

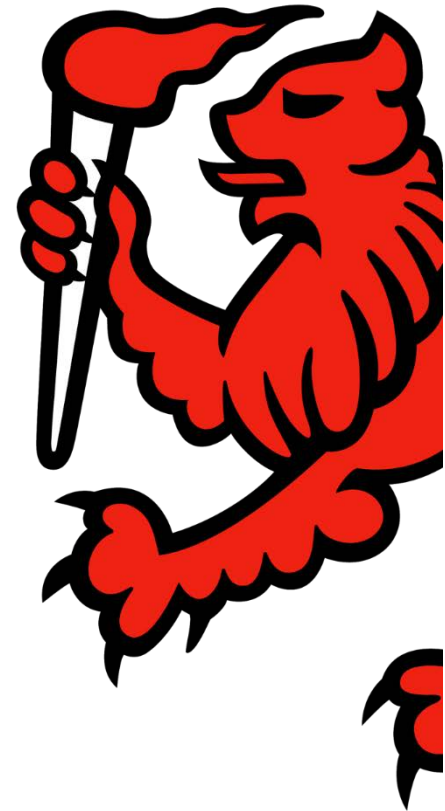


UNIVERSITY of
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Pcal at the AuScope antennas

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10th IVS General meeting 2018, June 3-8, Svalbard
IVS Analysis WS

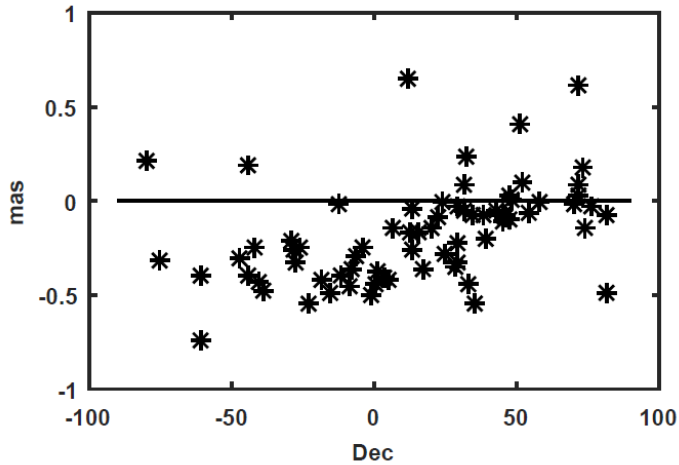
Background

Declination bias in CRF solution

Differences between manual pcal and normal pcal sessions found (EVGA 2017)

Testbed Cont14

Reprocessing of the Cont14 files repeat fringe fitting



XA solution (applying pcal), declination bias clearly visible)

MX ... applying manual pcal in Hb

→ Declination bias is still clear, though a bit mitigated

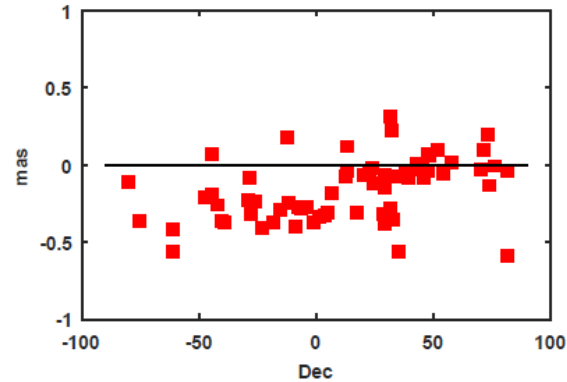


Fig. 2 Estimated source declination with respect to ICRF2 as determined in a global solution of the XM sessions. Here, manual pcal was applied at Hb. At the moment, this solution comprises 7 sessions, c1401 through c1407. The declination bias is still clearly visible, though a bit mitigated.

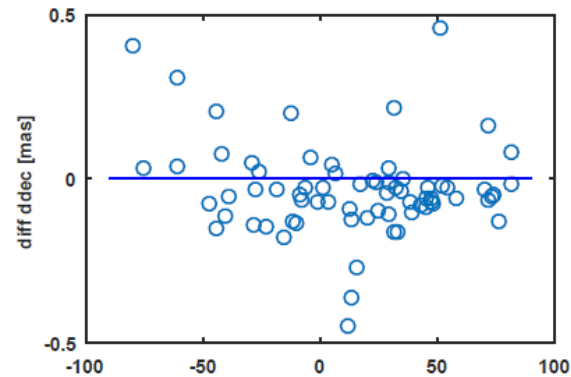


Fig. 3 Difference between the estimated source declination with respect to ICRF2 between the XA and the XM solutions. Negative values mean the declination bias becomes smaller in the XM solution.

Systematic delay

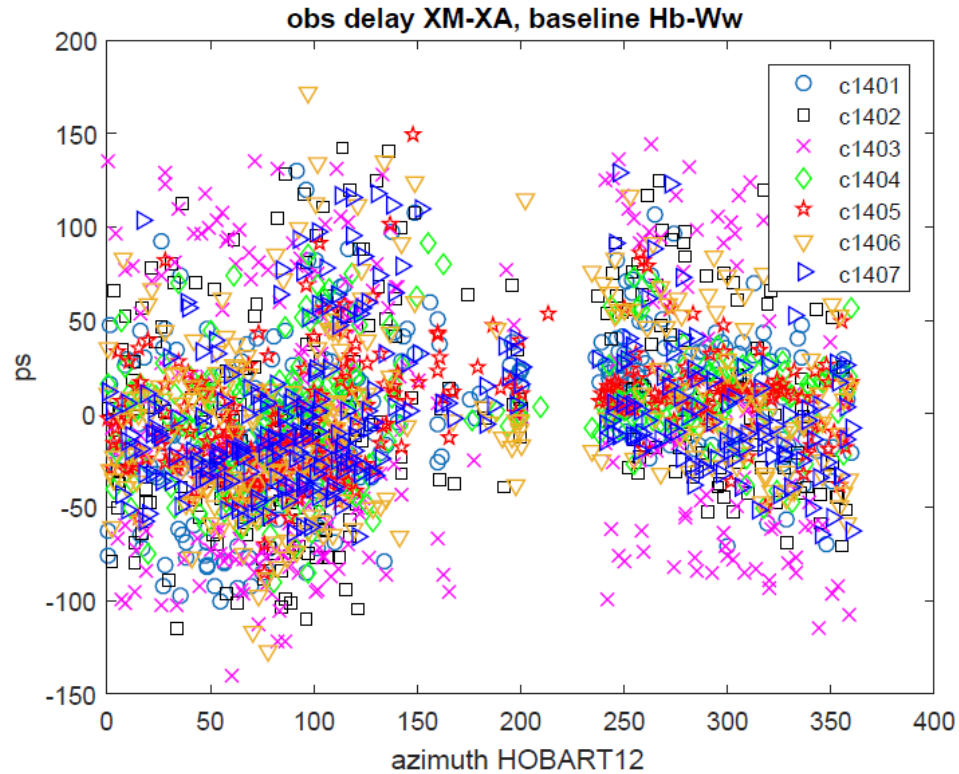


Fig. 5 Difference in the observed delays between the XM and the XA sessions. The comparison was done per baseline, in this case on the Hb-Ww baseline. The differences are color-coded per sessions and a mean value per session was removed.

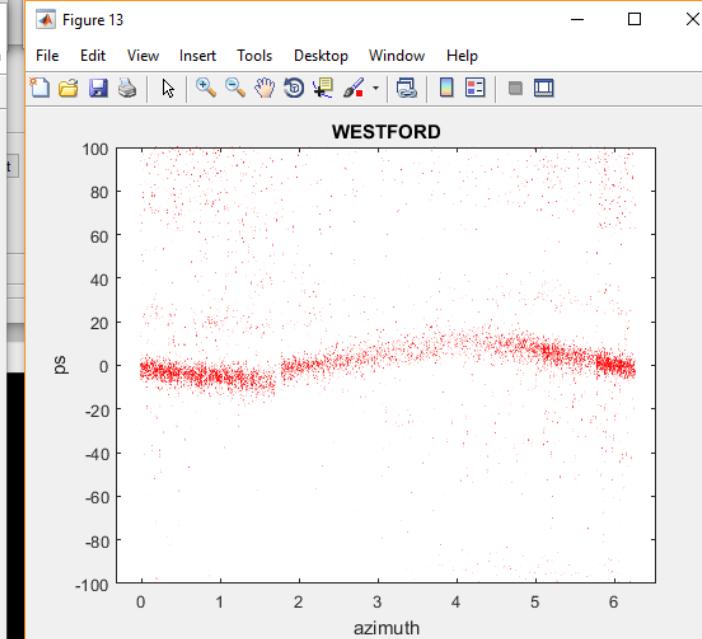
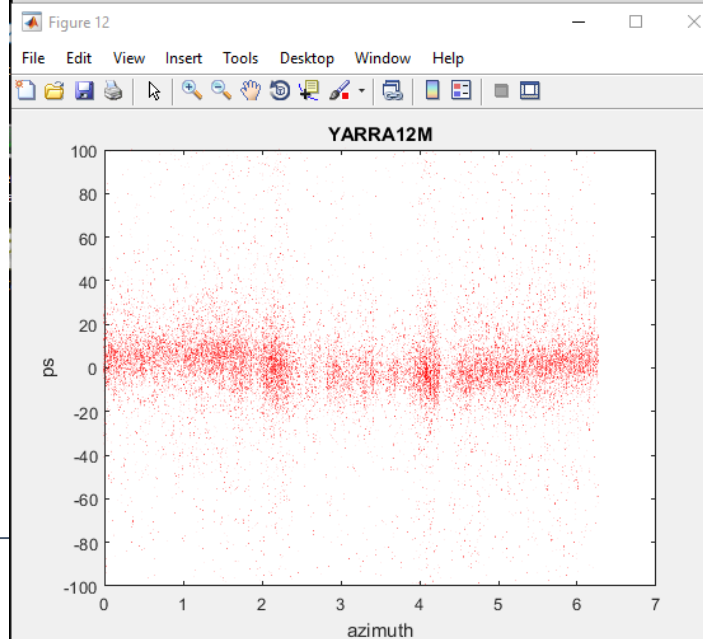
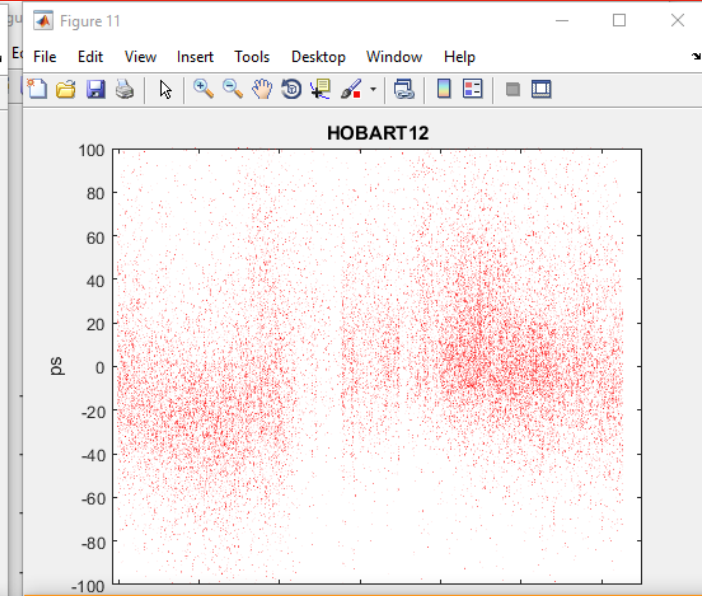
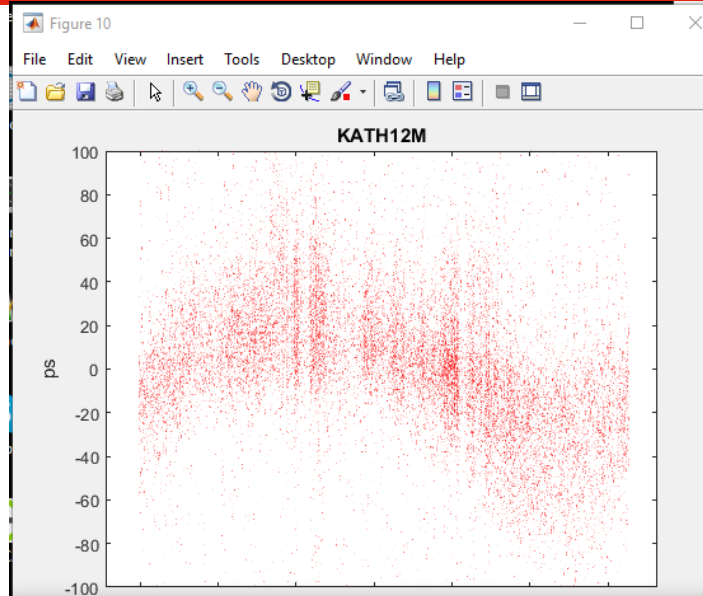
Systematic delay

Pcal directly
calculated
from vgosDB
phasal
phases

All sessions in
2014

Long-term
temperature
effect
removed

Ke & Hb much
larger than
Yg, Wf



Systematic delay

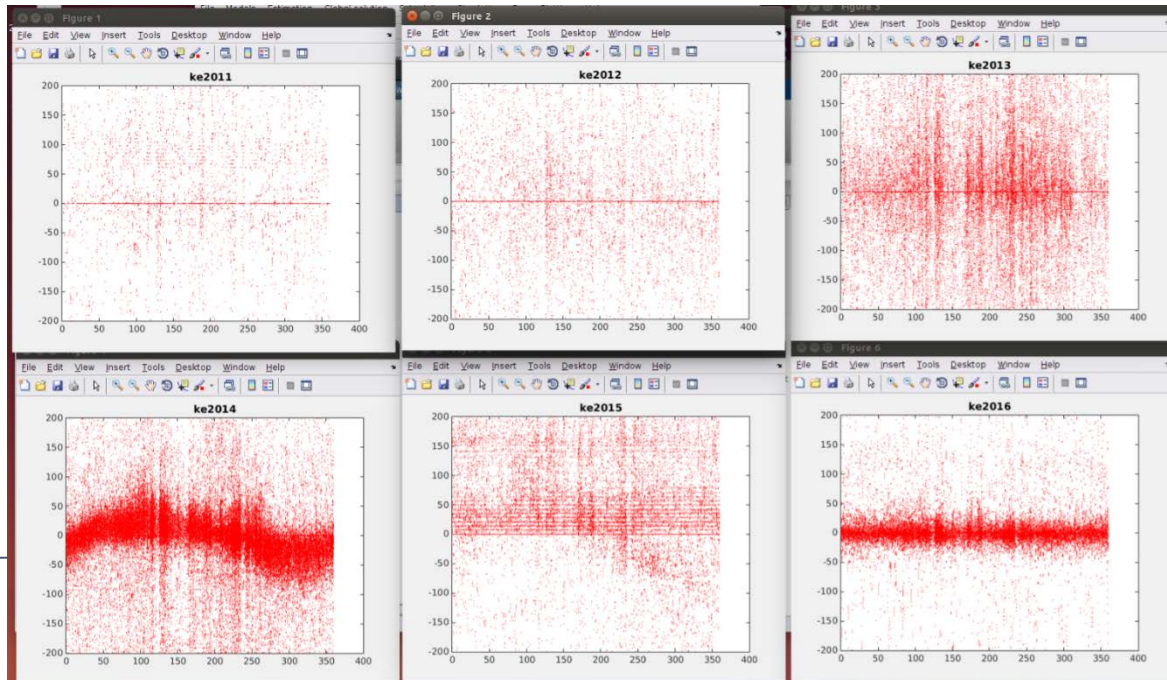
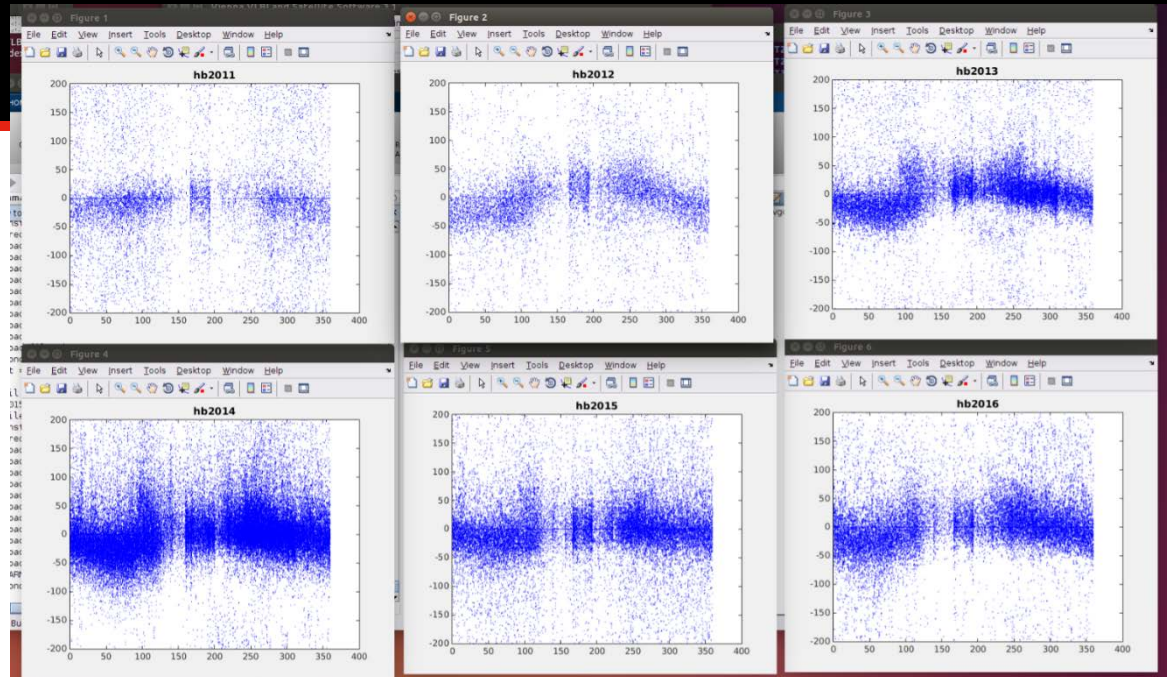
Hb consistent from 2011-2016

Ke most prominent in 2014

Direct correction in analysis problematic:

- Rapid phase wrap
- Sometimes causes clock jumps

→ Correction model



Summary & current status

Dan MacMillan calculated a correction model and applied it in the analysis

Unfortunately, no real improvement was found in the CRF