Annex B: Plots of raw data and TDEV analysis

1 Measurements in OP start of the campaign

(a) P-code phase differences

(b) TDEV of P-code delays
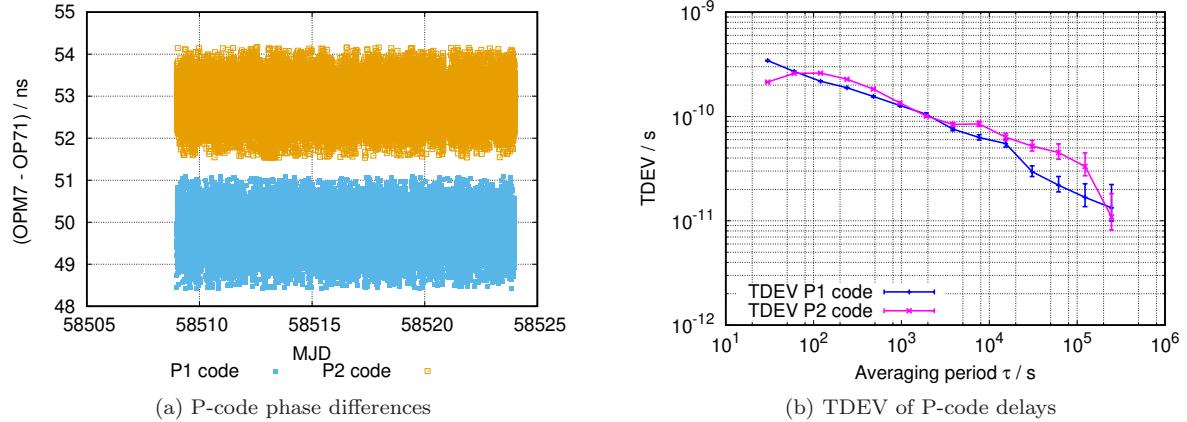
Figure 1: Relative calibration of OPM7 with respect to OP71 from MJD 58509 to 58523 in OP. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.

(a) P3 CV after calibration

(b) TDEV of P3 CV
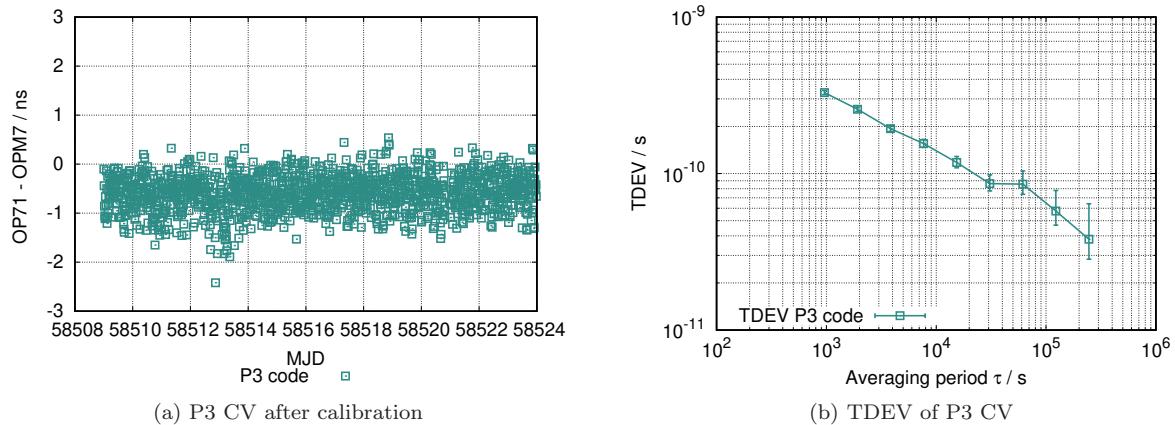
Figure 2: P3 CV time difference (a) of OPM7 with respect to OP71 from MJD 58509 to 58523 in OP. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
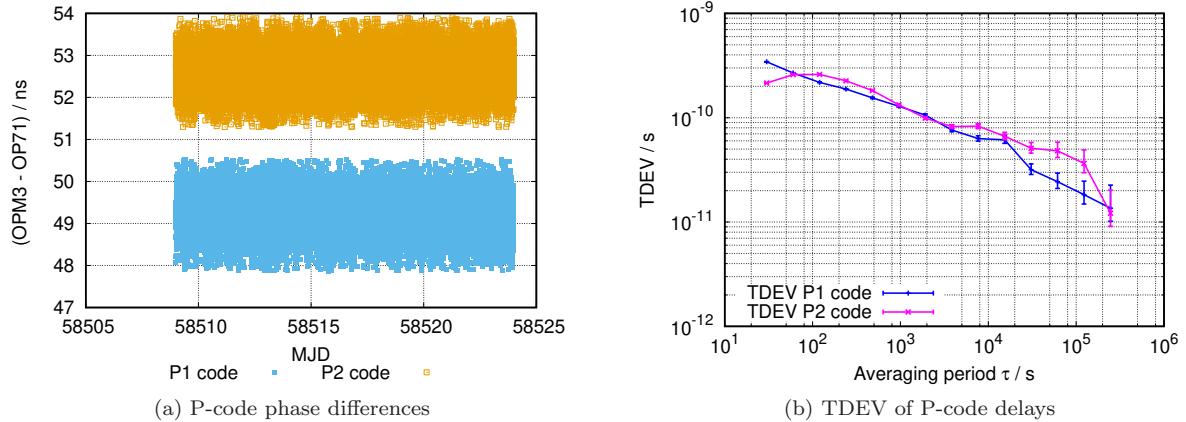
Figure 3: Relative calibration of OPM3 with respect to OP71 from MJD 58509 to 58523 in OP. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
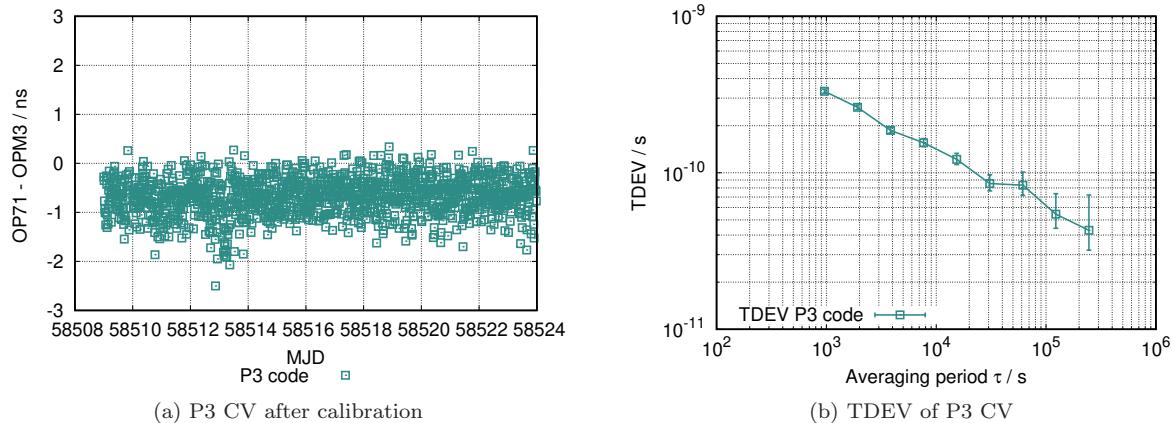
Figure 4: P3 CV time difference (a) of OPM3 with respect to OP71 from MJD 58509 to 58523 in OP. Related TDEV (b) of P3 CV.

2 Measurements in OP end of the campaign

(a) P-code phase differences

(b) TDEV of P-code delays
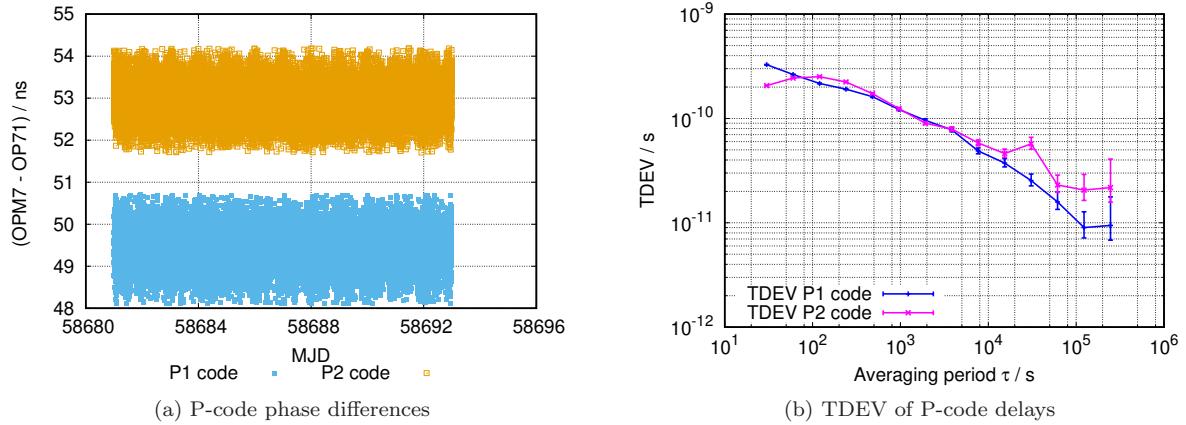
Figure 5: Relative calibration of OPM7 with respect to OP71 from MJD 58681 to 58692 in OP. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
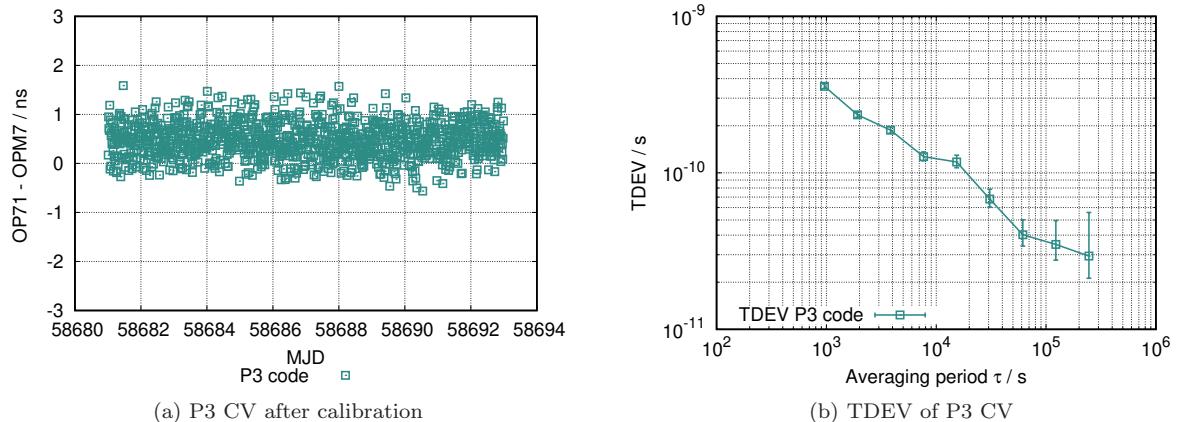
Figure 6: P3 CV time difference (a) of OPM7 with respect to OP71 from MJD 58681 to 58692 in OP. Related TDEV (b) of P3 CV.

(a) P-code phase differences


(b) TDEV of P-code delays
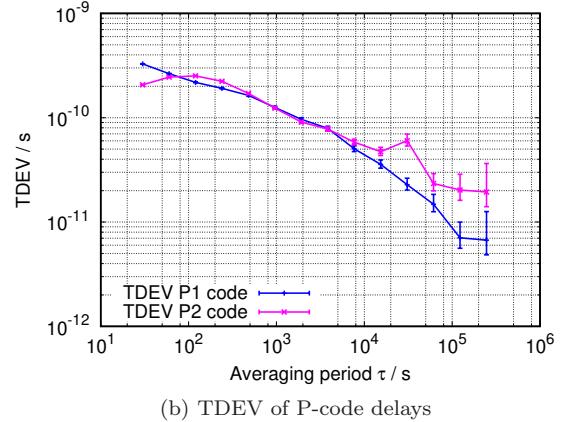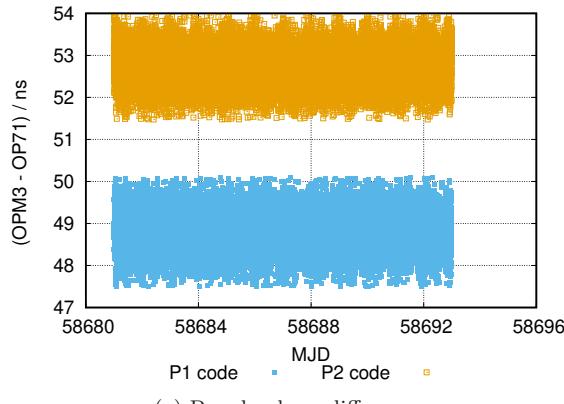
Figure 7: Relative calibration of OPM3 with respect to OP71 from MJD 58681 to 58692 in OP. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
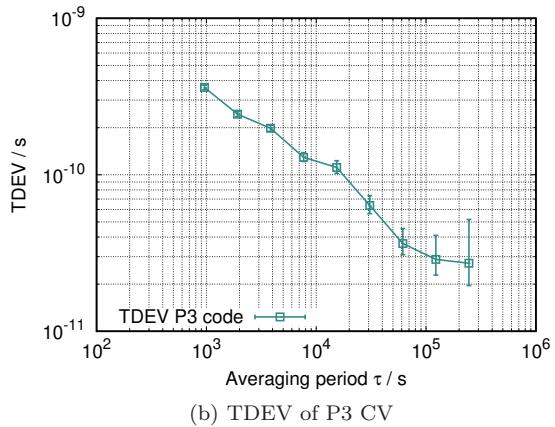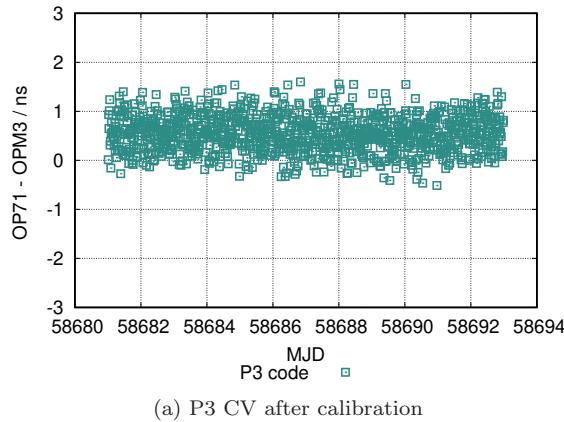
Figure 8: P3 CV time difference (a) of OPM3 with respect to OP71 from MJD 58681 to 58692 in OP. Related TDEV (b) of P3 CV.

3   Measurements in PTB

(a) P-code phase differences

(b) TDEV of P-code delays
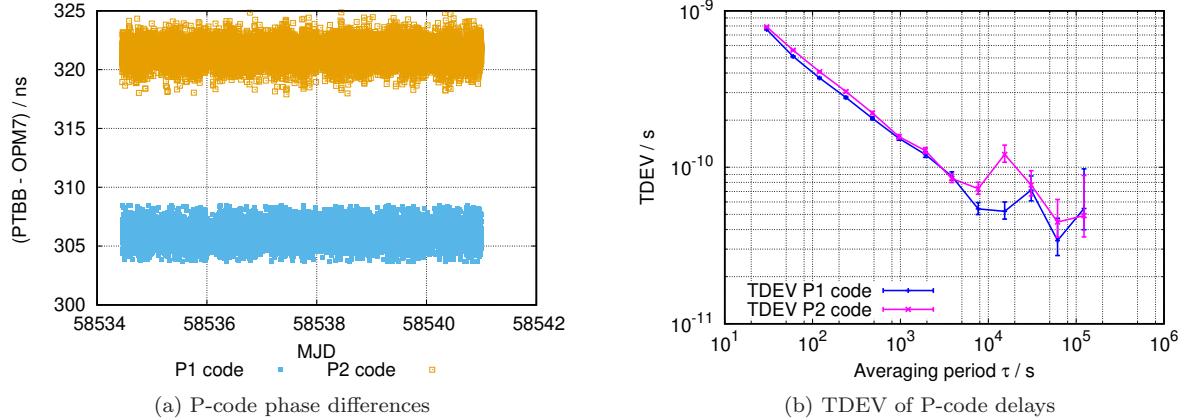
Figure 9: Relative calibration of PTBB with respect to OPM7 from MJD 58534 to 58540 in PTB. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
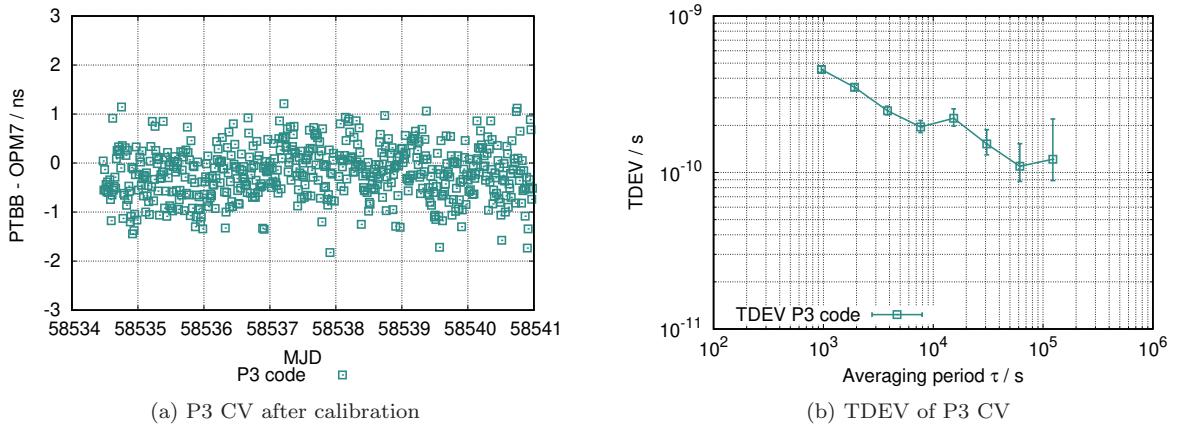
Figure 10: P3 CV time difference (a) of OPM7 with respect to PTBB from MJD 58534 to 58540 in PTB. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
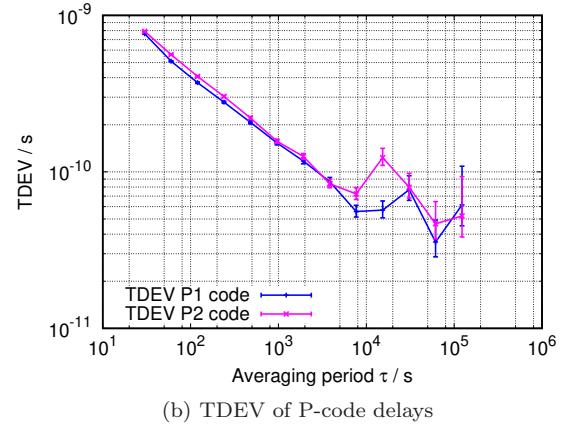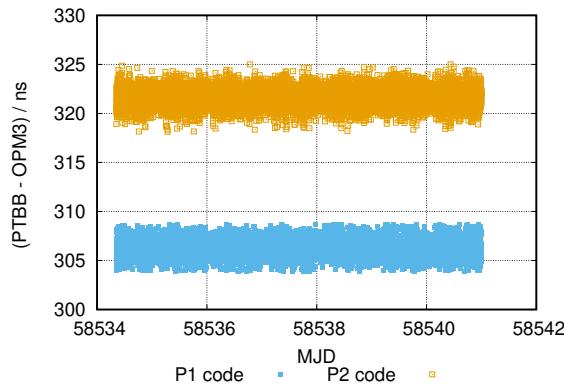
Figure 11: Relative calibration of PTBB with respect to OPM3 from MJD 58534 to 58540 in PTB. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
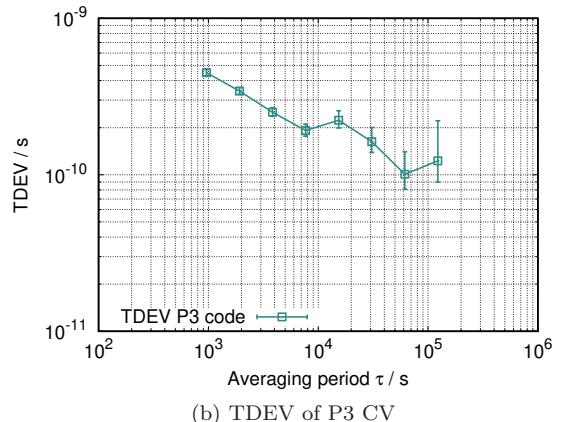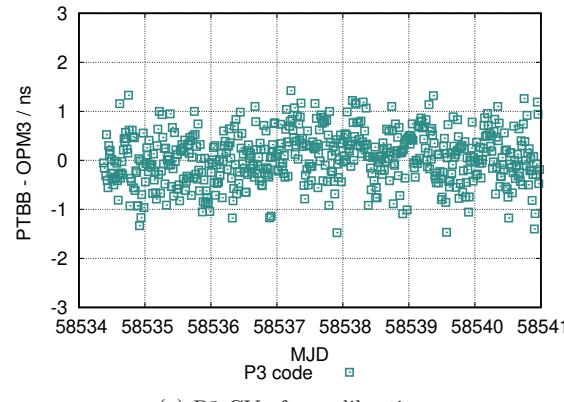
Figure 12: P3 CV time difference (a) of OPM3 with respect to PTBB from MJD 58534 to 58540 in PTB. Related TDEV (b) of P3 CV.

4 Measurements in PTB

(a) P-code phase differences

(b) TDEV of P-code delays
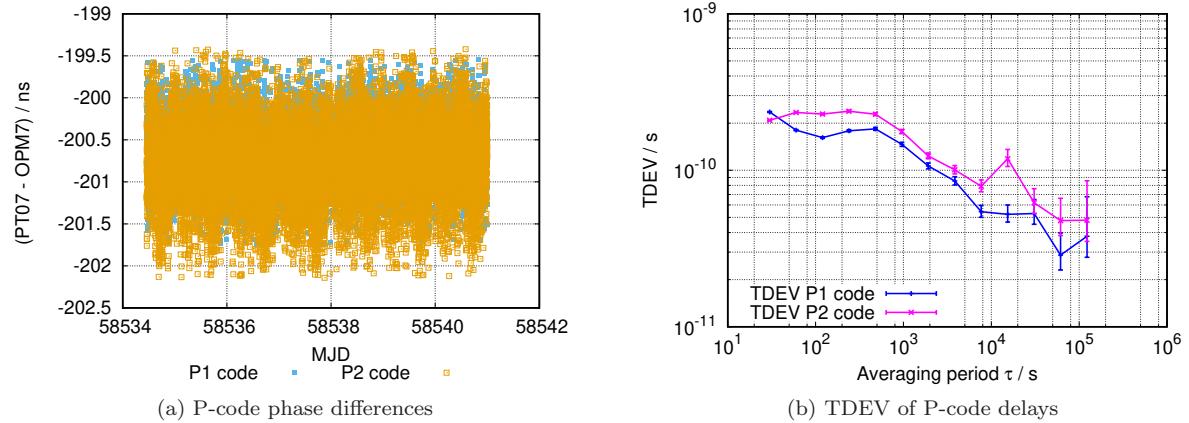
Figure 13: Relative calibration of PT07 with respect to OPM7 from MJD 58534 to 58540 in PTB. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration
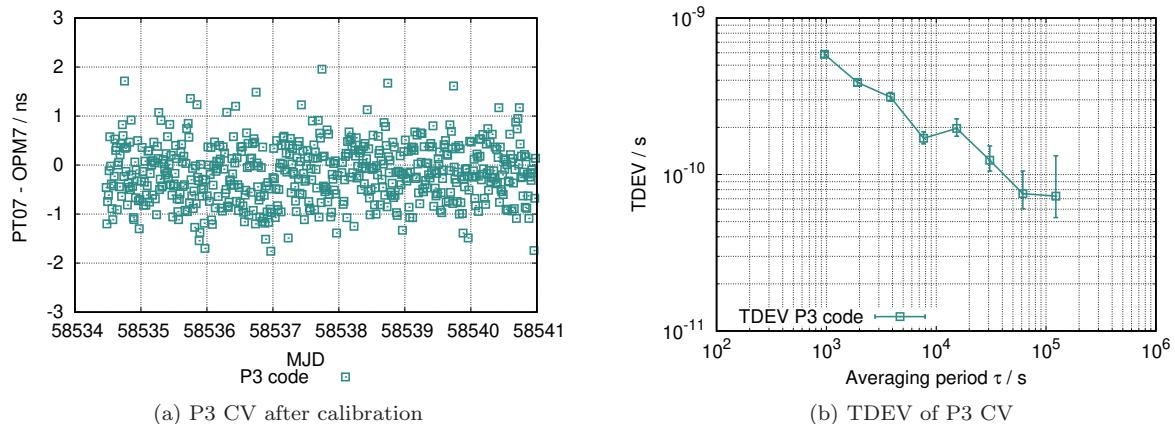
(b) TDEV of P3 CV

Figure 14: P3 CV time difference (a) of OPM7 with respect to PT07 from MJD 58534 to 58540 in PTB. Related TDEV (b) of P3 CV.
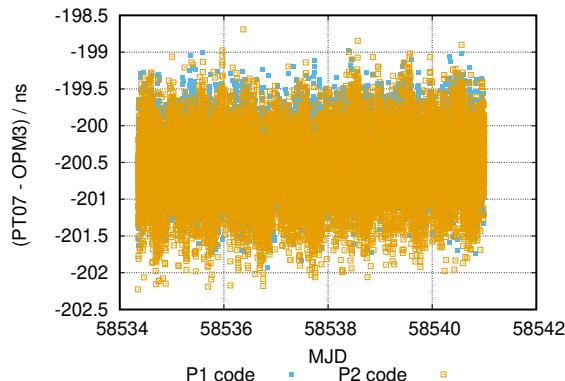
(a) P-code phase differences
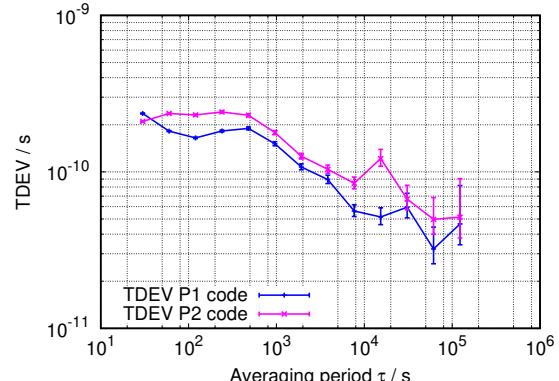
(b) TDEV of P-code delays

Figure 15: Relative calibration of PT07 with respect to OPM3 from MJD 58534 to 58540 in PTB. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.
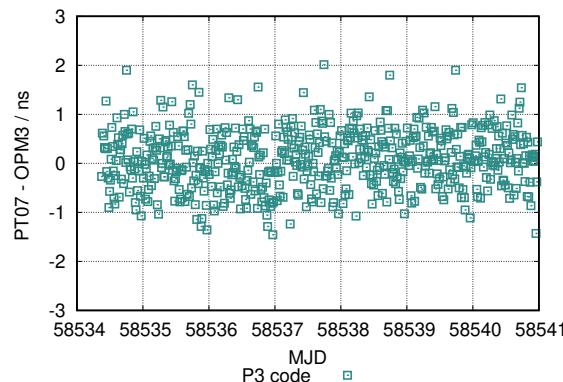

(a) P3 CV after calibration
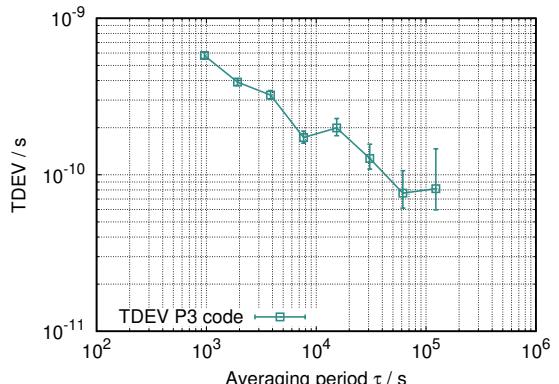
(b) TDEV of P3 CV

Figure 16: P3 CV time difference (a) of OPM3 with respect to PT07 from MJD 58534 to 58540 in PTB. Related TDEV (b) of P3 CV.

5 Measurements in PTB

(a) P-code phase differences


(b) TDEV of P-code delays
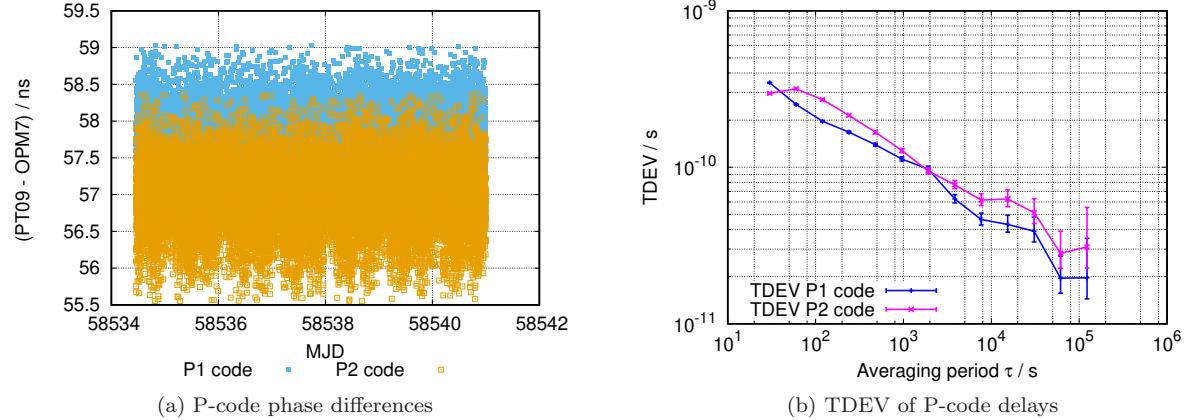
Figure 17: Relative calibration of PT09 with respect to OPM7 from MJD 58534 to 58540 in PTB. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
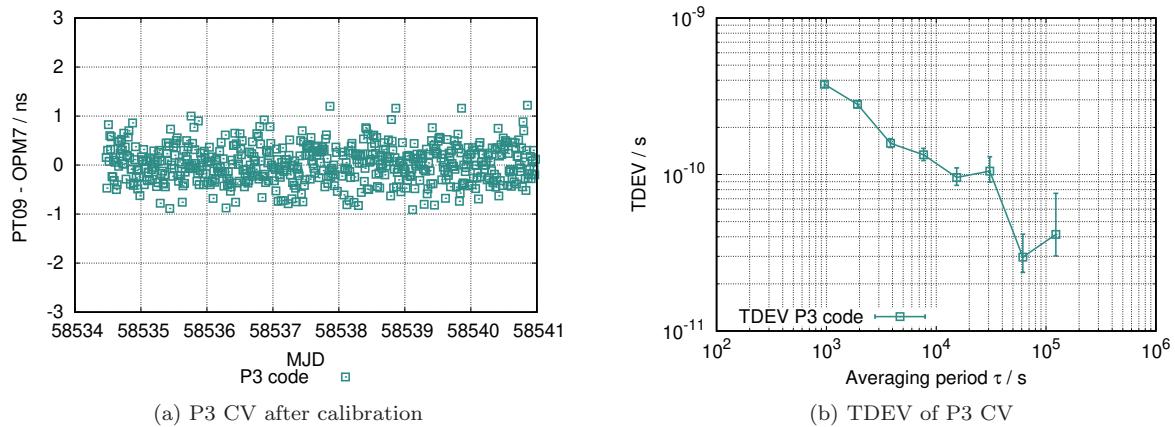
Figure 18: P3 CV time difference (a) of OPM7 with respect to PT09 from MJD 58534 to 58540 in PTB. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
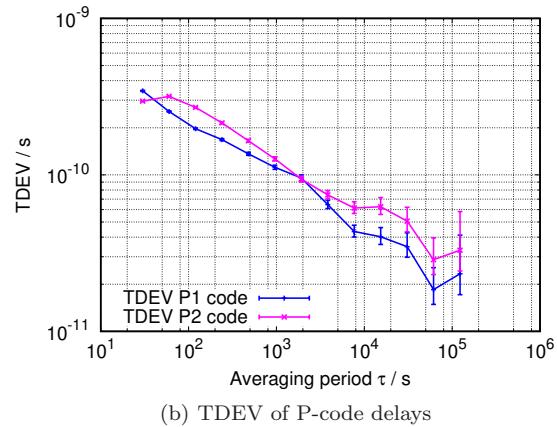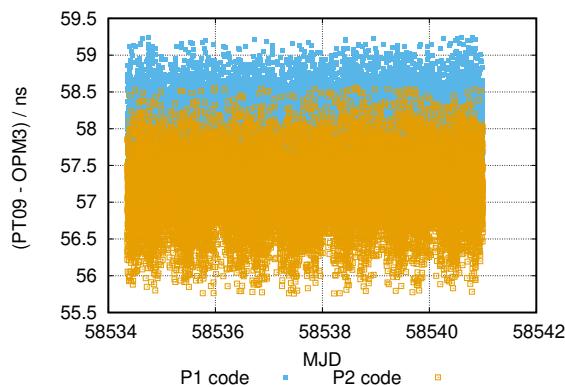
Figure 19: Relative calibration of PT09 with respect to OPM3 from MJD 58534 to 58540 in PTB. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
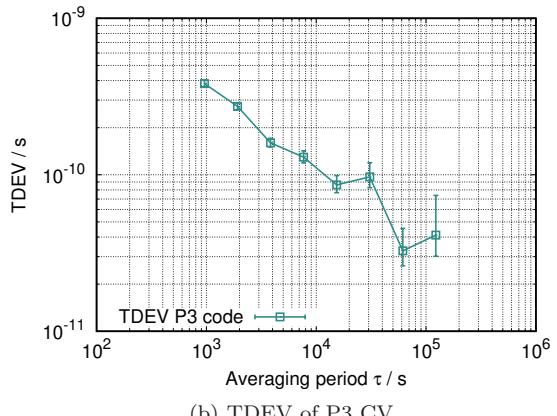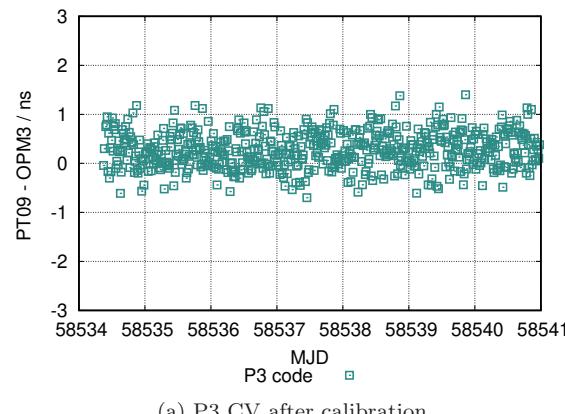
Figure 20: P3 CV time difference (a) of OPM3 with respect to PT09 from MJD 58534 to 58540 in PTB. Related TDEV (b) of P3 CV.

6   Measurements in PTB

(a) P-code phase differences

(b) TDEV of P-code delays
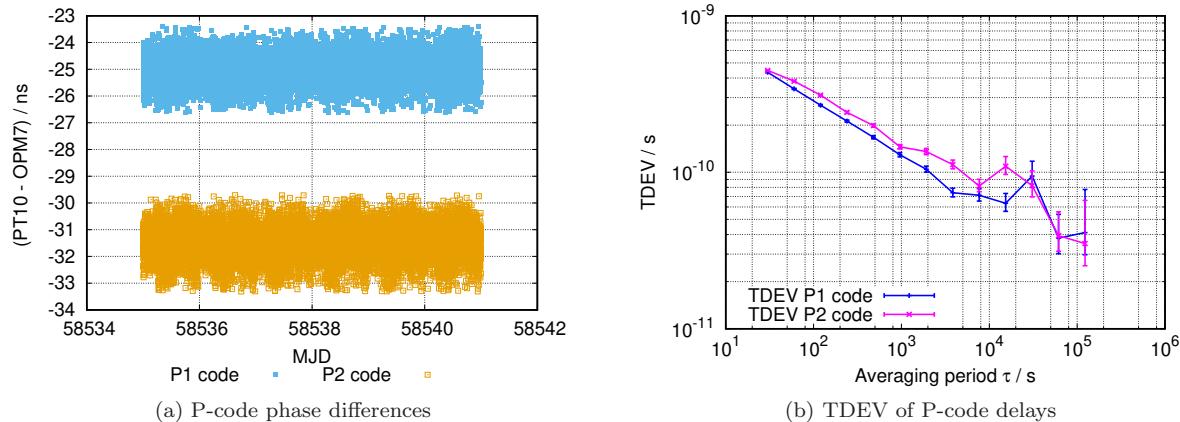
Figure 21: Relative calibration of PT10 with respect to OPM7 from MJD 58535 to 58540 in PTB. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
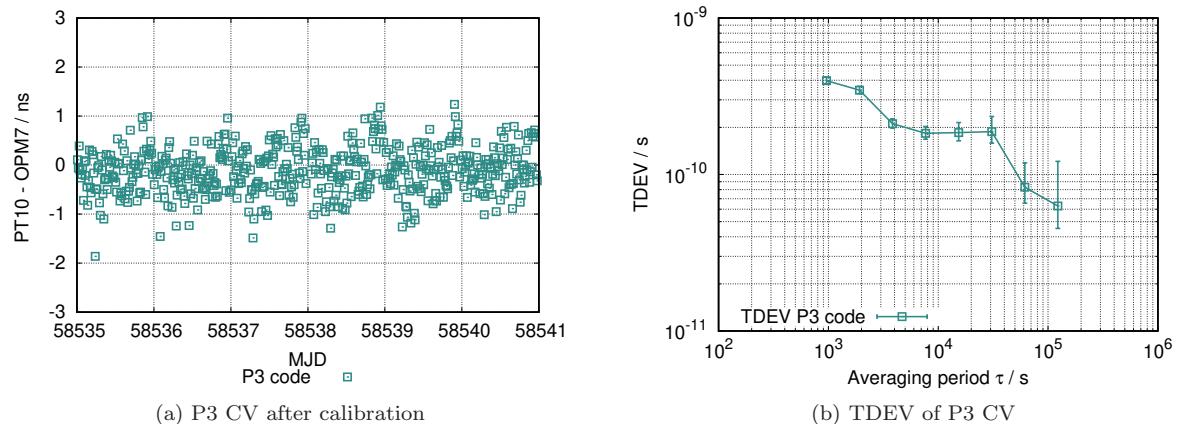
Figure 22: P3 CV time difference (a) of OPM7 with respect to PT10 from MJD 58535 to 58540 in PTB. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
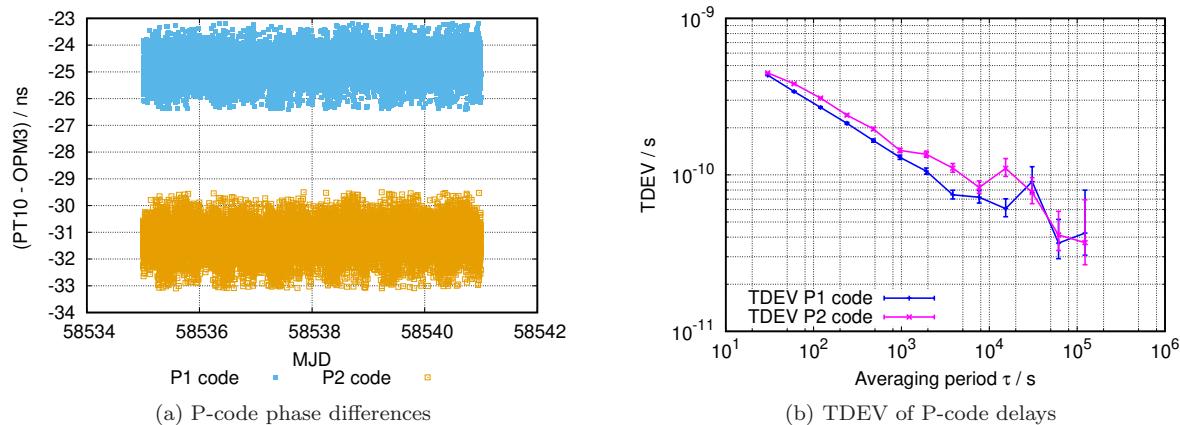
Figure 23: Relative calibration of PT10 with respect to OPM3 from MJD 58535 to 58540 in PTB. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
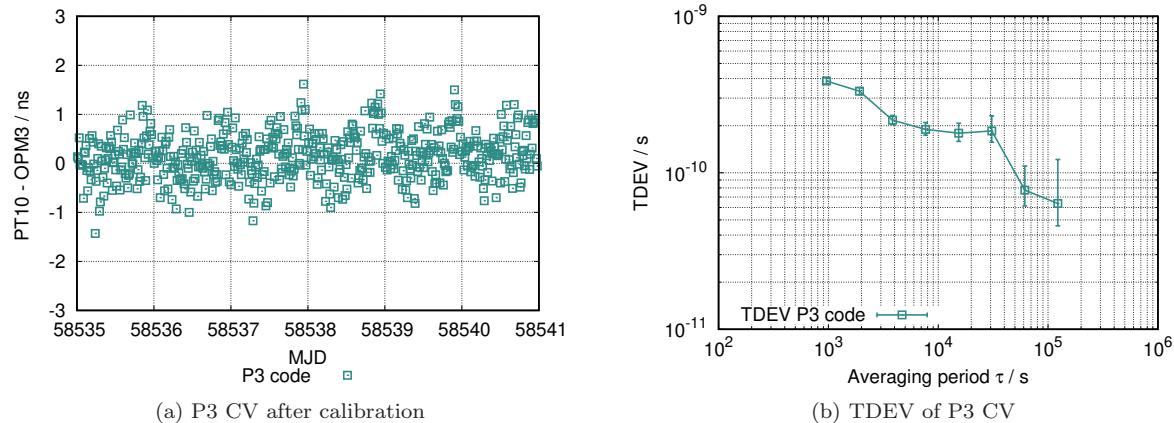
Figure 24: P3 CV time difference (a) of OPM3 with respect to PT10 from MJD 58535 to 58540 in PTB. Related TDEV (b) of P3 CV.

7 Measurements in DLR

(a) P-code phase differences

(b) TDEV of P-code delays
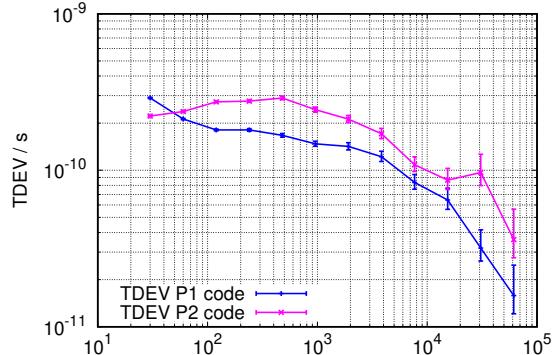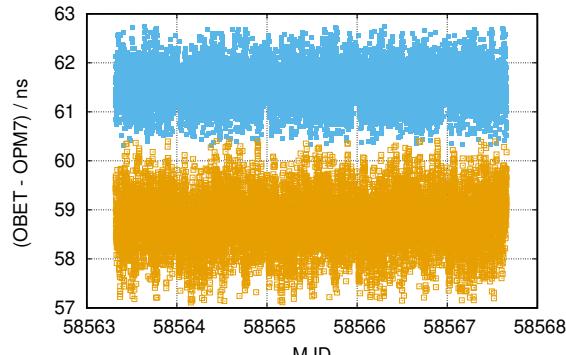
Figure 25: Relative calibration of OBET with respect to OPM7 from MJD 58563 to 58567 in DLR. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
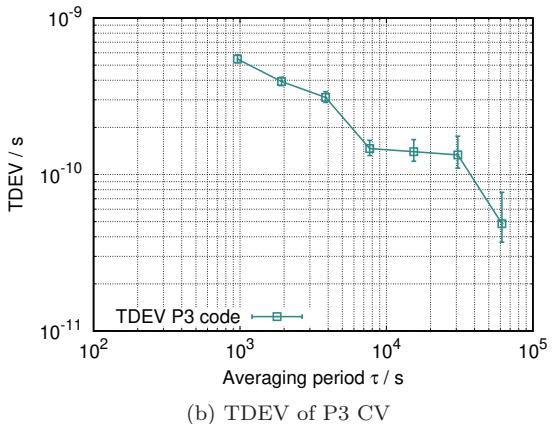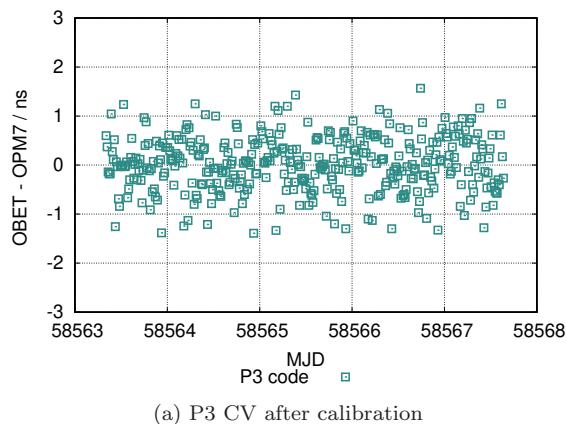
Figure 26: P3 CV time difference (a) of OPM7 with respect to OBET from MJD 58563 to 58567 in DLR. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
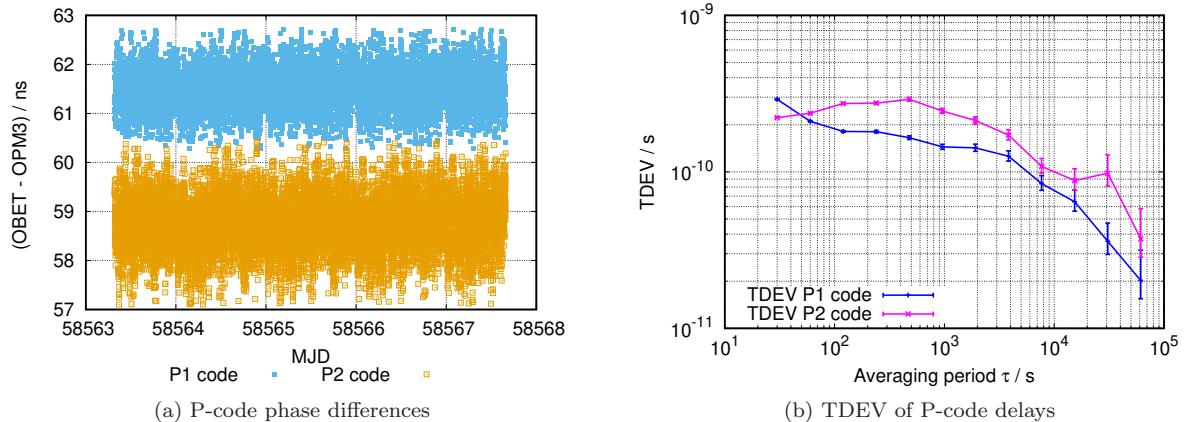
Figure 27: Relative calibration of OBET with respect to OPM3 from MJD 58563 to 58567 in DLR. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
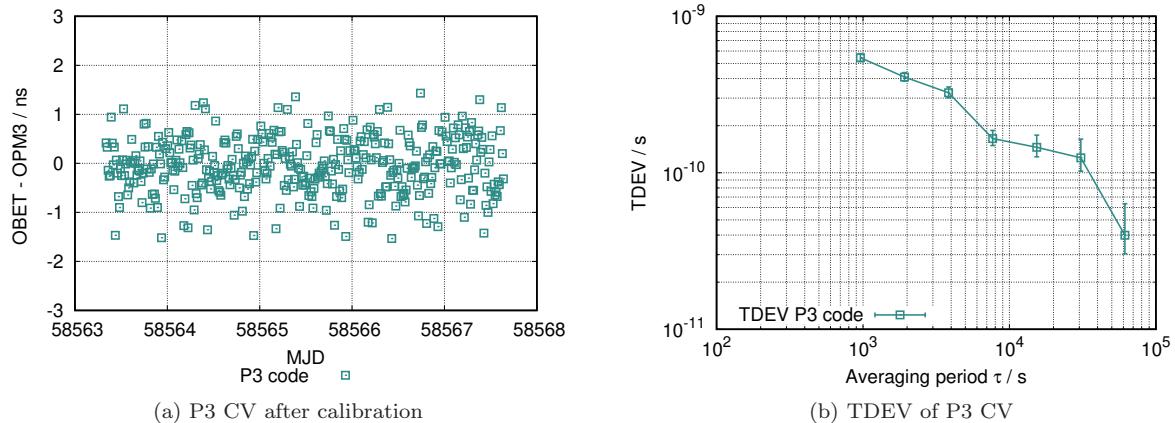
Figure 28: P3 CV time difference (a) of OPM3 with respect to OBET from MJD 58563 to 58567 in DLR. Related TDEV (b) of P3 CV.

8 Measurements in DLR

(a) P-code phase differences


(b) TDEV of P-code delays
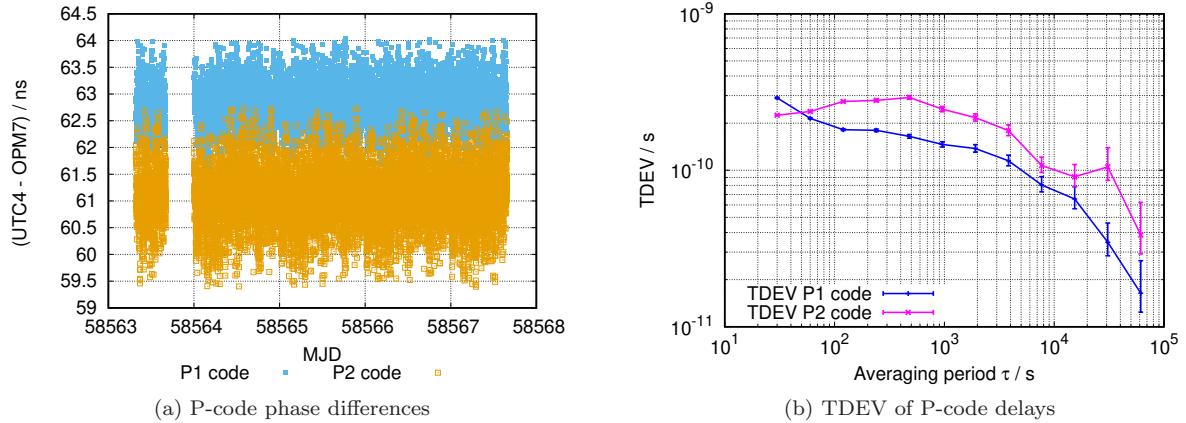
Figure 29: Relative calibration of UTC4 with respect to OPM7 from MJD 58563 to 58567 in DLR. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
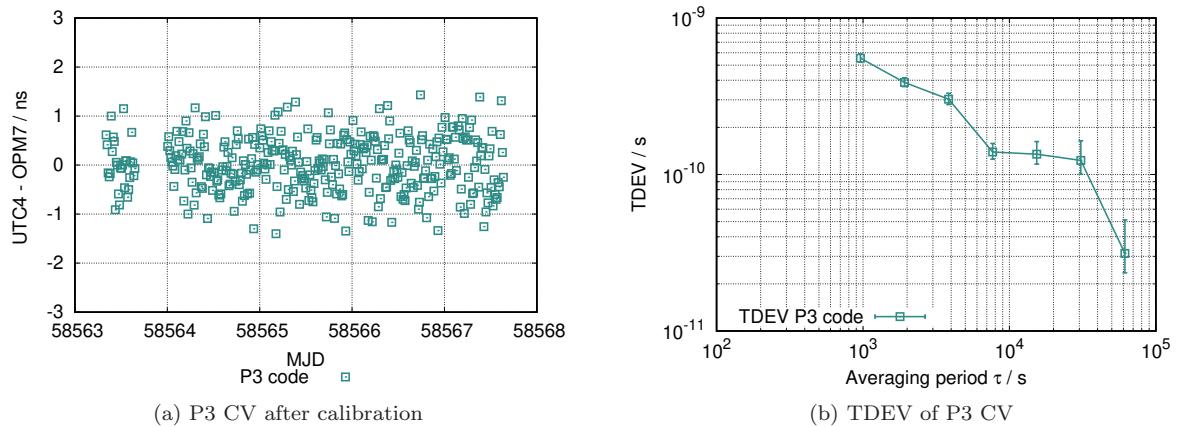
Figure 30: P3 CV time difference (a) of OPM7 with respect to UTC4 from MJD 58563 to 58567 in DLR. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
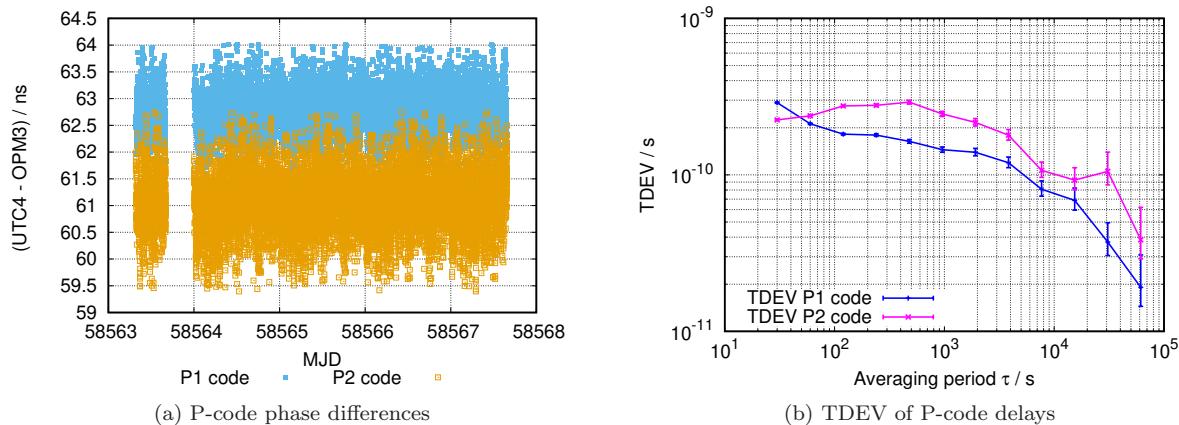
Figure 31: Relative calibration of UTC4 with respect to OPM3 from MJD 58563 to 58567 in DLR. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
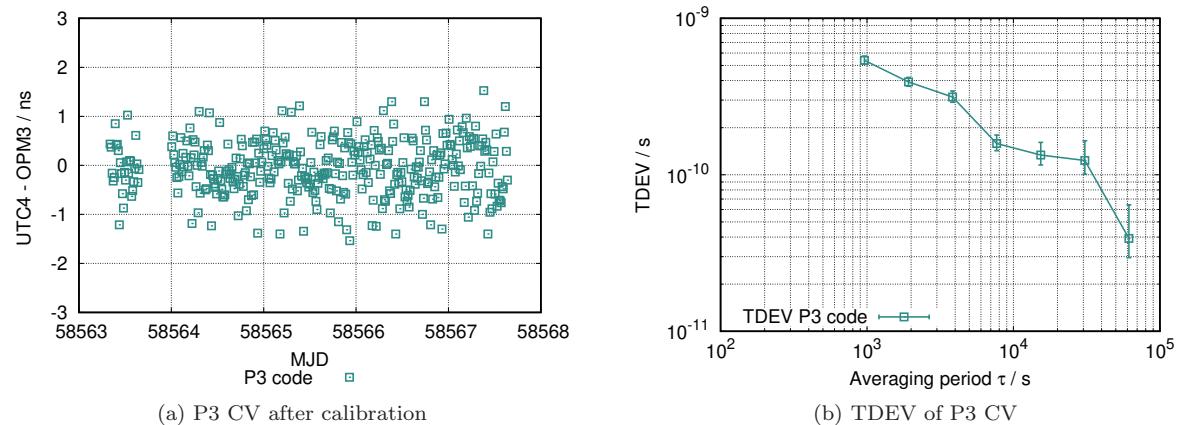
Figure 32: P3 CV time difference (a) of OPM3 with respect to UTC4 from MJD 58563 to 58567 in DLR. Related TDEV (b) of P3 CV.

9 Measurements in DLR

(a) P-code phase differences


(b) TDEV of P-code delays
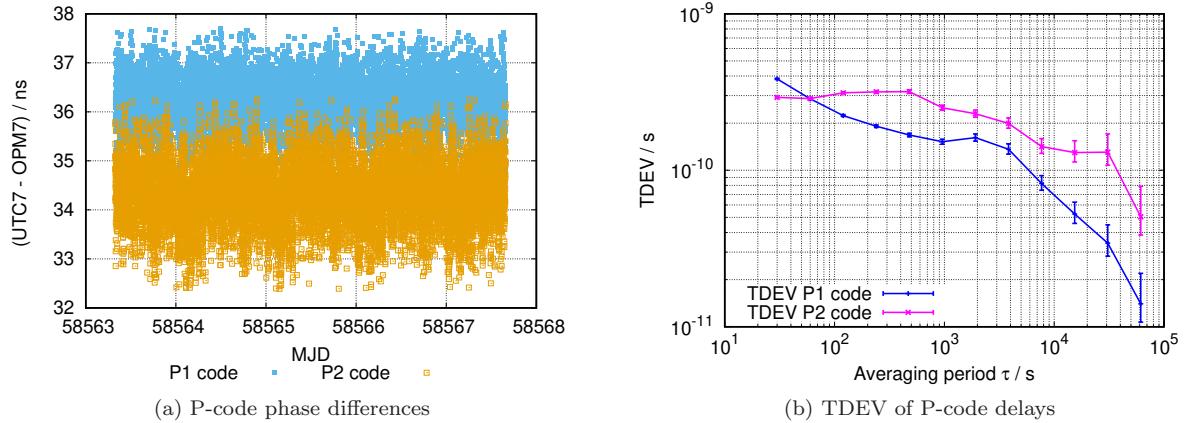
Figure 33: Relative calibration of UTC7 with respect to OPM7 from MJD 58563 to 58567 in DLR. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
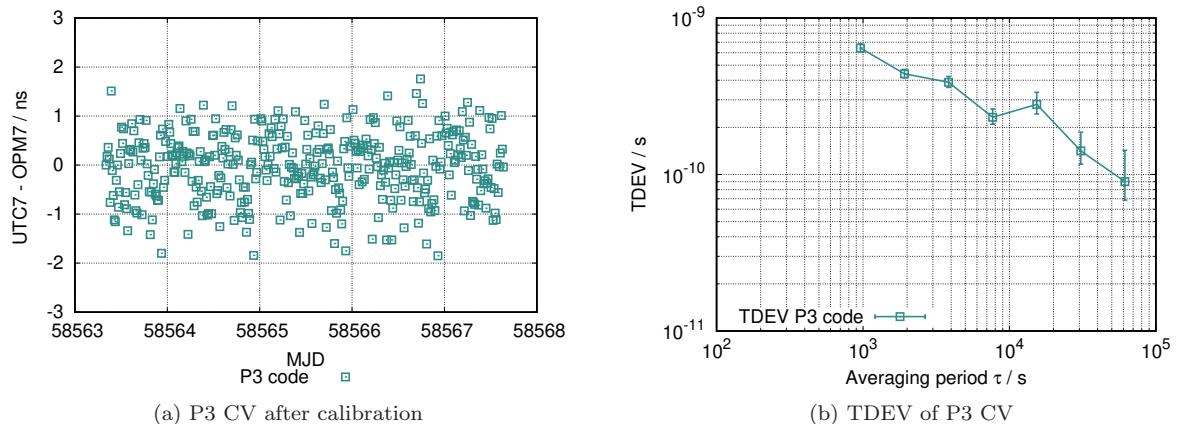
Figure 34: P3 CV time difference (a) of OPM7 with respect to UTC7 from MJD 58563 to 58567 in DLR. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
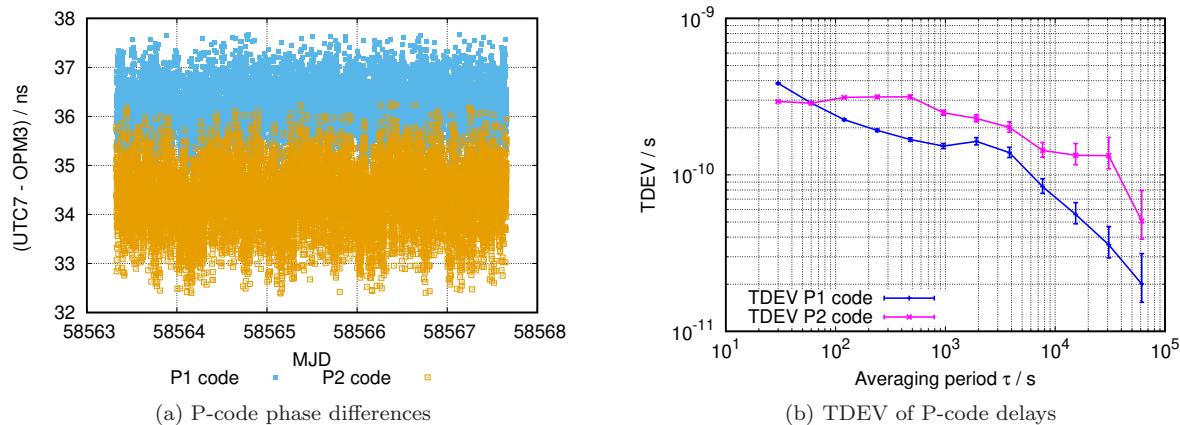
Figure 35: Relative calibration of UTC7 with respect to OPM3 from MJD 58563 to 58567 in DLR. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
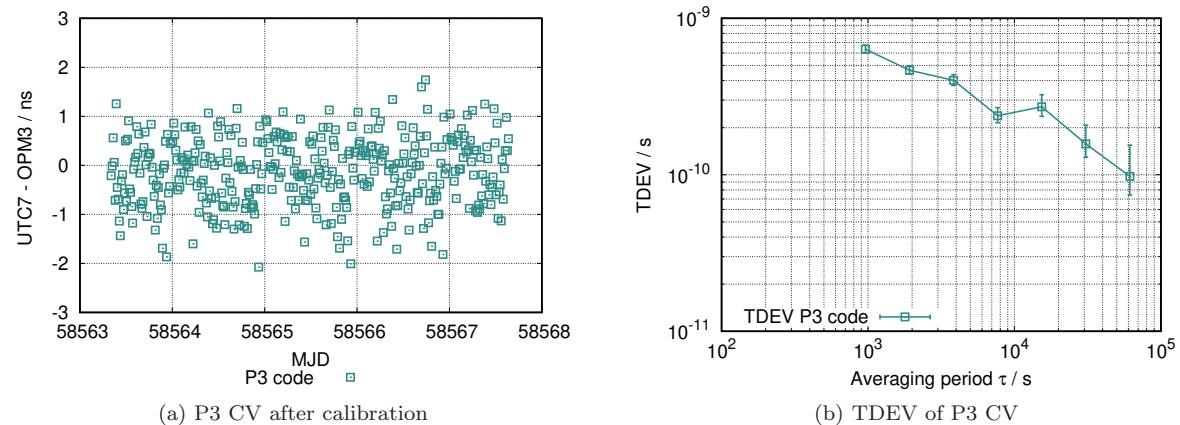
Figure 36: P3 CV time difference (a) of OPM3 with respect to UTC7 from MJD 58563 to 58567 in DLR. Related TDEV (b) of P3 CV.

10 Measurements in DLR

(a) P-code phase differences

(b) TDEV of P-code delays
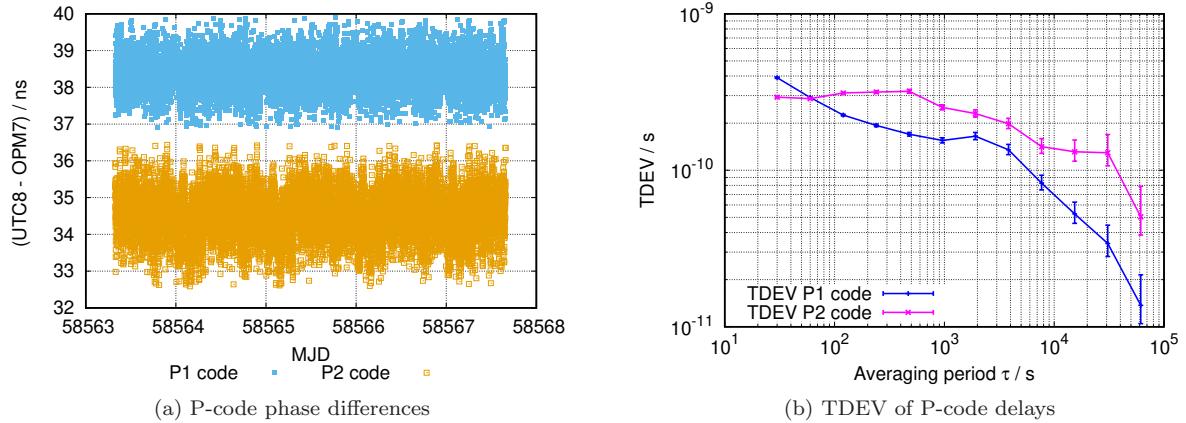
Figure 37: Relative calibration of UTC8 with respect to OPM7 from MJD 58563 to 58567 in DLR. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
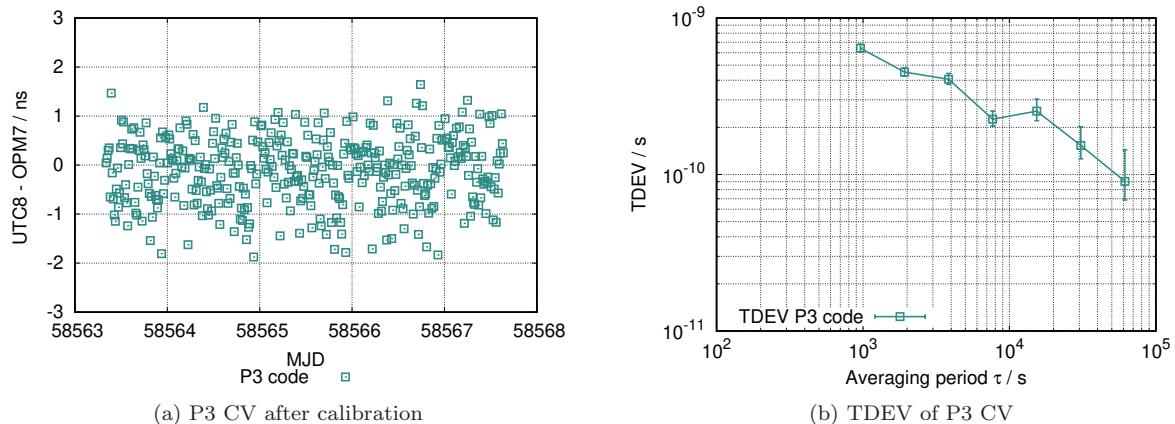
Figure 38: P3 CV time difference (a) of OPM7 with respect to UTC8 from MJD 58563 to 58567 in DLR. Related TDEV (b) of P3 CV.

(a) P-code phase differences


(b) TDEV of P-code delays
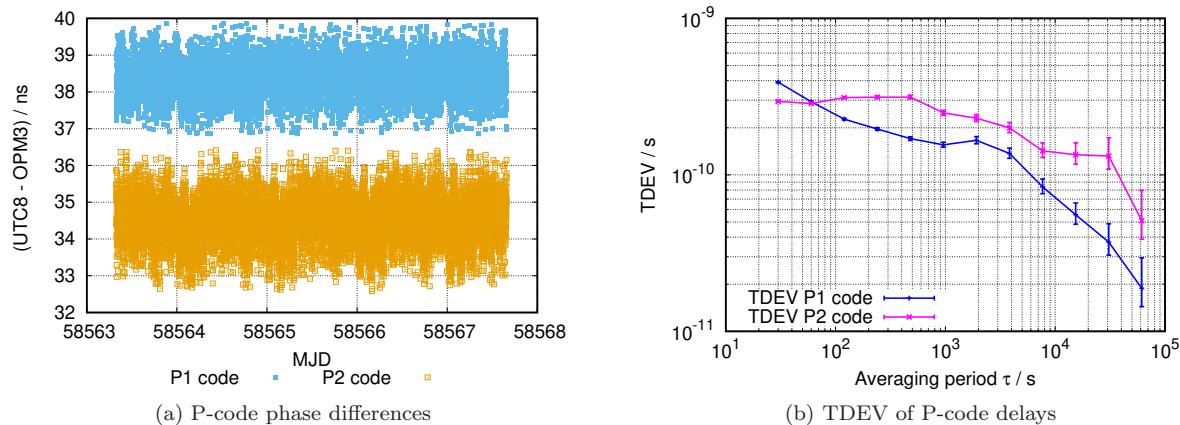
Figure 39: Relative calibration of UTC8 with respect to OPM3 from MJD 58563 to 58567 in DLR. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
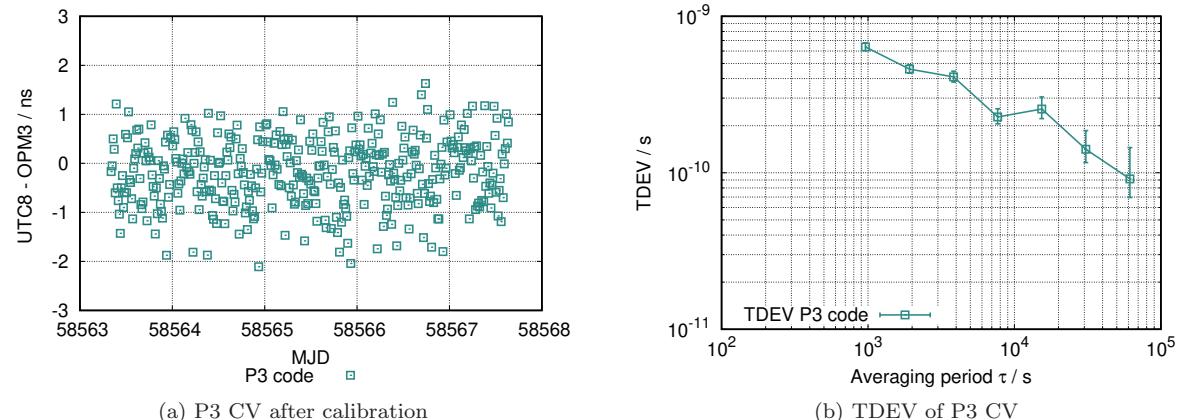
Figure 40: P3 CV time difference (a) of OPM3 with respect to UTC8 from MJD 58563 to 58567 in DLR. Related TDEV (b) of P3 CV.

11   Measurements in RISE

(a) P-code phase differences


(b) TDEV of P-code delays
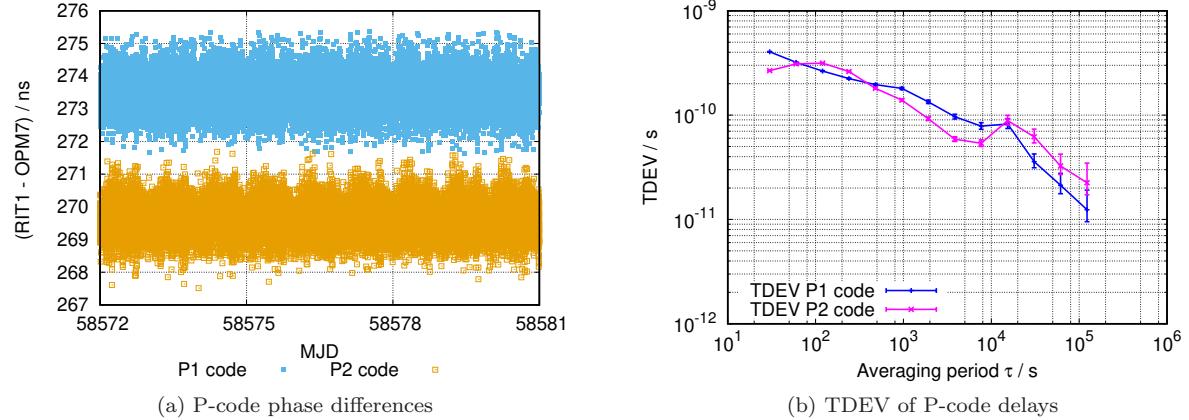
Figure 41: Relative calibration of RIT1 with respect to OPM7 from MJD 58572 to 58580 in RISE. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
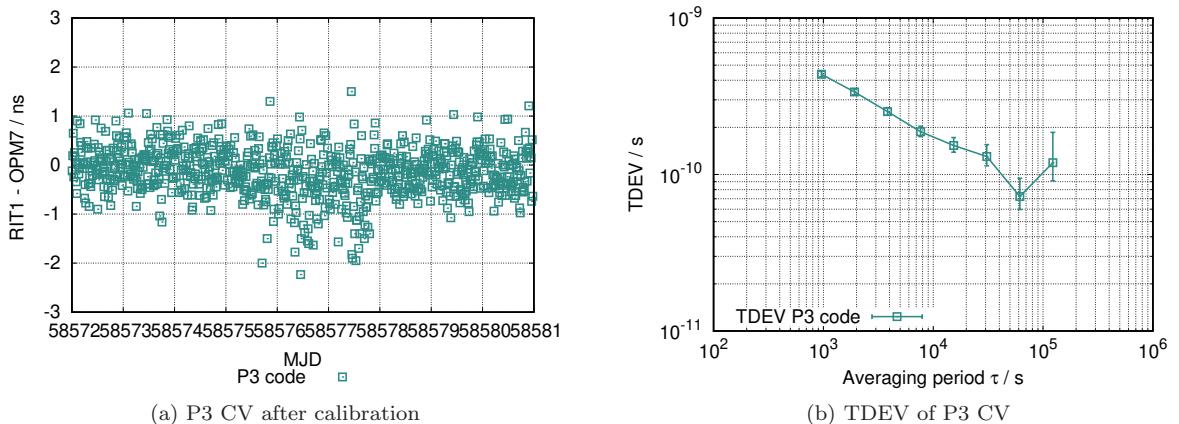
Figure 42: P3 CV time difference (a) of OPM7 with respect to RIT1 from MJD 58572 to 58580 in RISE. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
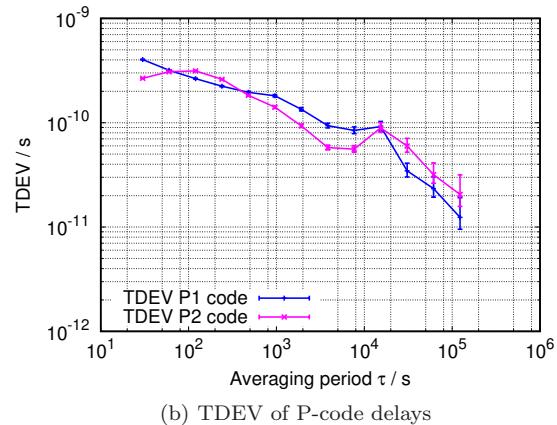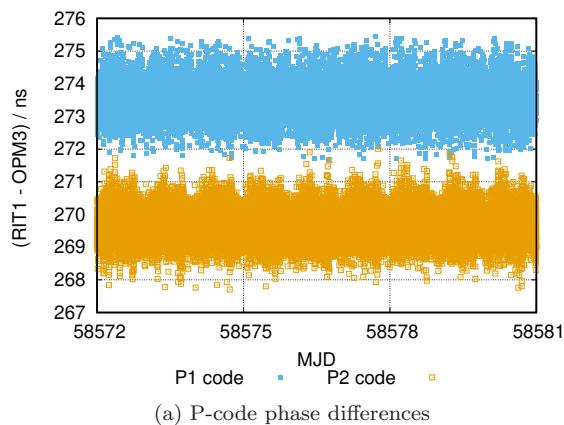
Figure 43: Relative calibration of RIT1 with respect to OPM3 from MJD 58572 to 58580 in RISE. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
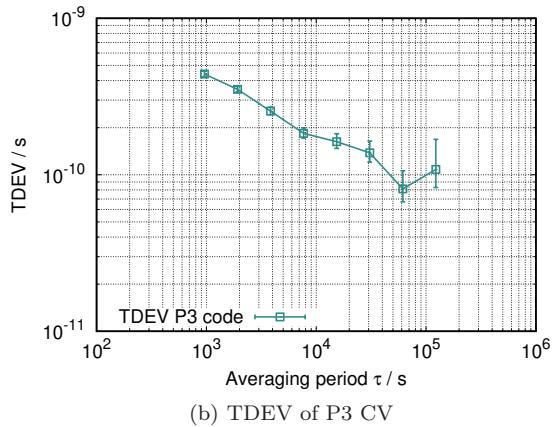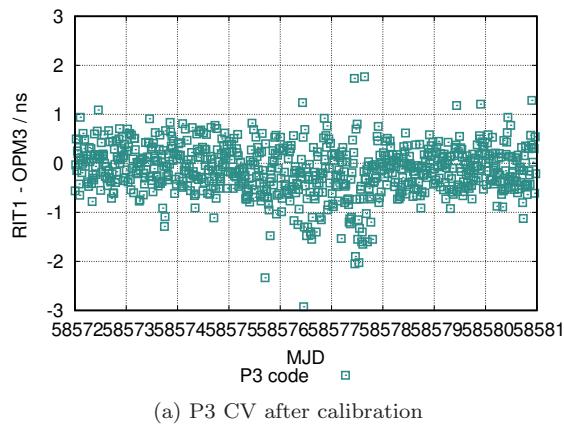
Figure 44: P3 CV time difference (a) of OPM3 with respect to RIT1 from MJD 58572 to 58580 in RISE. Related TDEV (b) of P3 CV.

12   Measurements in RISE

(a) P-code phase differences

(b) TDEV of P-code delays
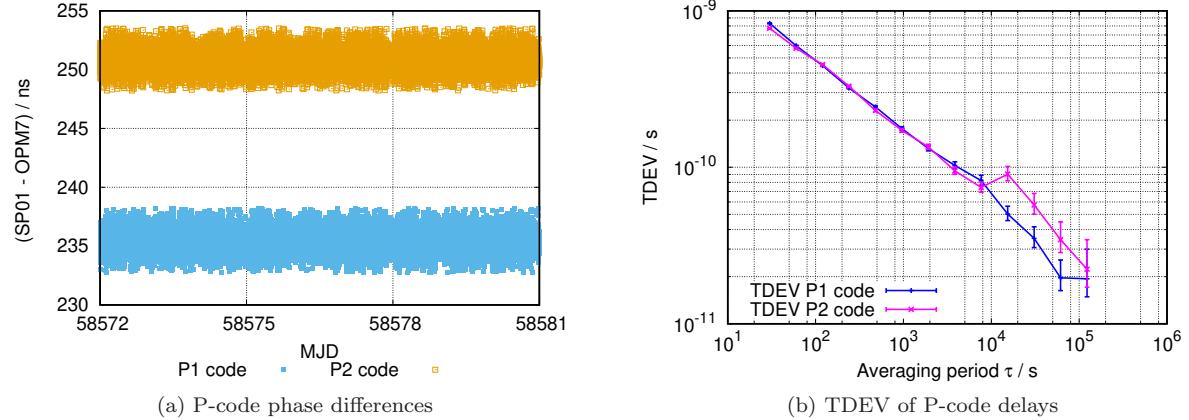
Figure 45: Relative calibration of SP01 with respect to OPM7 from MJD 58572 to 58580 in RISE. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
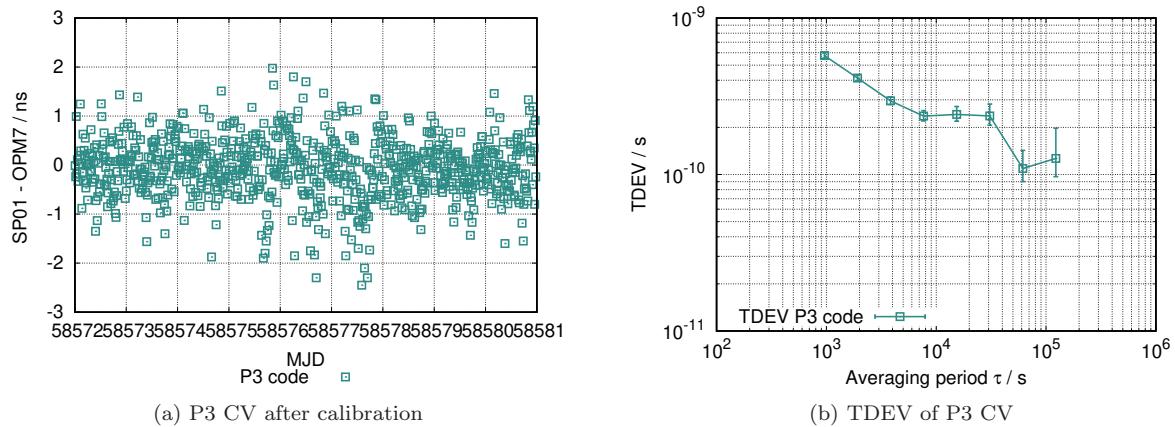
Figure 46: P3 CV time difference (a) of OPM7 with respect to SP01 from MJD 58572 to 58580 in RISE. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
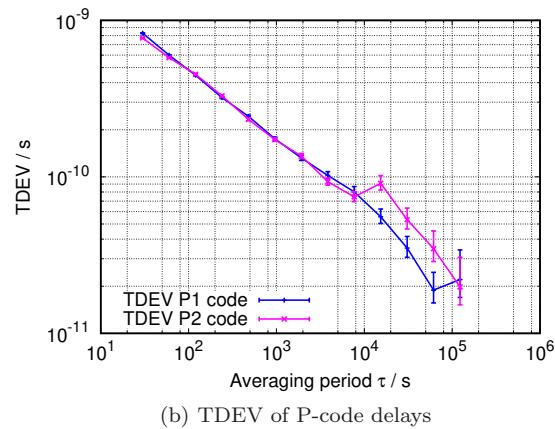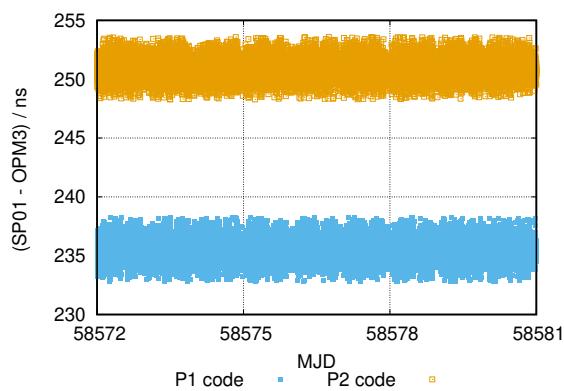
Figure 47: Relative calibration of SP01 with respect to OPM3 from MJD 58572 to 58580 in RISE. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
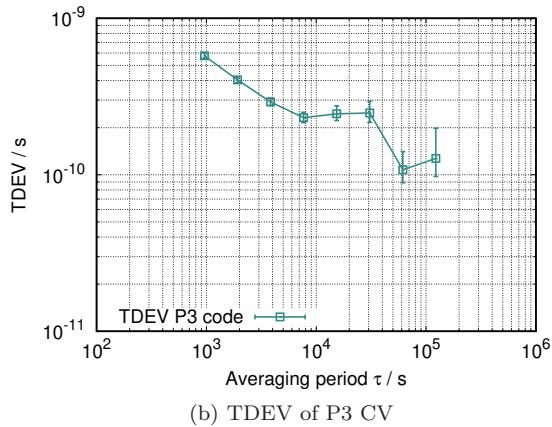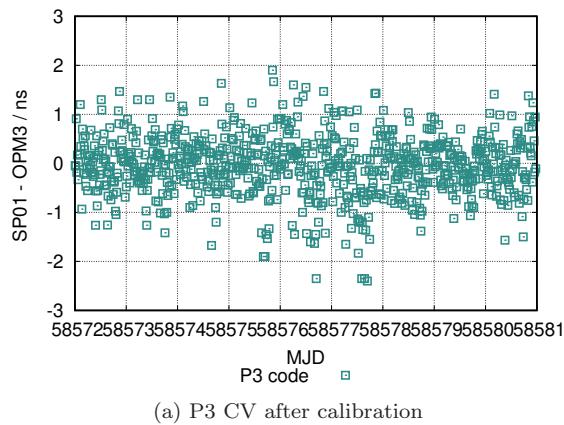
Figure 48: P3 CV time difference (a) of OPM3 with respect to SP01 from MJD 58572 to 58580 in RISE. Related TDEV (b) of P3 CV.

13 Measurements in RISE

(a) P-code phase differences


(b) TDEV of P-code delays
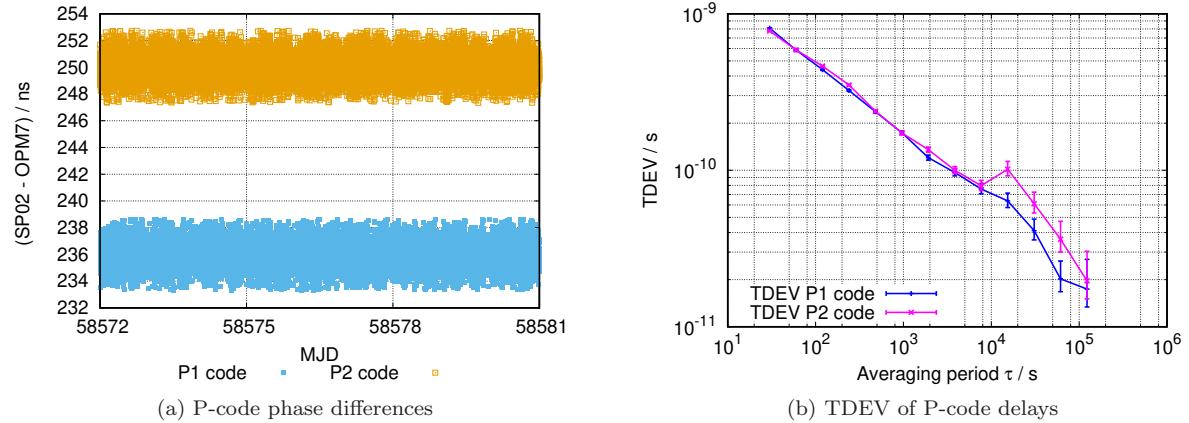
Figure 49: Relative calibration of SP02 with respect to OPM7 from MJD 58572 to 58580 in RISE. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
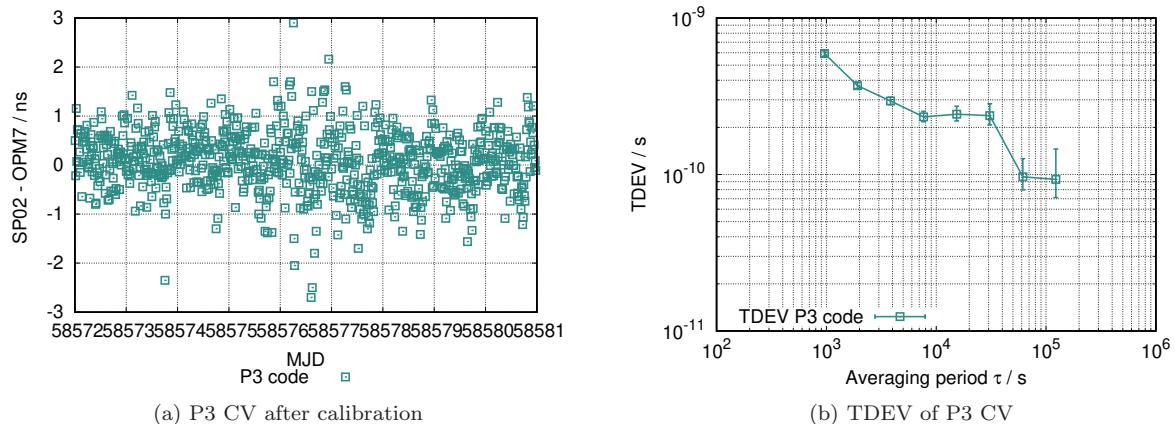
Figure 50: P3 CV time difference (a) of OPM7 with respect to SP02 from MJD 58572 to 58580 in RISE. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
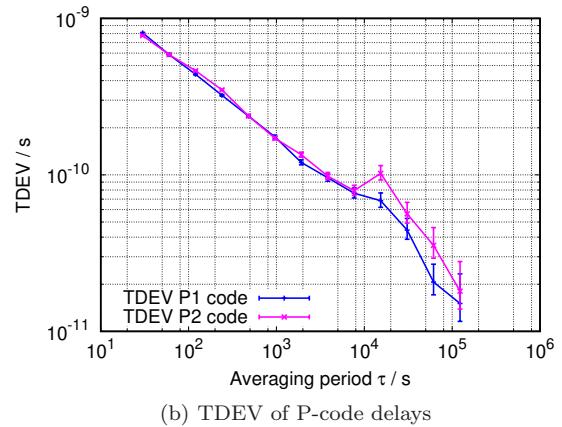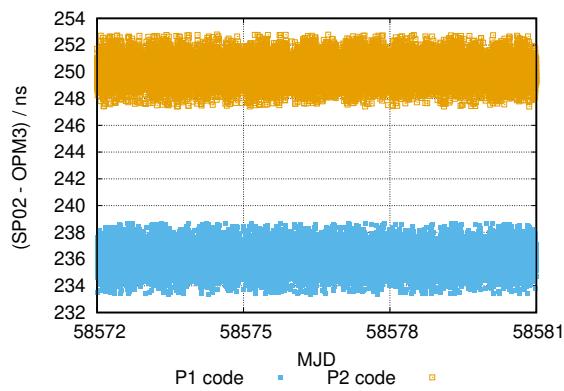
Figure 51: Relative calibration of SP02 with respect to OPM3 from MJD 58572 to 58580 in RISE. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
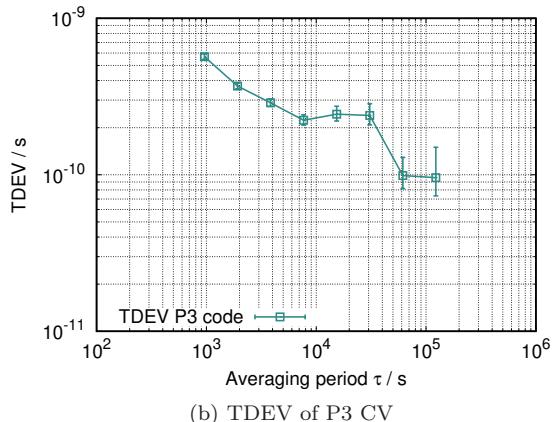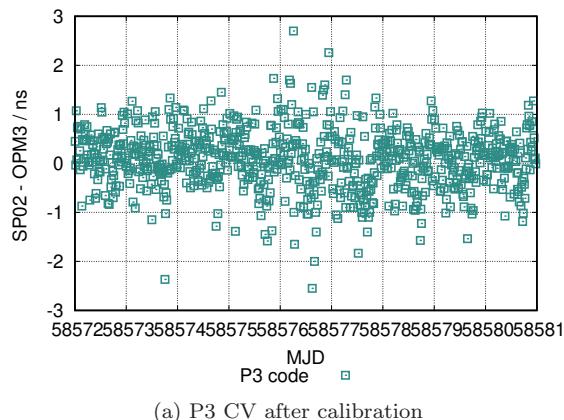
Figure 52: P3 CV time difference (a) of OPM3 with respect to SP02 from MJD 58572 to 58580 in RISE. Related TDEV (b) of P3 CV.

14 Measurements in RISE

(a) P-code phase differences

(b) TDEV of P-code delays
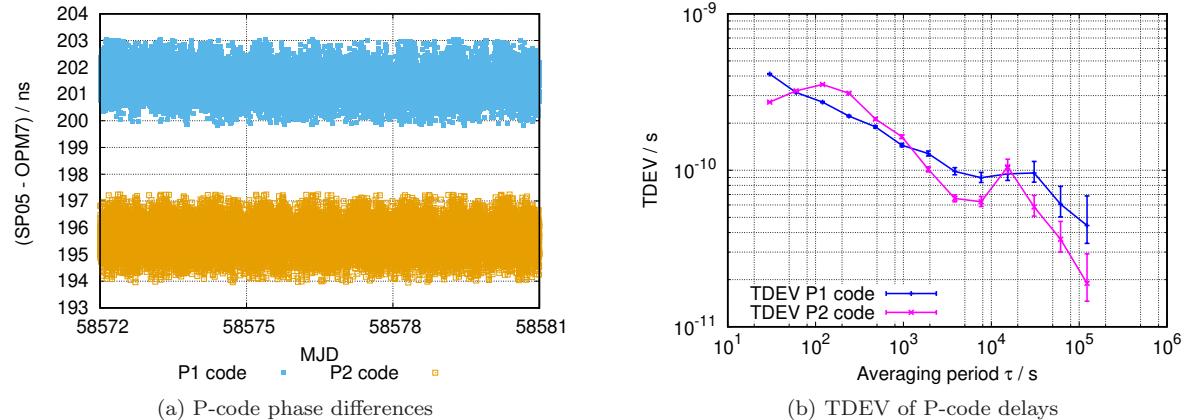
Figure 53: Relative calibration of SP05 with respect to OPM7 from MJD 58572 to 58580 in RISE. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
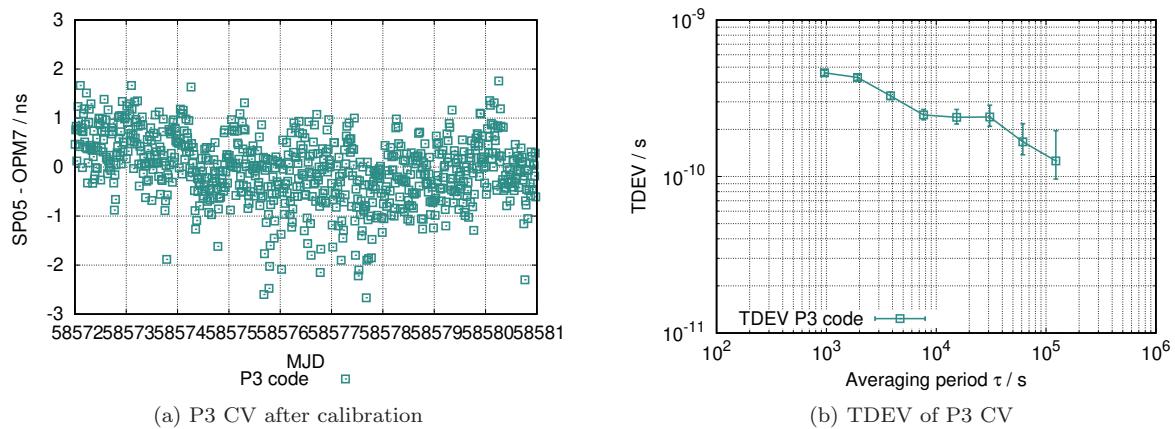
Figure 54: P3 CV time difference (a) of OPM7 with respect to SP05 from MJD 58572 to 58580 in RISE. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
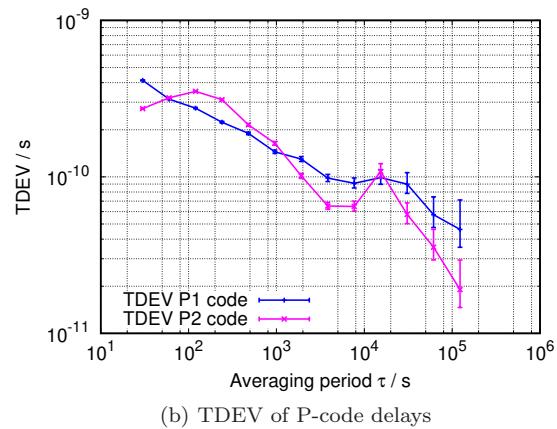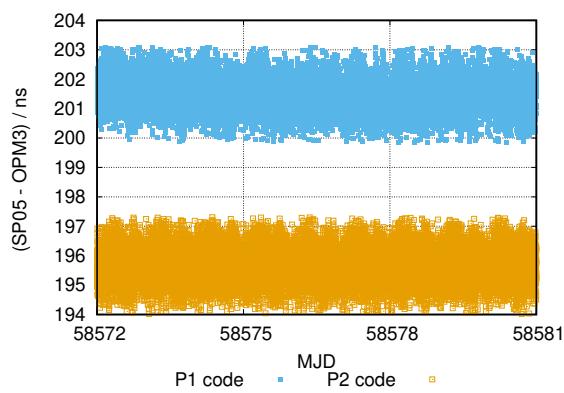
Figure 55: Relative calibration of SP05 with respect to OPM3 from MJD 58572 to 58580 in RISE. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
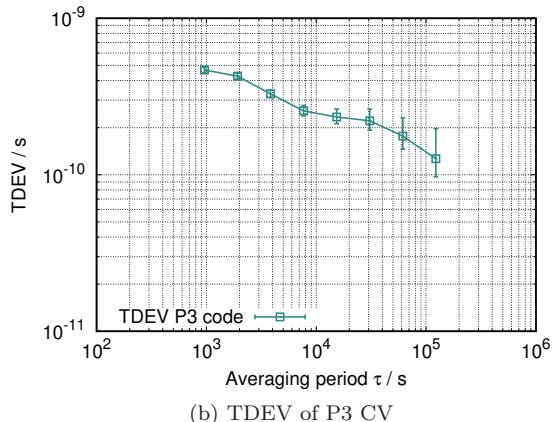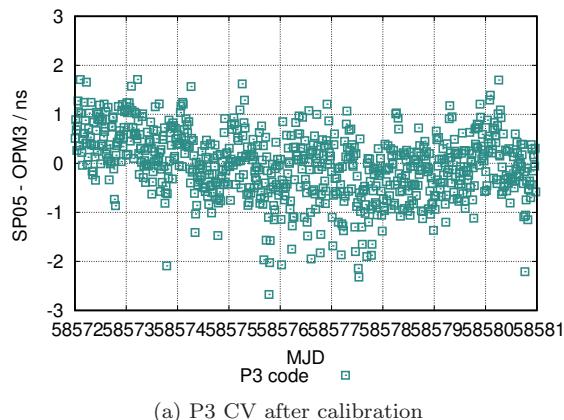
Figure 56: P3 CV time difference (a) of OPM3 with respect to SP05 from MJD 58572 to 58580 in RISE. Related TDEV (b) of P3 CV.

15   Measurements in ROA


(a) P-code phase differences

(b) TDEV of P-code delays
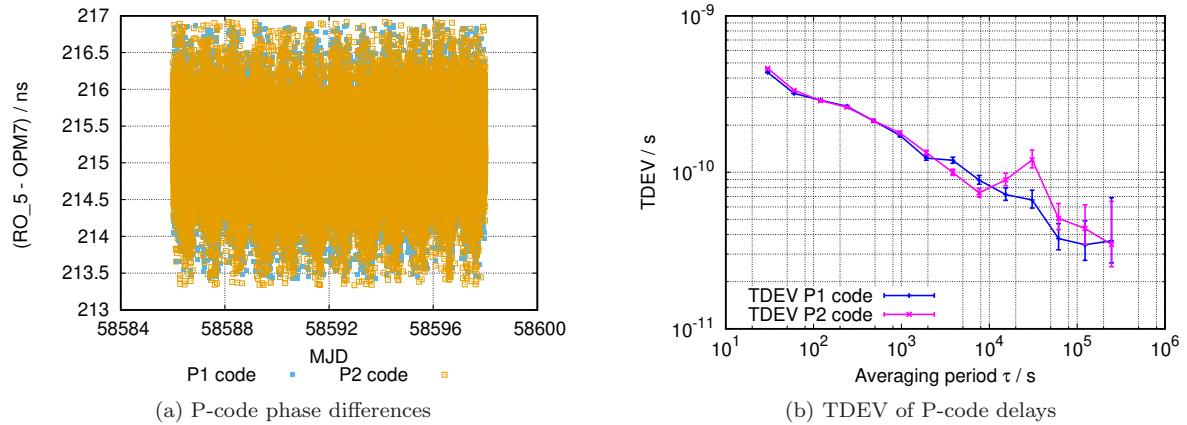
Figure 57: Relative calibration of RO_5 with respect to OPM7 from MJD 58586 to 58597 in ROA. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
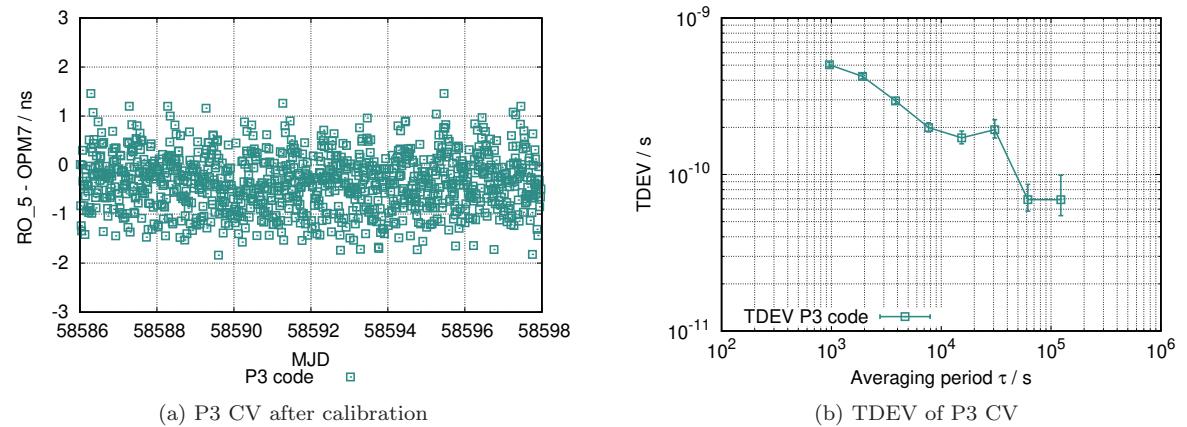
Figure 58: P3 CV time difference (a) of OPM7 with respect to RO_5 from MJD 58586 to 58597 in ROA. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
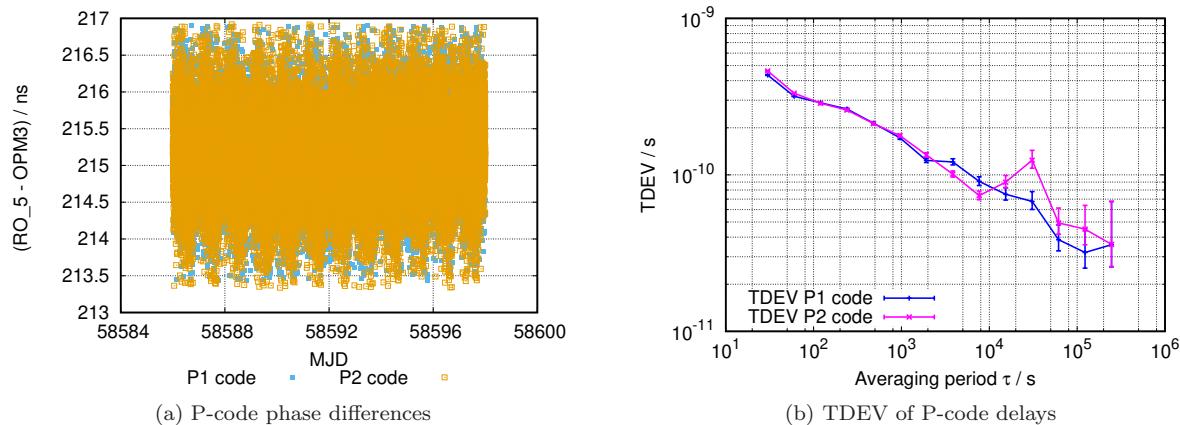
Figure 59: Relative calibration of RO_5 with respect to OPM3 from MJD 58586 to 58597 in ROA. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
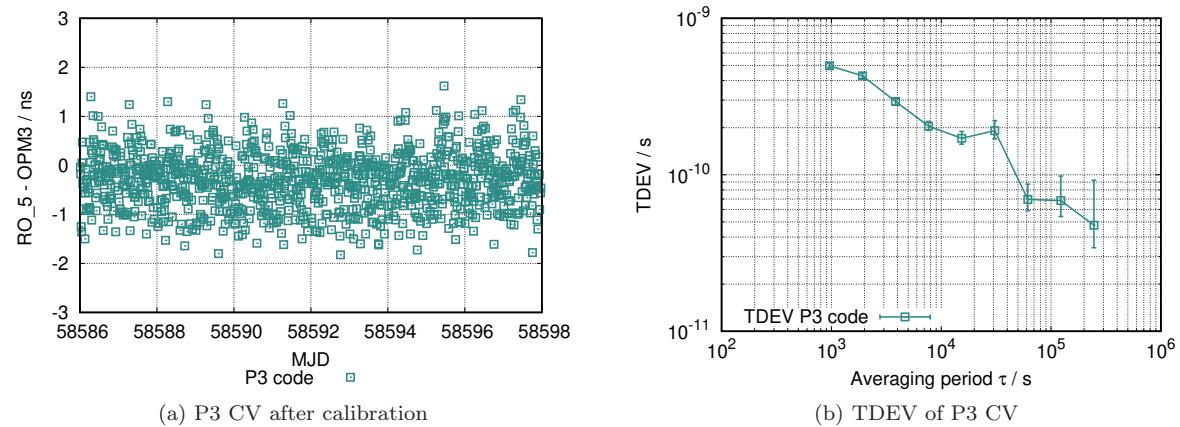
Figure 60: P3 CV time difference (a) of OPM3 with respect to RO_5 from MJD 58586 to 58597 in ROA. Related TDEV (b) of P3 CV.

16 Measurements in ROA


(a) P-code phase differences

(b) TDEV of P-code delays
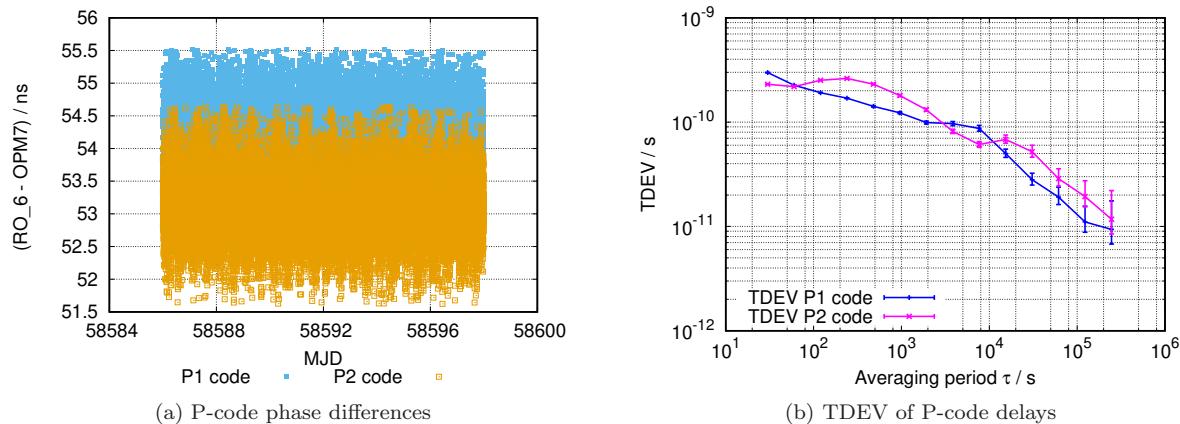
Figure 61: Relative calibration of RO_6 with respect to OPM7 from MJD 58586 to 58597 in ROA. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
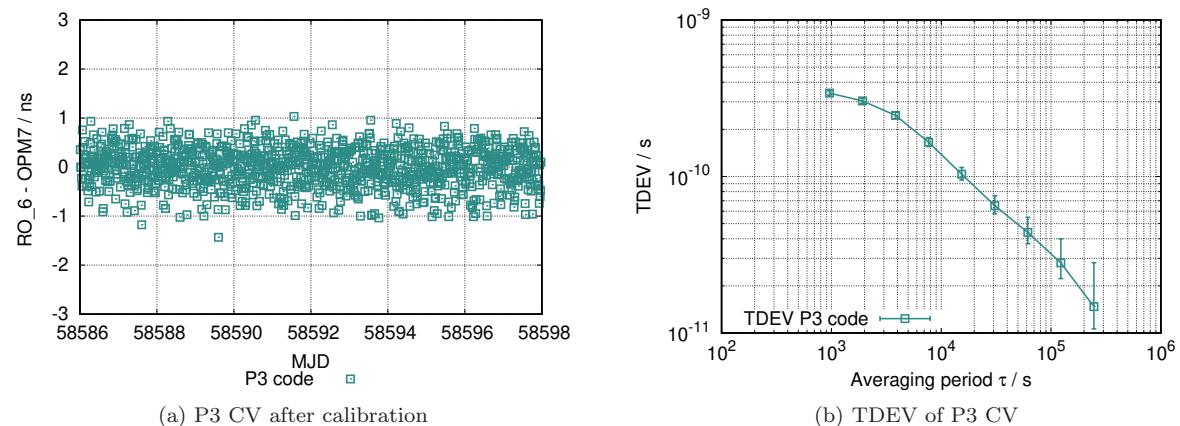
Figure 62: P3 CV time difference (a) of OPM7 with respect to RO_6 from MJD 58586 to 58597 in ROA. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
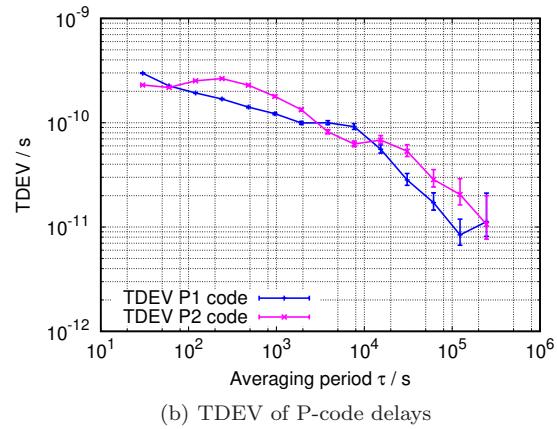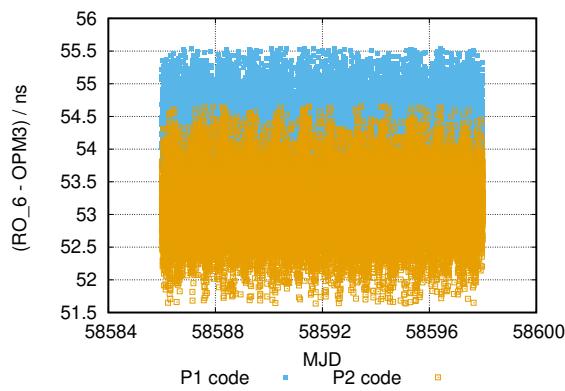
Figure 63: Relative calibration of RO_6 with respect to OPM3 from MJD 58586 to 58597 in ROA. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
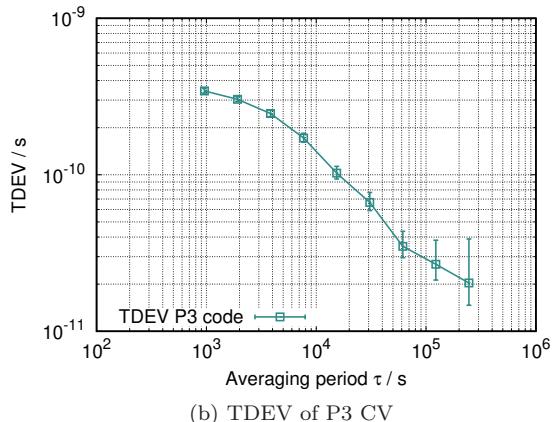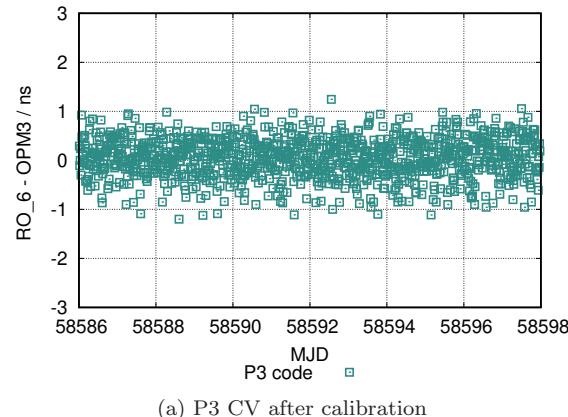
Figure 64: P3 CV time difference (a) of OPM3 with respect to RO_6 from MJD 58586 to 58597 in ROA. Related TDEV (b) of P3 CV.

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(a) P-code phase differences

(b) TDEV of P-code delays
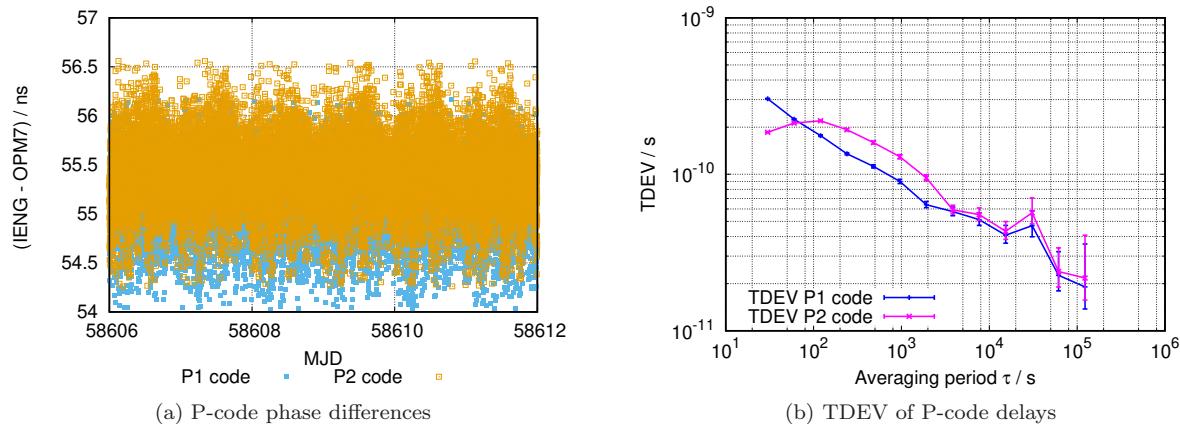
Figure 65: Relative calibration of IENG with respect to OPM7 from MJD 58606 to 58611 in INRIM. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
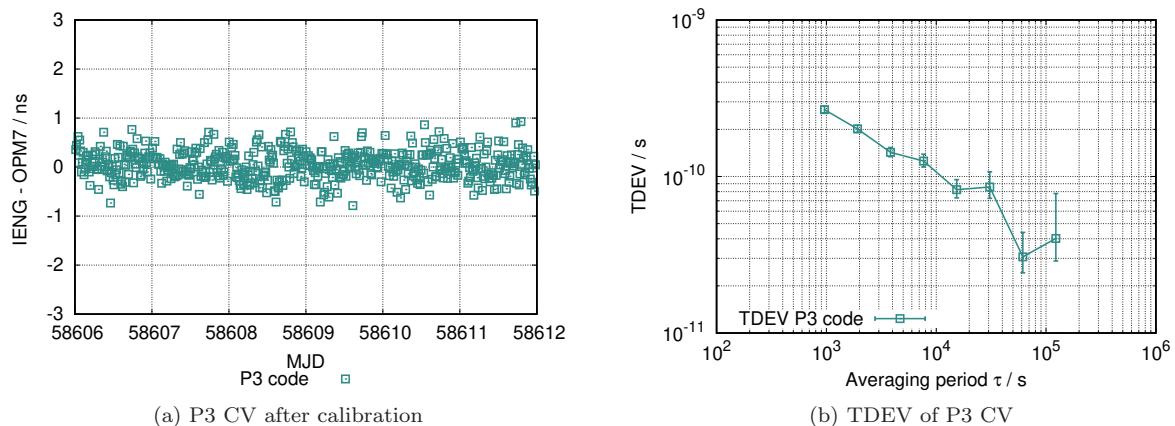
Figure 66: P3 CV time difference (a) of OPM7 with respect to IENG from MJD 58606 to 58611 in INRIM. Related TDEV (b) of P3 CV.

(a) P-code phase differences


(b) TDEV of P-code delays
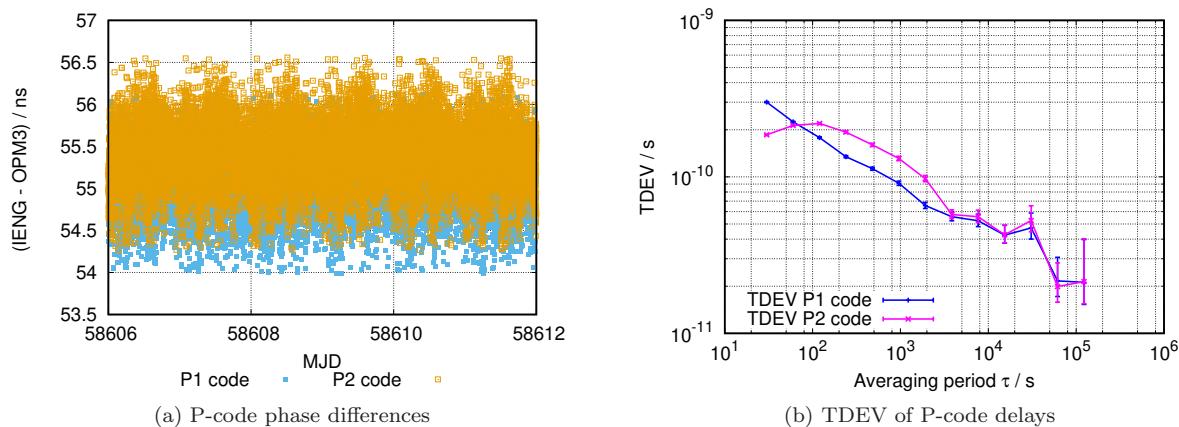
Figure 67: Relative calibration of IENG with respect to OPM3 from MJD 58606 to 58611 in INRIM. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
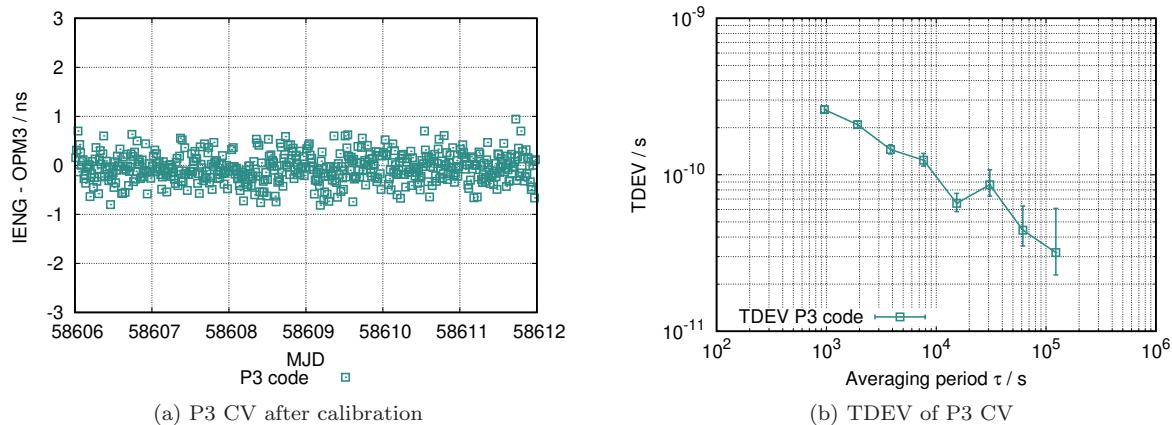
Figure 68: P3 CV time difference (a) of OPM3 with respect to IENG from MJD 58606 to 58611 in INRIM. Related TDEV (b) of P3 CV.

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(a) P-code phase differences

(b) TDEV of P-code delays
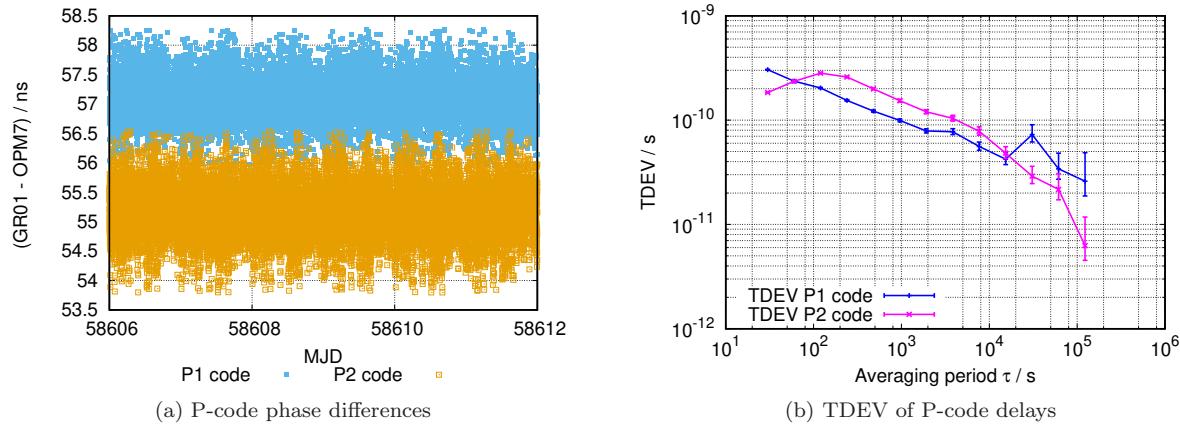
Figure 69: Relative calibration of GR01 with respect to OPM7 from MJD 58606 to 58611 in INRIM. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
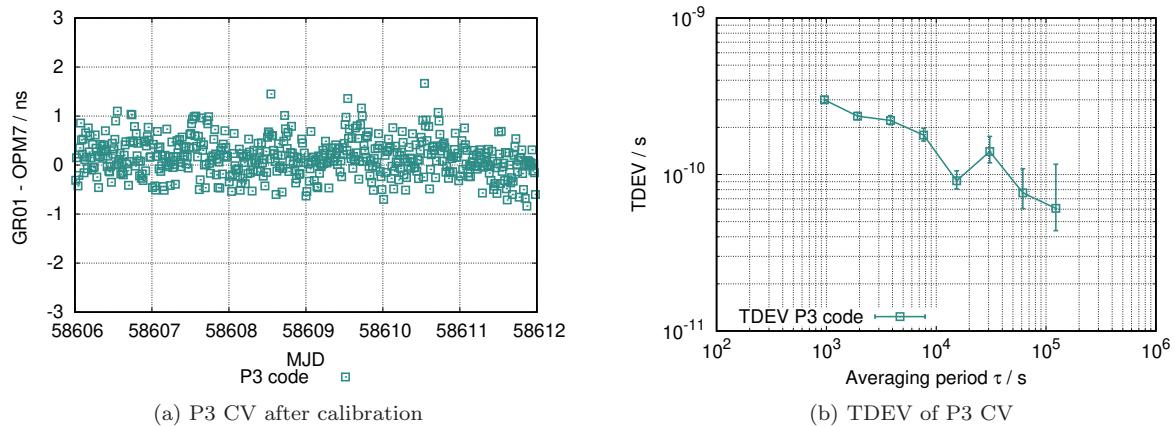
Figure 70: P3 CV time difference (a) of OPM7 with respect to GR01 from MJD 58606 to 58611 in INRIM. Related TDEV (b) of P3 CV.

(a) P-code phase differences


(b) TDEV of P-code delays
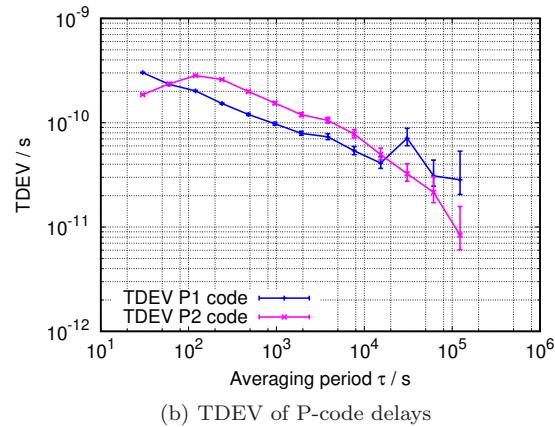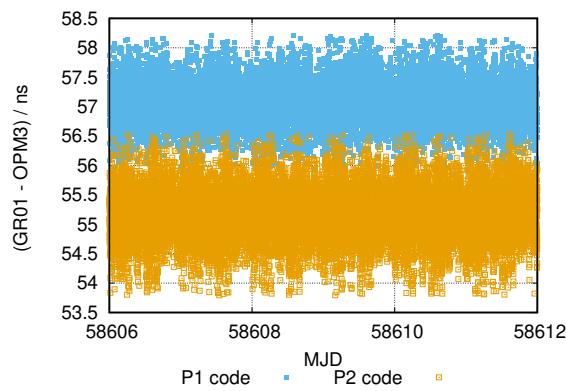
Figure 71: Relative calibration of GR01 with respect to OPM3 from MJD 58606 to 58611 in INRIM. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
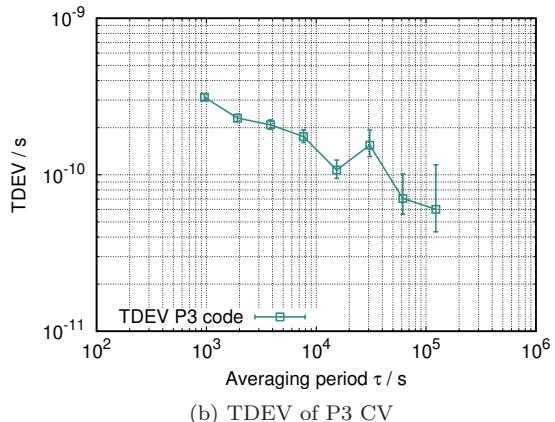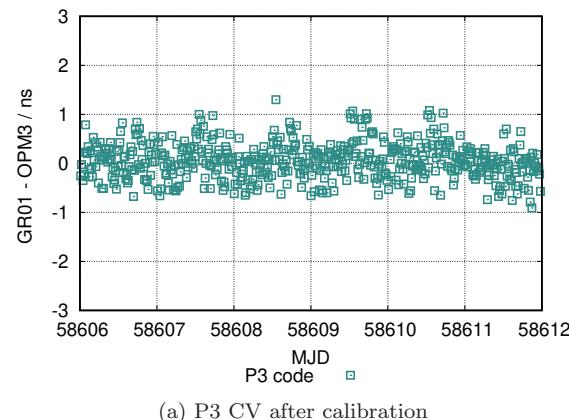
Figure 72: P3 CV time difference (a) of OPM3 with respect to GR01 from MJD 58606 to 58611 in INRIM. Related TDEV (b) of P3 CV.

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(a) P-code phase differences

(b) TDEV of P-code delays
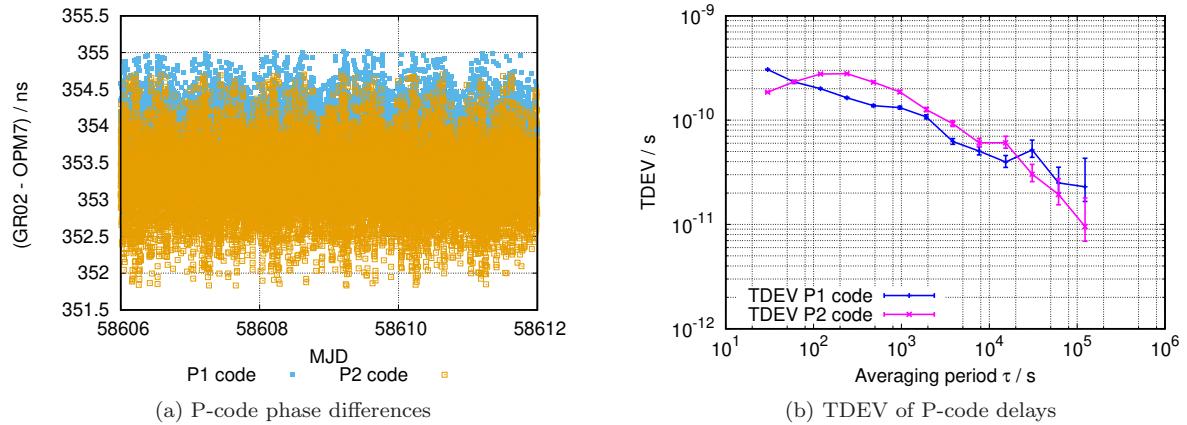
Figure 73: Relative calibration of GR02 with respect to OPM7 from MJD 58606 to 58611 in INRIM. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
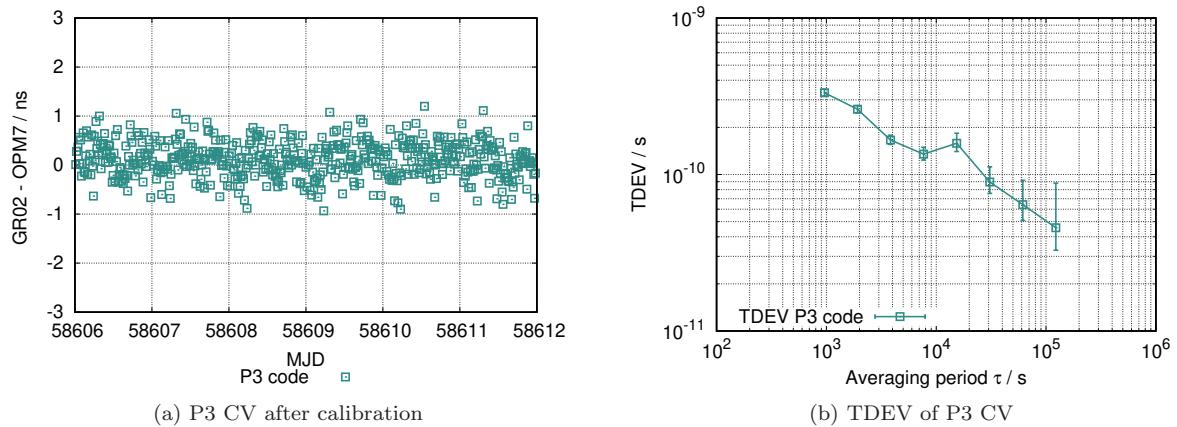
Figure 74: P3 CV time difference (a) of OPM7 with respect to GR02 from MJD 58606 to 58611 in INRIM. Related TDEV (b) of P3 CV.

(a) P-code phase differences


(b) TDEV of P-code delays
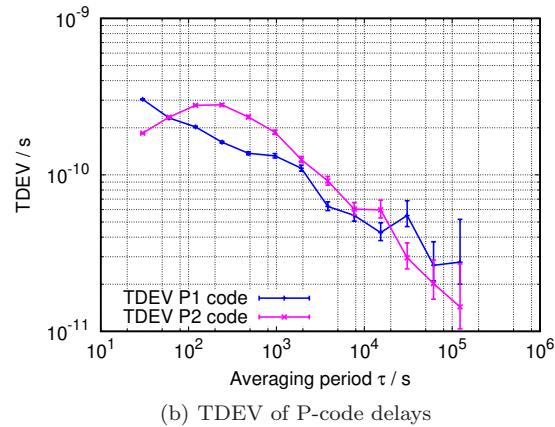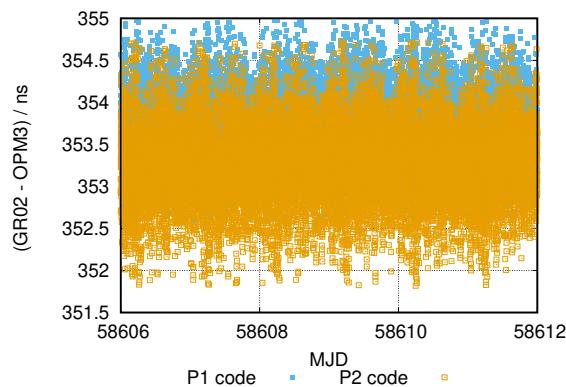
Figure 75: Relative calibration of GR02 with respect to OPM3 from MJD 58606 to 58611 in INRIM. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
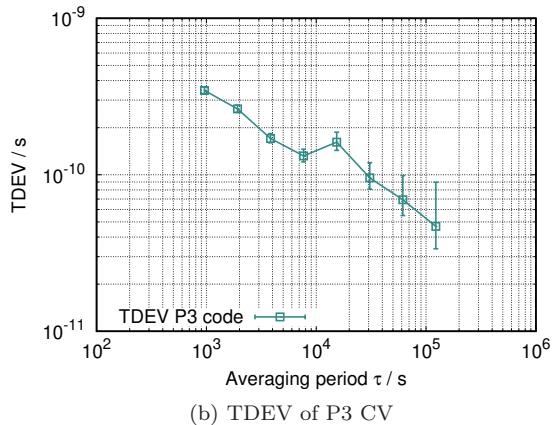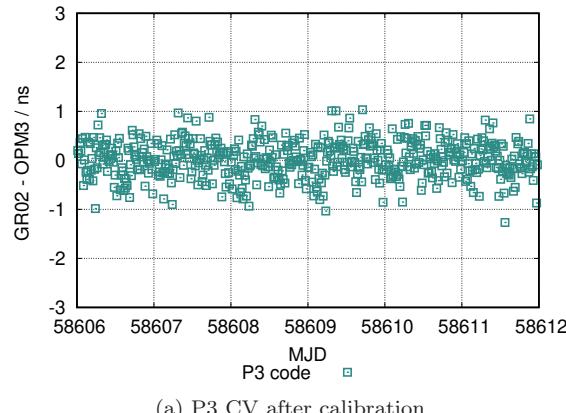
Figure 76: P3 CV time difference (a) of OPM3 with respect to GR02 from MJD 58606 to 58611 in INRIM. Related TDEV (b) of P3 CV.

20 Measurements in INRIM

(a) P-code phase differences


(b) TDEV of P-code delays
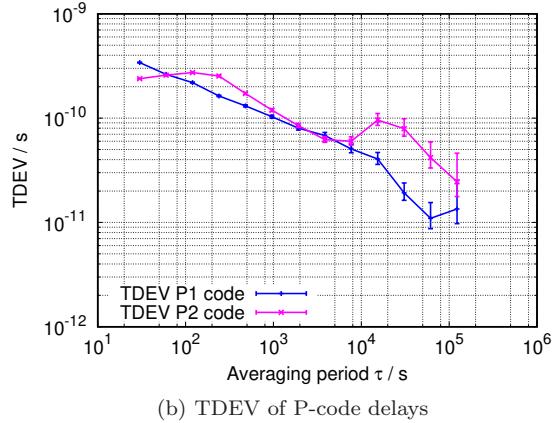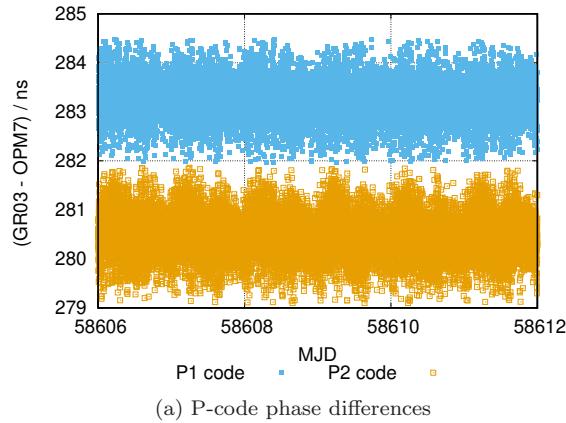
Figure 77: Relative calibration of GR03 with respect to OPM7 from MJD 58606 to 58611 in INRIM. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
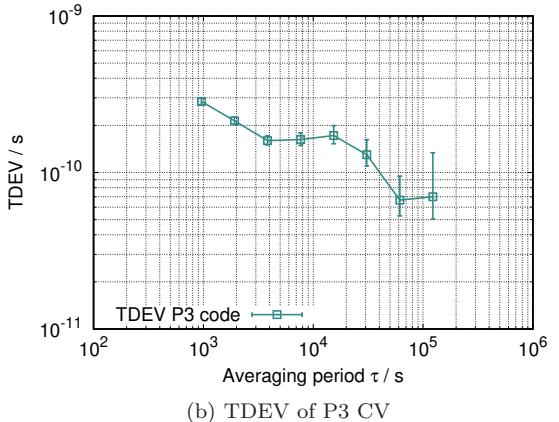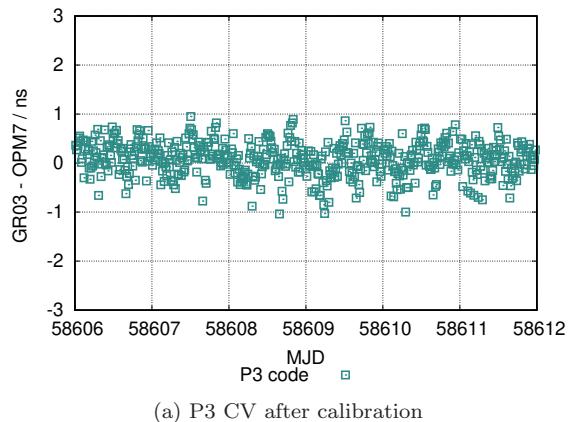
Figure 78: P3 CV time difference (a) of OPM7 with respect to GR03 from MJD 58606 to 58611 in INRIM. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
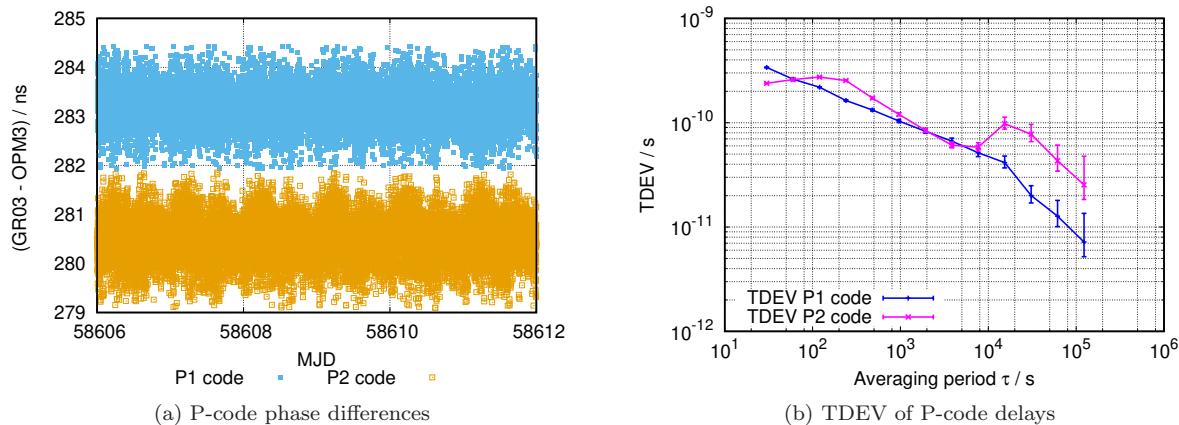
Figure 79: Relative calibration of GR03 with respect to OPM3 from MJD 58606 to 58611 in INRIM. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
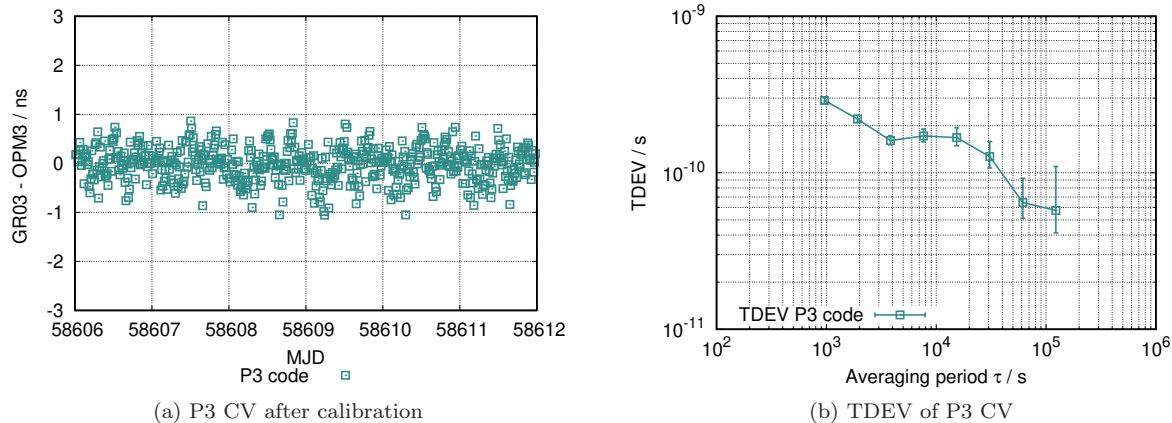
Figure 80: P3 CV time difference (a) of OPM3 with respect to GR03 from MJD 58606 to 58611 in INRIM. Related TDEV (b) of P3 CV.

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(a) P-code phase differences

(b) TDEV of P-code delays
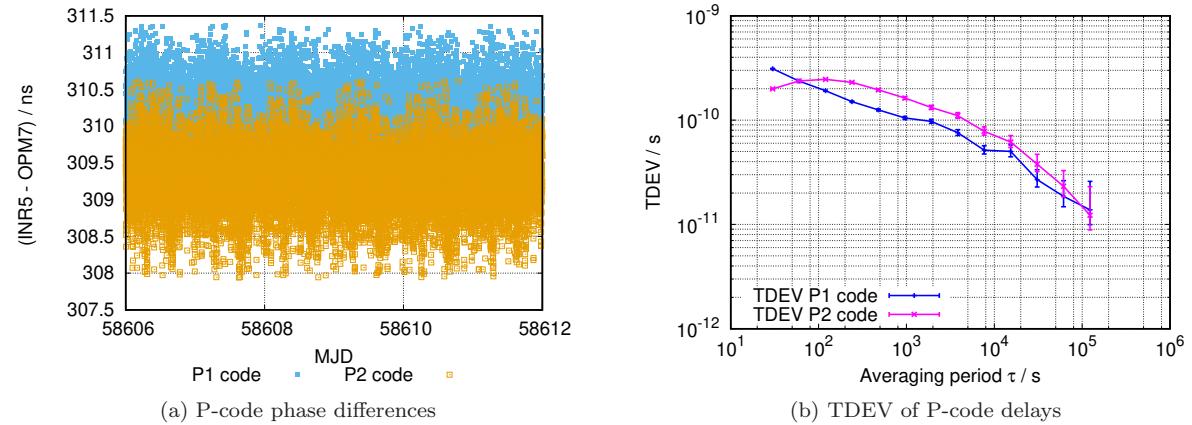
Figure 81: Relative calibration of INR5 with respect to OPM7 from MJD 58606 to 58611 in INRIM. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
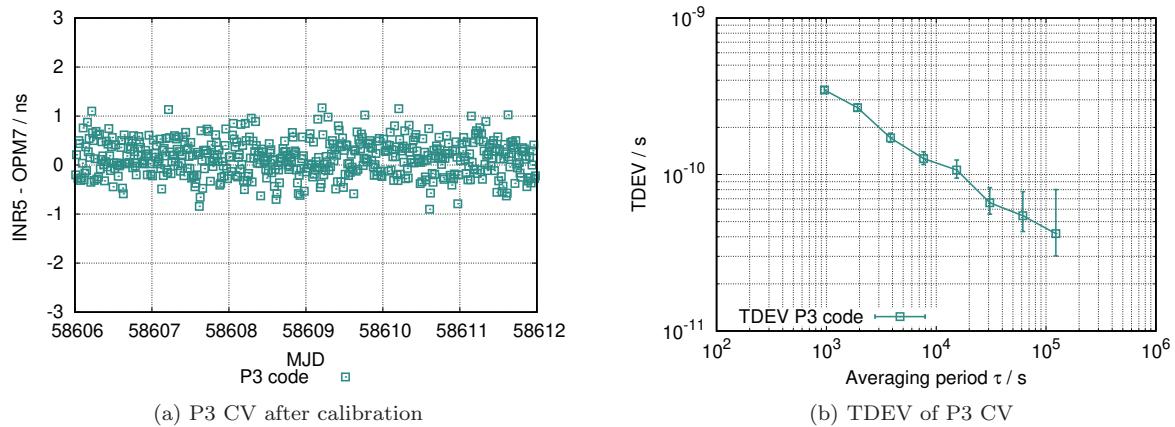
Figure 82: P3 CV time difference (a) of OPM7 with respect to INR5 from MJD 58606 to 58611 in INRIM. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
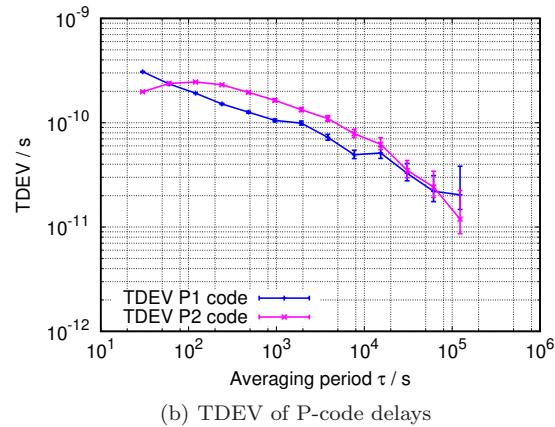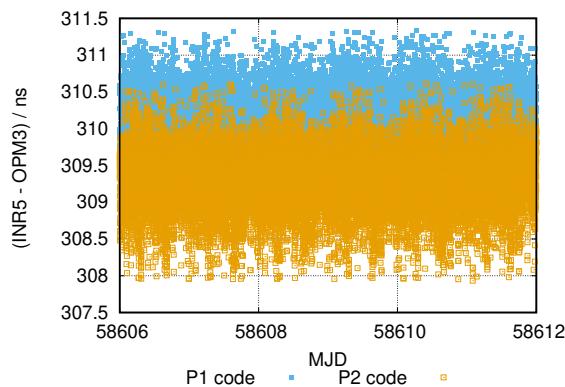
Figure 83: Relative calibration of INR5 with respect to OPM3 from MJD 58606 to 58611 in INRIM. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
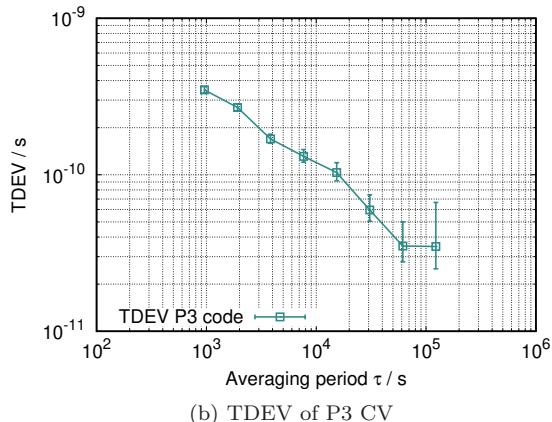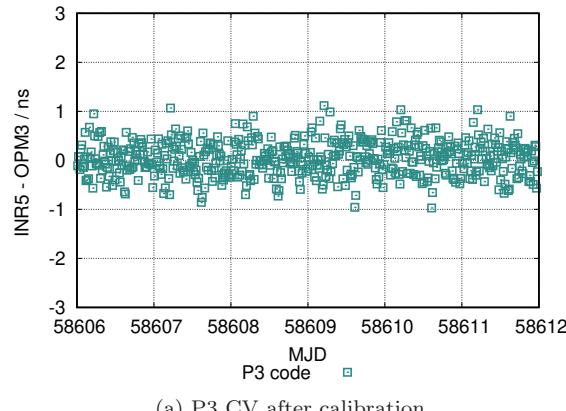
Figure 84: P3 CV time difference (a) of OPM3 with respect to INR5 from MJD 58606 to 58611 in INRIM. Related TDEV (b) of P3 CV.

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(a) P-code phase differences

(b) TDEV of P-code delays
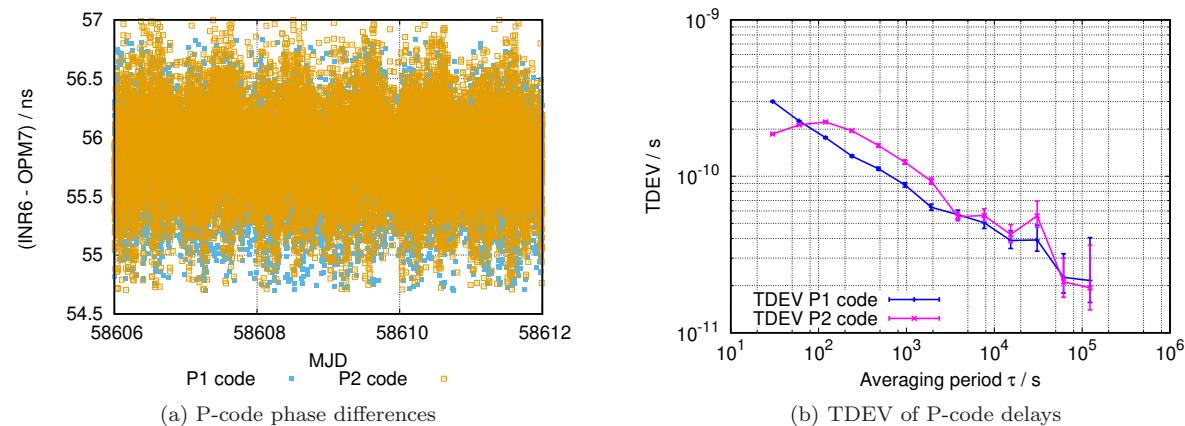
Figure 85: Relative calibration of INR6 with respect to OPM7 from MJD 58606 to 58611 in INRIM. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.


(a) P3 CV after calibration

(b) TDEV of P3 CV
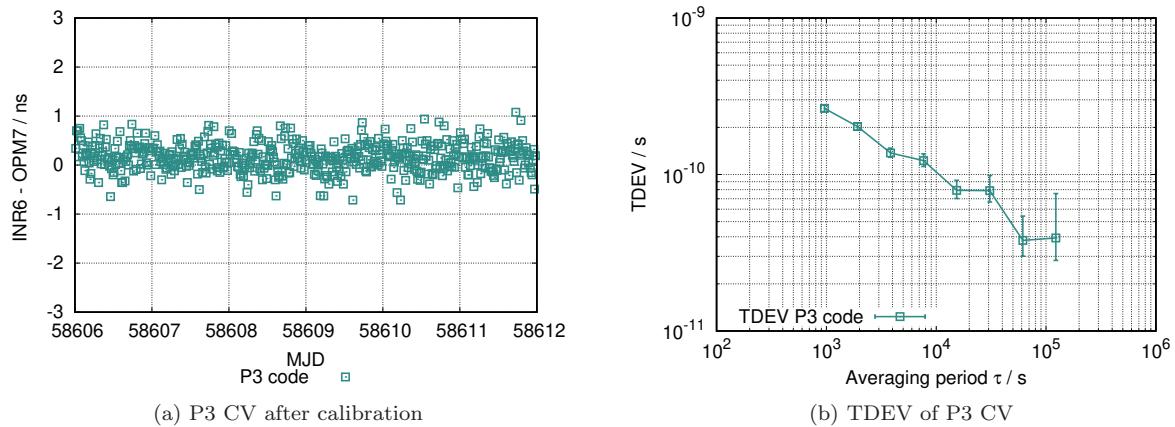
Figure 86: P3 CV time difference (a) of OPM7 with respect to INR6 from MJD 58606 to 58611 in INRIM. Related TDEV (b) of P3 CV.

(a) P-code phase differences

(b) TDEV of P-code delays
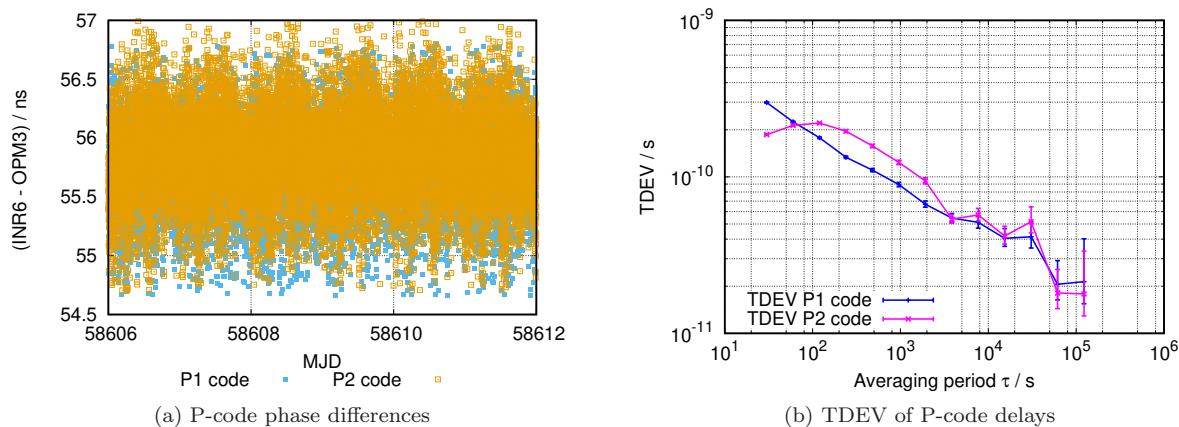
Figure 87: Relative calibration of INR6 with respect to OPM3 from MJD 58606 to 58611 in INRIM. The P-code phase differences (a) are built from RINEX files, in blue for P1, and in lilac for P2. Related TDEV (b) of P-code delays.

(a) P3 CV after calibration

(b) TDEV of P3 CV
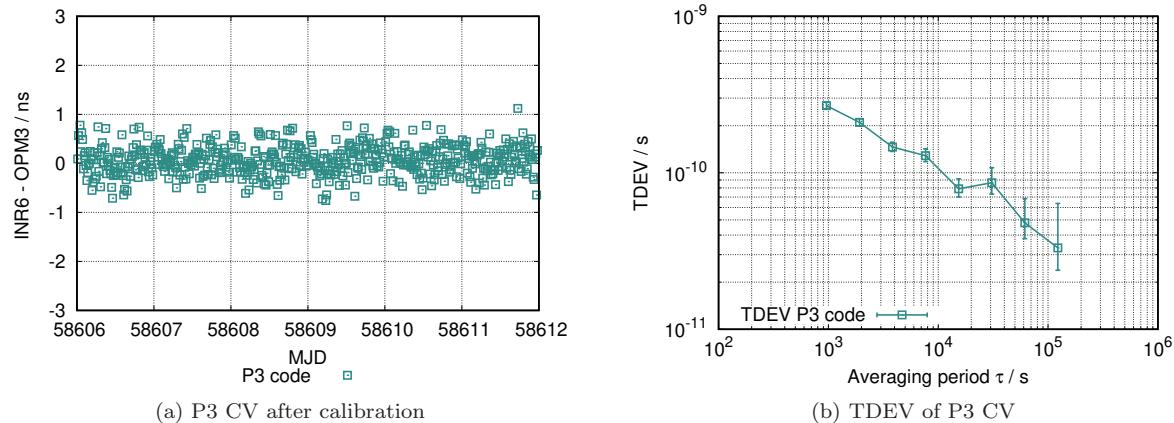
Figure 88: P3 CV time difference (a) of OPM3 with respect to INR6 from MJD 58606 to 58611 in INRIM. Related TDEV (b) of P3 CV.