CODE contributions to the WG COL

Daniela Thaller

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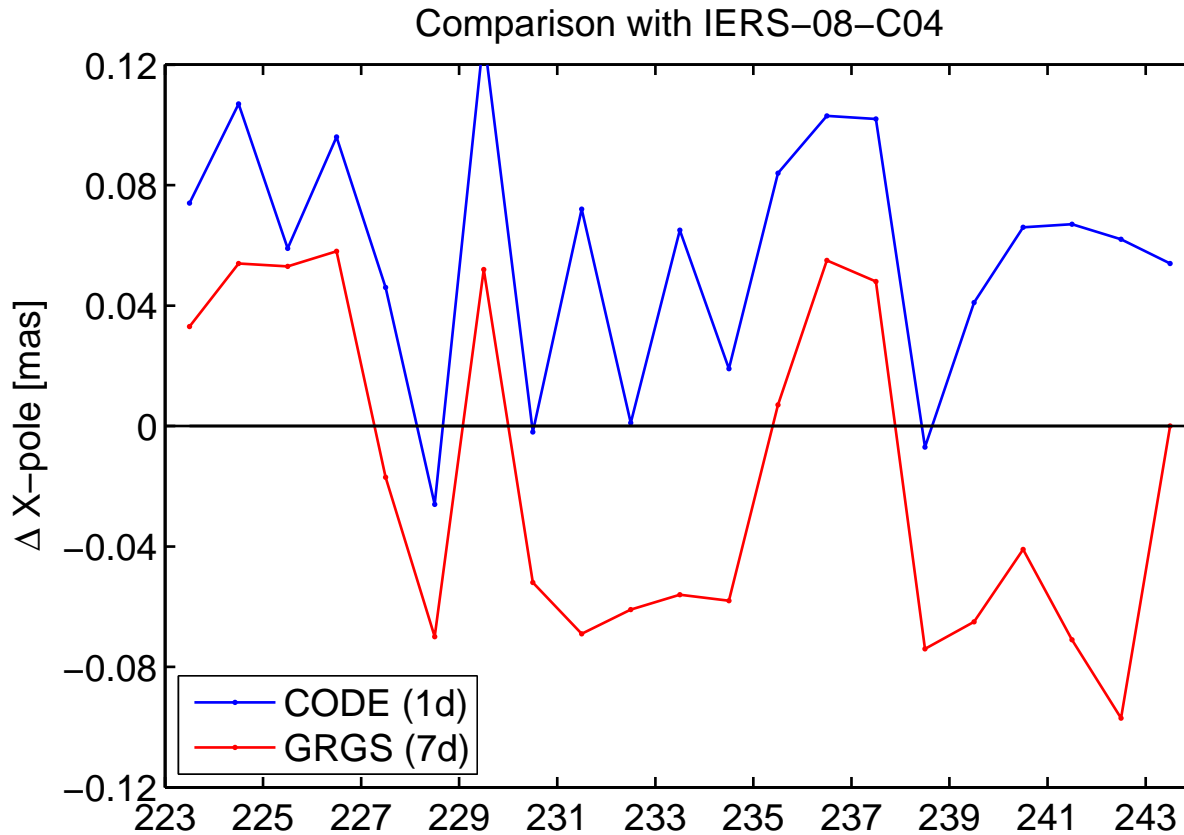WG COL Meeting, Munich, 29. May 2012

Contributed SINEX files: GNSS

- Combined GPS+GLONASS

- For CONT08

- Using models of WG COL

- Daily SINEX files

- Parameters:

  - Station coordinates
  - Troposphere ZD (2 h)
  - Troposphere gradients (24 h)
  - Polar motion (piece-wise-linear)
  - UT1 / LOD (piece-wise-linear)
  - Nutation (piece-wise-linear)
  - Satellite antenna offsets

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Contributed SINEX files: SLR

- LAGEOS-1 and -2

- For CONT08 and CONT11

- Using models of WG COL

- Weekly SINEX files

- Parameters:
    - Station coordinates
    - Range biases (combined)
    - Polar motion (piece-wise-linear)
    - UT1 / LOD (piece-wise-linear)
    - Geocenter

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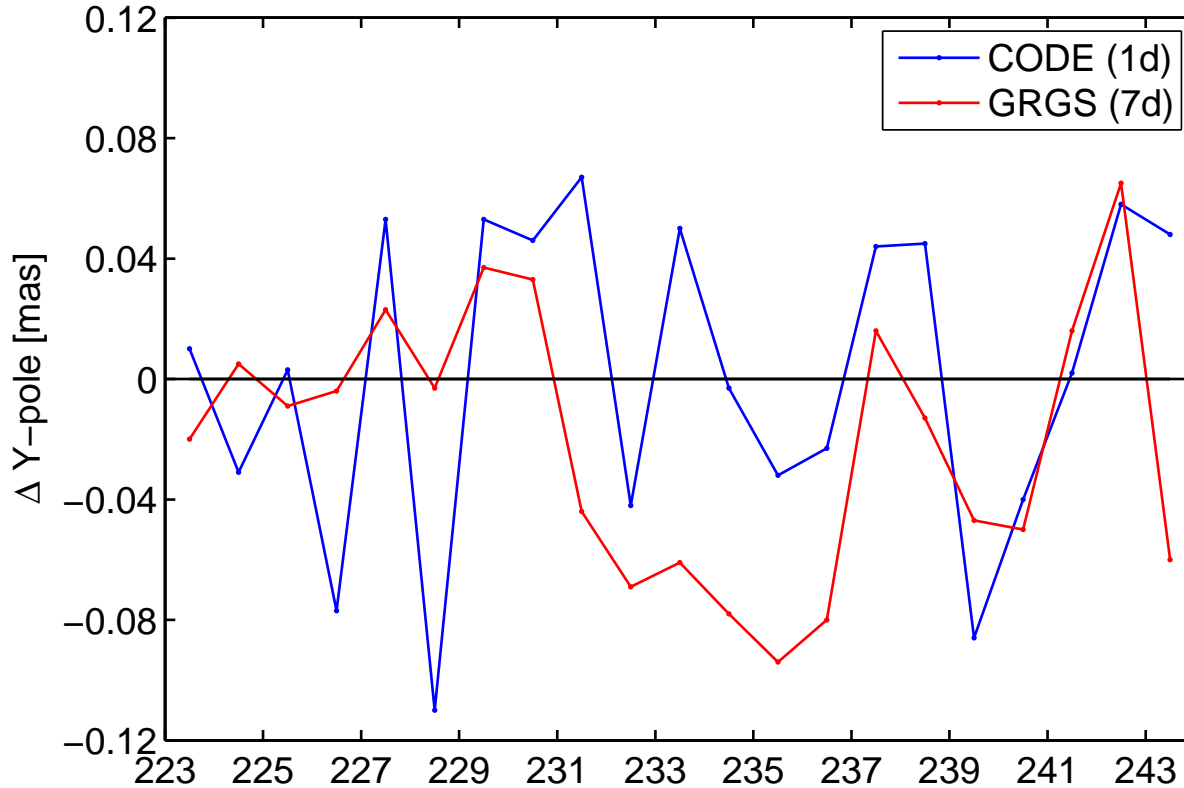
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Comparison of ERPs

Comparison with IERS−08−C04

Mean Bias [μas]:

61.5

23.3

RMS [μas]:

41.5

55.0

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Comparison of ERPs

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WG COL Meeting, Munich, 29. May 2012
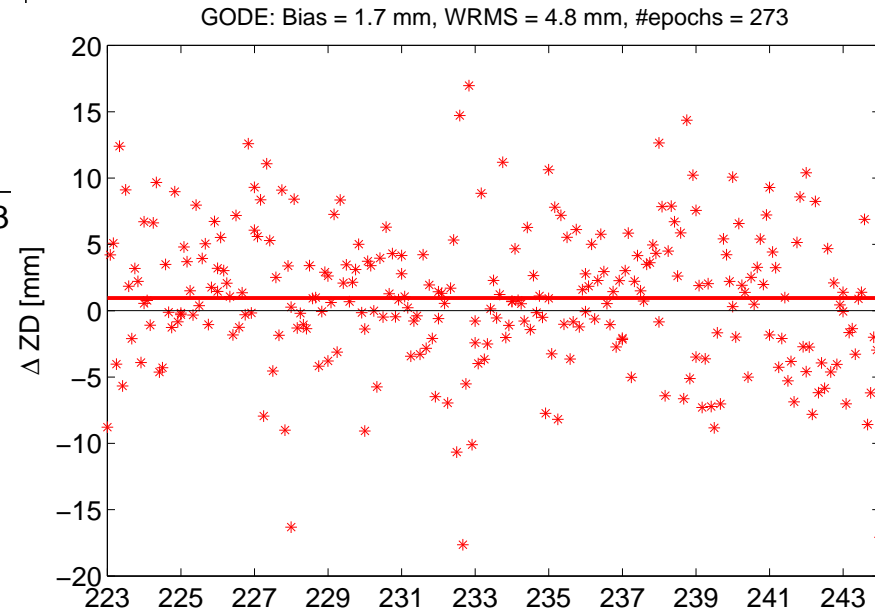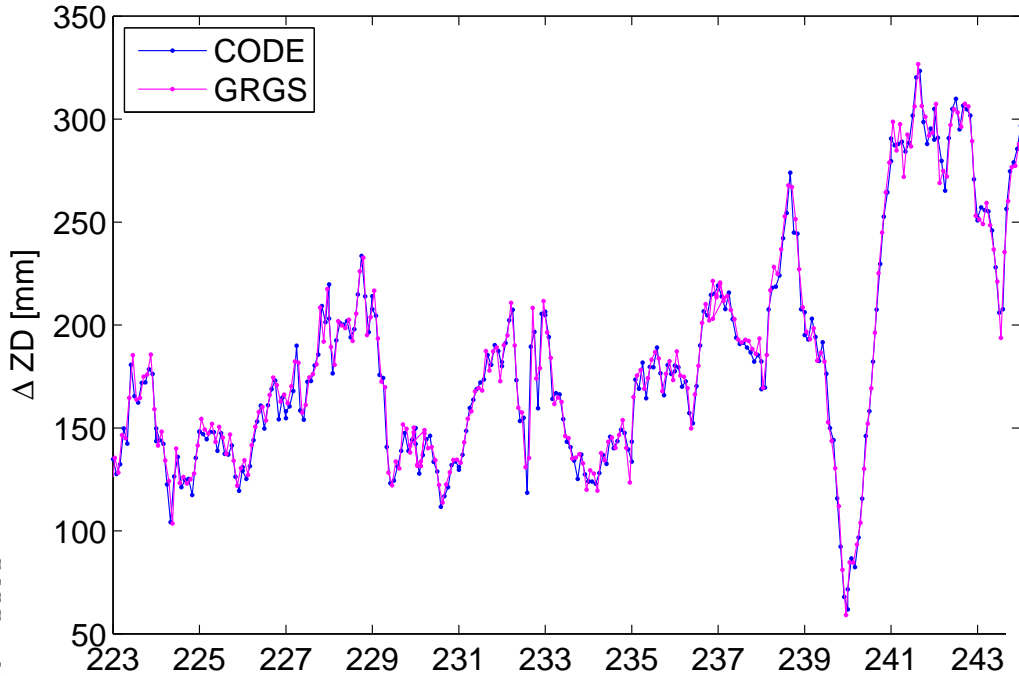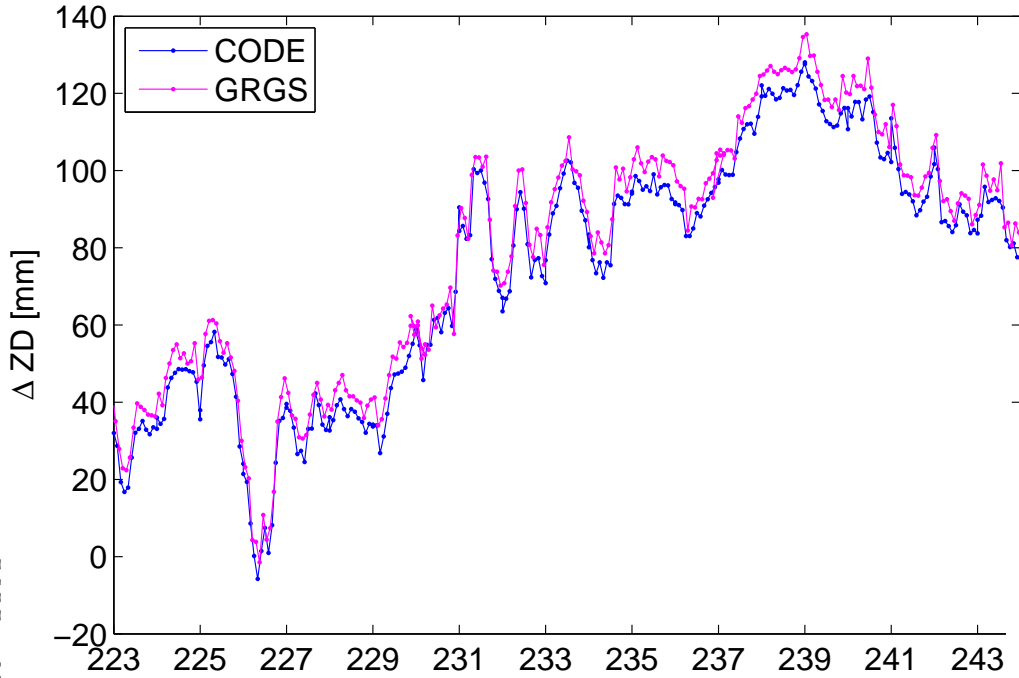
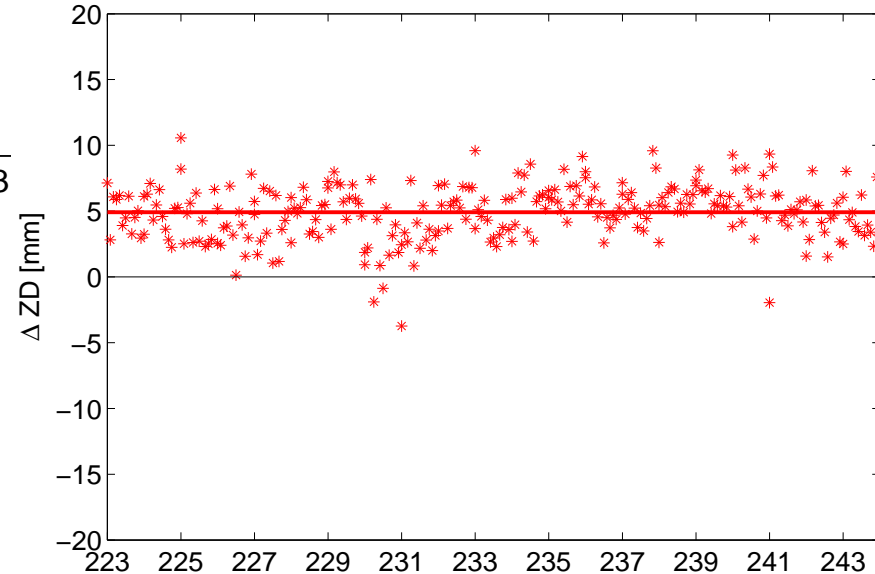# Comparison of troposphere parameters

Troposphere ZD for station CONZ

CONZ: Bias = −3.8 mm, WRMS = 5.3 mm, #epochs = 273

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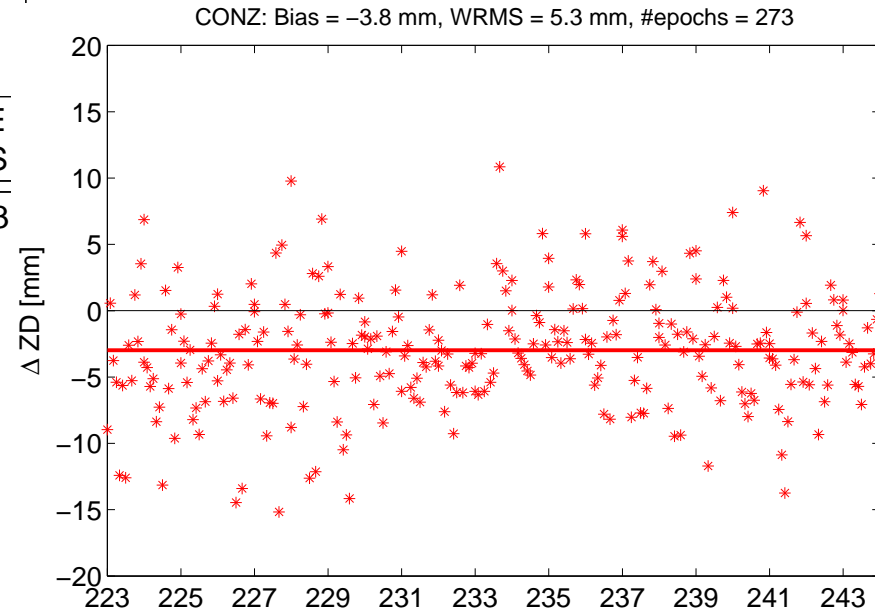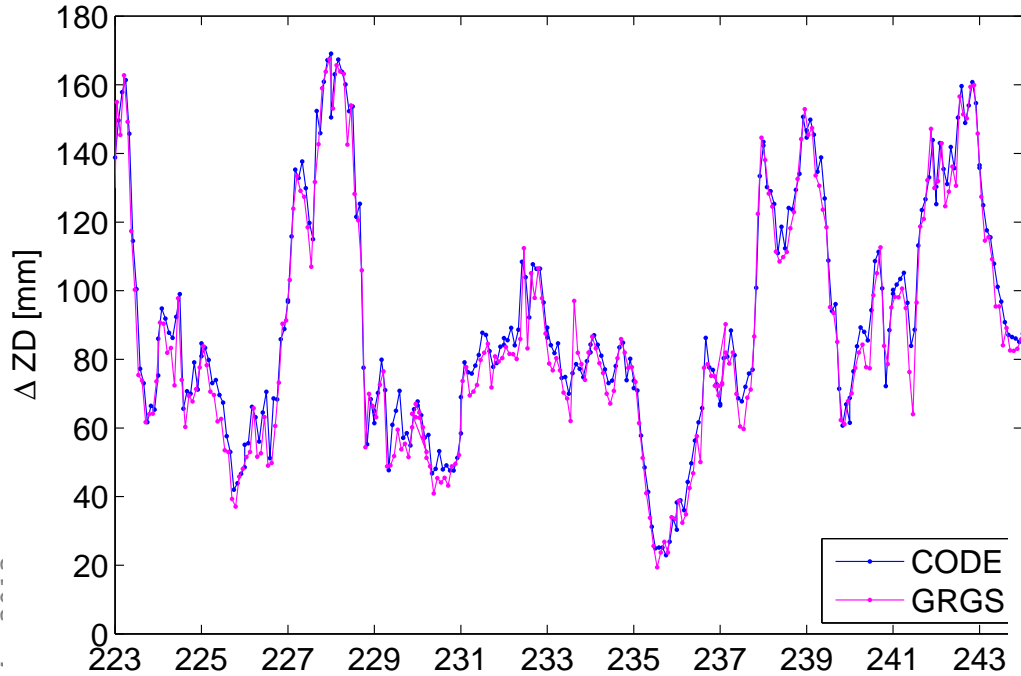
Comparison of troposphere parameters

Troposphere ZD for station GODE

GODE: Bias = 1.7 mm, WRMS = 4.8 mm, #epochs = 273

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Comparison of troposphere parameters

Troposphere ZD for station NYA1

NYA1: Bias = 4.6 mm, WRMS = 1.5 mm, #epochs = 273

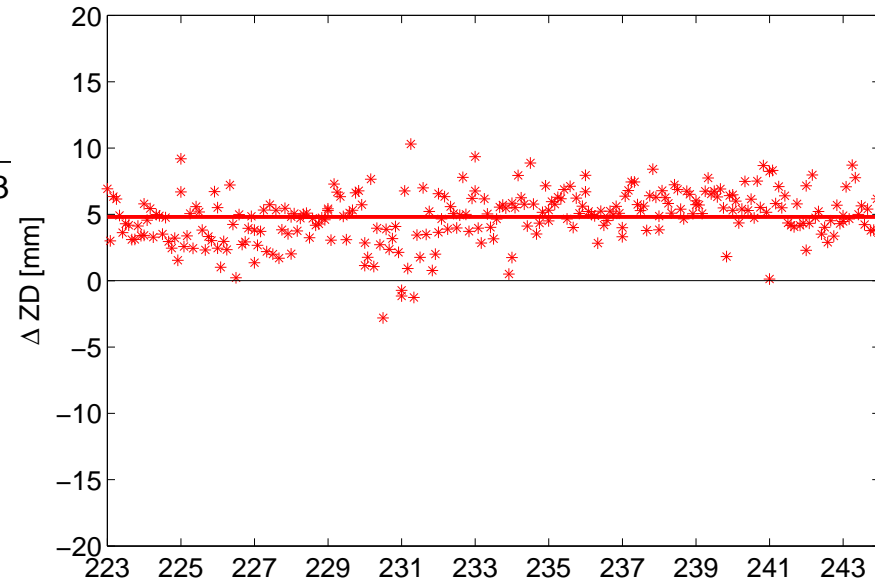Astronomical Institute University of Bern

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Comparison of troposphere parameters

Troposphere ZD for station NYAL
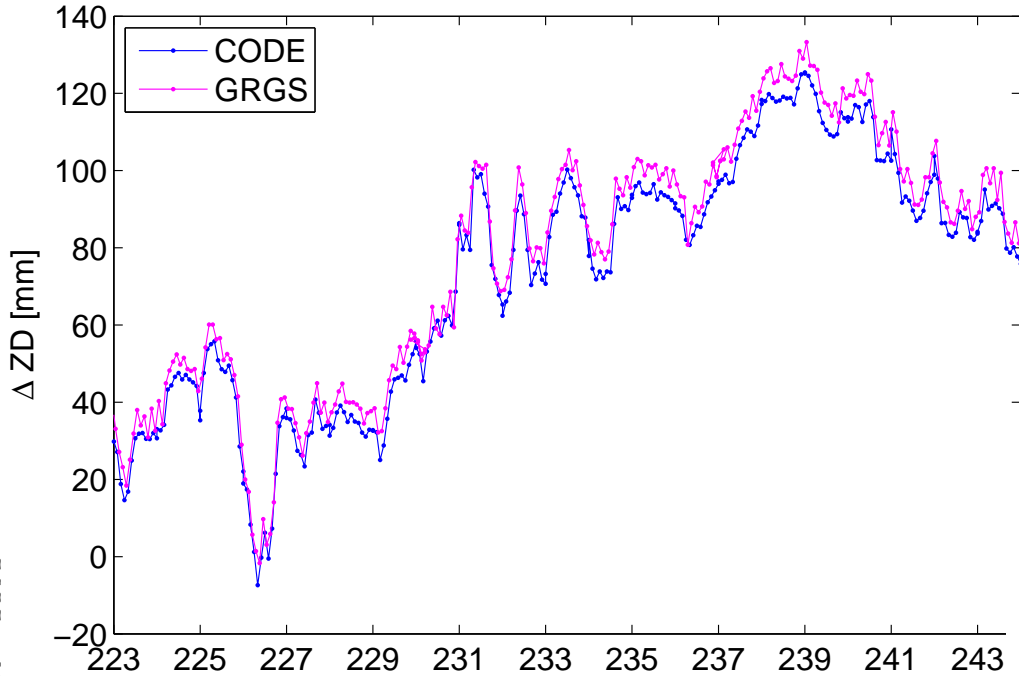
NYAL: Bias = 4.1 mm, WRMS = 1.5 mm, #epochs = 273

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Comparison of troposphere parameters

Comparison of CODE and GRGS
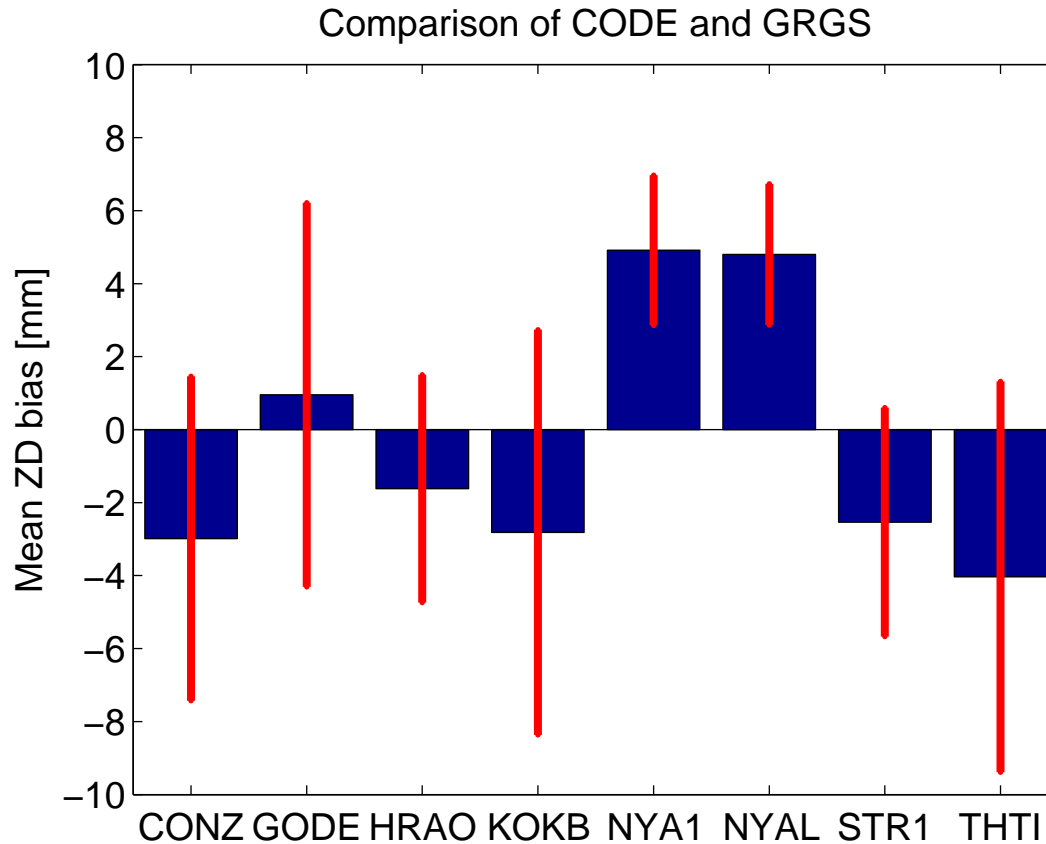
➢ All stations agree within +– 5 mm

➢ Co-located sites NYA1 / NYAL show same differences

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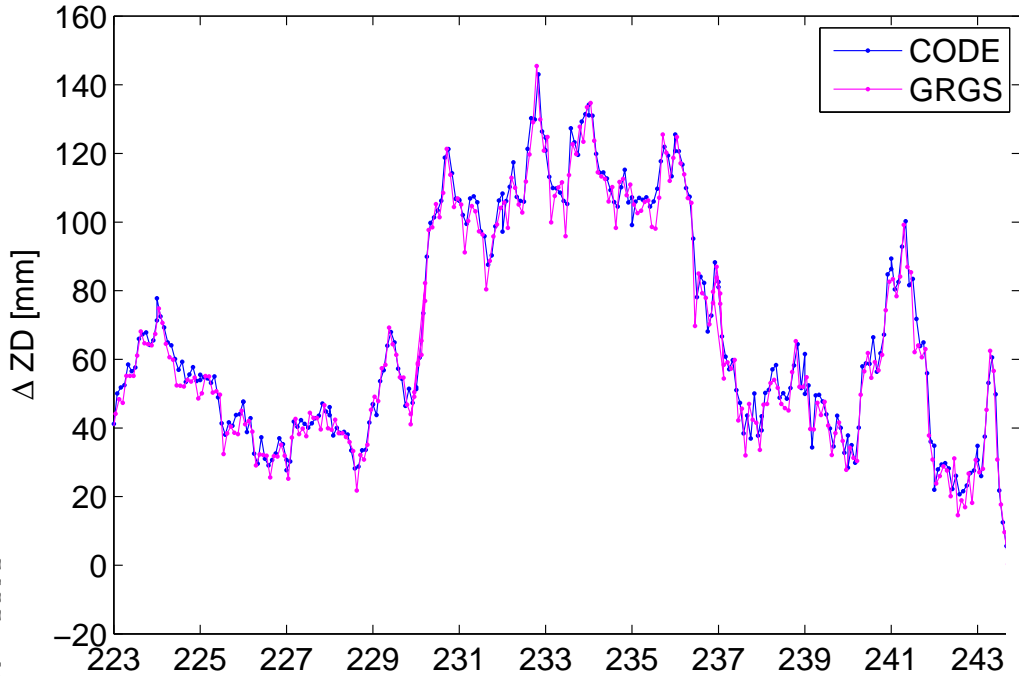# Comparison of troposphere parameters

Topics to be clarified:

➢ TROTOT (TROWET, TRODRY) or ZBIAS to be used

➢ What is provided as ZBIAS in GRGS solutions?
  ➢ I assumed corrections to apriori model
  ➢ but apriori values $/= 0.0$

➢ Epochs and Parameterization?
  ➢ CODE: 00:00, 02:00, 04:00, ...   piece-wise-linear
  ➢ GRGS: 01:00, 03:00, 05:00, ...   constant (?)

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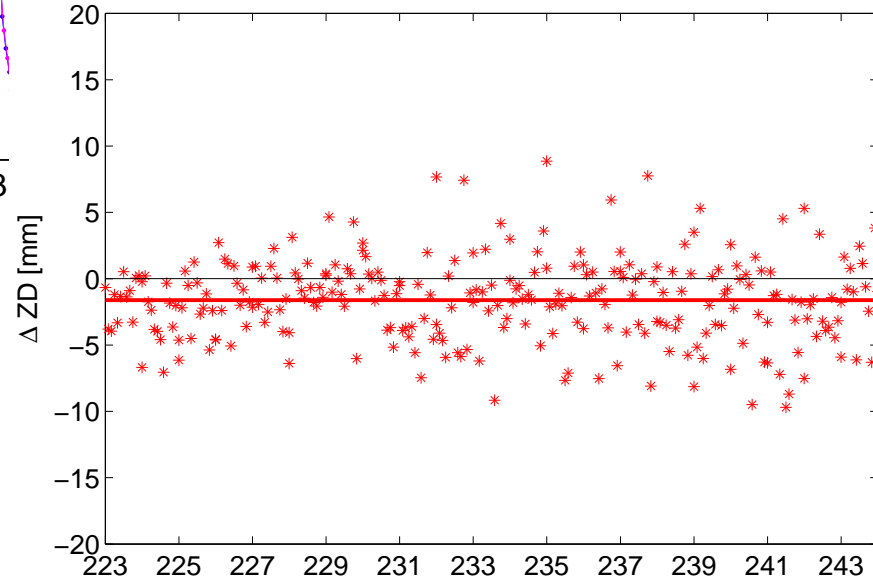# Outlook for CODE contributions

- GNSS solutions for CONT'11

- GNSS–SLR combined solutions (satellite co-location):
  - GPS+GLONASS microwave observations
  - GPS+GLONASS SLR observations
  - LAGEOS SLR observations

- Comparisons with further GNSS contributions (as soon as available with COL models)

- All contributions after finalizing the new release of the *Bernese GNSS Software* !

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Comparison of troposphere parameters

Troposphere ZD for station HRAO

HRAO: Bias = −1.3 mm, WRMS = 2.3 mm, #epochs = 273
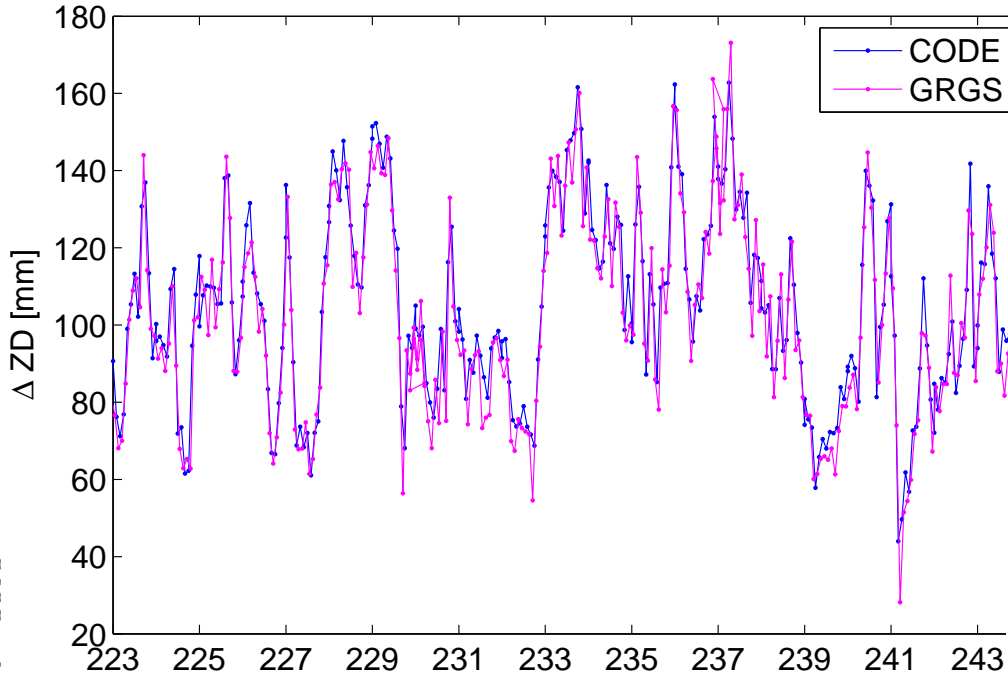
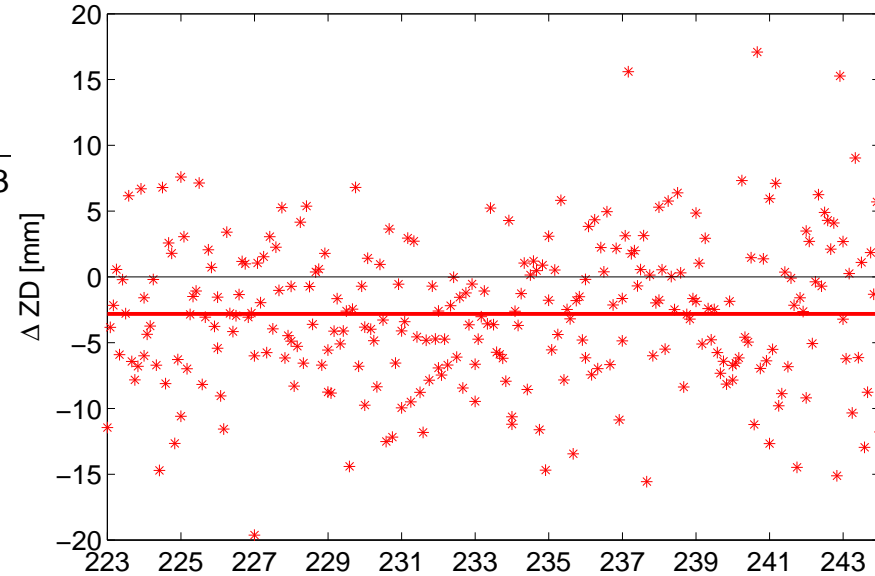Astronomical Institute University of Bern

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Comparison of troposphere parameters

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Comparison of troposphere parameters

Troposphere ZD for station STR1
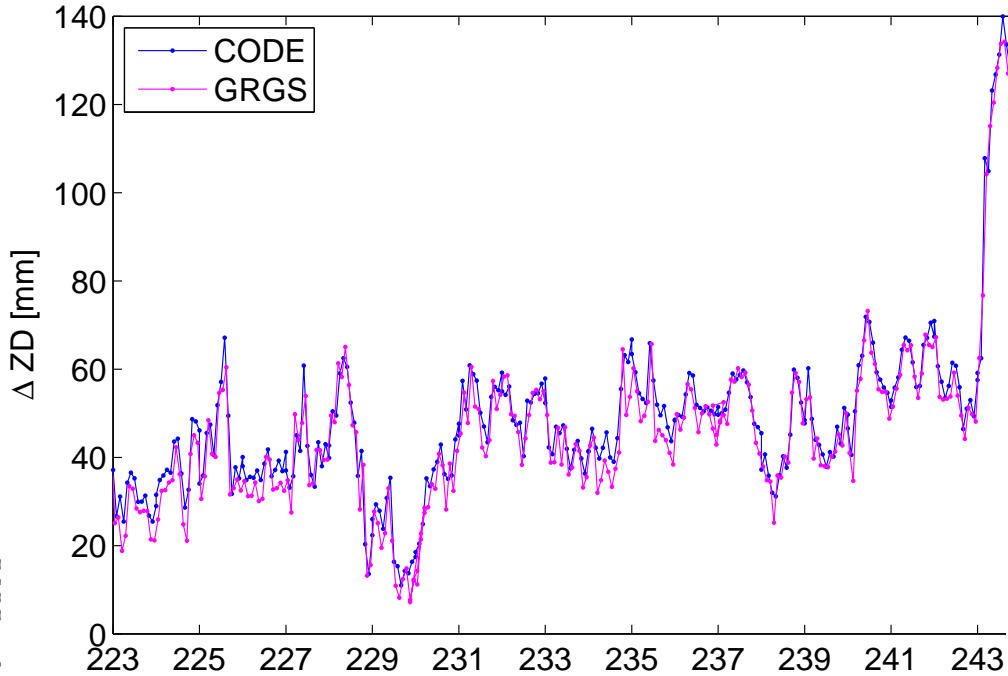
STR1: Bias = −2.7 mm, WRMS = 3.3 mm, #epochs = 273
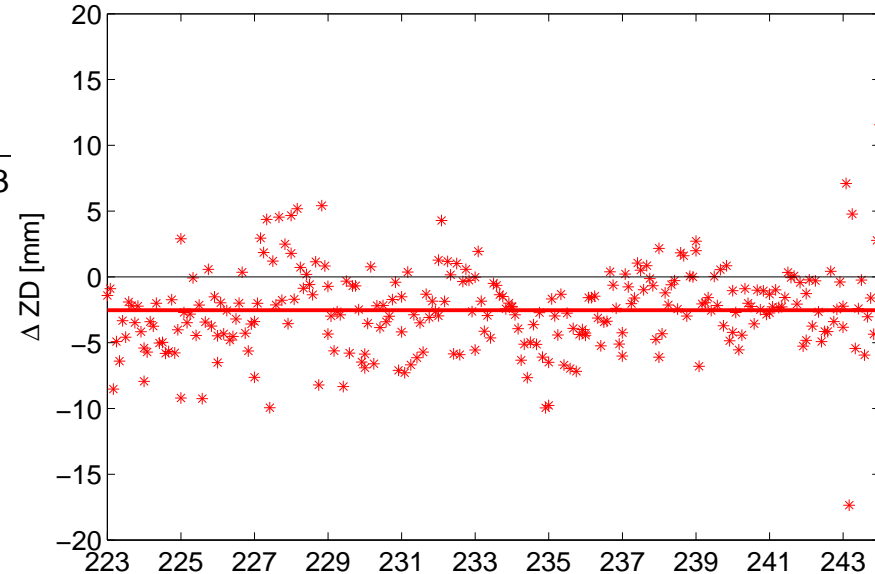
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Comparison of troposphere parameters

Troposphere ZD for station THTI
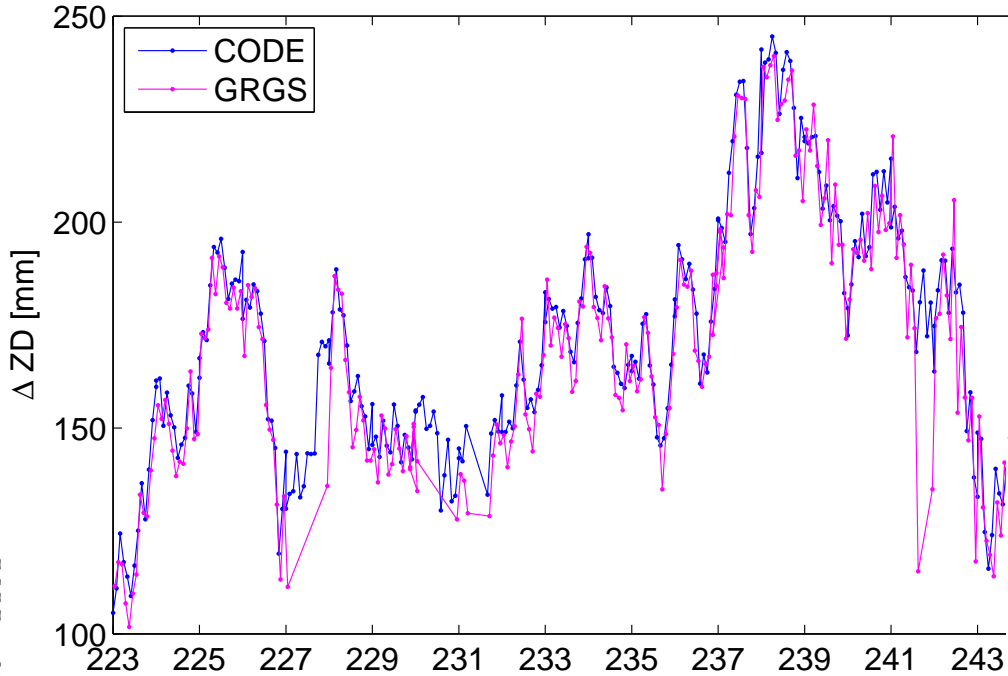
THTI: Bias = −3.8 mm, WRMS = 4.2 mm, #epochs = 241

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