

# EVN Performance and Reliability

Jun Yang, JIVE



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TOG Meeting, Dwingeloo, 28 Jan 2011

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## Outline

### Highlights

**Fringes to the KVAZAR stations**

**Summary of Session 3/2010**

**Summary of Session 2/2010**

**Samper statistics**

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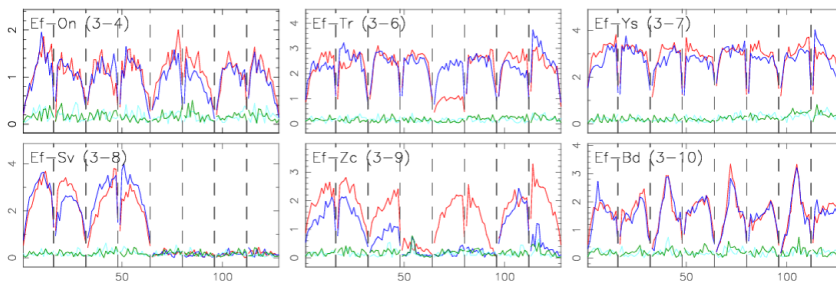
# Highlights

- J Svetloe has started to participate in the EVN observations since session 3/2010.
- J Hh, the only EVN antenna in South Hemisphere, has been successfully relived.
- J The 1<sup>st</sup> eVLBI fringes to Hh have been detected in RL002 with 1 Gbps network bandwidth.
- J Yebe has installed a cooled C-band receiver and dropped its Tsys to ~35 K at 5cm and 6cm.
- J JIVE SFXC software correlator has delivered its first scientific data (EV018A).
- J DiFX software correlator has replaced MKIV hardware correlator at Bonn.

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## Fringes to the KVAZAR stations



Plots of Correlation amplitude vs frequency in a scan of EV018B (1 Gbps, 5 GHz).

**Red:** RR, **Blue:** LL, **Green:** RL, **Cyan:** LR, No Van Vleck correction, .

**Sv:** Signal in upper 4 IFs (> 5 GHz) was filtered out by its receiver

**Zc:** Low correlation amplitude in LCP channels.

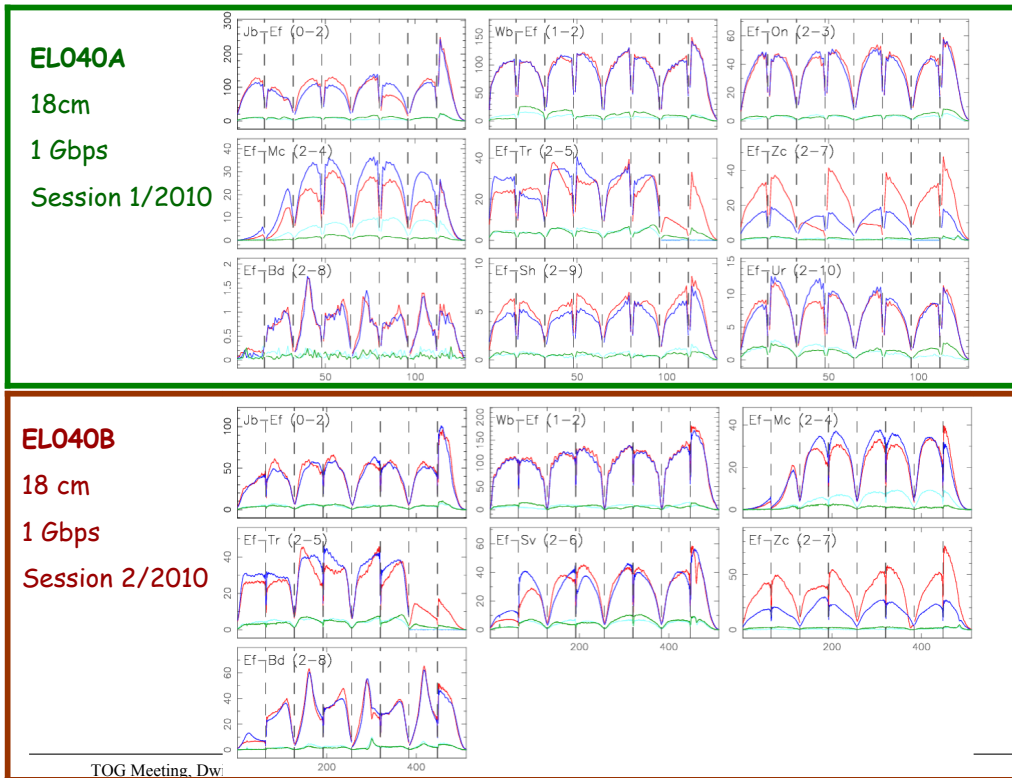
Strong RFIs in IF 3L, IF 4L&R, IF 8L.

**Bd:** Unusual bandpass shape in LSB IFs.

**Polarization leakage:** well reduced at all the KVASAR stations.

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## Summary of Session 3/2010

**Ur&Sh:** Out for the whole session as China's Chang'E-2 project.

**Nt:** Out again because an antenna wheel was damaged.

**Jb1:** Replaced by Jb2 as a crack found in its antenna. The observing vex files were revised during the session. To avoid the last-minute change in the future, it is better to keep Jb2 as a backup station in the schedule.

**Jb2:** Suffered a receiver casualty after N10M3. No observations in the following C-band user experiments.

**Jb2:** No RCP fringes at 1.3 cm after N10K1.

**Ar:** No fringes in GV020D due to something wrong with formatter.

**Ro70:** Low correlation amplitude ~0.1x in ER025A.

**Ef:** Stopped observation for 6 hours in ELO40C and 3 hours in EY012 to fix oil leakage at the elevation gear, and 11.5 hours in GC034D because of high winds.

**On:** Bad weather. Variable correlation amplitude at 18cm as its new IF-system was very sensitive to RFIs.

**Sv:** No empty disk packs available in EY012 and EL040F due to a disk-distribution problem.

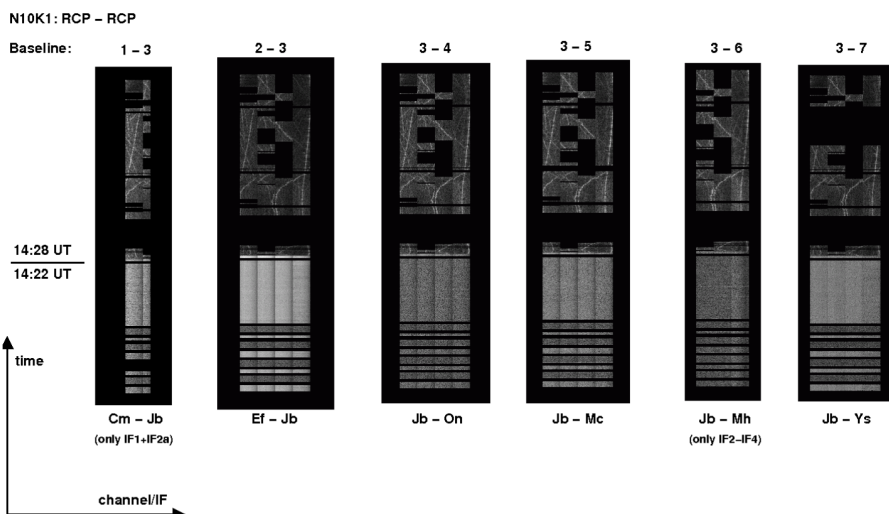
**Tr:** No data recorded in ED030B.

**Zc:** Low correlation amplitude in LCP channels at 18 cm (a feature of its receiver?).

**SCHED:** FS drudge failed to create observing files in case of too-long comments. The bug has been fixed in the new release SCHED 9.4.

As the above problems, most EVN experiments suffered **significant sensitivity loss**.

## Jb fringes went away after change of disk packs



## Summary of Session 2/2010

**Ys:** Problem with its antenna structure and out for the entire session.

**Nt:** Out as an antenna wheel was damaged.

**Sv:** Out due to the antenna maintenance.

**Tr:** Significantly sensitivity loss in EF022A and EP064M after the recovery from power shortage.

**Ur:** Problems with 1pps synchronization occurred frequently in EV018A. BBC 1&8 had low correlation amplitude.

## Sampler statistics

- Y It has been monitored by the ftp fringe tests since session 1/2010.
- Y Tr: The fraction of high bits was ~13%, a bit of lower than the optimal value ~18%, in all BBCs in N10L3 and N10C3.
- Y KVAZAR stations: ~20% in all BBCs, slightly higher in Session 3/2010.
- Y Wb TADUmax: A slightly high DC component ("--" is ~20%; "++" is ~16%) at 18cm and 6cm.