

SA1: third year overview

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JIVE



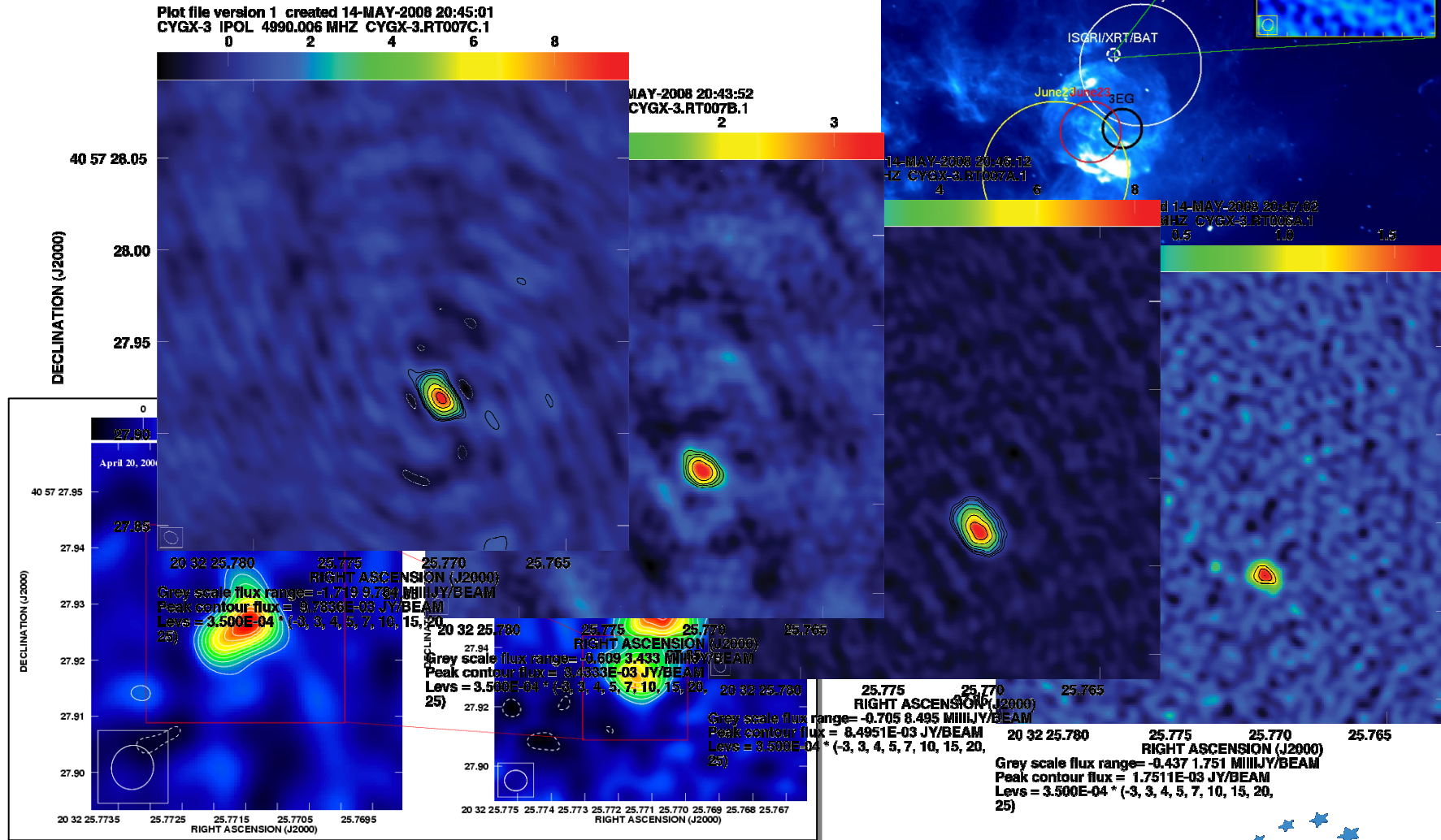
Outline

- Accomplishments in 2008
- Soft- and hardware developments
- Aims for 2009

e-VLBI science/test runs

- 27 (18) e-VLBI science projects accepted since 2006:
 - 2 failed (in early 2006)
 - 15 active binary systems (Algol-type, X-ray or gamma-ray binaries);
 - 10 of these were ToO projects
 - 3 part of multi-wavelength campaign
 - 1 adaptive observation of 16 X-ray binaries (no detections..)
 - 1 triggered observation
 - 10 determination of compactness of calibrator or target
 - 1 spectral line run
 - 1 supernova ToO
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- Rapid access to EVN provides clear benefit to users (important for calibrator/multi-wavelength projects)
 - Follow-up observations of bursting transients more successful in 2008

e-VLBI results



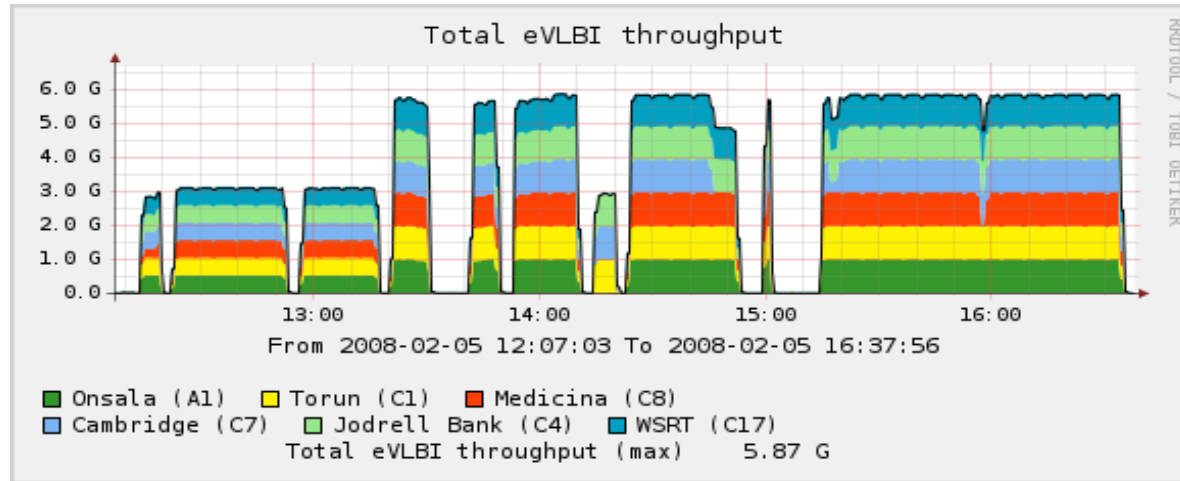
Operational improvements

- Overall improvement in third year:
 - Global connectivity
 - Bandwidth
 - Mark5B-based e-VLBI
 - Interoperability with K5 system
 - Inclusion of multiple Merlin stations (via “Merlincast”)
 - On-the-fly fringe fitting
- Increase of production data rate from 256 Mbps to 512 Mbps for all regular EVN stations
- Full 1024 Mbps operational data transfer from subset (more to come..)
- Inclusion of Shanghai, Urumqi, Kashima, Westford, Hobart telescopes

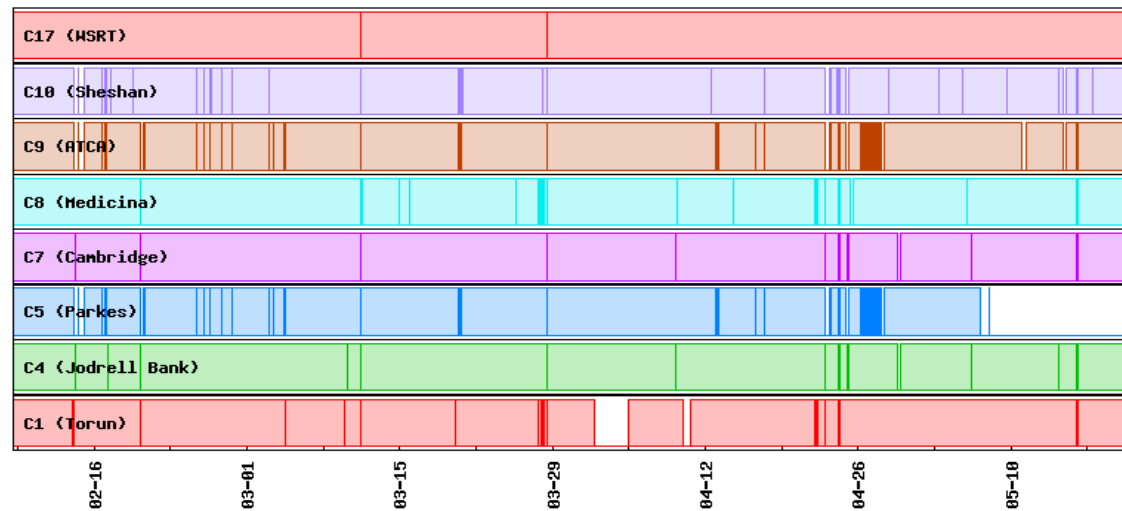
Operational improvements

- Focus during third year:
 - Reaching higher data rates
 - Expanding global network
 - Operational efficiency
 - Operational flexibility (streaming vs recording)
 - Adaptive scheduling
- Multi-continent global e-VLBI demonstrations (Asia, Australia, South Africa, North and South America)
- 3-station 1024 Mbps fringes
- Adaptive scheduling demo

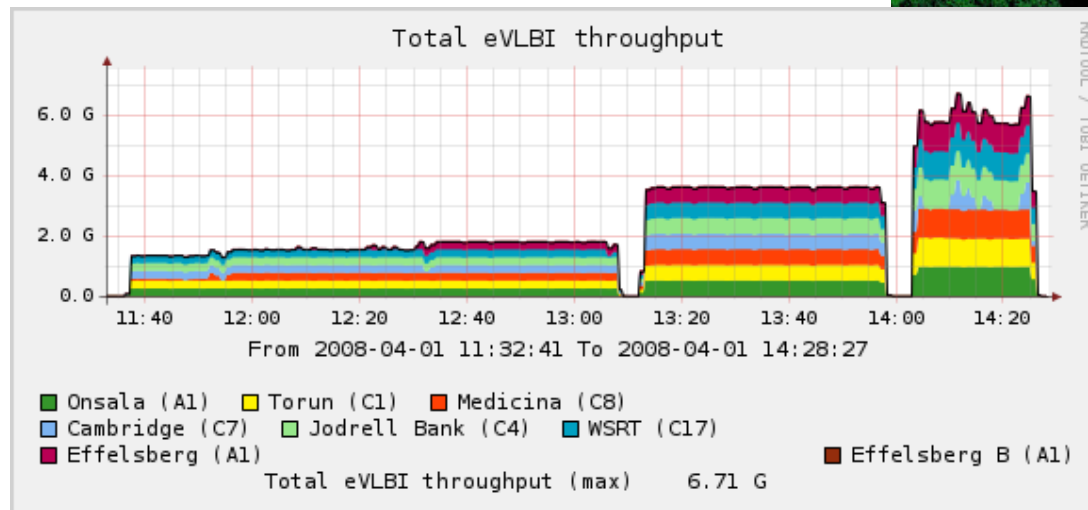
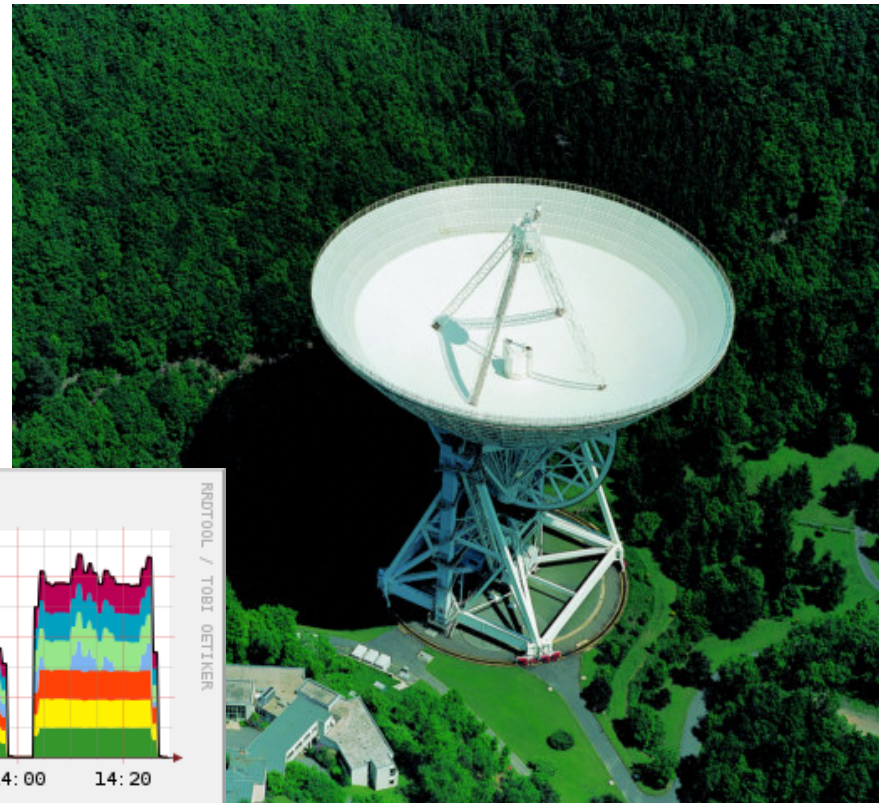
Higher data rates, new tools



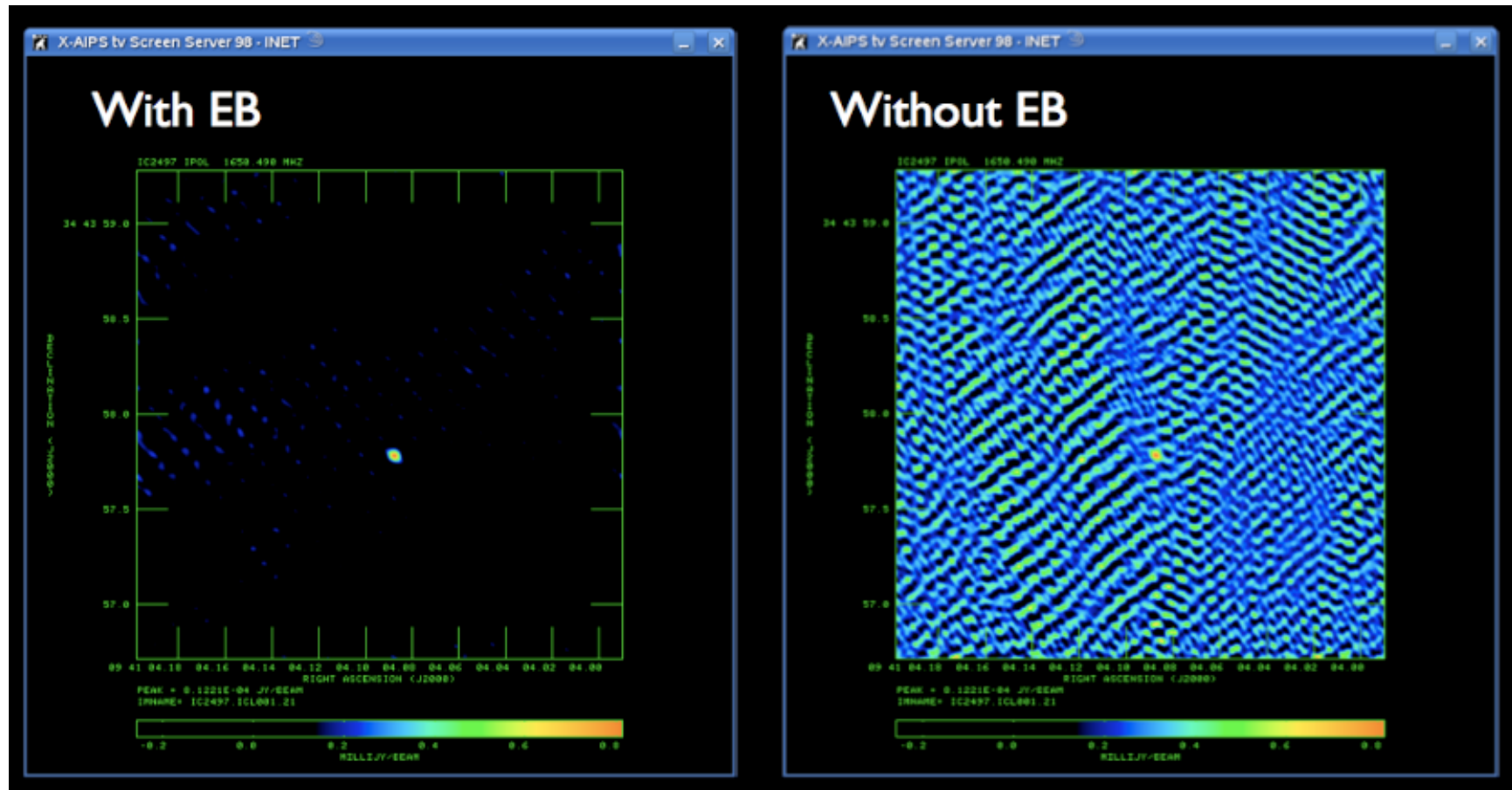
JIVE Lightpath status



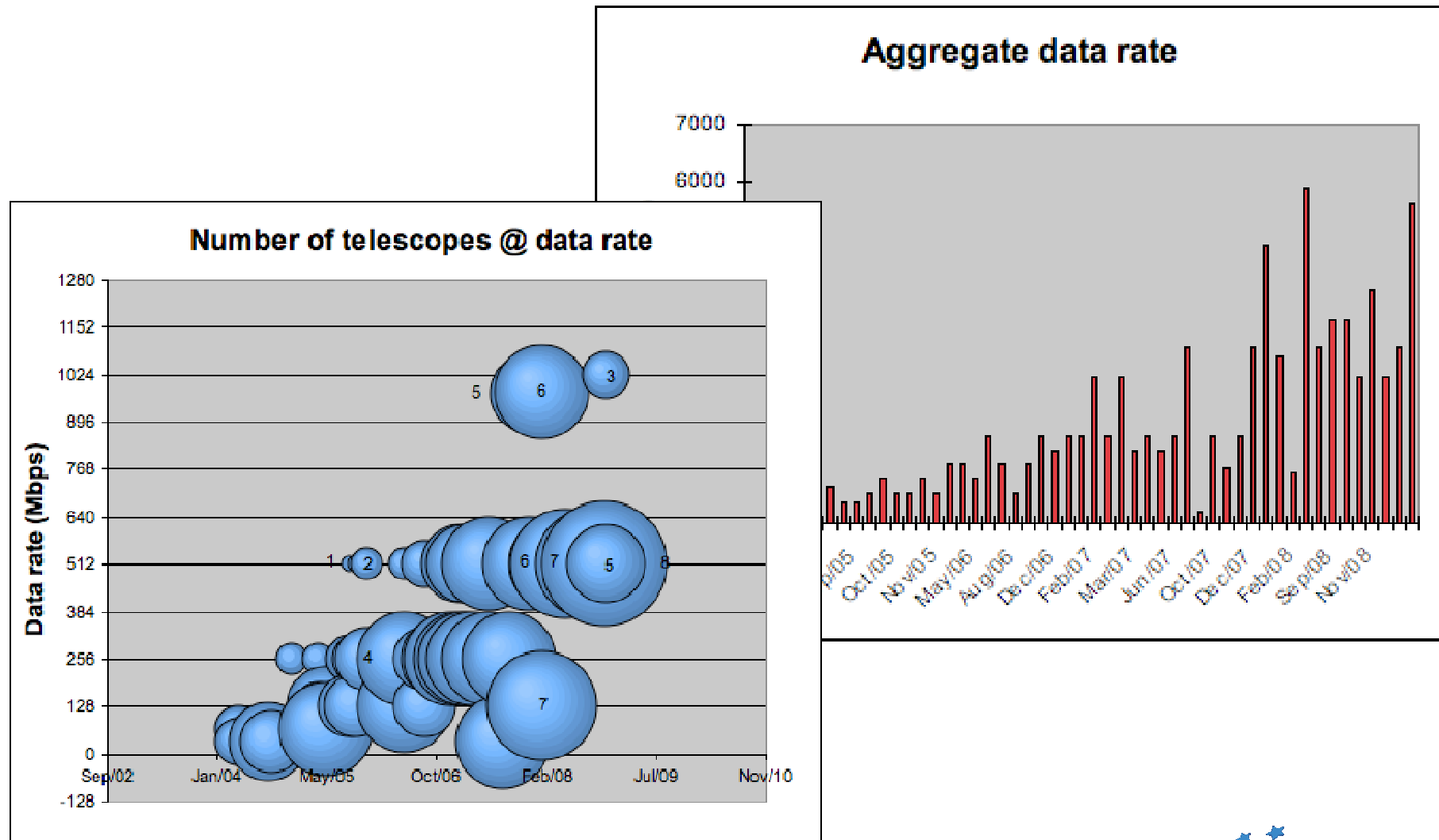
The addition of the big dish, finally



... And the resulting improvement

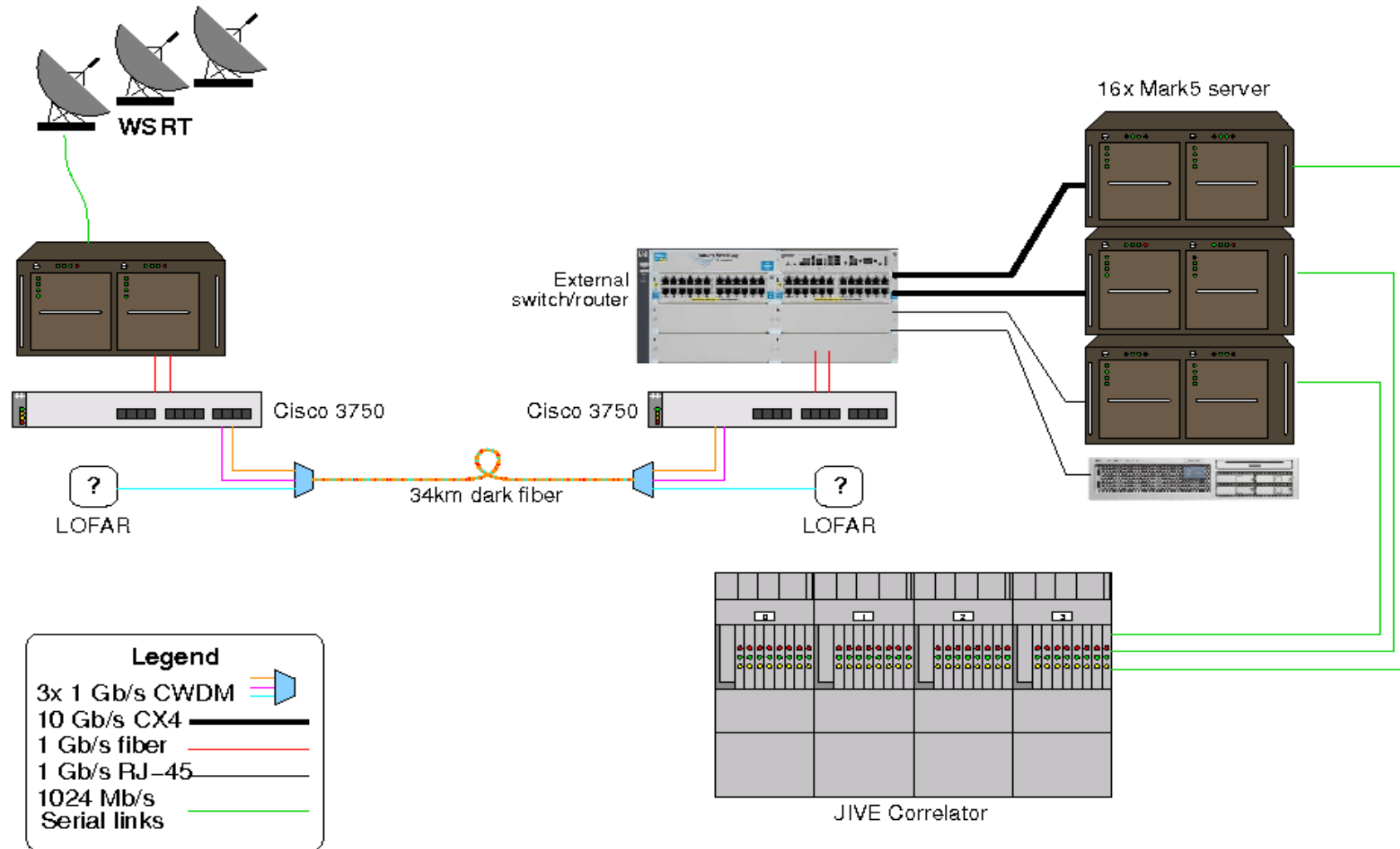


General data rate improvement

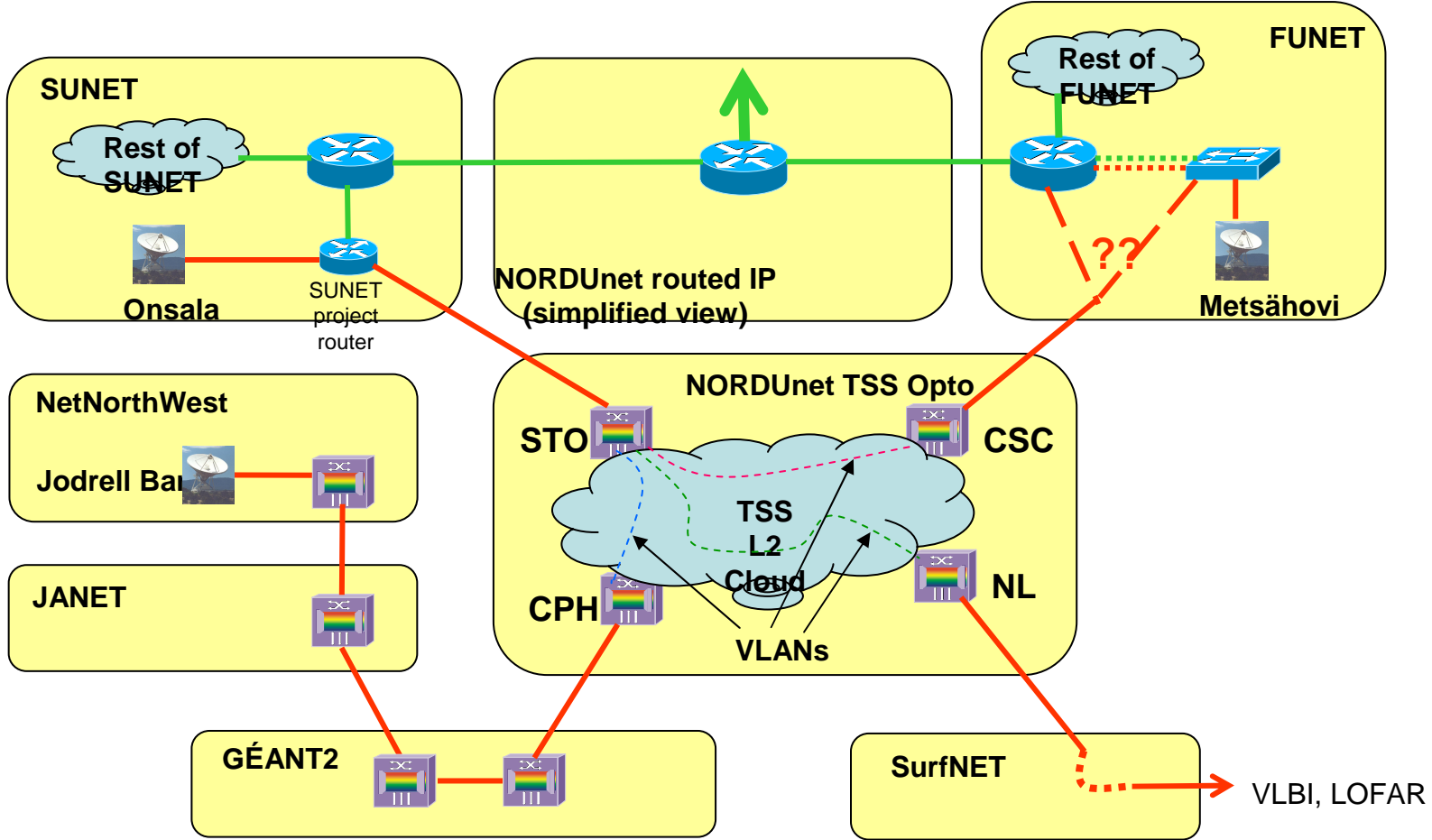


Passing the 1 Gbps speed bump:

e-VLBI at 1024Mb/s from WSRT to JIVE

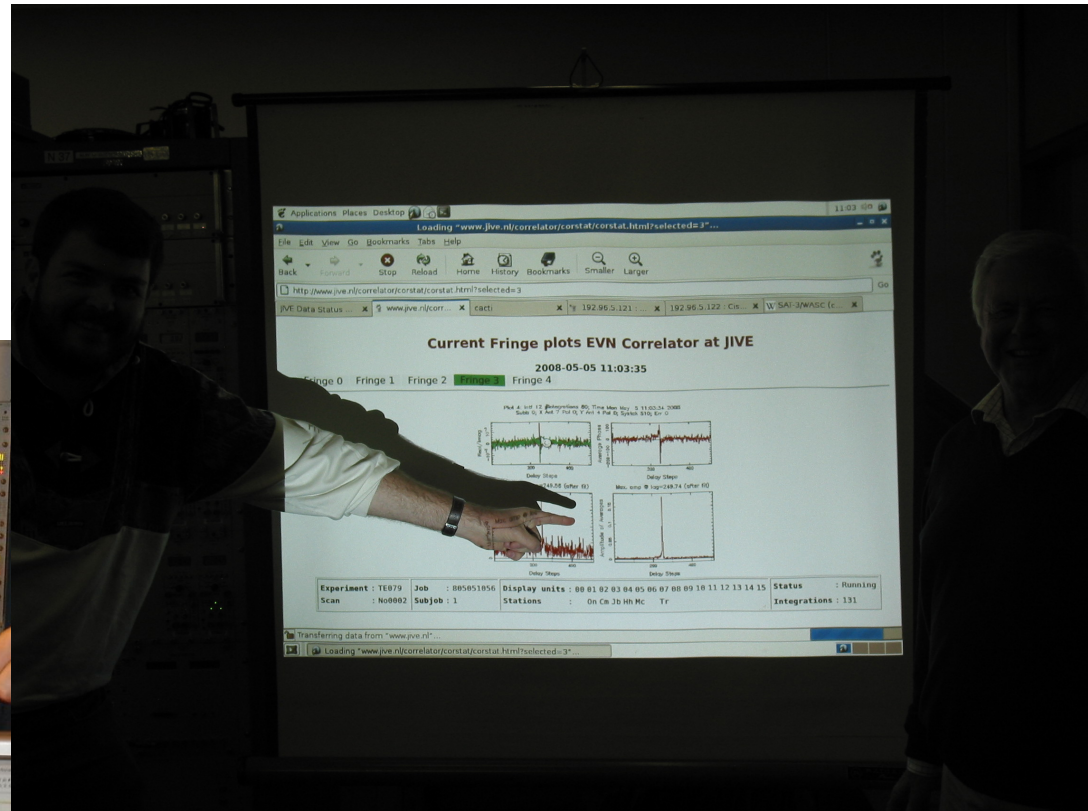


Onsala to Manchester, JIVE

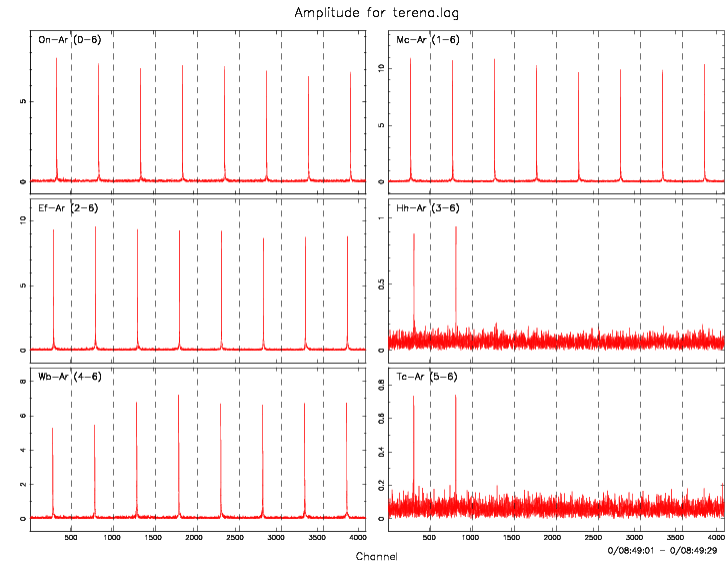


And this year, more demos

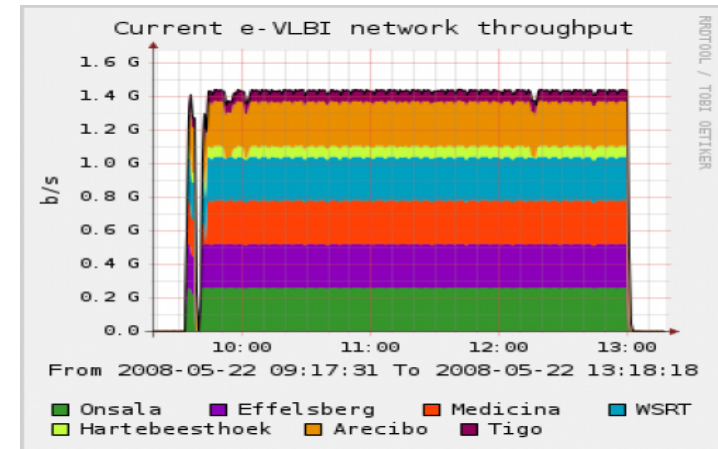
- First e-light Hartebeesthoek:
 - Visit of group of high-ranking EC-officials to telescope site
 - Demo within three days of setting up connection



And even more demos



- TERENA 2008:
 - 4-continent e-VLBI
 - 4-continent fringes!
 - Mixed-configuration observation



Mark5 upgrade:

- e-VLBI capability in Mark5B (was nonexistent)
 - Dimino: modification of jivemark5a
 - Has been used extensively (Wb, Ef, Yb)
- Mark5B playback at EVN correlator
 - No problem with recorded data
 - e-VLBI: painfully slow development
 - Works in principle, some problems remain

Ongoing/upcoming developments

- Real-time download and extraction of station information
 - On-the-fly pipeline (created for IYA demo)
 - Automated correlator diagnostics
 - (semi) automatic optimization of bandwidth use
 - Adaptive observing
 - Expansion of 1024 Mbps network
 - Expansion of Merlincast
 - First tests with eMERLIN?
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- Upgrades at stations are needed (adequate mobos in Mk5s, new kernels, new ethernet interfaces)

More telescopes (?)

- Urumqi: temporary connection
- 2 more Chinese telescopes
- Yebes
- Ventspils
- Sardinia?
- Hartebeesthoek.....

End of 2009:

- operational e-VLBI