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From differential to absolute code bias values

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Time series of various GNSS differential code biases

- P1-P2 for GPS and GLONASS satellites and receivers
- P1-C1 for GPS and GLONASS satellites and receivers
- P2-C2 for GPS (Block IIR-M) and GLONASS-M satellites and receivers
- GLONASS ambiguity initialization biases for a set of GNSS receiver types
- Intersystem biases responding to GPS-GLONASS receiver clock offsets (when using GPS/GLONASS broadcast clock information) specific to each involved receiver (or receiver type and firmware)
- GLONASS interfrequency code biases (from GPS/GLONASS-combined clock analysis)
- Absolute GPS P1-P2 calibrations for dedicated receivers
- Other GNSS DCB results, or calibrations (?)

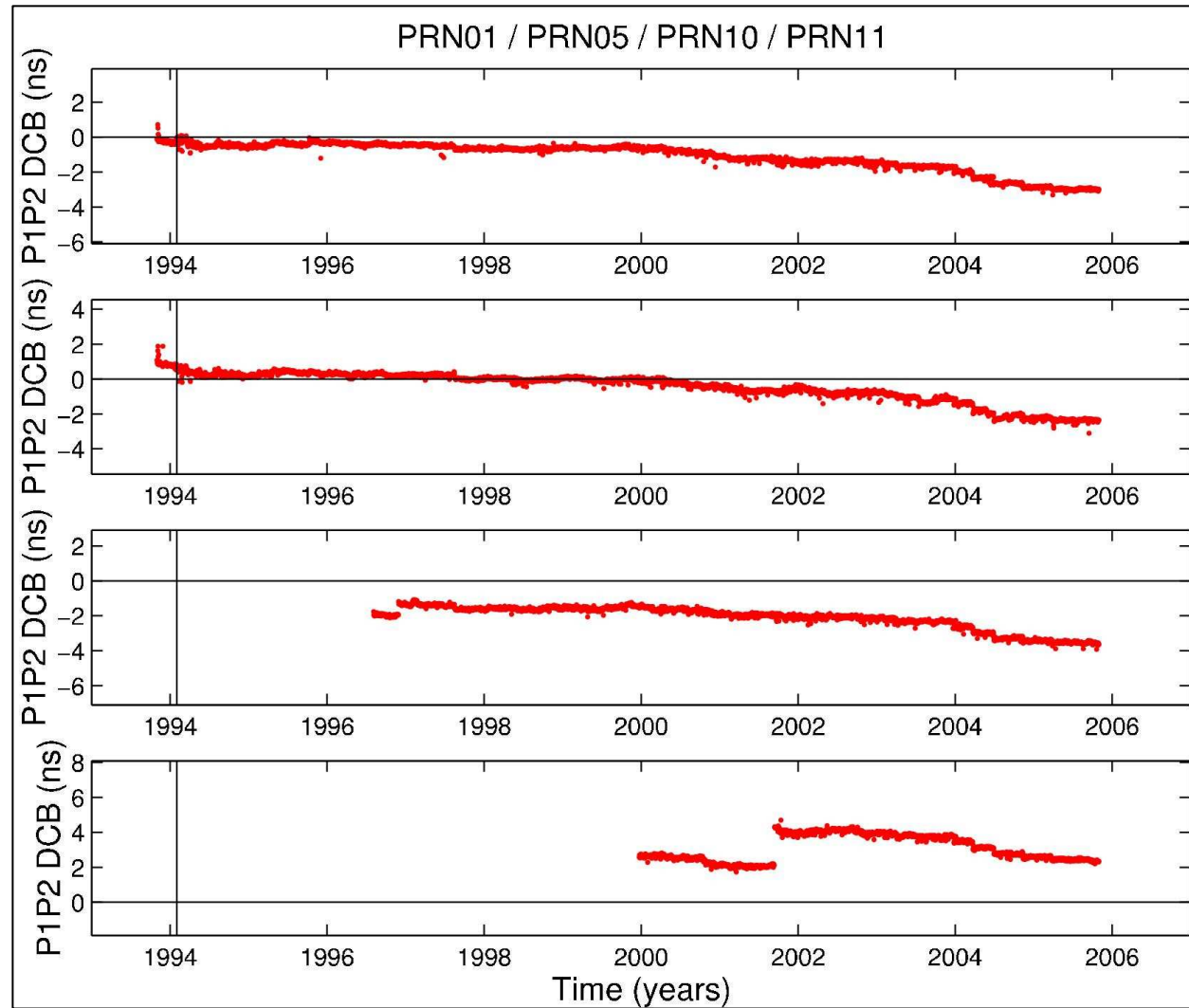


(A) Long-term combination of each individual GNSS DCB time series

- Detection of discontinuities and outliers
- Realignment
- Imposition of one common datum definition

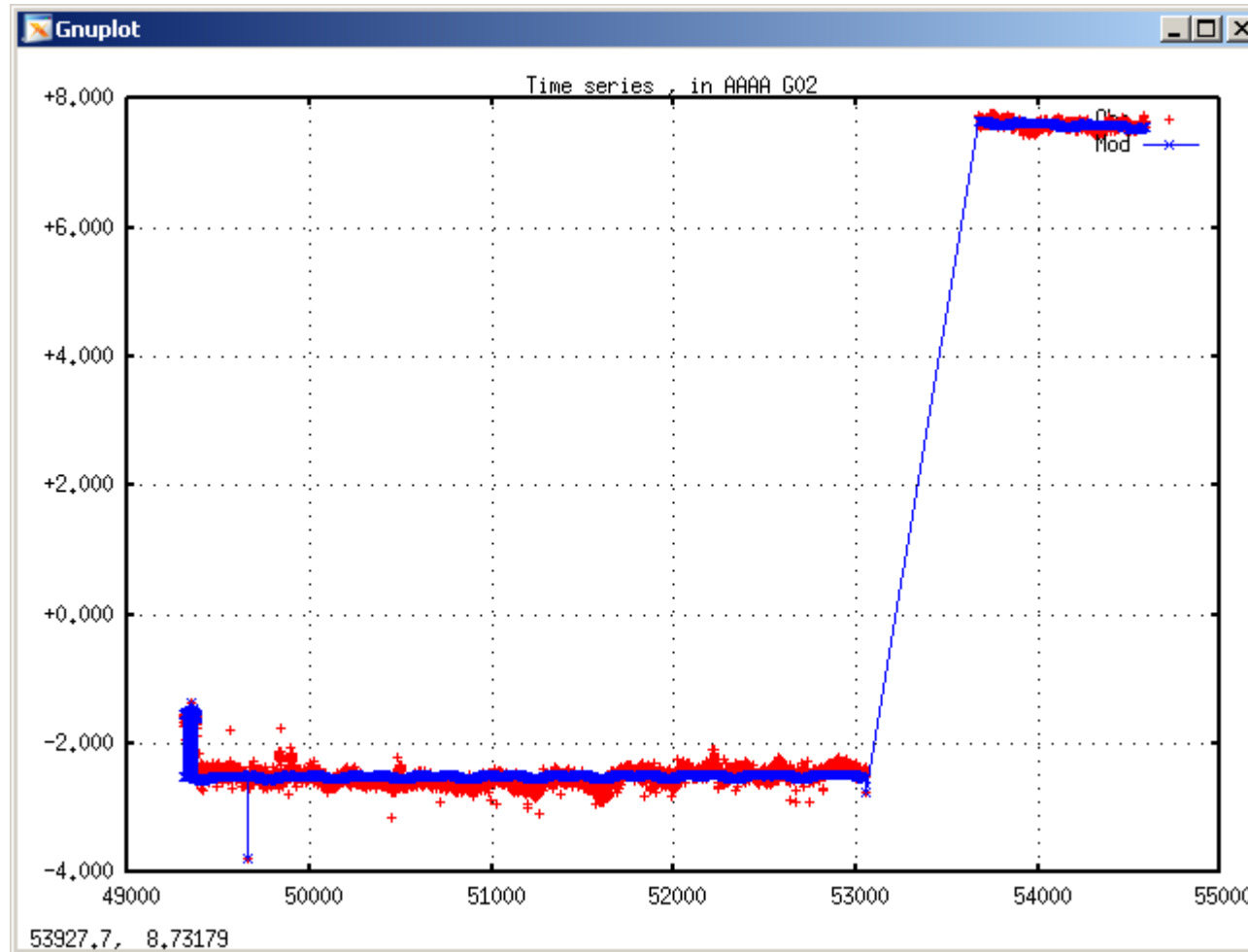


Time series of daily GPS P1-P2 DCB values from Potsdam-Dresden-Reprocessing (PDR)



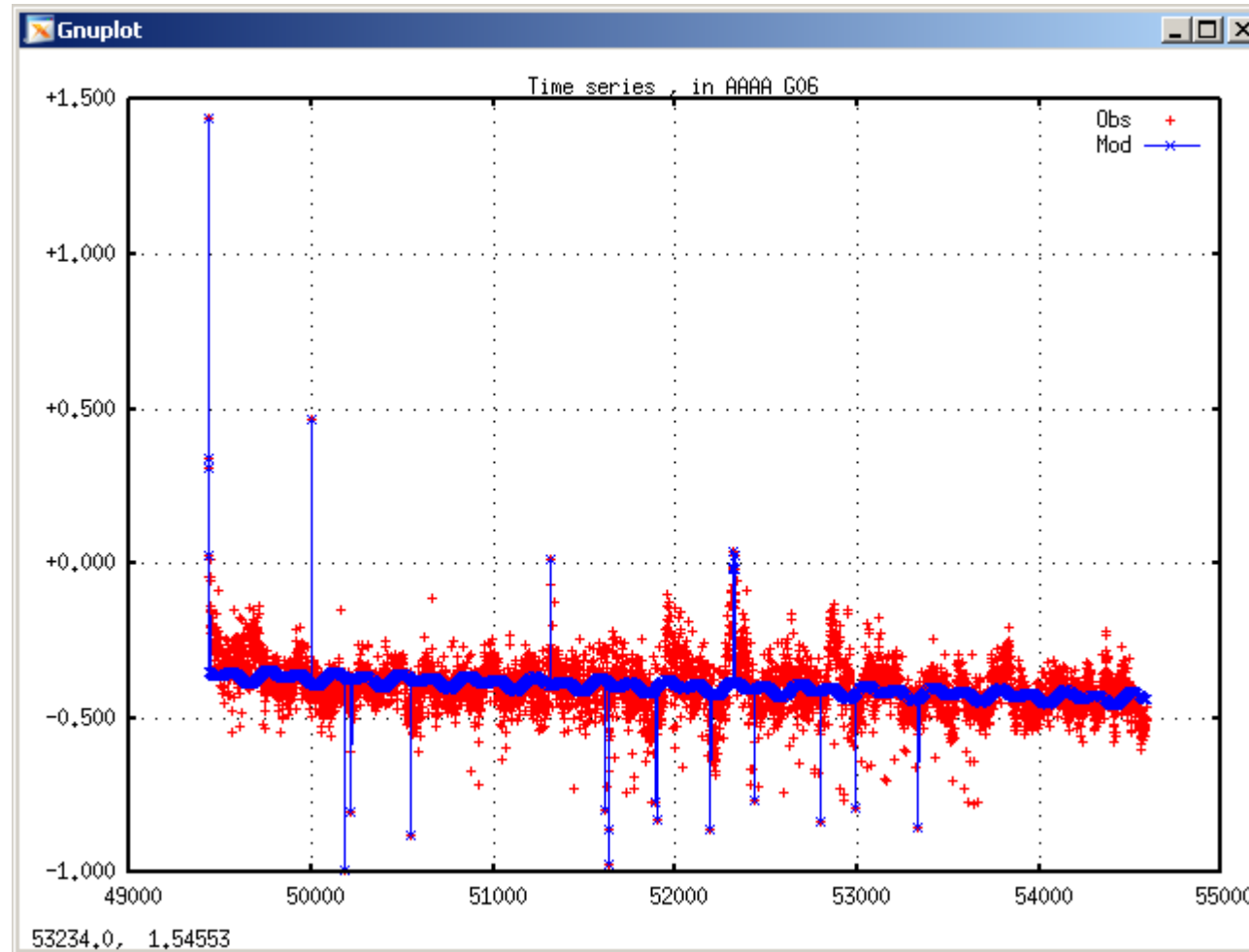


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (1/15)



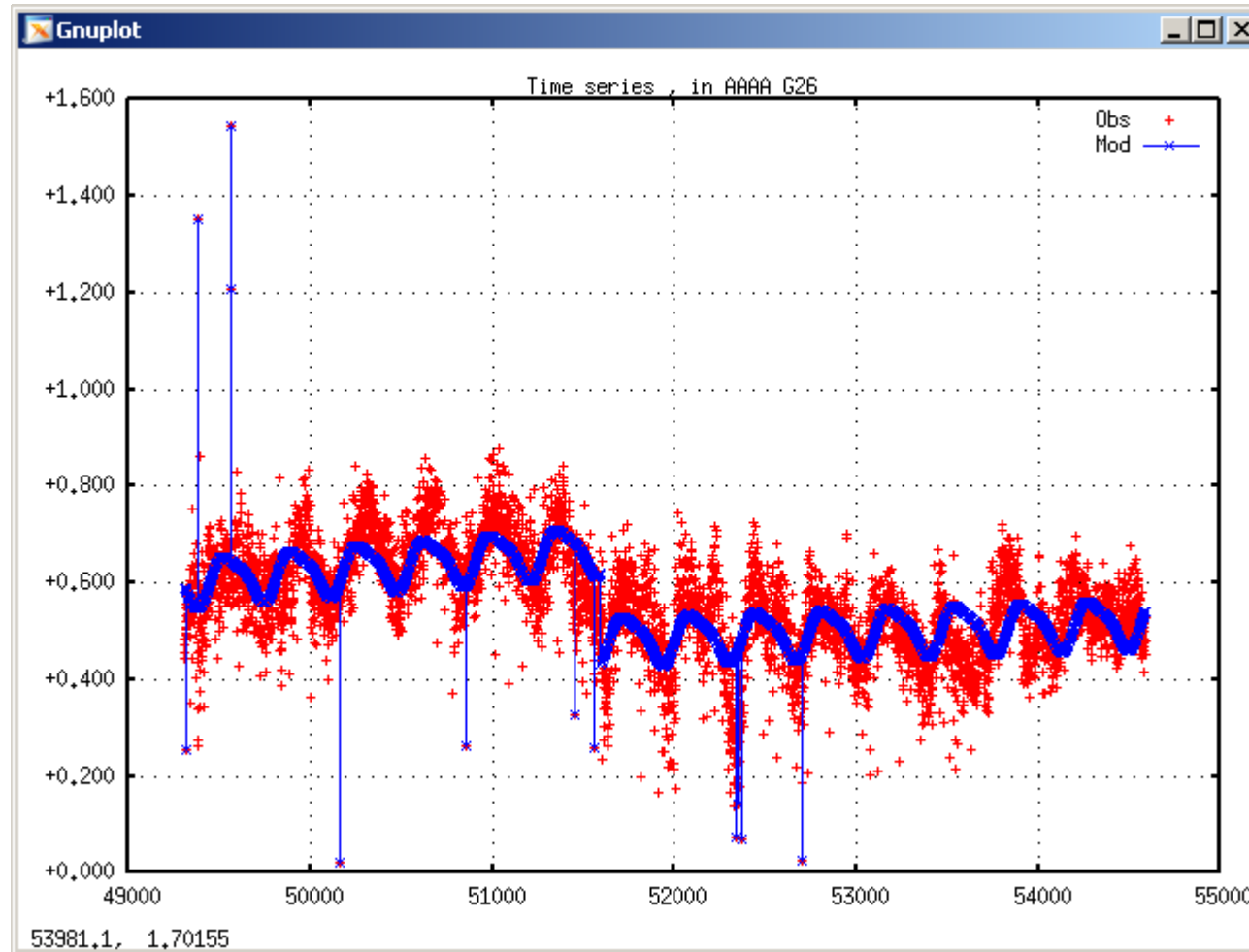


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (2/15)



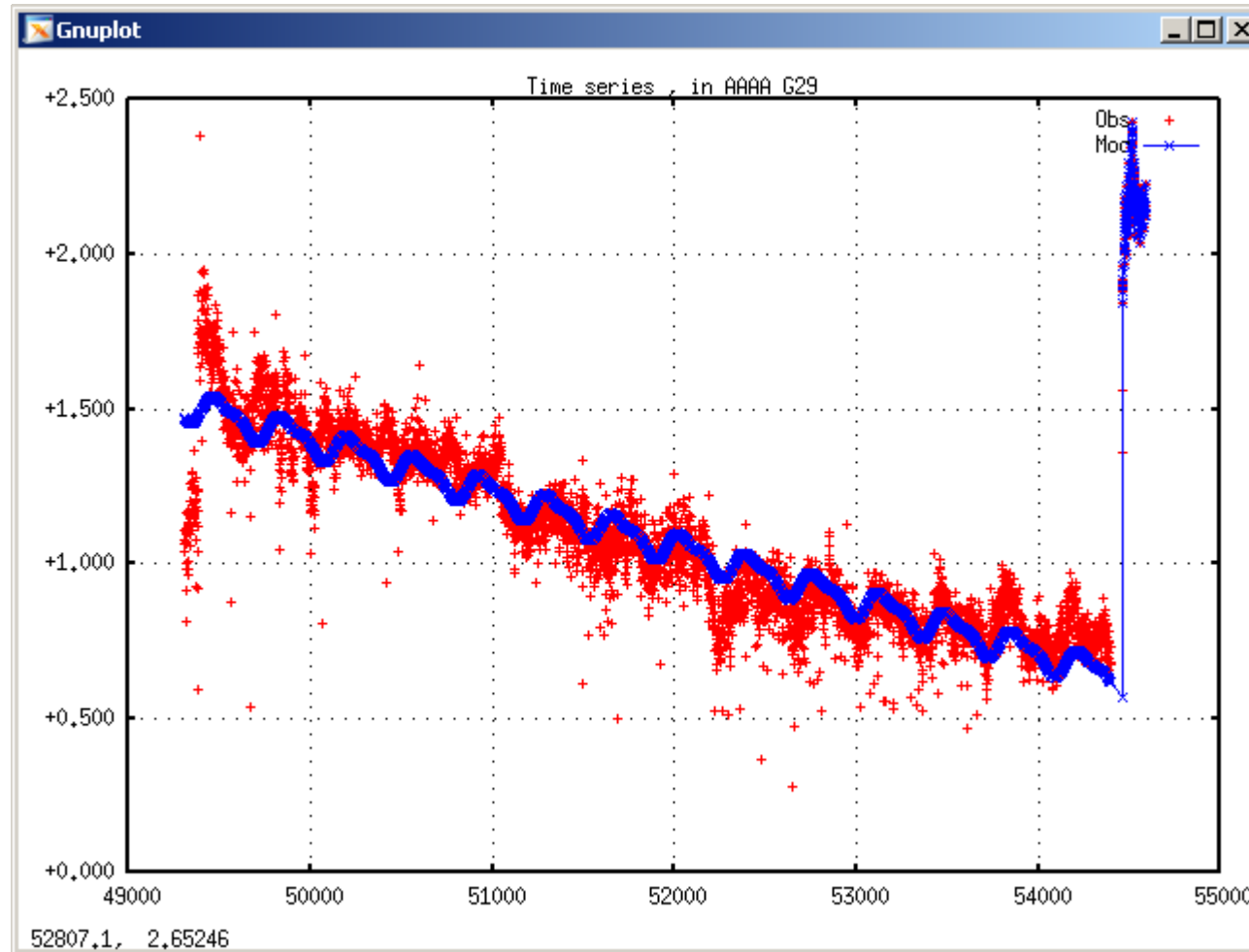


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (3/15)



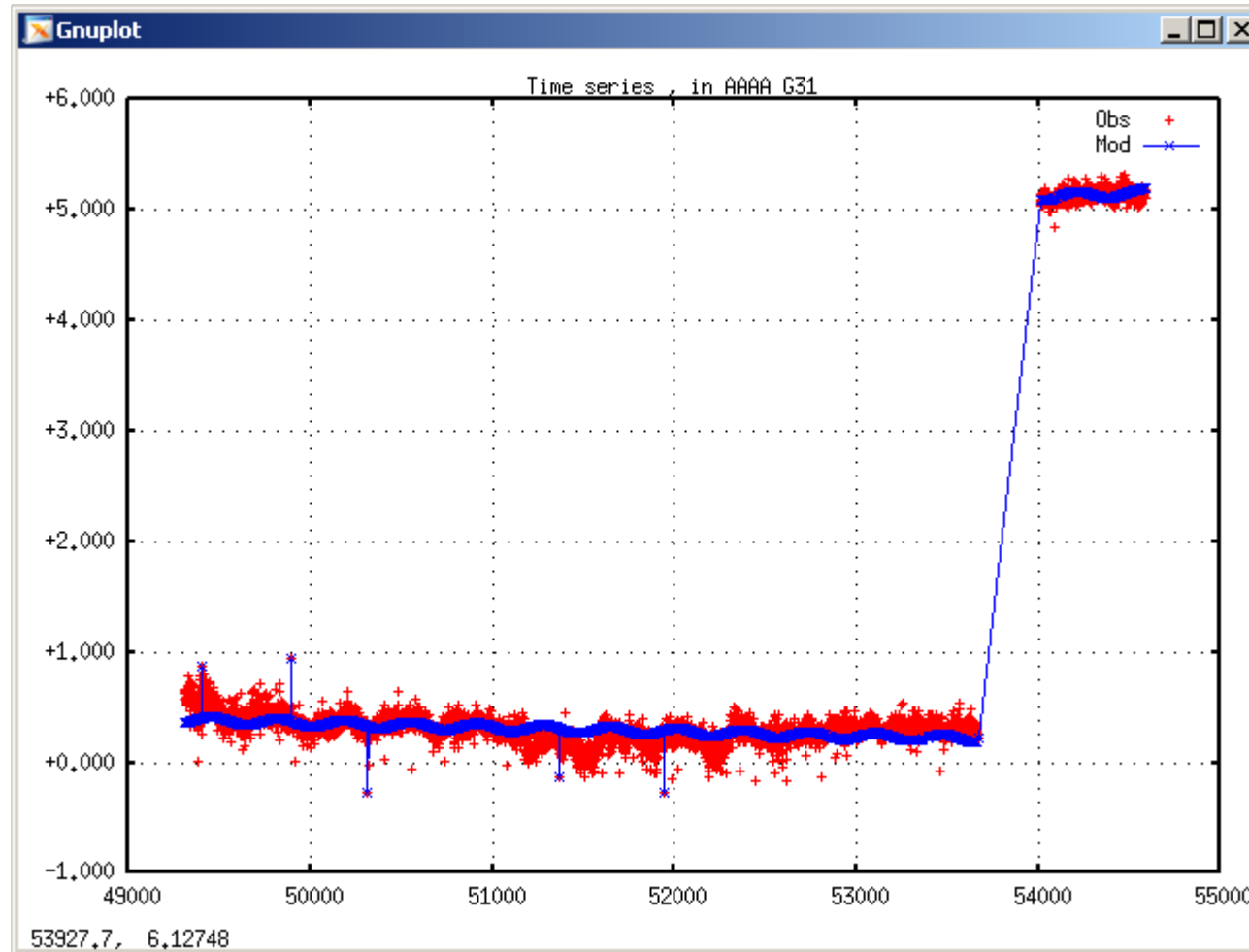


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (4/15)



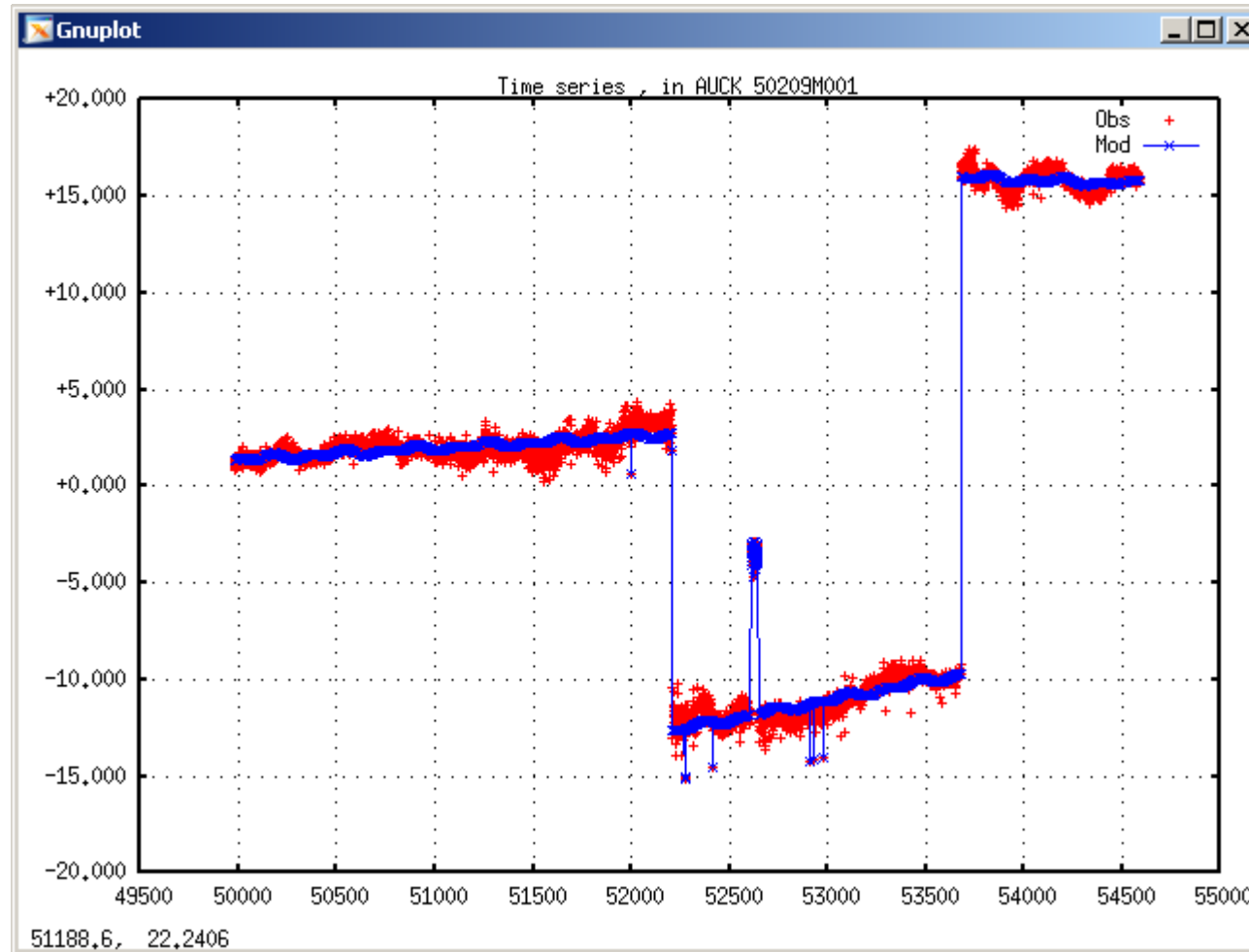


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (5/15)



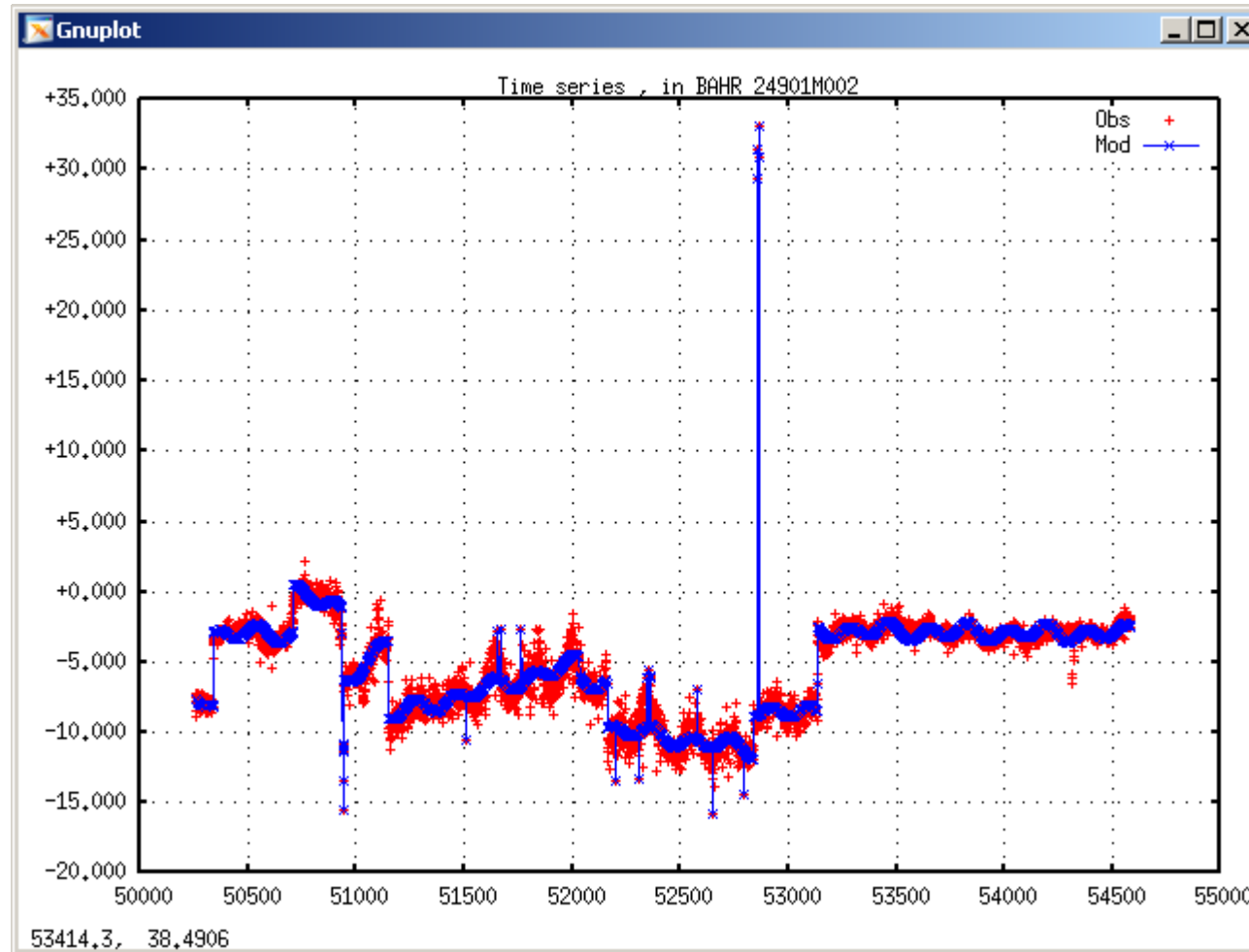


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (6/15)



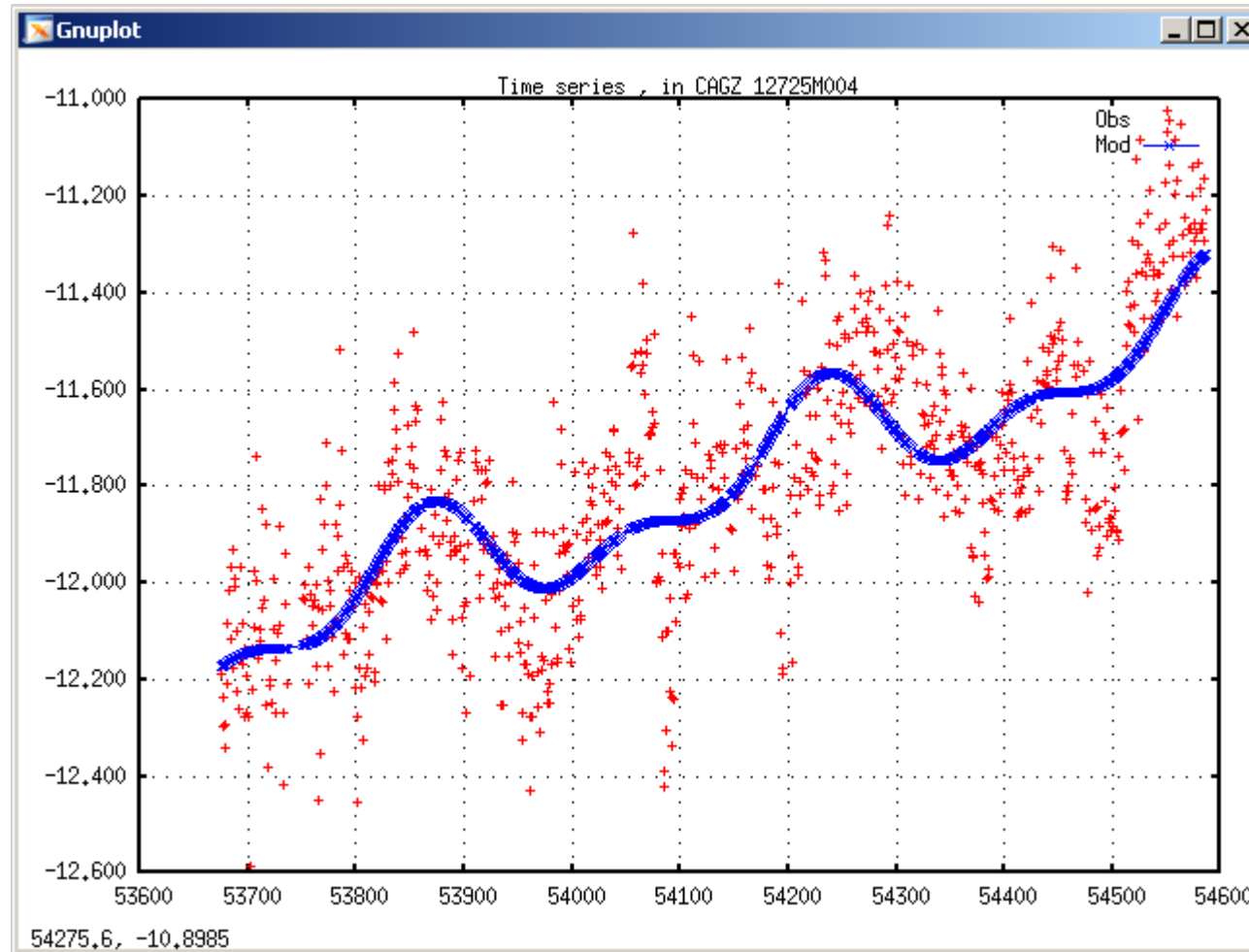


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (7/15)



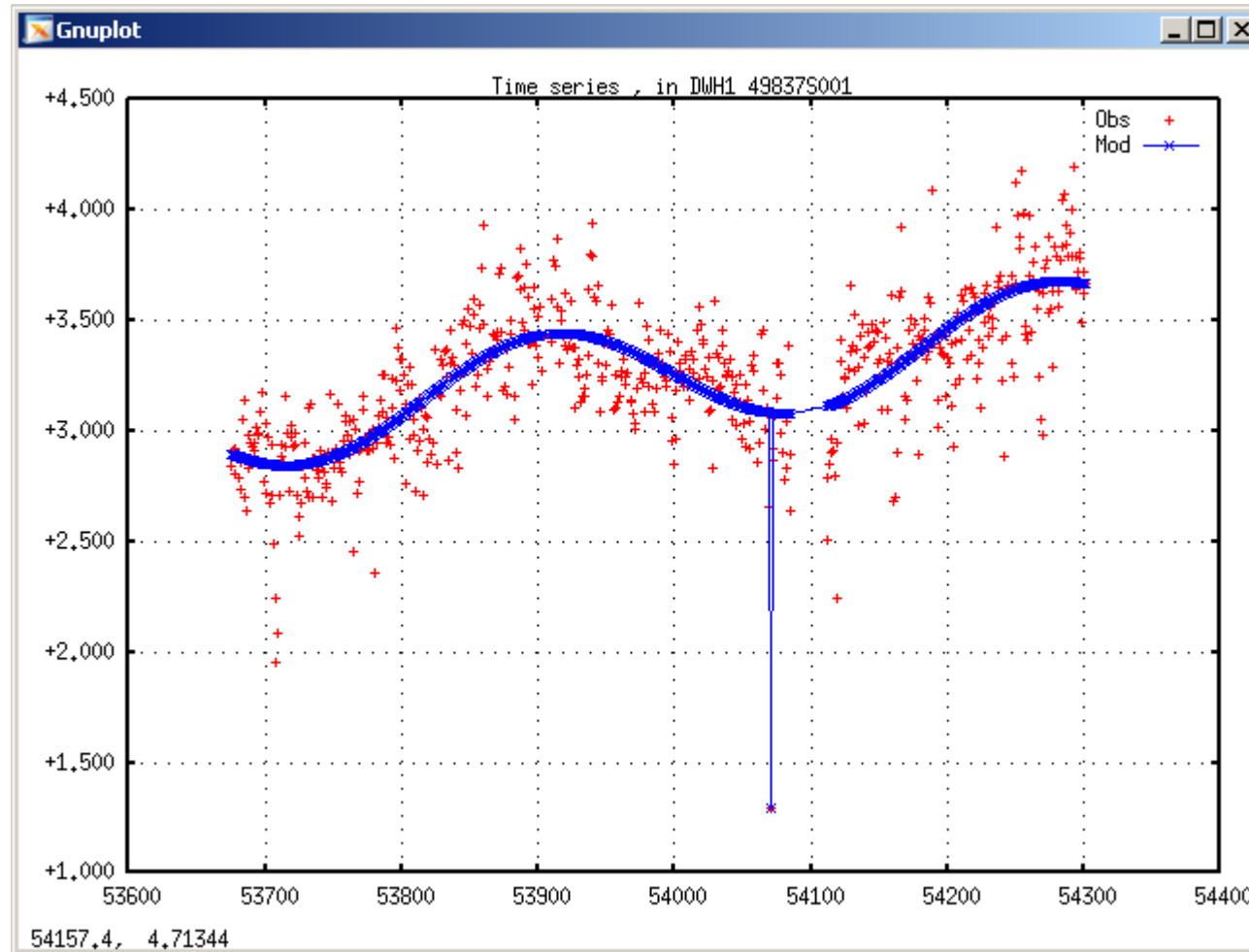


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (8/15)



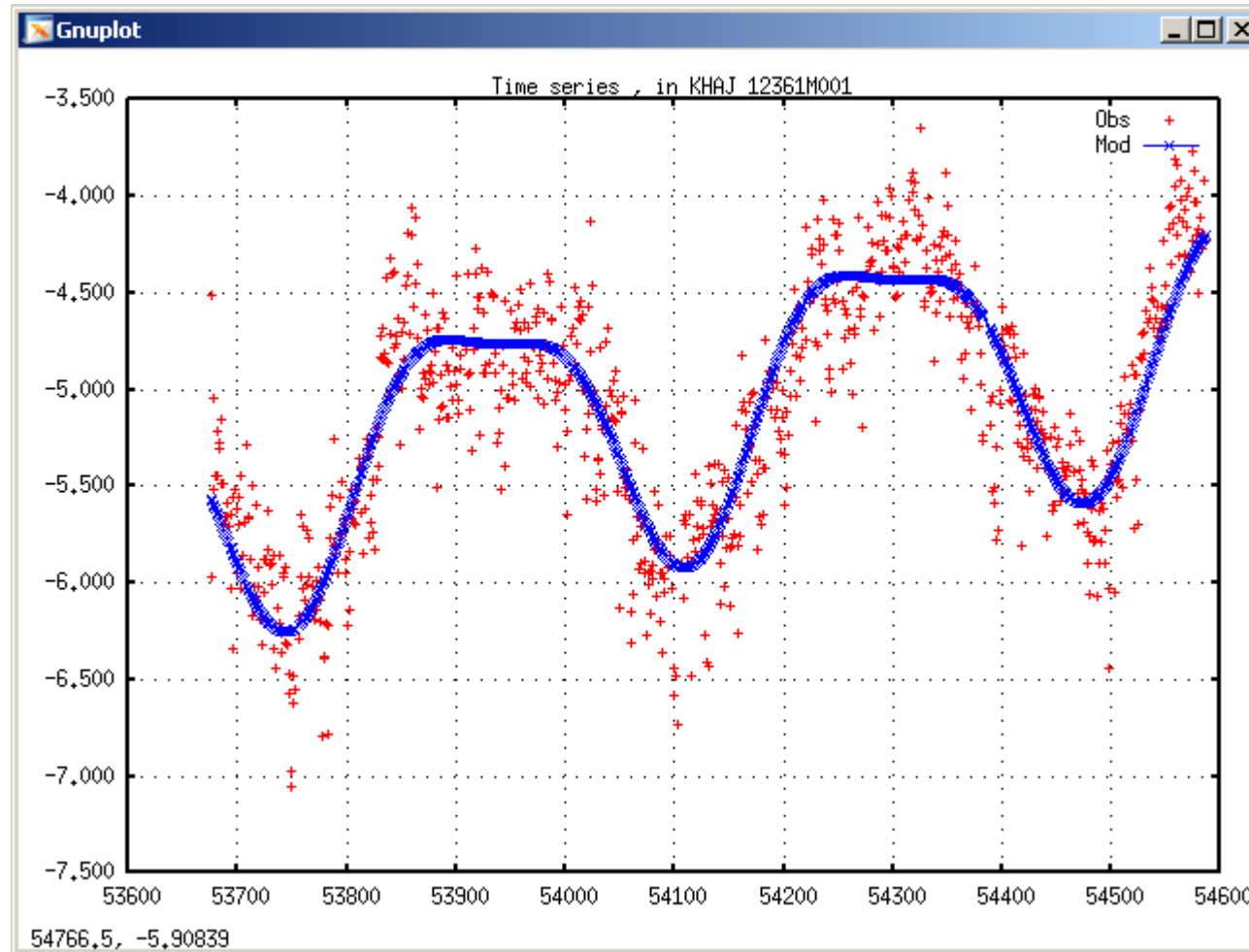


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (9/15)



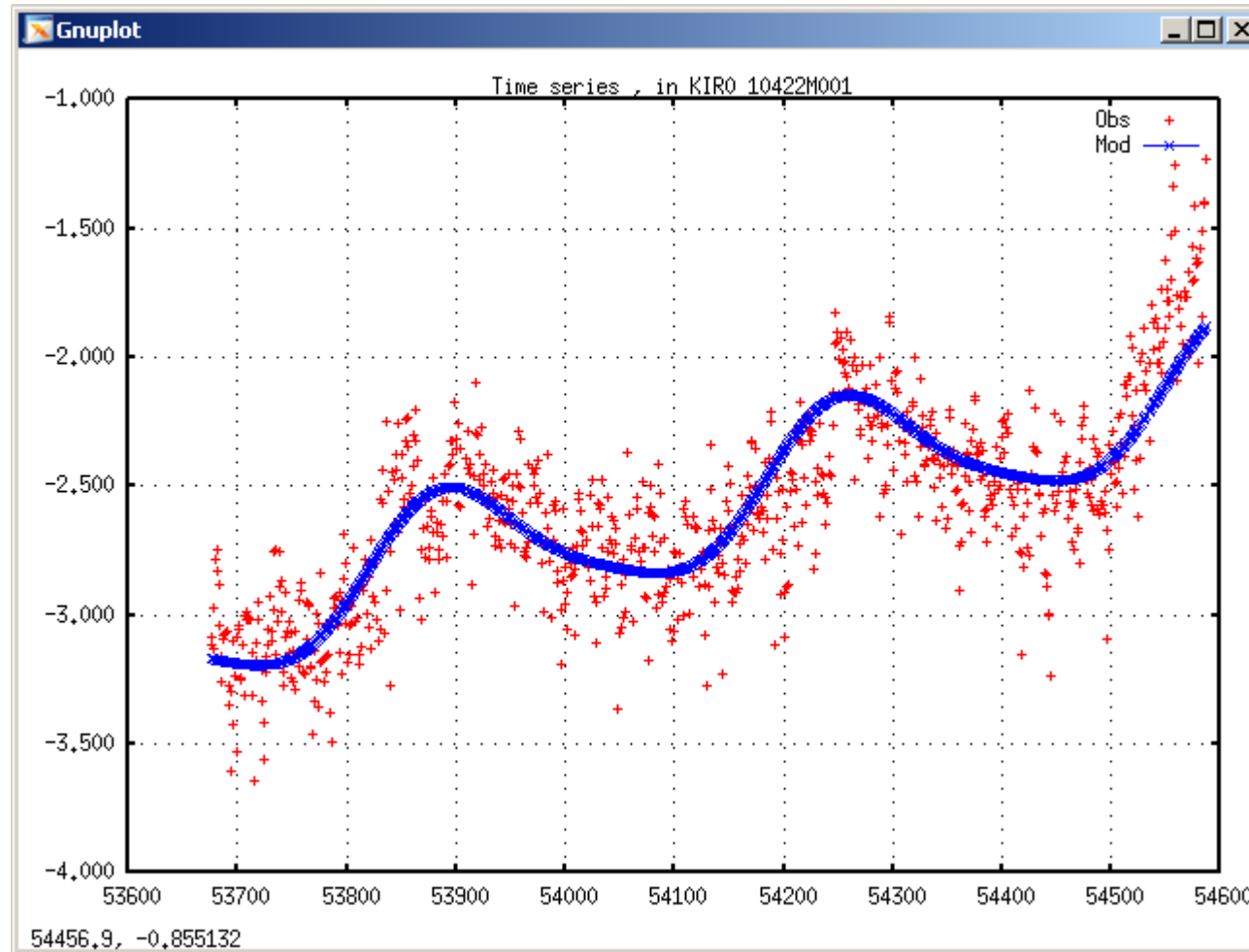


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (10/15)



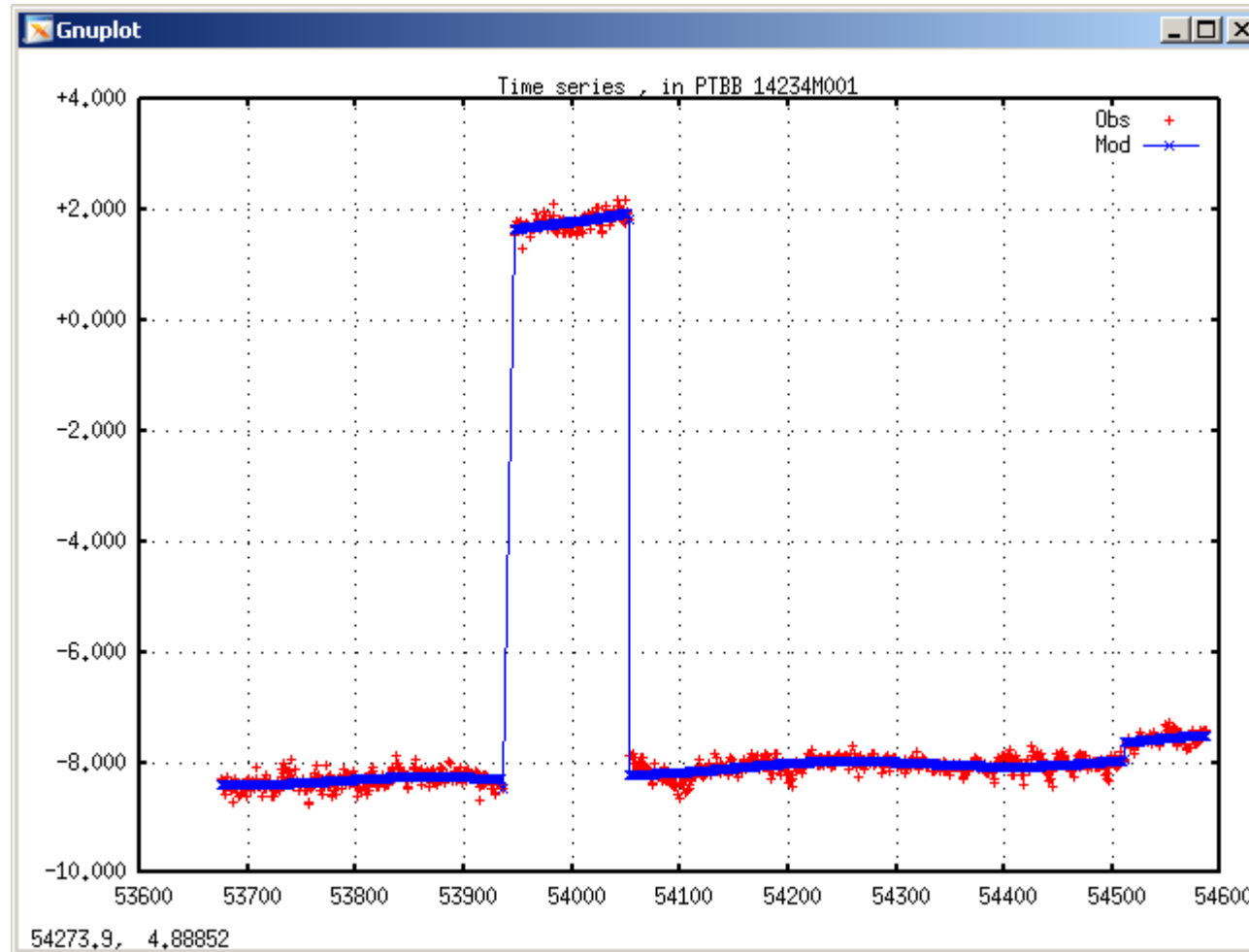


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (11/15)



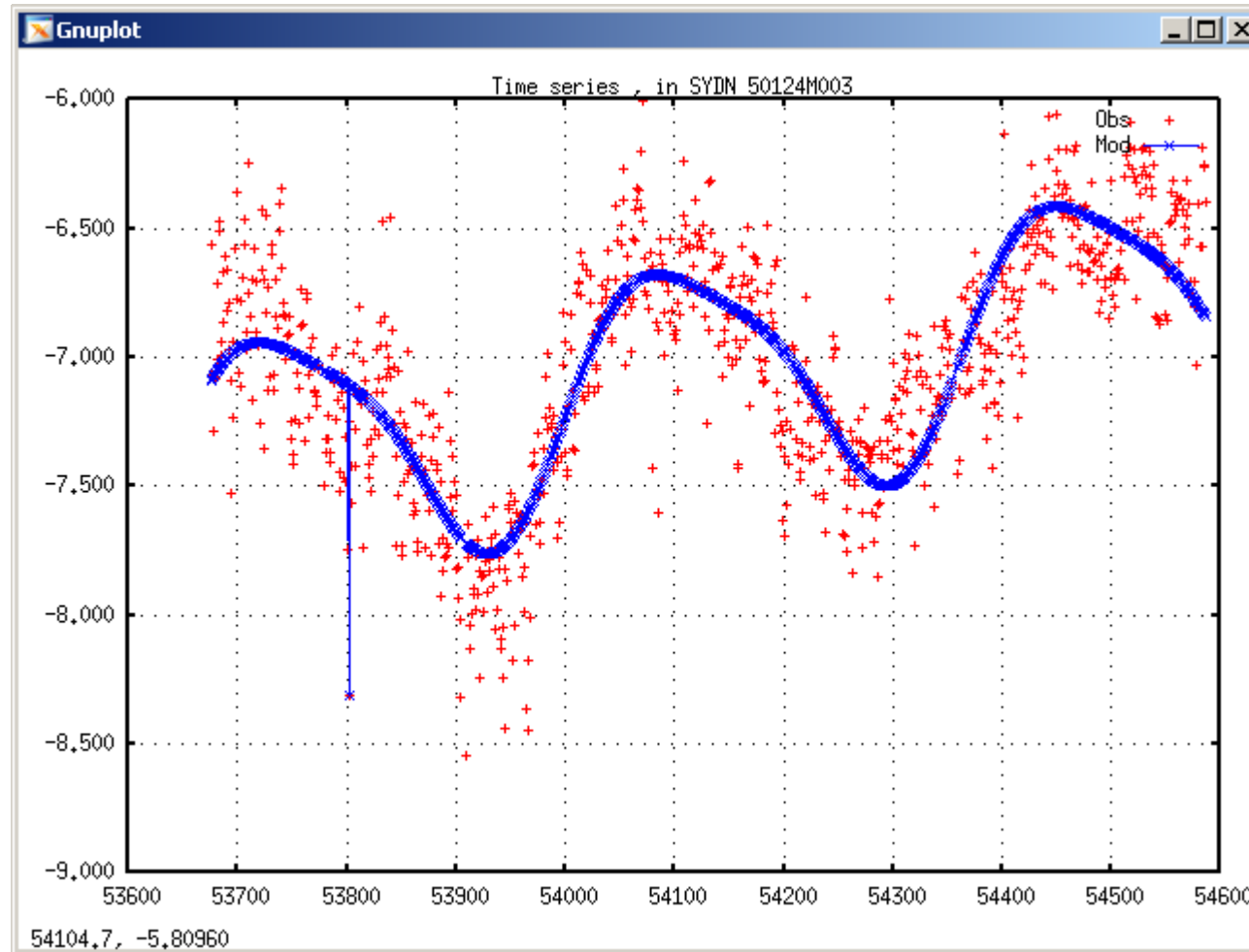


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (12/15)



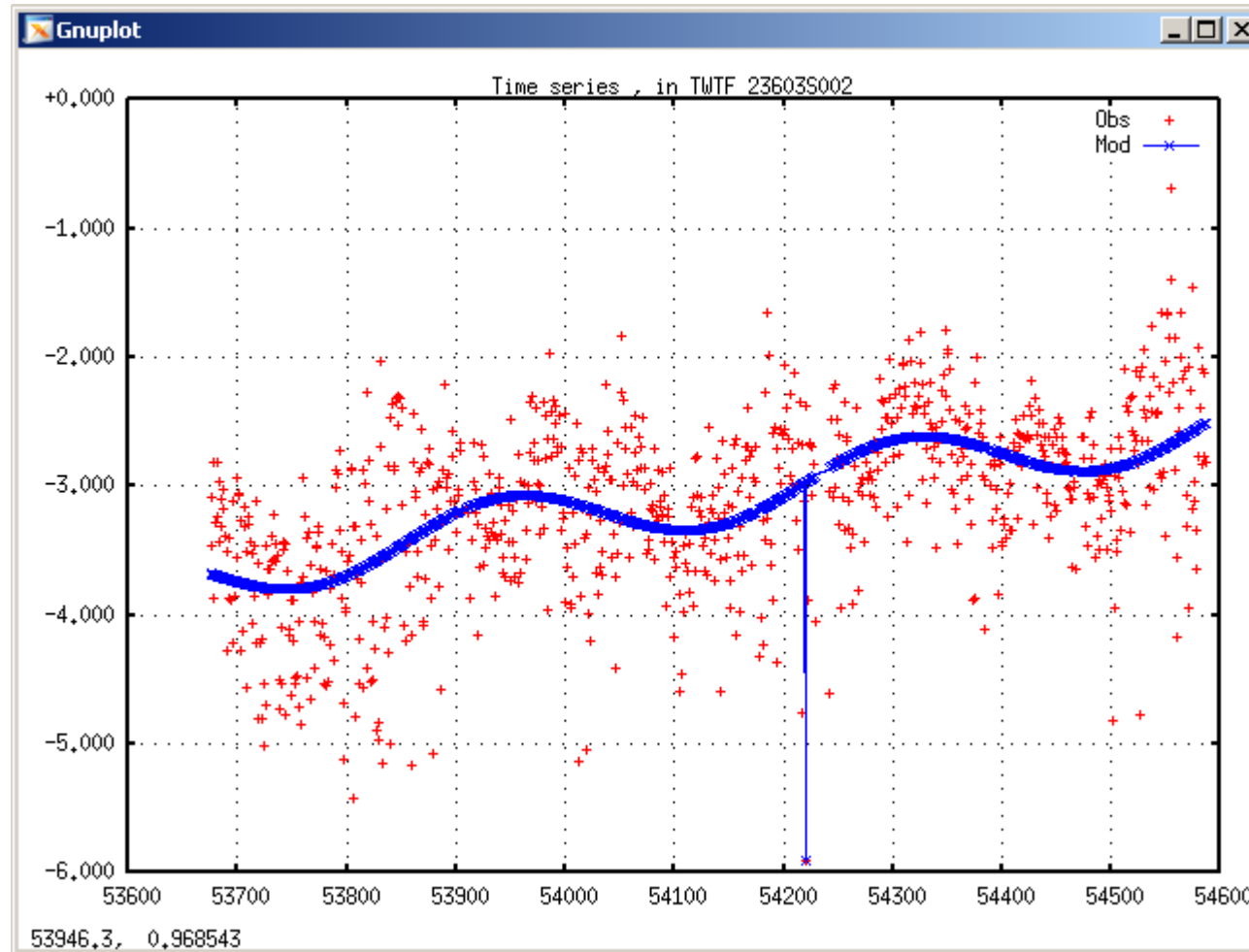


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (13/15)



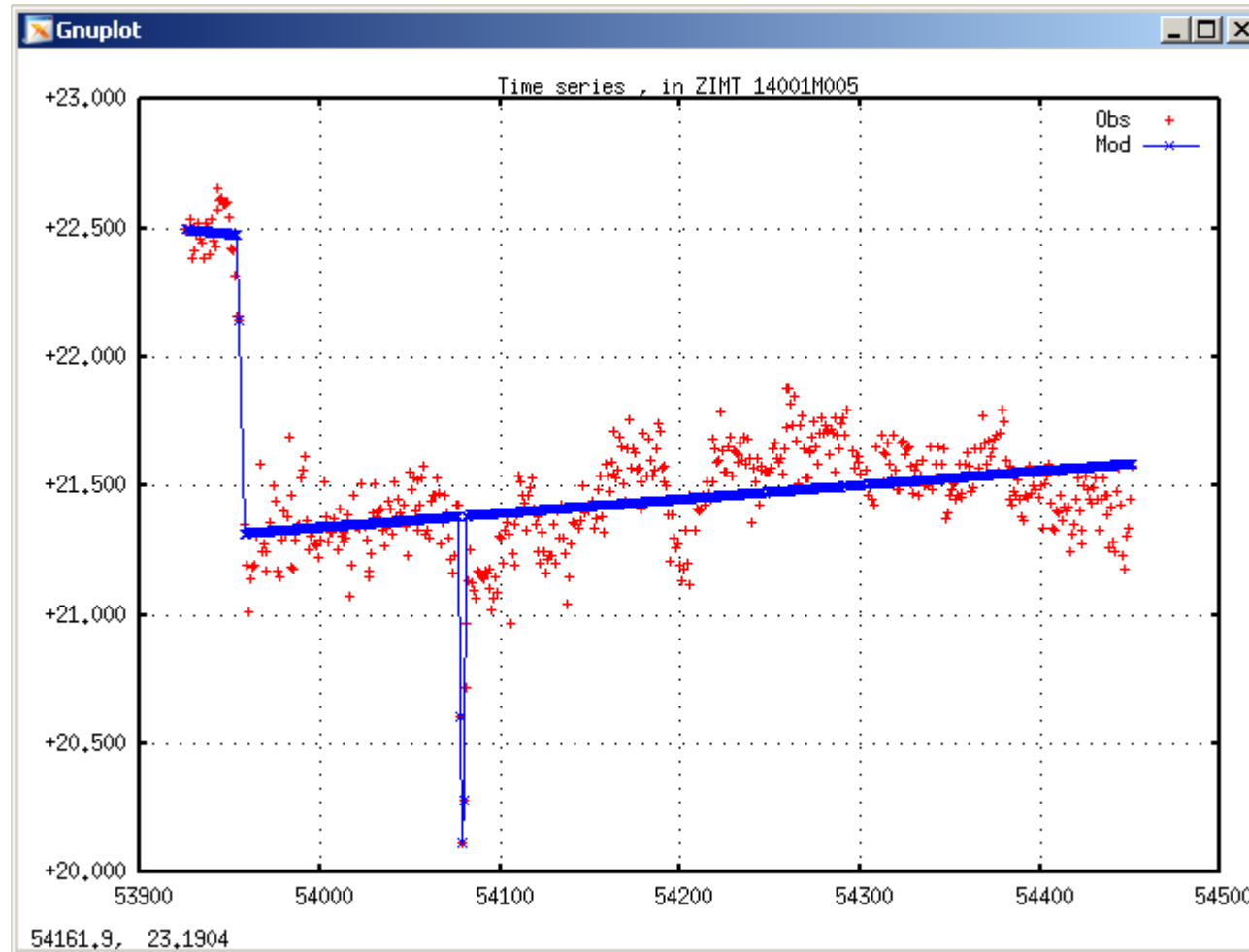


Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (14/15)





Time series of daily GPS P1-P2 DCB values from PDR and CODE analysis (realigned) (15/15)





(B) Combination of each individual GNSS DCB product to a common set of biases to each single observable, frequency, and GNSS

- Given:
 - $b_{P1,G} - b_{P2,G}, b_{P1,R} - b_{P2,R}, \dots$
 - $b_{P1,G} - b_{C1,G}, b_{P1,R} - b_{C1,R}, \dots$
 - $b_{P2,G} - b_{C2,G}, b_{P2,R} - b_{C2,R}, \dots$
 - \dots
- To be determined:
 - $B_{C1,G}, B_{C1,R}, \dots$
 - $B_{P1,G}, B_{P1,R}, \dots$
 - $B_{P2,G}, B_{P2,R}, \dots$
 - $B_{C2,G}, B_{C2,R}, \dots$
- Examples:
 - $(b_{P1,G} - b_{P2,G}) = B_{P1,G} - B_{P2,G} + B_{P1-P2,G} \rightarrow \text{GPS/rel. cal.}$
 - $(b_{P1,G} - b_{P2,G}) = B_{P1,G} - B_{P2,G} \rightarrow \text{abs. cal.}$



Remarks

- Combination at level (B) could be done with:
 - (A) combination results or
 - original DCB daily results or
 - weekly, or monthly (A) combined results
- **Combination of results of all known biases in order to create an “ITRF” concerning GNSS biases: “IBRF”**