

# VLBI Report

## LBA Operations & eVLBI

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# Operations- transitioning

- In transition:
  - From: S2 tapes + LBA correlator
  - To: Disk-system + software correlator
- Evolution
  - March 06 - only 2 x 12 hrs on disk
  - May 06 & Nov 06 - only 2 x 12 hrs on tape!
  - S2 correlator powered off at Xmas.
  - 2007 - no more S2 observations!!
- Software correlation
  - Contracted to Swinburne from 1 October 2006
  - Swinburne did all disks correlations prior to contract
- Public Wiki for all LBA observations

# LBA Statistics 2006

Telescope	Parkes	ATCA	Mopra	Hob	Ced	Tid	Hart	Kokee	Kash.	LBA
Hours obs	427	445	432	364	267	90	112	24	27	<b>446</b>
% success	94.5	99	99	92	91	92	100	100	100	<b>93</b>

## Failures:

- Parkes: 5% due to high wind
- Ceduna & Tidbinbilla: 8-9% due to IDE disk failures - **XRAIDs**
- Hobart: 8% due to delay jumps from clock problems - **fixed in 2007**

LBA allocated time	21.5 days (516 hrs)	(6% year)
Test & filler observations	100 hrs	~25%
Total Observations	446 hrs	86%
Setup and checking		5%
Time lost due to weather		3%
Time lost due to other failures		4%

# Network connectivity & eVLBI

- AARNet3 Regional Network to ATNF antennas
  - 2 x 1 Gbps connectivity (1 still to be operational)
  - 10 Gbps (x multiple wavelengths) backbone
  - 1 Gbps connections: Hobart now; Swinburne pending
- At October 2006 ATUC VLBI workshop:
  - Plans for Pk-At-Mp eVLBI Longbaseline Array (PAMELA)
- March 23-25, 2007:
  - Use Parkes CPSR2 30-node cluster for software correlator
  - Successful test observations Pk-At-Mp @ 256 Mbps
  - Limited observations with Hobart at 128 Mbps
  - Circinus X-1 detected at 18 & 3 cm -- Paper submitted!!
  - ⇒ PAM(H)ELA born!

# LBA - Current Status

- S2 system effectively decommissioned
  - Correlator off last Xmas. Write-off in June.
- New XRAID disks (\$300k) arrived
  - 150-200 TB of storage
- LBADR recorders have extra IDE disks
  - 2 x 400 GB internal
  - 4 x 500 GB removable

⇒ *Fast response (ToO) possible for ~24hrs*
- PAM(H)ELA to go operational
  - **eVLBI possible**

# AO offering(s)

- At next ATNF call for proposals (May'07):
  - Disk recording only. No S2 recording.
  - PAMELA AT 256 Mbps (shared risk)
    - In development as user-friendly instrument
  - PAM(H)ELA at < 64 Mbps (tests/ shared risk)
  - PAMELA at 512 Mbps (tests)
    - Need 2nd network connection
  - Disk recording at 512 Mbps / 1 Gbps (ATNF)
    - Requires 64 MHz channels
    - Tests / shared risk

# VLBI scheduling

- **Aim to move towards:**
- Integrated scheduling with ATNF schedules
- Integrated monitoring & control
  - All telescopes + correlator
- **Evolution:**
- Move to shorter VLBI/eVLBI blocks
  - ~1-3 days to minimise disk swaps
- Integrate into ATCA/Parkes schedules
  - Fewer Rx changes at Parkes & Hobart
  - Do short session in 1-2 bands only
- Some issues with Tid scheduling...
  - May need last minute schedule changes/swaps

# LBA Evolution?

- S2 system aged and to be replaced (2006?) ✓

⇒

- Disks + software correlators (2005 - 2008+ ?) ✓

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- CABB correlator and e-VLBI(✓) (2008+)

- Original slide from Jan'06 Swinburne meeting
- Ticks from Apr'07 Swinburne VLBI meeting