

National Report of the Netherlands

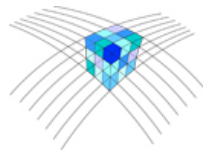
EUREF 2009, Florence, 27-29 May 2009

Hans van der Marel (Delft University of Technology)
Joop van Buren (Kadaster)
Anton Kösters (Rijkswaterstaat)

29 May 2009



1

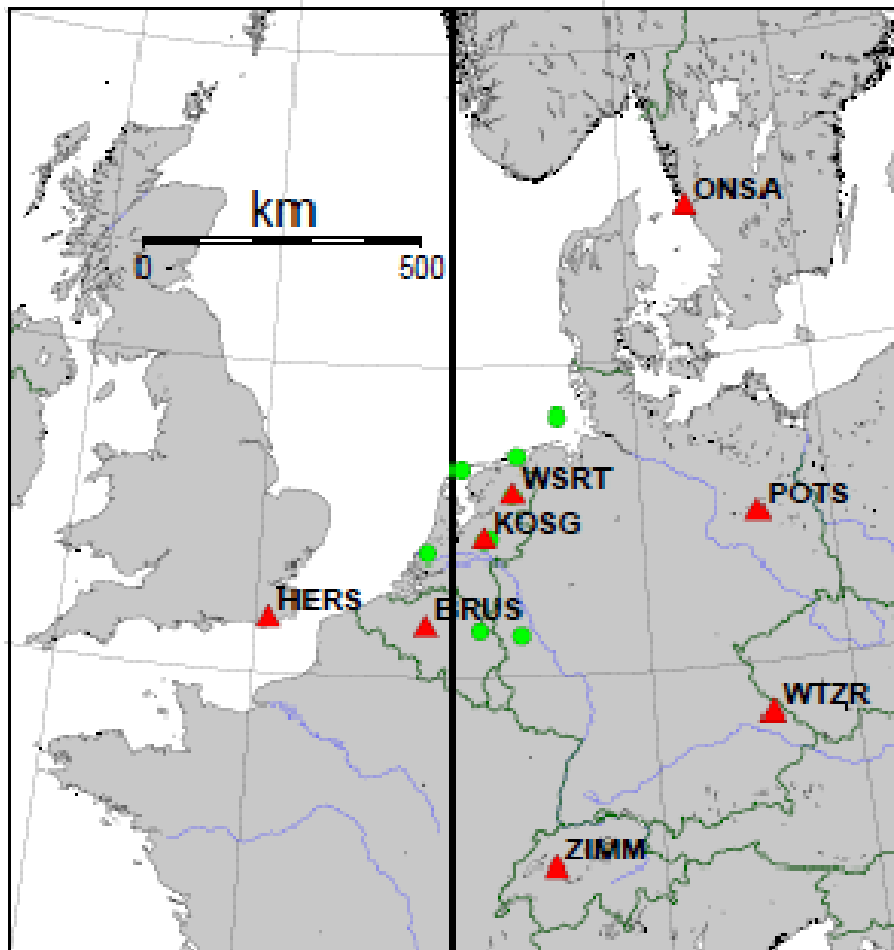


Rijkswaterstaat



TU Delft
Delft University of Technology

AGRS.NL: Primary GNSS Network



- New official coordinates computed in 2008: AGRS2000(R05) in brief AGRS2008
- Following new guidelines from EUREF used for ETRF2000(R05)
- Multiyear analysis (2005-2008)
- 2008 selected for final coordinates
- RDNAPTRANS 2008 is the accompanying transformation procedure for ETRS89↔RD/NAP
- Basis for certification of RTK stations
- Replaces AGRS2004

AGRS.NL: Primary GNSS Network

Differences compared at Epoch 2000.0 between national AGRS2008 and EPN_ITRF_C1355.SNX

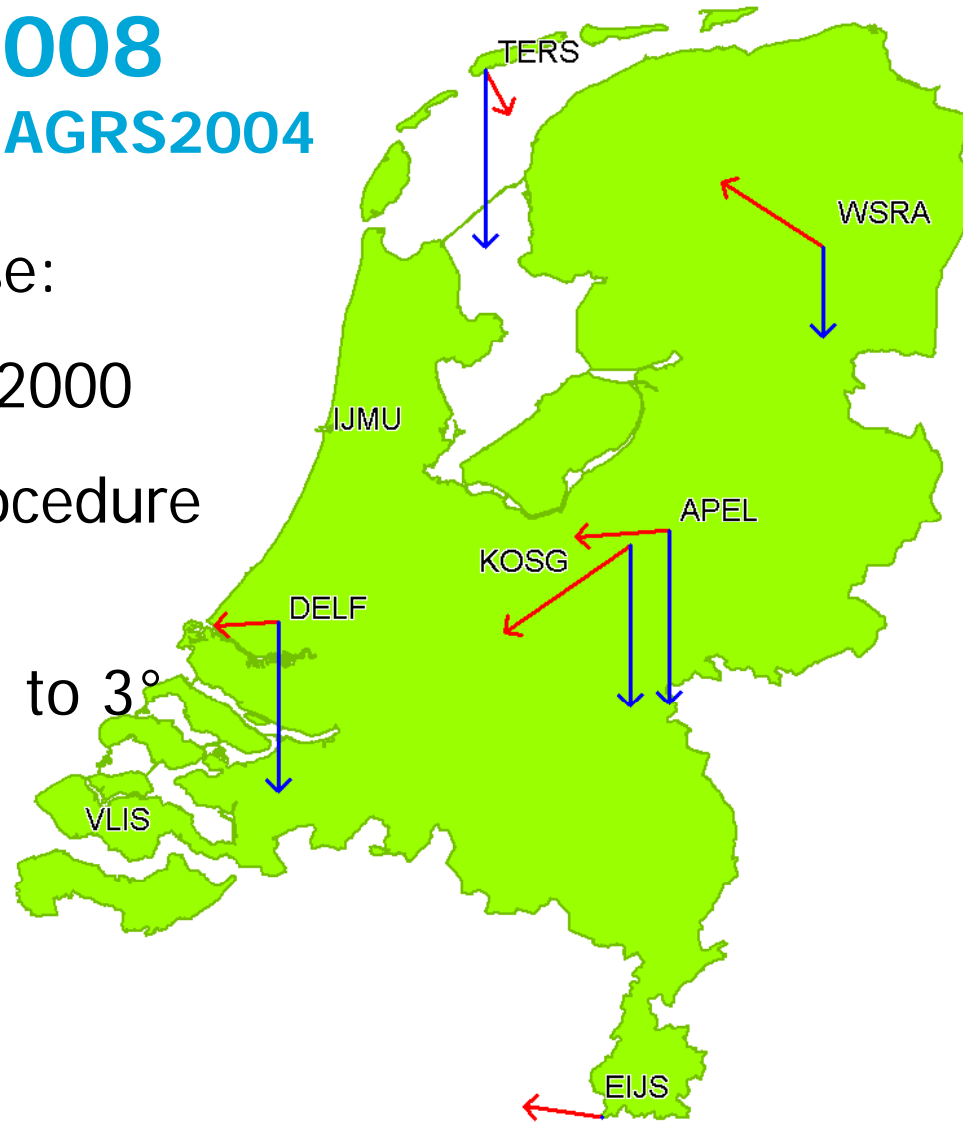
Name		East[mm]	North[mm]	Up[mm]
DELFF	13502M004	-3.2	-0.4	-11.0
EIJS	13533M001	-4.7	1.6	4.0
KOSG	13504M003	-4.2	3.3	-5.5
TERS	13534M001	6.1	-6.5	-9.9
WSRT	13506M005	-6.0	5.0	-4.3

RDNAPTRANS™2008

differences AGRS2008 – AGRS2004

Coordinate shifts because:

- ITRF2005 instead ITRF2000
- New transformation procedure ETRF2000(R05)
- Min. elevation from 15° to 3°
- Relative to Absolute antenna models



Renovation of Kootwijk (1)



Kootwijk Observatory for Satellite Geodesy (KOSG) in 2004

- Build in 1973
- Two telescopes and Satellite Laser Ranging
- GPS since 1991
- Staff relocated to Delft in 1999
- Training facility for police officers from 2000-2005
- Facilities demolished in 2006 (main buildings) and 2008 (transformer house)
- Returned to nature in 2008 and handed over to new owner: Staatsbosbeheer
- Formal agreement with Staatsbosbeheer allowing GNSS observations to continue

Renovation of Kootwijk (2)



GNSS station KOSG in 2008

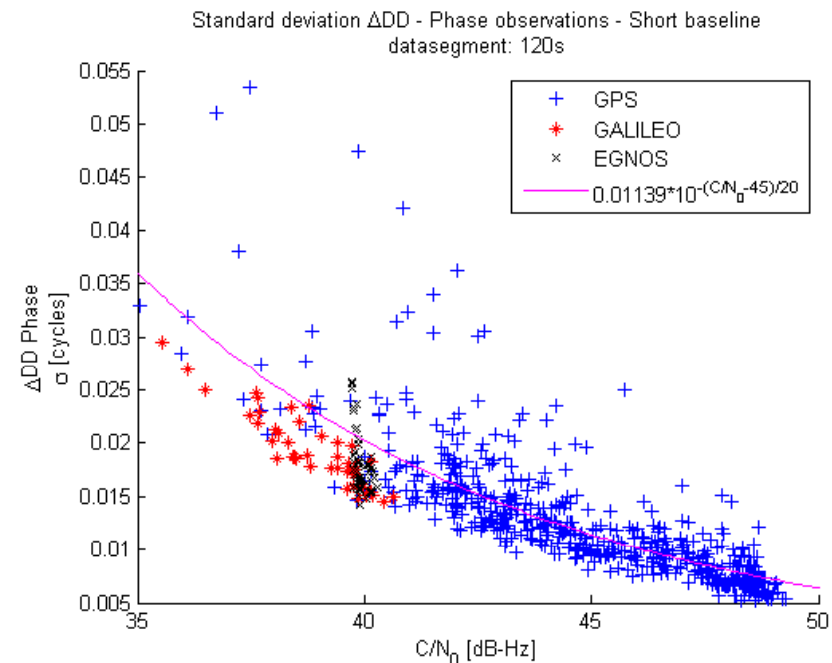
- Renovated in 2008
- GPS+Glonass (Leica GRX1200 PRO)
- Fully autonomous
- No connection to power grid; solar panels, battery, plus fuel cell in winter
- GPRS/UMTS Router
- Full history of local surveys; some markers have been replaced with new ones
- GPS Antenna (1991) at EOL; to be replaced by Leica AR25 3D Chokering in 2009
- Observations since 1992

National levelling

- Second order levelling campaigns on the islands in the South West and the gas fields in the North. In cooperation with municipalities and oil companies.
- 1100 points in the Netherlands are part of EVRF2007
The national NAP and EVRS differ ± 3 cm

First Galileo Double Difference Measurements by TU Delft

- At EUREF 2008 first results of Galileo tracking of code and phase was reported
- This year we can report
 - First Galileo (GIOVE A/B) double difference field measurements
 - First Galileo ambiguity resolved
 - Simultaneous tracking of GIOVE A/B E5a and GPS L5
- More information in separate presentation and poster



Thank you for your attention