



# NATIONAL REPORT BELGIUM

**EUPOS CONFERENCE 2021**

**NGI**  
Nationaal  
Geografisch  
Instituut

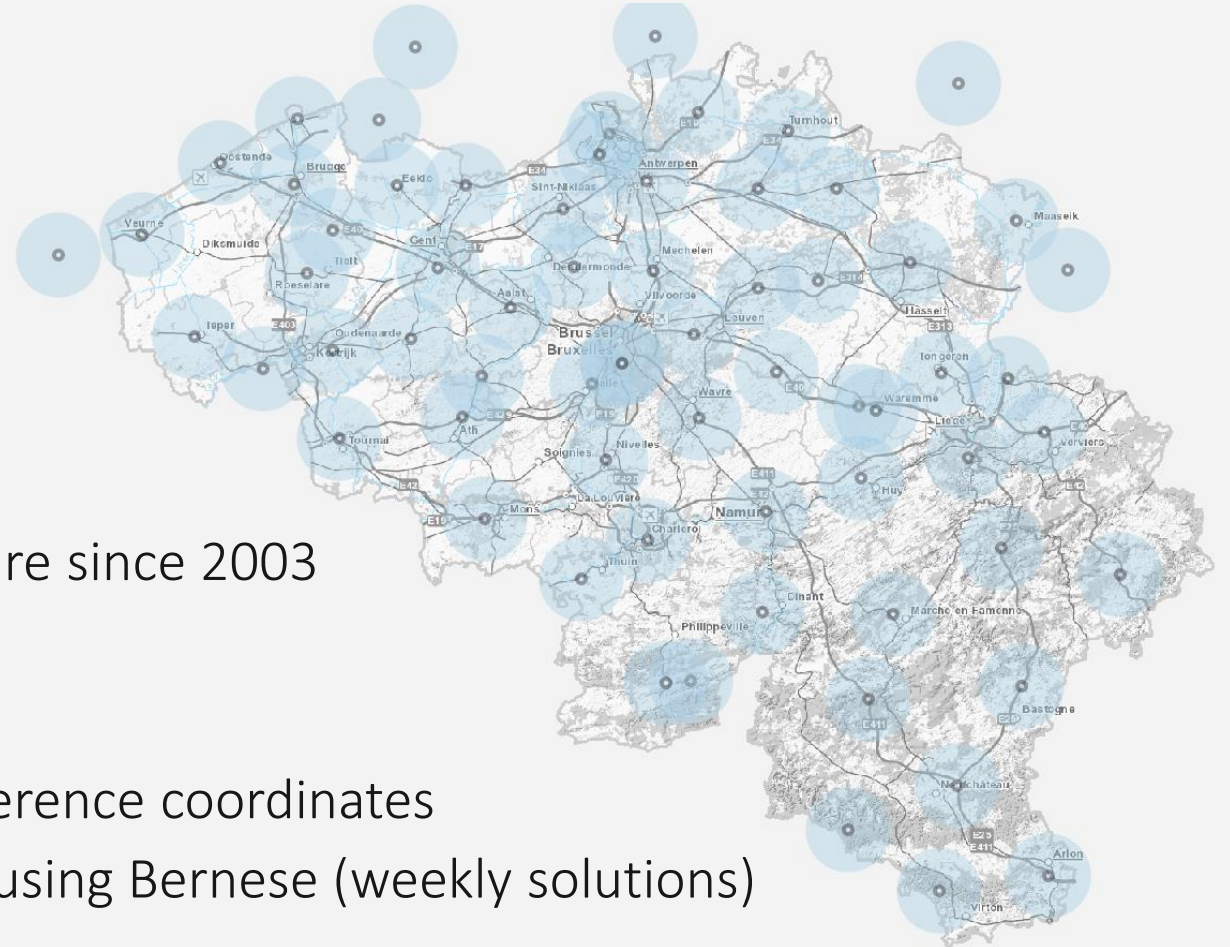


**IGN**  
Institut  
Géographique  
National

# Active Geodetic Network

Federal & regional authorities  
maintain RTK-GNSS infrastructure since 2003

NGI is responsible for initial reference coordinates  
and monitoring of the stations using Bernese (weekly solutions)



## Active Geodetic Network

### 1) FLEPOS:

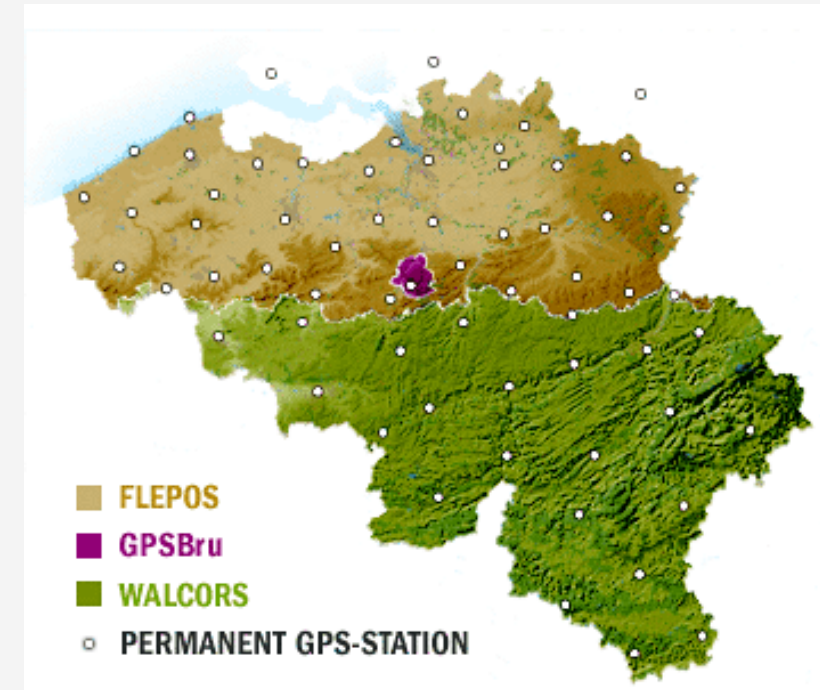
- Freely available
- 33 stations + 12 external
- 50% GPS/GLONASS ; 50% GPS/GLONASS/Galileo/BeiDou
- Trimble Network Management Team

### 2) WALCORS:

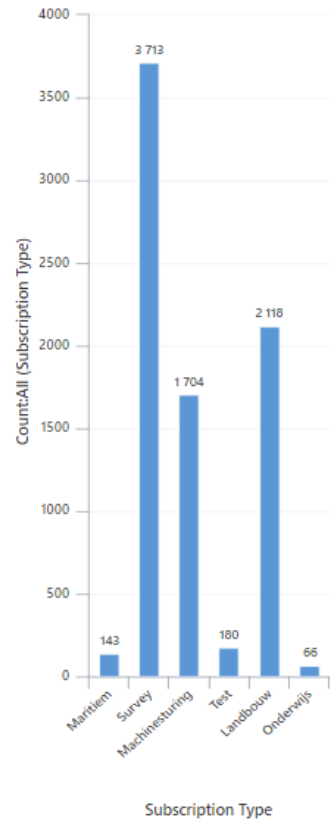
- Freely available, subscription for machine-guidance (through DrivenBy or MoveRTK)
- 23 stations + 13 external
- 100% GPS/GLONASS/GALILEO since 2019
- Leica

### 3) GPSBRU:

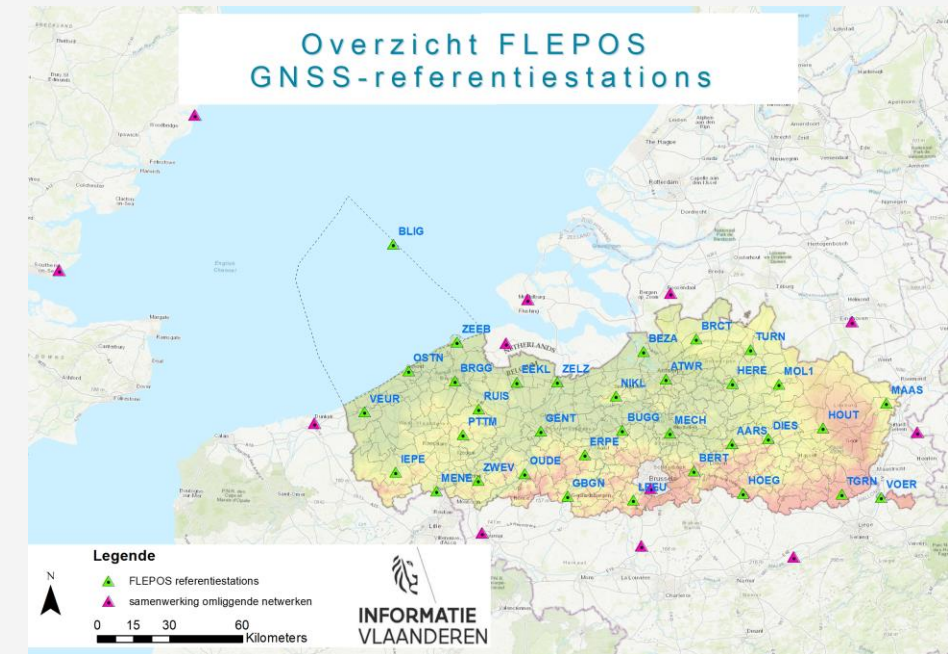
- 1 station
- Maintained by NGI using GEO++ software
- Additional RTK-network combining ALL stations, only for federal services (police, emergency, railroad,...)



# FLEPOS

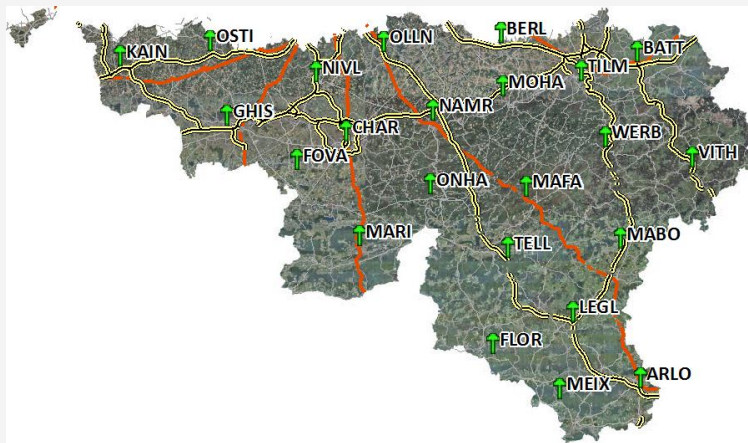


- Free for all
- Exploratory talks change business model (only survey)
- Ca. 8000 subscriptions
- Ca. 1600 unique daily users
- 25% GPS/GLONASS/Galileo/BeiDou
- 75% GPS/GLONASS
- Drone-subscriptions on the rise (!)



## WALCORS

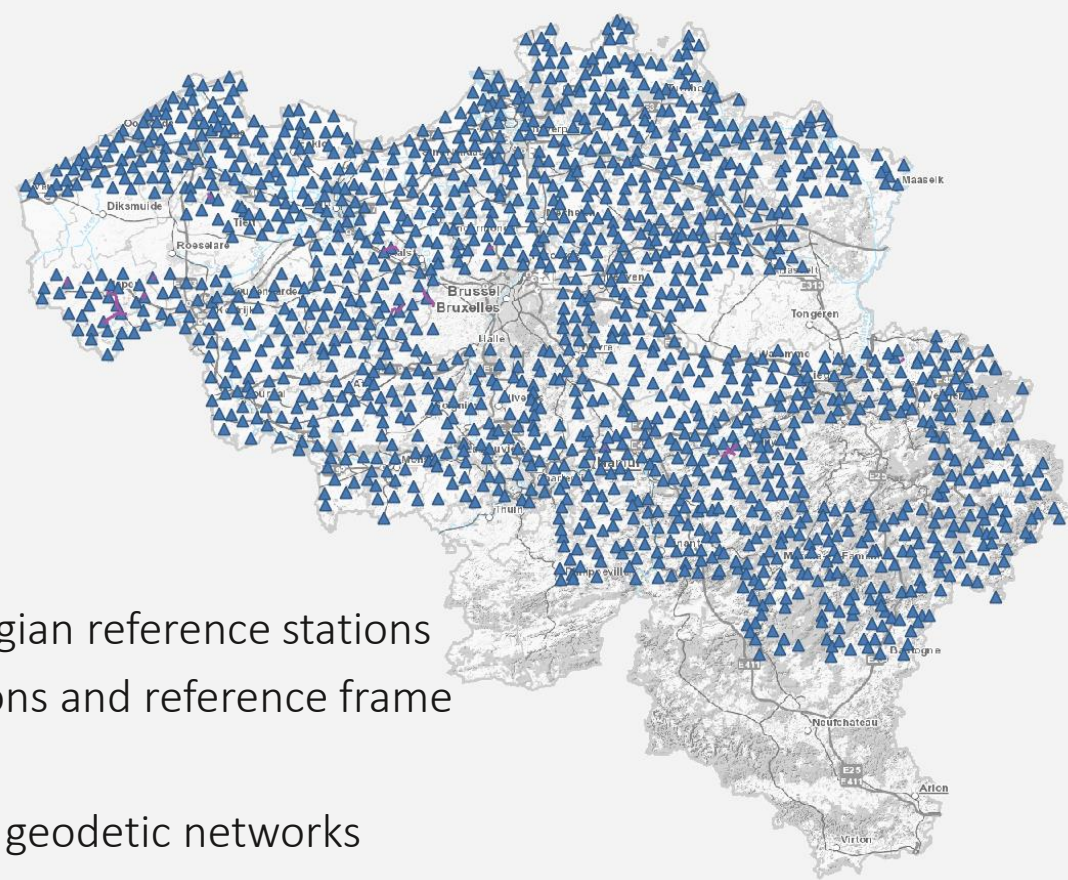
- Free for survey, subscription for machine guidance
- Maintained by Leica
- 100% GPS/GLONASS/Galileo
- Staff currently outsourced to help on recovery after floodings of summer '21





## GPSBru

- Consists of 1 antenna
- 2 geodesists at NGI working on:
  - RTK-GNSS GPSBru
  - RTK-GNSS for federal services using all Belgian reference stations
  - Monitoring of coordinates reference stations and reference frame
  - EPN densification
  - Responsible for planimetric and altimetric geodetic networks
  - Creating a new 3D network (9 field staff):
    - Started in 2018
    - GNSS friendly
    - Static GNSS + levelling



## 2022

Installation of 4 Integrated Geodetic Reference Stations (IGRS) together with Geological Survey of Belgium. Funding requested for 10 more.



## Jamming & Interference

29 march 2021:

Western Scheldt

GPS/AIS jammed for 60 minutes by “dronekiller” luxury yacht

Belgian Institute for Postal Services and telecommunication

- Can control and fine offenders (e.g. jammer in truck near Septentrion head office)

Belgian military showed interest in research



## Certification of GNSS products

- Regional authorities are exploring to “close” network to (some) users
- At the same time, private companies plan on developing network (Topcon)

⇒ NGI wants to develop certification procedures for GNSS products

- 1) Contact with Lennard Huisman (NL)
- 2) Implementation of grid-check method
- 3) Awaiting international developments

⇒ NGI is willing to work together and invest in certification procedures



Any questions?  
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Installation of GNSS antennas on North Sea