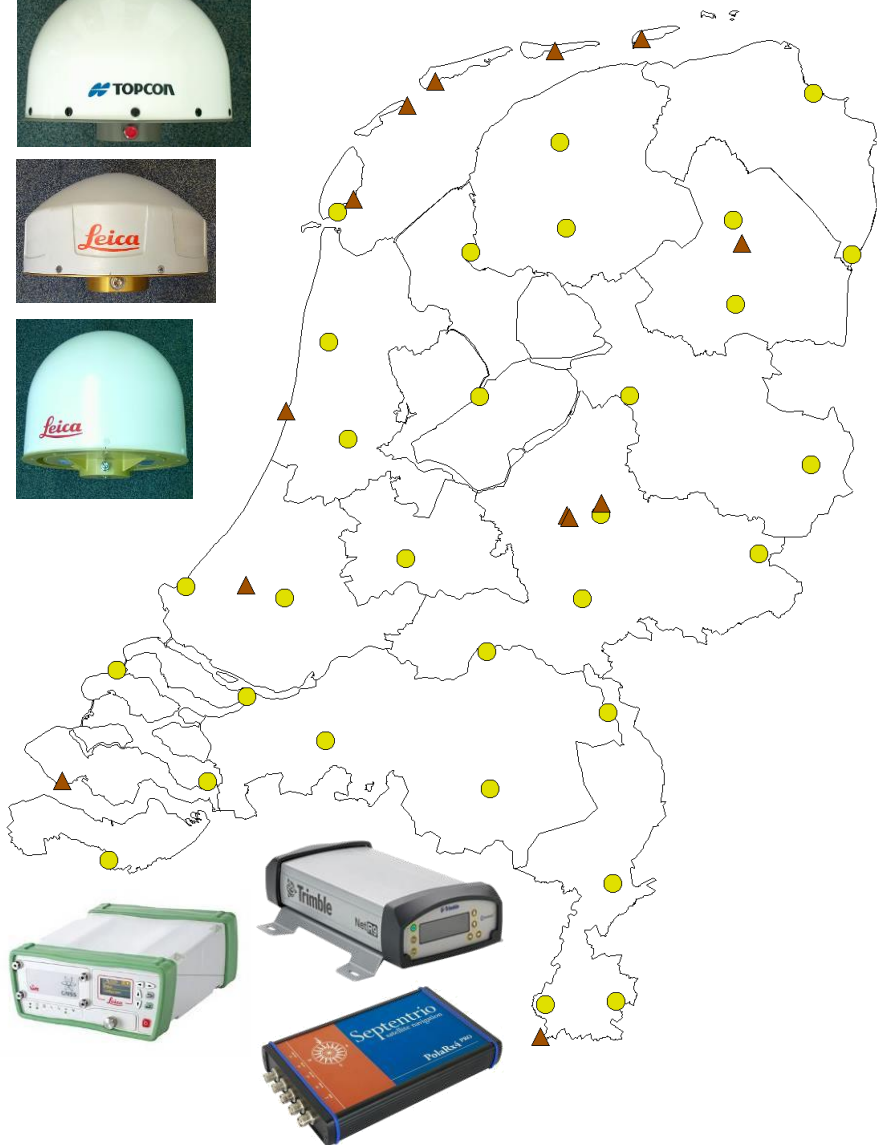
GEO-Samenwerking Mission

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Ongoing projects :

- AGRS.NL operation, control & maintenance
- Transition to ETRS89 for exchange of geo-information
- Connection of InSAR and GNSS
- PCTRANS 5 transformation software

Active Geodetic Infrastructure (GI)

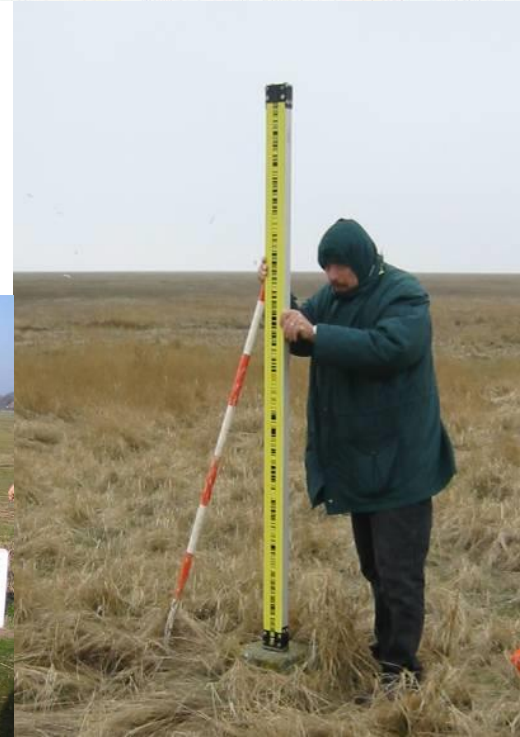
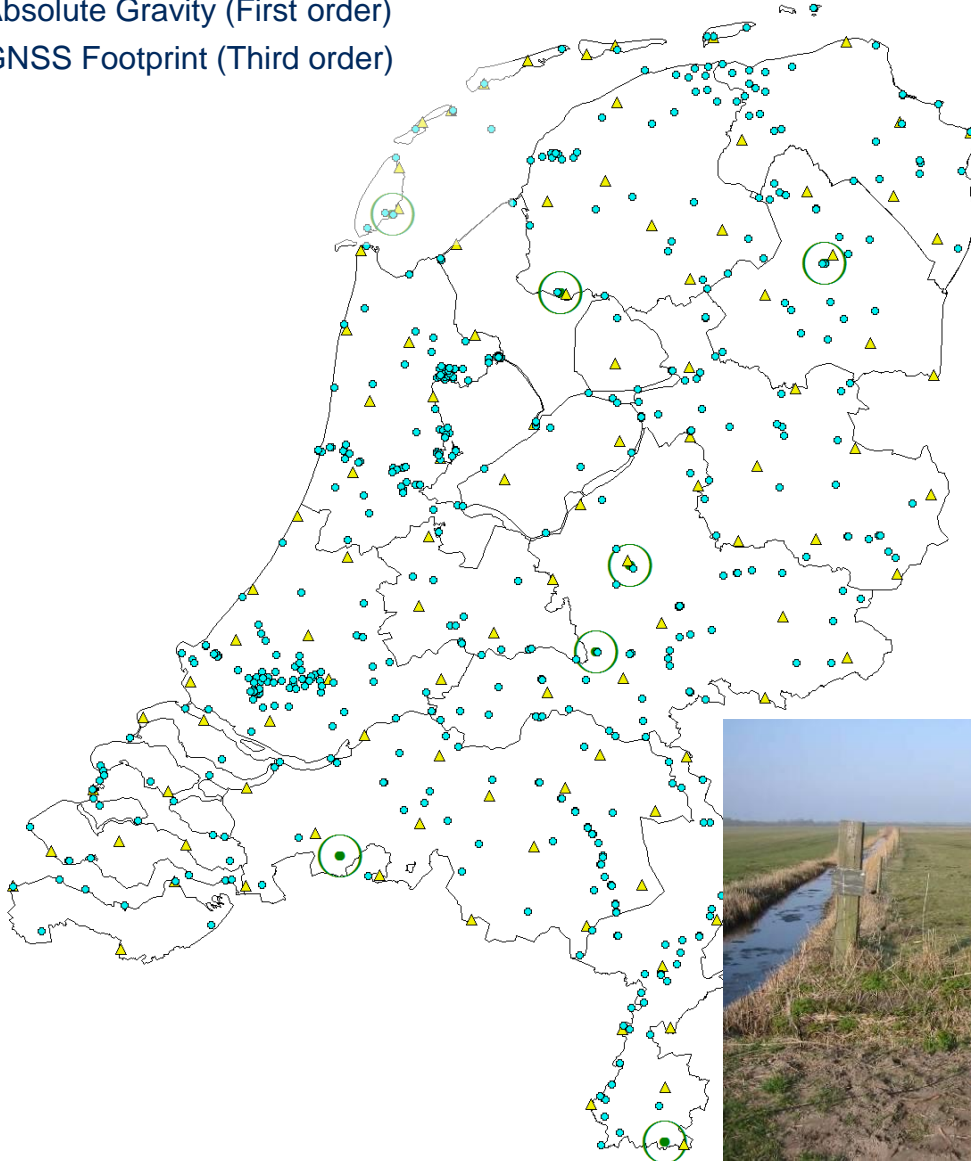


- GNSS CORS
- ▲ First order
- Second order
- Upgrade to multi-GNSS finished for 1st order network, 50% 2nd order
- WSRT exception, antenna not replaced multi-GNSS receiver connected via splitter
- Started making site logs...



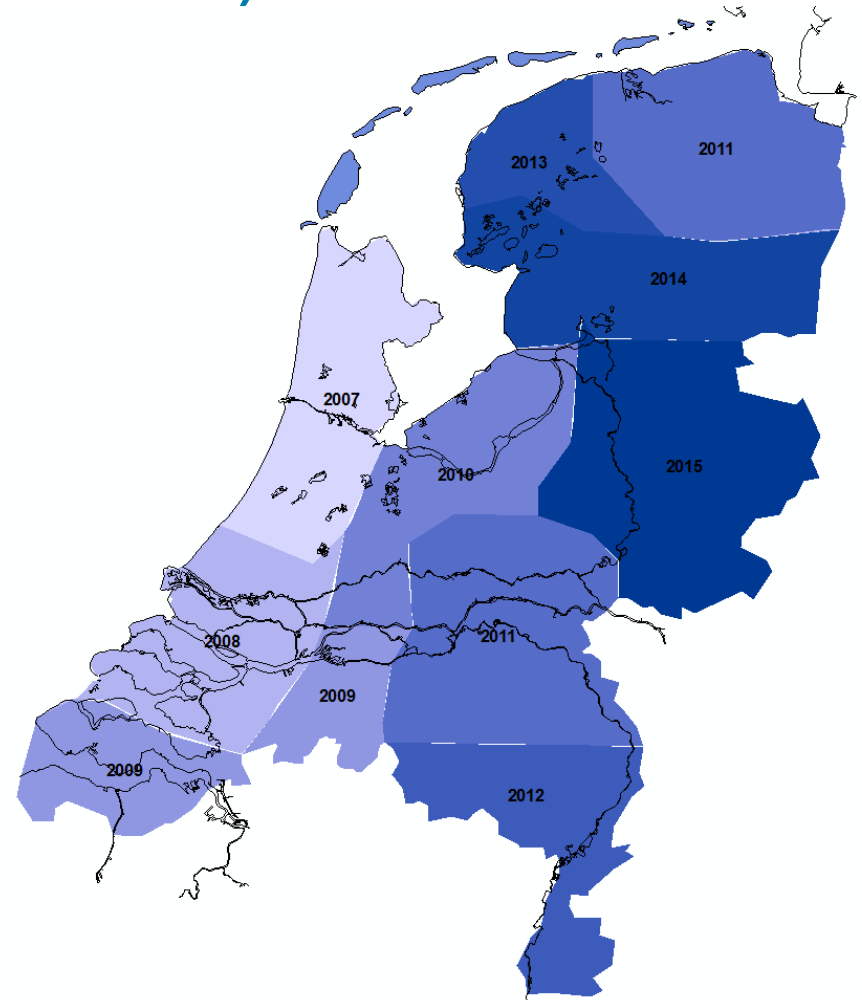
Passive Geodetic Infrastructure

- NAP (First order)
- Absolute Gravity (First order)
- ▲ GNSS Footprint (Third order)

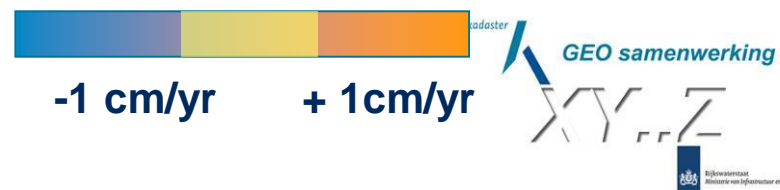
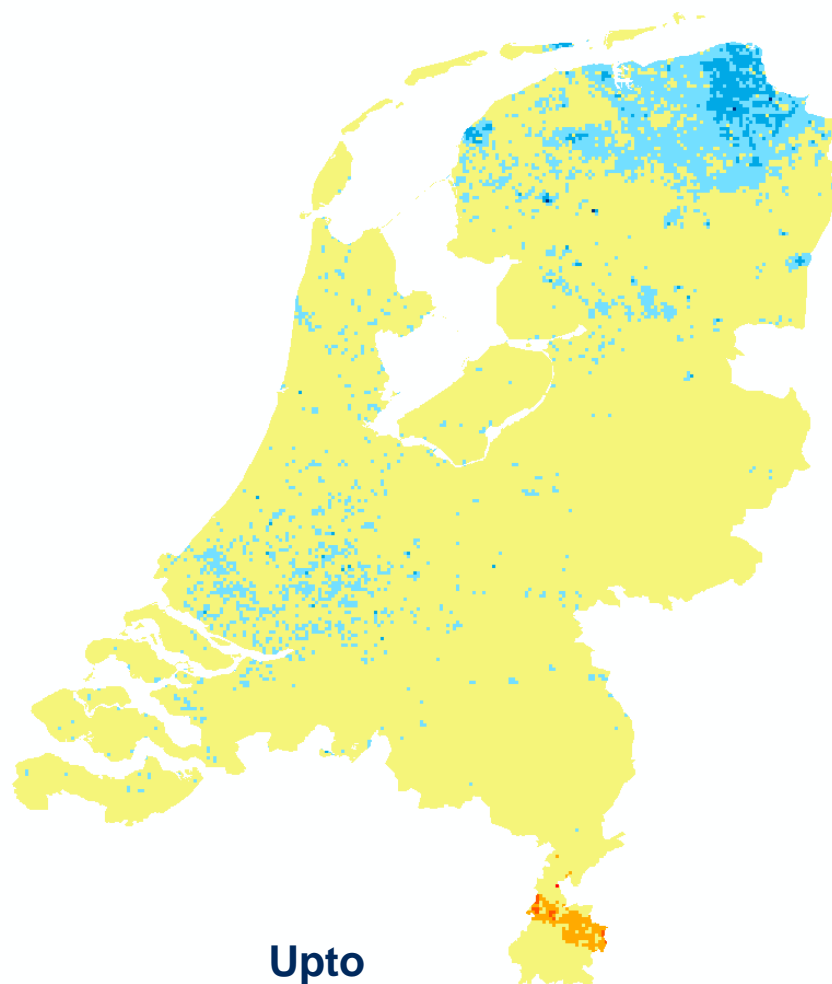
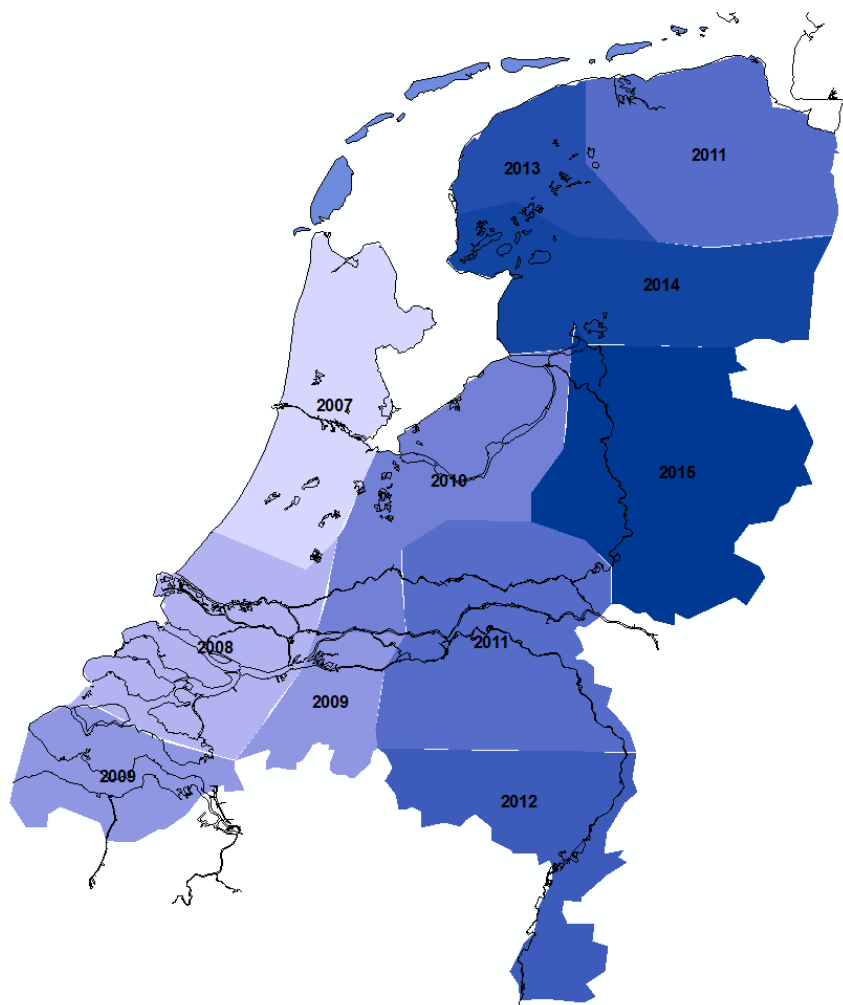


Maintenance NAP (Normaal Amsterdams Peil)

- 10 year periodic measurement cycle
- Ensure benchmark height accuracy within 10 mm
- 35000 benchmarks
- Costs: \approx € 1.000.000 per year

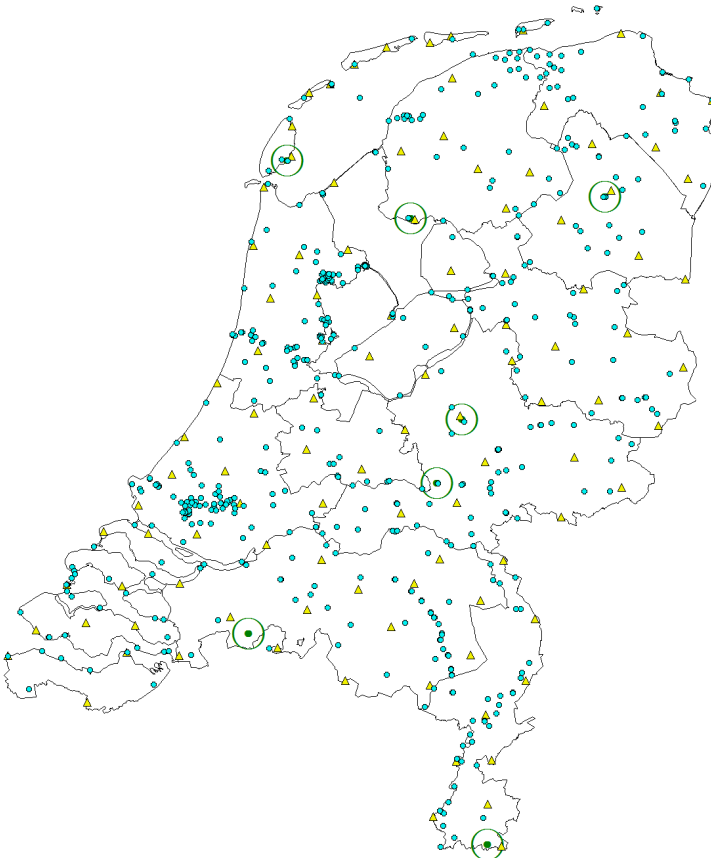


Maintenance NAP



Vertical stability of NAP

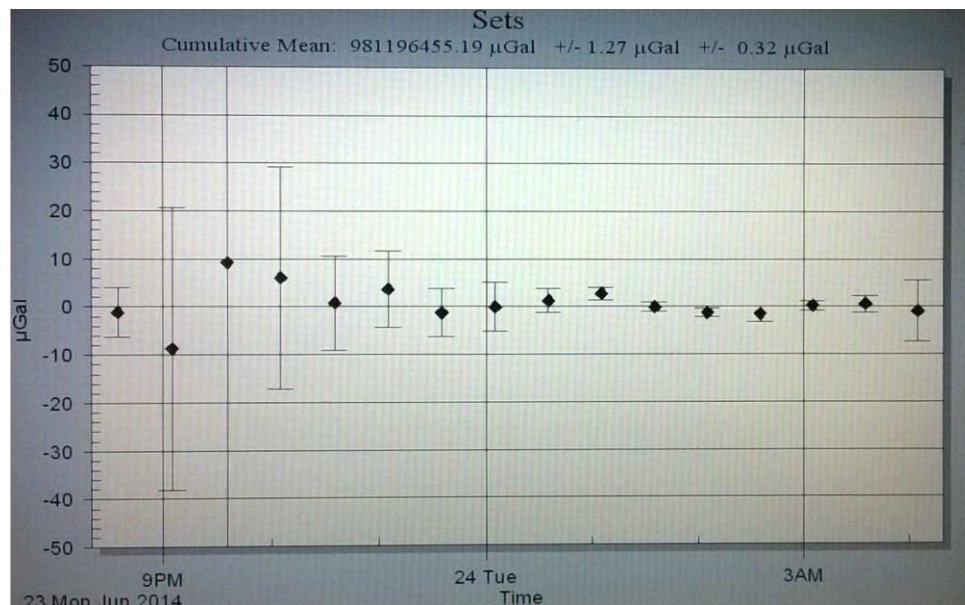
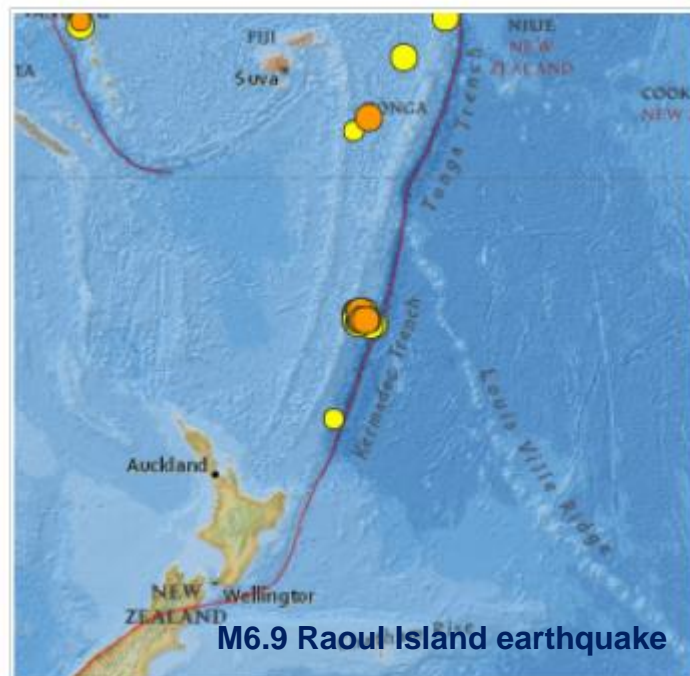
- Absolute gravity measurements (FG5)
- Yearly campaign of measurements at 5 stations
→ combined with water measurements and soil moist



Westerbork	Zundert	Epen	Kootwijk
-0.07 $\mu\text{Gal/yr}$	-0.1 $\mu\text{Gal/yr}$	-0.1 $\mu\text{Gal/yr}$	+0.09 $\mu\text{Gal/yr}$
+0.35 mm/yr	+0.5 mm/yr	+0.5 mm/yr	-0.45 mm/yr

Vertical stability of NAP

- Earthquakes during measurements at Zundert station



Equivalent to vertical movement of 17mm

Vertical stability of NAP

- Absolute gravity measurements (FG5)
- Yearly campaign of measurements at 5 stations
 - combined with water measurements and soil moist
- 2014: research of additional station in Texel
 - promising results
 - incorporated into yearly campaign

NEVREF

- Vertical reference frame for land and sea
- Computation of quasi-geoid for the Dutch and Belgian continental shelf
- Project duration 2013-2016

