# IGS Bias and Calibration Working Group (BCWG)

Stefan Schaer

# Overview of the Bias Working Group Charter

- Bias WG Chair: Stefan Schaer, affiliated with

  1) *Swiss Federal Office of Topography (swisstopo),* Wabern, Switzerland,

  2) *Astronomical Institute of the University of Bern*, Bern, Switzerland,

  and a team member of the *Center for Orbit Determination in Europe (CODE).*

- The IGS Bias and Calibration Working Group (BCWG), established in 2003, with the following main/overall goal:
  - The BCWG coordinates research in the field of GNSS bias retrieval and monitoring. It defines rules for appropriate, consistent handling of biases which are crucial for a “model-mixed” GNSS receiver network and satellite constellation, respectively.
  - In close collaboration in particular with: Clock WG, Iono WG, PPP-AR WG

# Main Focus on GNSS pseudorange biases

- Main focus originally on GPS C1W-C1C (P1-C1)

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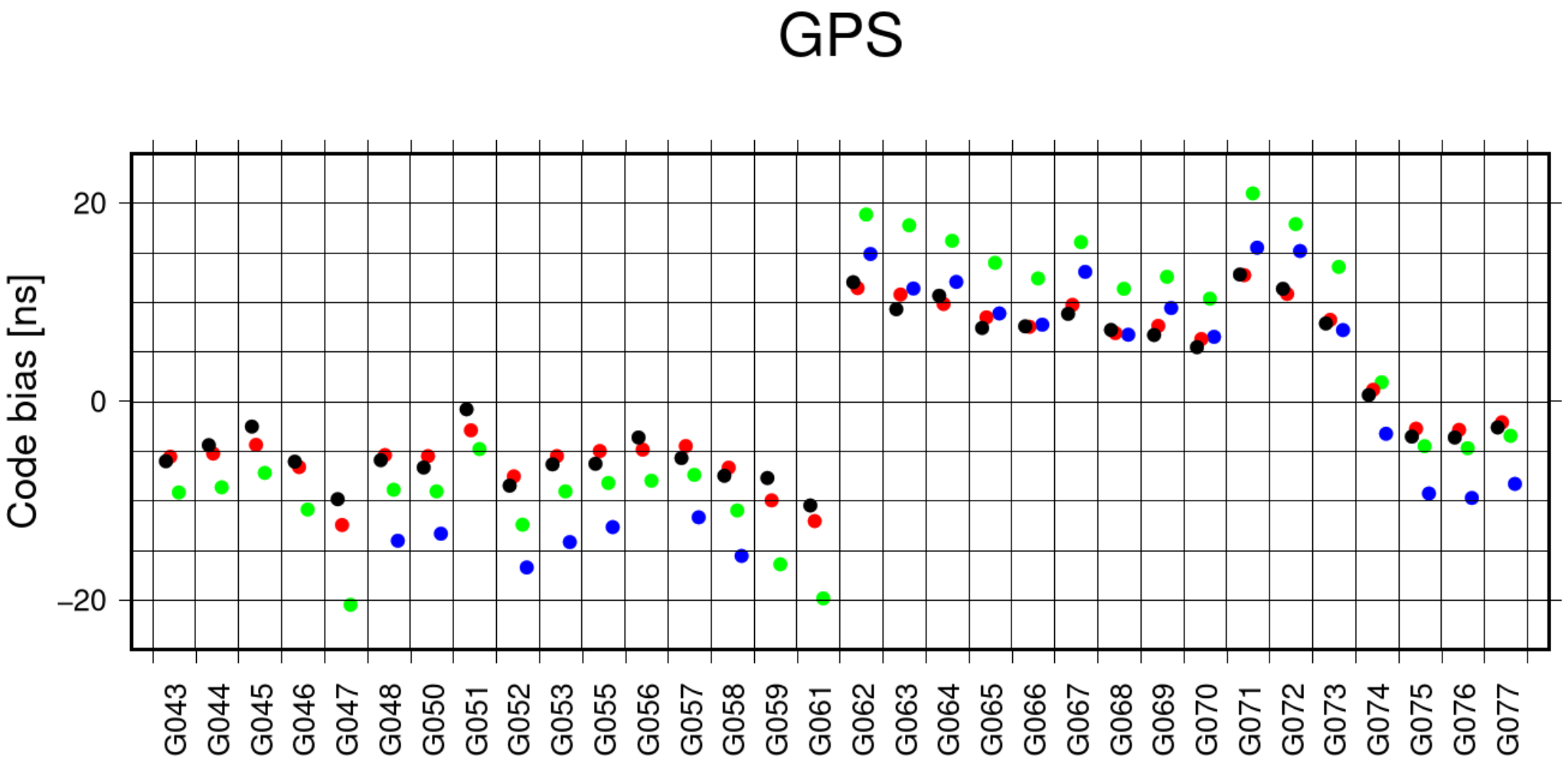
# Main Focus on GNSS pseudorange biases



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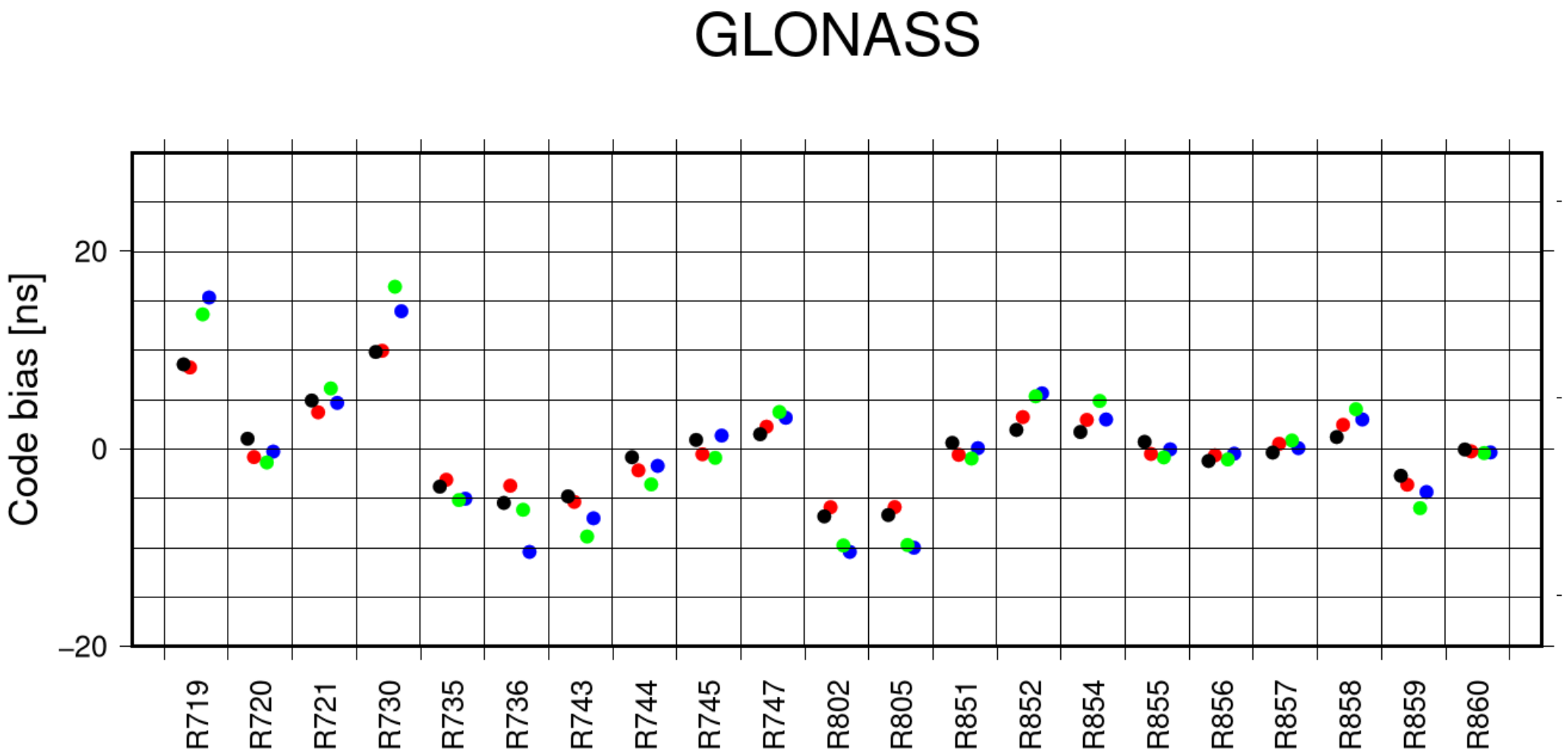

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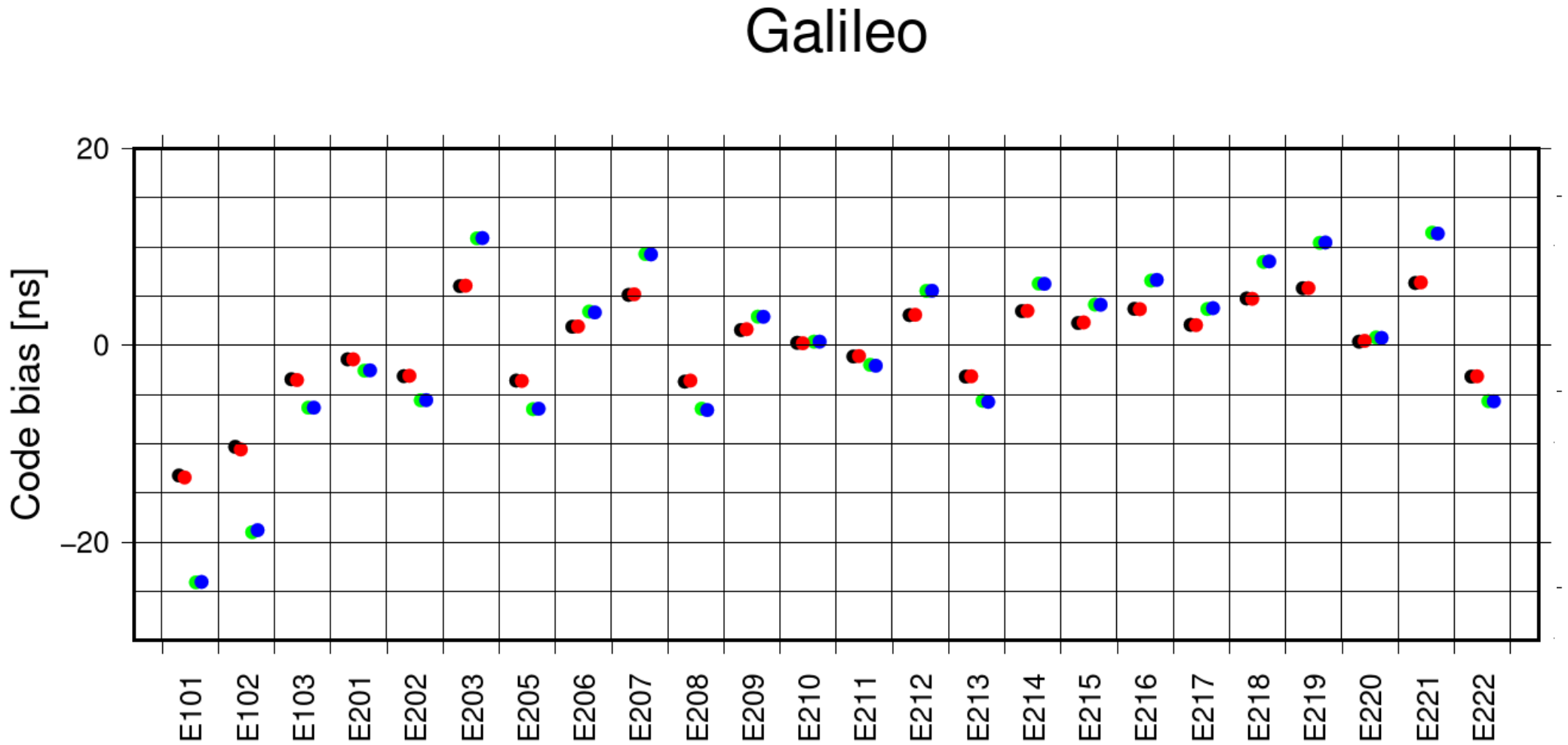

# Dedicated Workshops (organized at the University of Bern)

- IGS Bias Workshop 2012

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- IGS Bias Workshop 2015 → to discuss and finalize Bias-SINEX data format version 1.00

https://files.igs.org/pub/data/format/sinex_bias_100.pdf

# Progress since last AM Meeting (Dec 2019)

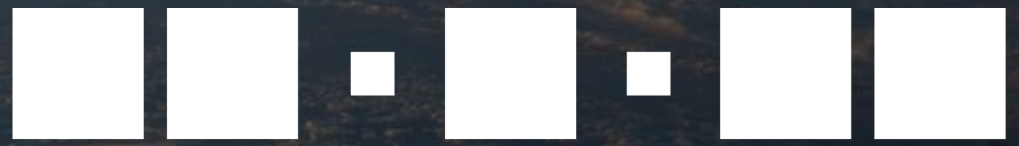
Let us highlight the following key achievements:

- We are moving more and more from a DCB (differential code bias) representation to an OSB (observable-specific signal bias) representation, which shows its advantages regarding **multi-GNSS** (due to the multitude of different observation types and tracking modes).

- The provision of phase biases (for the PPP-AR application) in OSB form conforming to Bias-SINEX seems to be becoming more and more established within the IGS.

# Future Work

- We are working at CODE to additionally generate and make available OSB values for all determinable intra-frequency code signals (such as, e.g., GPS C2L) soon:
  ftp://ftp.aiub.unibe.ch/CODE/CODE.BIA
  ftp://cddis.gsfc.nasa.gov/gnss/products/bias/code.bia
- The consideration of the third signal frequency (e.g. specifically L1/L5 for GPS) may be seen as a long-term effort for the whole IGS.
- "The IGS should open up the possibility to include the second midnight epoch (00:00 and 24:00) in orbit and clock product submissions." is still an open wish.



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# Thank You!

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