

An update on the geodetic infrastructure in Belgium

Pierre Voet



Permanent GNSS Stations

ROB permanent GNSS stations

- Started in 1996
- 4 stations are part of EPN
- ROB is responsible for EPNCB

RTK networks: since 2003

- Operated by regional governmental agencies and NGI
- RTK data is free of charge (except agriculture)
- NGI is responsible for initial coordinates and monitoring of stations



'Traditional' geodetic networks

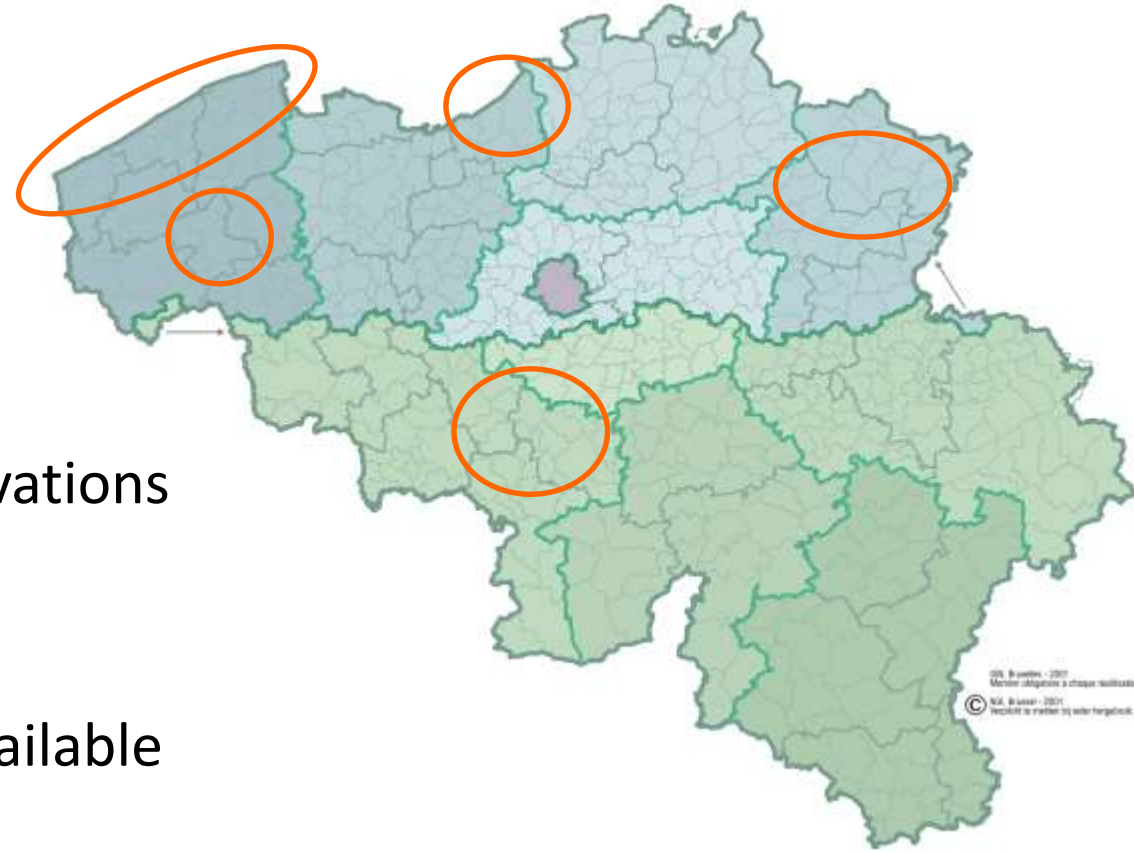
1985 – 2003: Most recent complete update of networks of horizontal and vertical markers

2005 – 2016: Results of GNSS monitoring was the trigger for local levelling campaigns

2016: Overall compensation of all levelling observations showed several misfits

2017: Additional optical levelling









2018: New homogeneous levelling heights are available

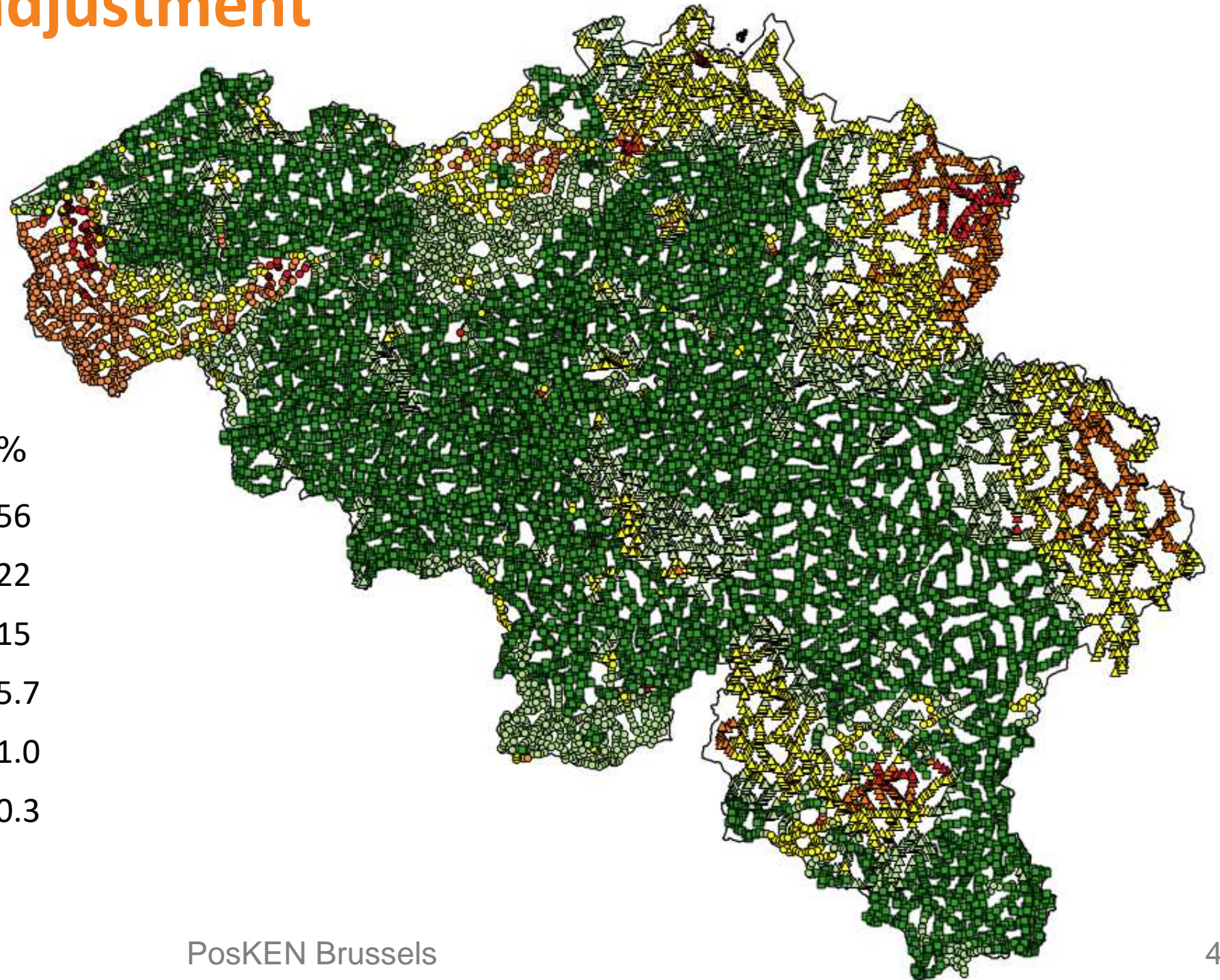


Results of the new adjustment



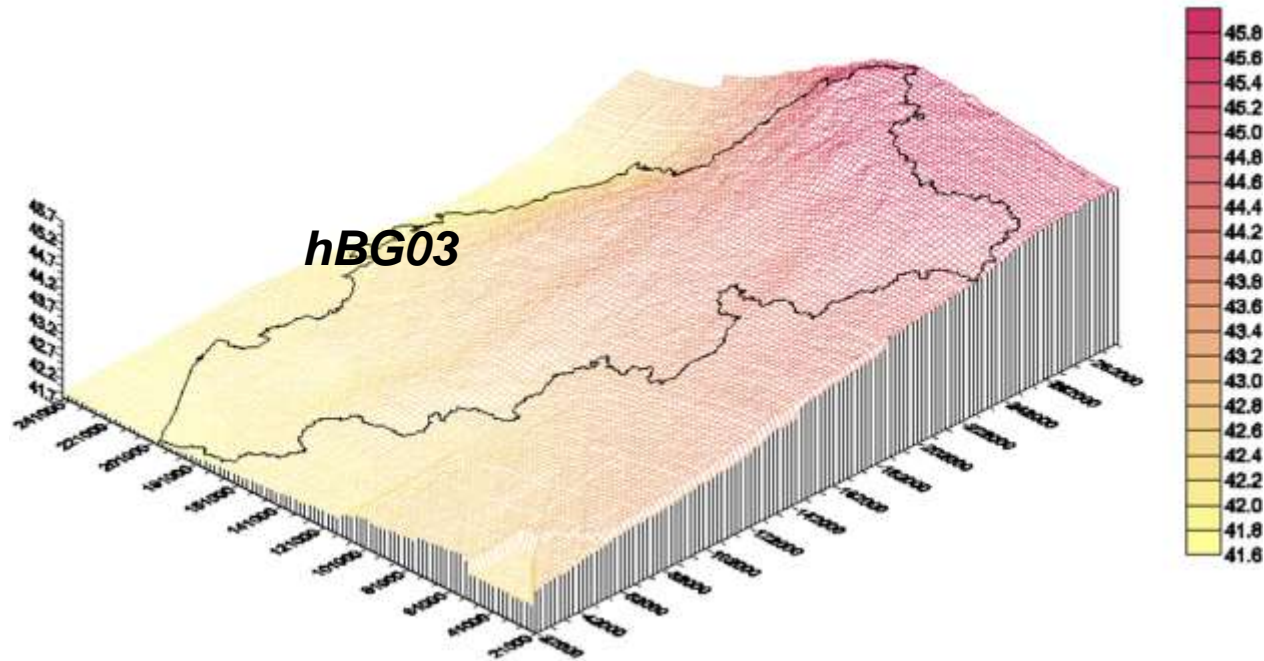
Changes w.r.t. the actual H in
our database

 Uplift	 Descending	%
	Very small changes	56
	Between 5 mm and 1 cm	22
	Between 1 and 2 cm	15
	Between 2 and 3 cm	5.7
	Between 3 and 5 cm	1.0
	More than 5 cm	0.3



New quasigeoid model

Actual model was created in 2003



Update hBG18 based on:

- New GNSS – levelling points based on updated H
- Gravimetric data old observations + new data

Computed by TU Delft

Will be valid starting from 01-08-18

Future of geodetic reference

- Permanent GNSS stations are the backbone
- The classical networks of horizontal and vertical reference markers will not be updated, remaining points are still available, but the networks will fade out.
- New 3D-network (± 3000 points) will be created
 - ✓ GNSS friendly
 - ✓ Good accessibility
 - ✓ Stainless steel nails in existing solid concrete surfaces
 - ✓ Coordinates will be determined with static GNSS and spirit levelling

