Experience with e-VLBI
(from a user's perspective)

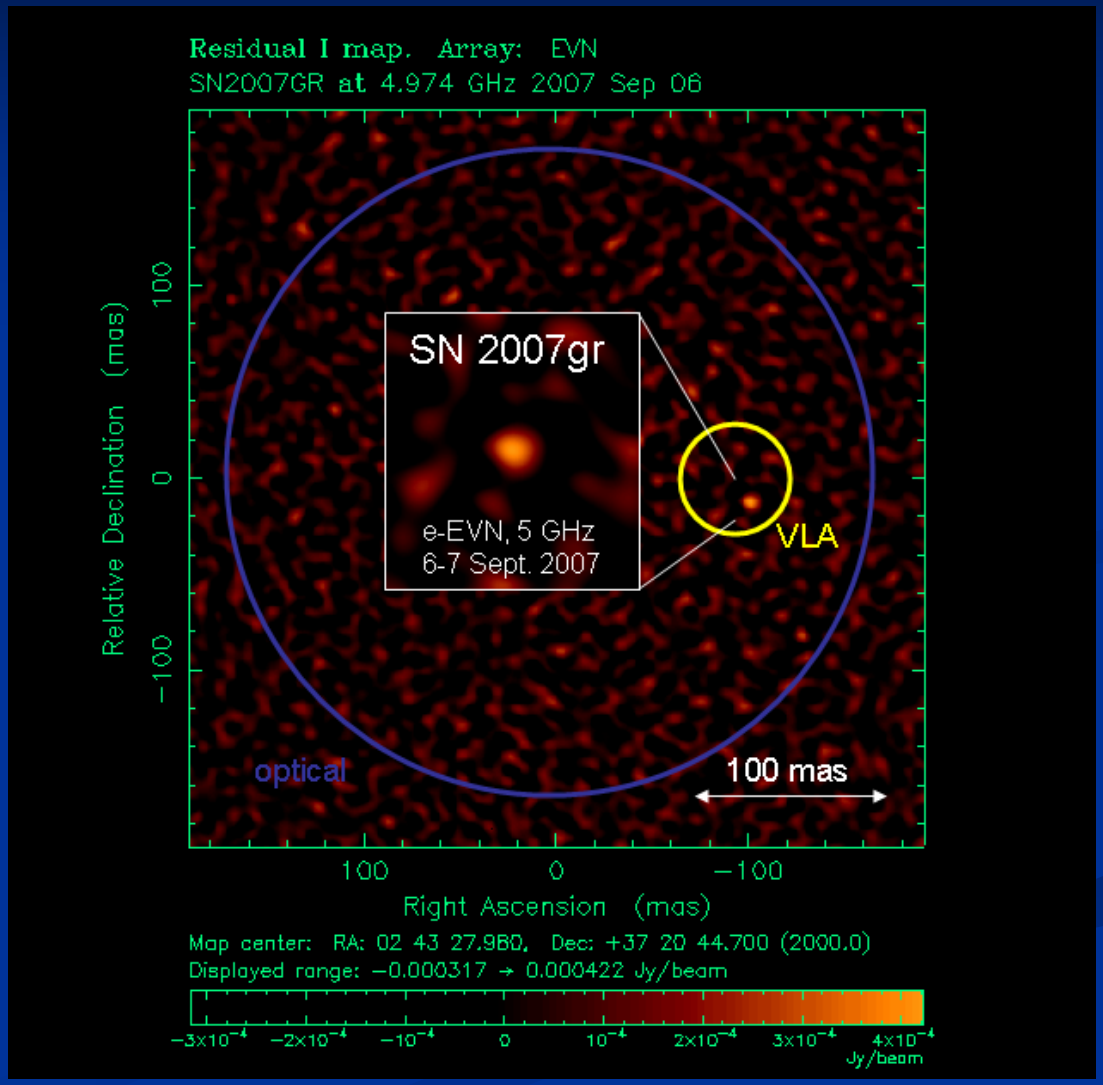
Zsolt Paragi
JIVE

Sensitivity and resolution

- Available telescopes 2006-2007: Cm, Jb2, Mc, On, Tr, Wb –only "great dish"
- …why Jb1 is not advertised, at least for 1.6 GHz?
- Telescopes in 2008: Ef, Ar (+Mh –not used in science yet)
- Data rates: gradually increased from 128 Mbps to 512 Mbps, near Gbps is very near for production
- In summary sensitivity is excellent, but obviously missing long baselines

Example result

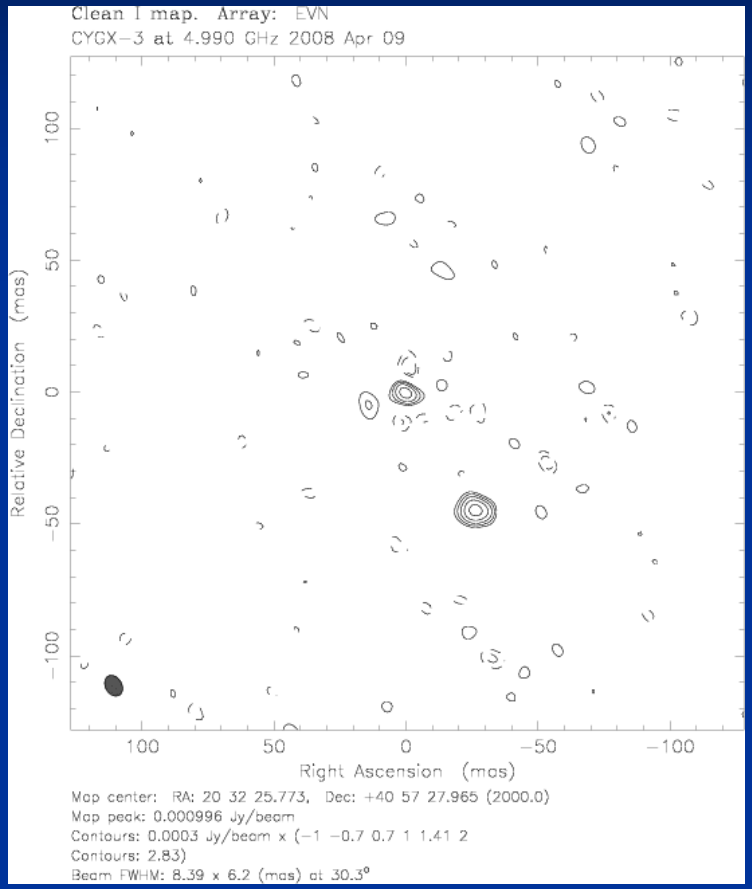
- Cm, Jb2, Mc, On, Tr, Wb array, no Effelsberg yet!
- still done at 256 Mbps
- ~400 μJy source safely detected at the 5-6 σ level



Data quality

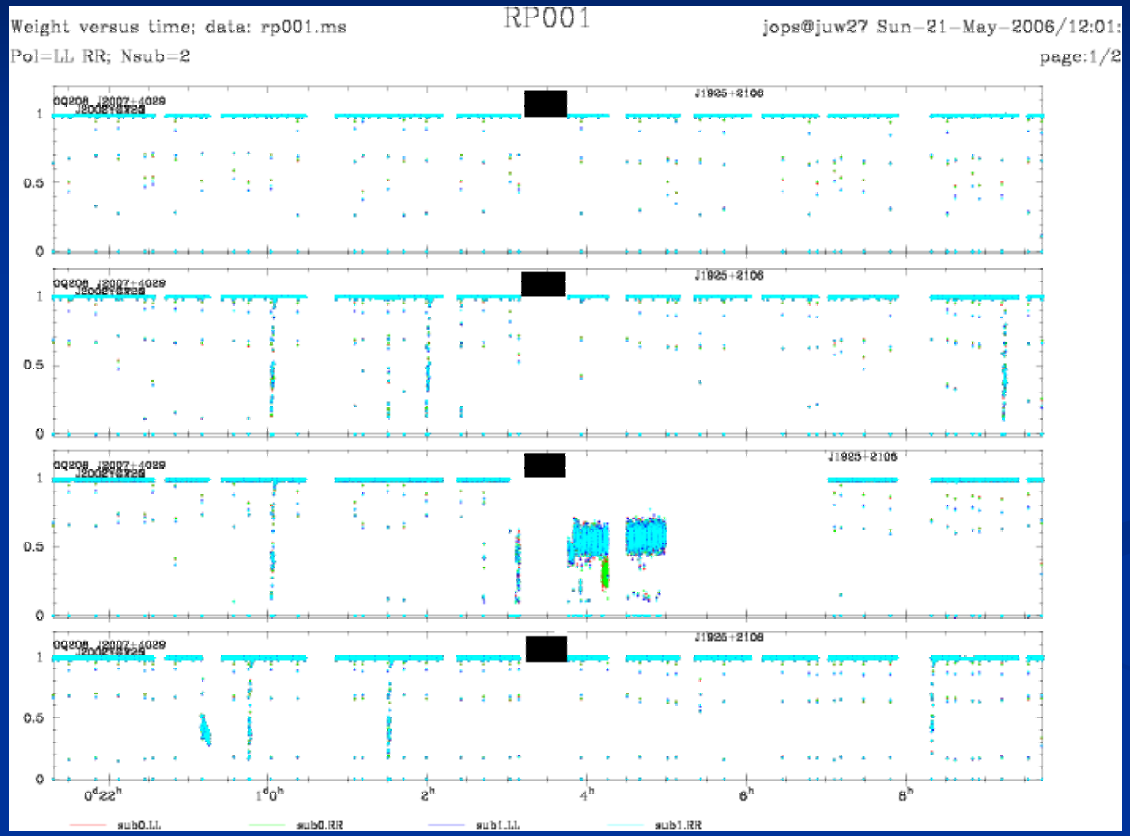
- Example on previous slide also demonstrates excellent data quality
- One minor issue is amplitude calibration: stations do make the effort to make Tsys info available on a short timescale (many thanks!!!), but sometimes we are missing data
- However since there are no amplitude cal sessions before e-runs, occasionally initial telescope gains are off
- On the positive side, JIVE staff provides **Westerbork synthesis array data** on request; good for checking overal amplitude scale as well as for polarization calibration
- Note e-EVN reliably detected **circular polarization** in Algol; observed CP variation agreed with the WSRT results

A failure example…



- Fake central component in Cyg X-3
- Due to an error: first integration of the phase calibrator source ended up in the target scan as well
- Originally did not see high amplitude point because the data were binned in Difmap
- Error was spotted relatively quickly (although still a bit late)
- **Problem fixed, will never happen again**
- User learned from the experience…

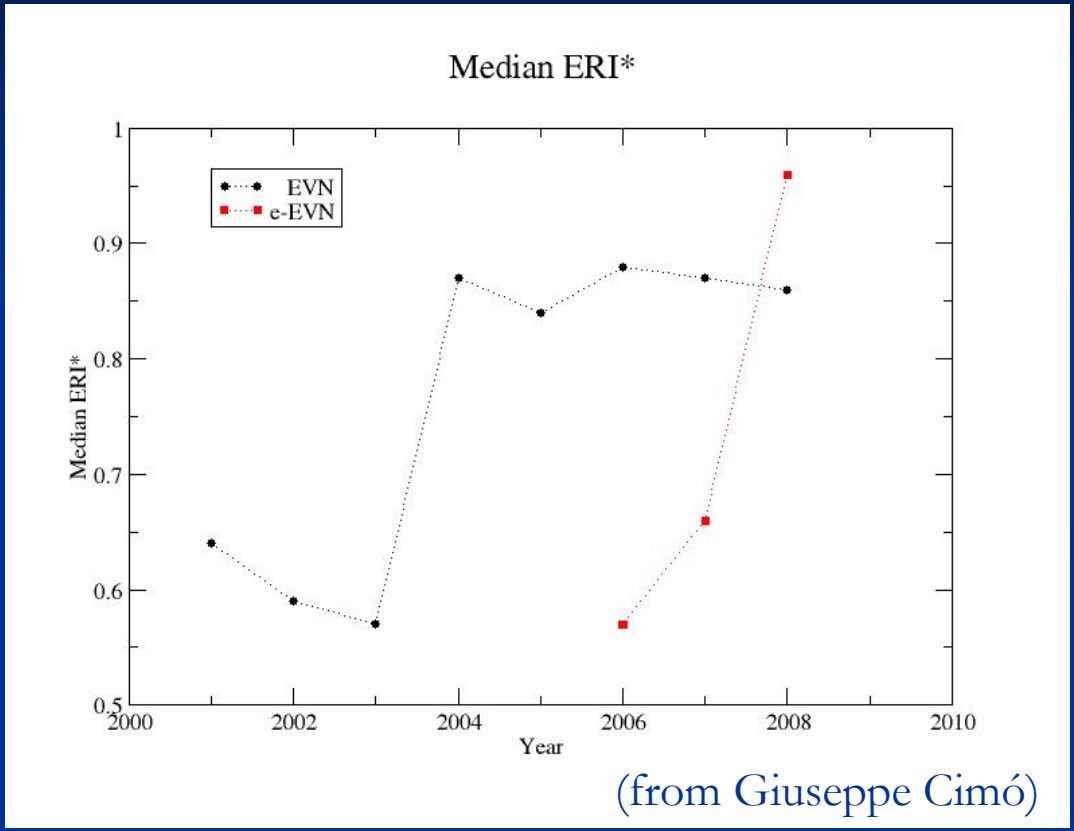
Other reliability issues



Example correlation weightplot from 2006; situation greatly improved since then

- The usual EVN reliability issues apply…
- Yes, there have been occasional networking problems but it is not a major issue in reliability
- Initially data were frequently lost during an e-run because correlation jobs had to be restarted any time a problem occured at a station
- **This is no longer the case, problems are solved on the fly, data loss is minimized**

Reliability (cont.)



(from Giuseppe Cimó)

- Because the data are continuously monitored during the run, problems can be spotted more quickly –in some sense e-VLBI is more robust than EVN disk operations

Services

- 1 day/e-session is advertised throughout the year, which is ideal for monitoring projects, and are crucial for R&D, but they are not ideal from other points of view (inefficient scheduling, follow-up observations not possible)

- EVN is doing a great job in improving flexibility for ToOs (many thanks!!!) although there are obvious difficulties, telescopes and correlator are not available for VLBI just at any random time

- A problem is that **while the e-EVN provides quick results, quick follow-up observations are not possible** (I mean just normal observations, not classical "one time a year" ToOs)

- Only a single frequency is available per e-session, limiting the science we can do (well, this is because of obvious difficulties at some stations…); would be great to explore how we can improve this

- I am probably biased, but I sincerely hope other PIs like the JIVE services w.r.t. quick FITS file preparation, pipelining and extensive user assistance

Want to propose e-VLBI observations?

e-EVN observations are scheduled ~10 times per year. Proposal deadlines are the the normal VLBI deadlines: 1 Feb., 1 Jun., 1 Oct. Check for status updates here:

http://www.evlbi.org/evlbi/e-vlbi_status.html

Since 1 June 2007, ToO projects are fully supported with a response time of 24 hours (but only on fixed dates). Short observing requests may be submitted to the PC chair up to three weeks before the observing dates, these are limited to 2 hours. e-VLBI proposals are just like other EVN proposals. A few things to keep in mind:

- normal projects are supported, **"urgency" no longer has to be justified**
- the price of getting the data quickly is the somewhat limited array (not all EVN telescopes are capable of e-VLBI)
- you must specify all the observing details, because schedule will be made by JIVE staff
- contact **Bob Campbell** (campbell@jive.nl), to find out if preferred correlation mode is OK
- you are welcome in JIVE for data processing; EVN Support Group is ready to help you
- **think creatively, find projects that make appropriate use of this unique service!**