

MeerKAT Data Processing and Science Support

Jasper Horrell, Arniston 2010



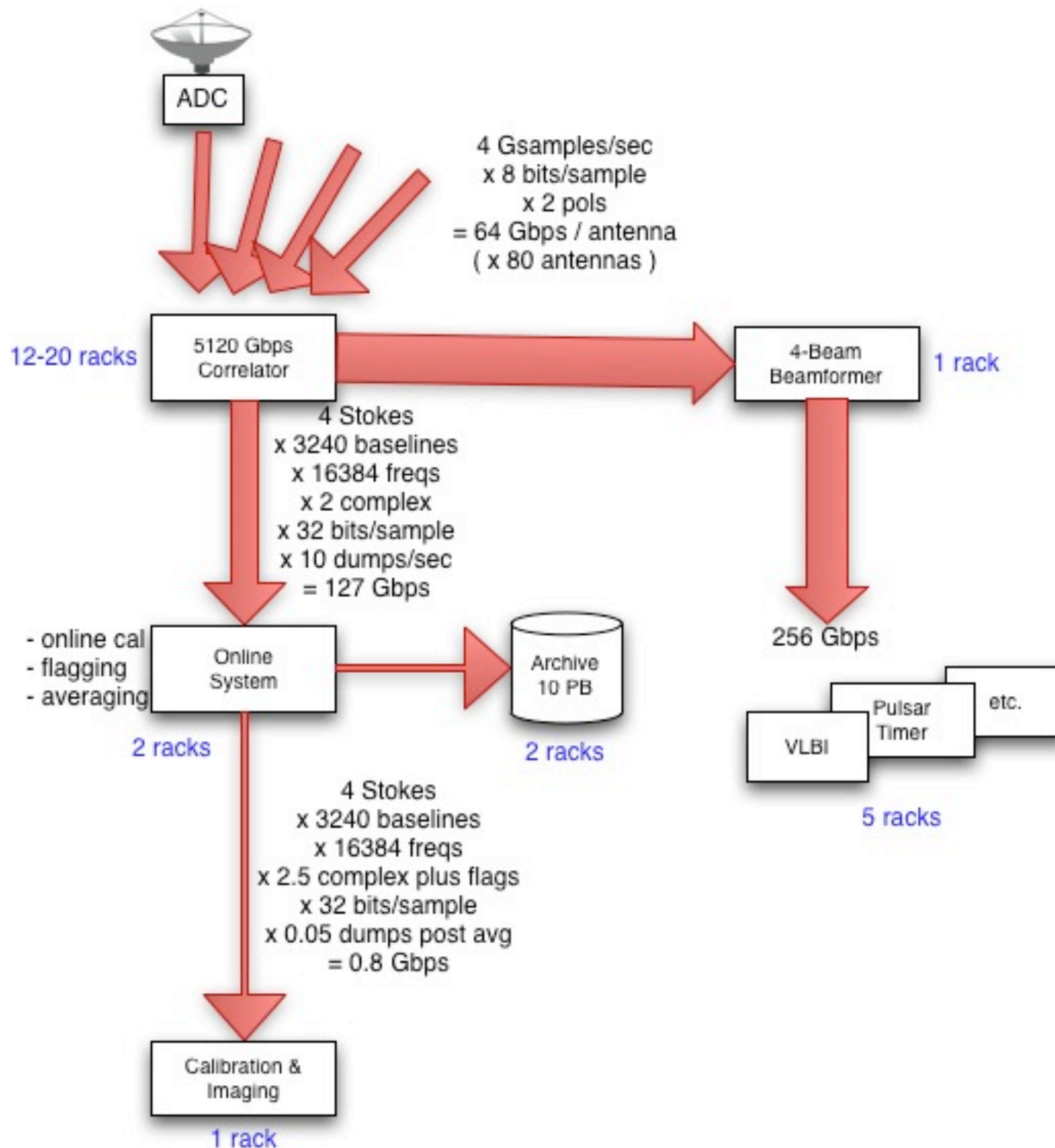
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Overview

- Data rates and facilities
- Project philosophy (?) re data products and processing
- Who is working on this?
- What's the brief?
- What do we have now?
- What's next?
- What's needed?





Facilities (min)

- Correlator (on site)
- Beamformer (on site)
- On-line system (on site)
- Archive (on site with mirror in CT)
- Post-processing (cal and imaging)



Project Philosophy?

WARNING: STILL UNDER DISCUSSION

- Provide calibrated visibilities
- Provide some standard pipelines (spectral line image cubes, continuum images)
- Store visibility data for as long as affordable (6 months?)
- Provide flexible architecture for “black belt” users
- Re-use existing mature packages where possible – mostly at extremities of system (support CASA, AIPS, MIRIAD, MeqTrees formats)

Who is working on this?

- Newly formed Science Processing Team (new team, mostly old faces)
- **Jasper Horrell, Simon Ratcliffe, Thomas Bennett, Ludwig Schwardt, Tshakule Nematili, Mattieu de Villiers**
- Expect to add a few more soon.



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What is the brief?

- Take care of data processing and archive post correlation
- Perhaps also take care of raw data handling (pre-correlator)
- Help define and develop the MeerKAT science processing subsystems
- Interface to the approved major Science Proposal teams
- Assist with the commissioning efforts

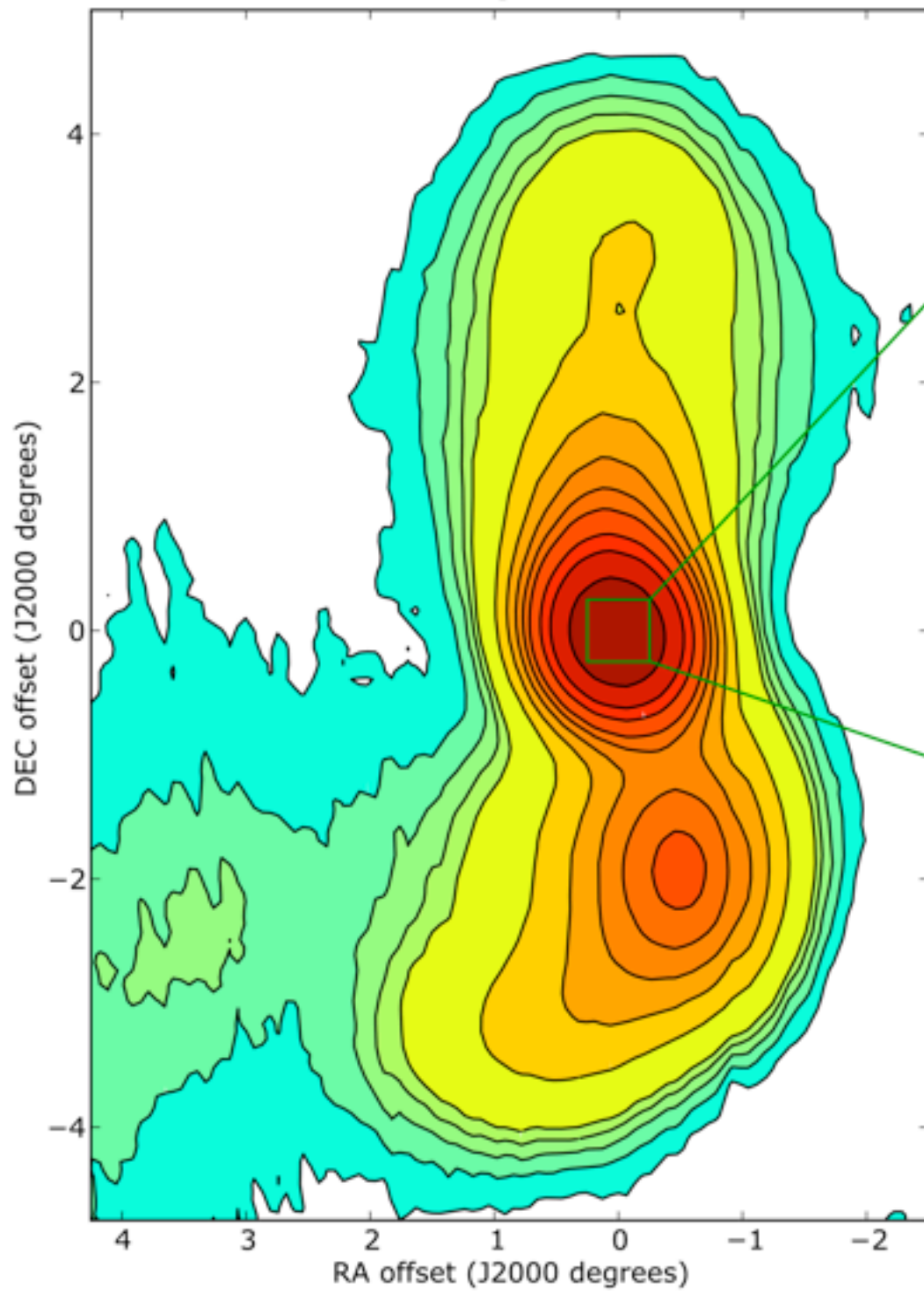


What do we have now?

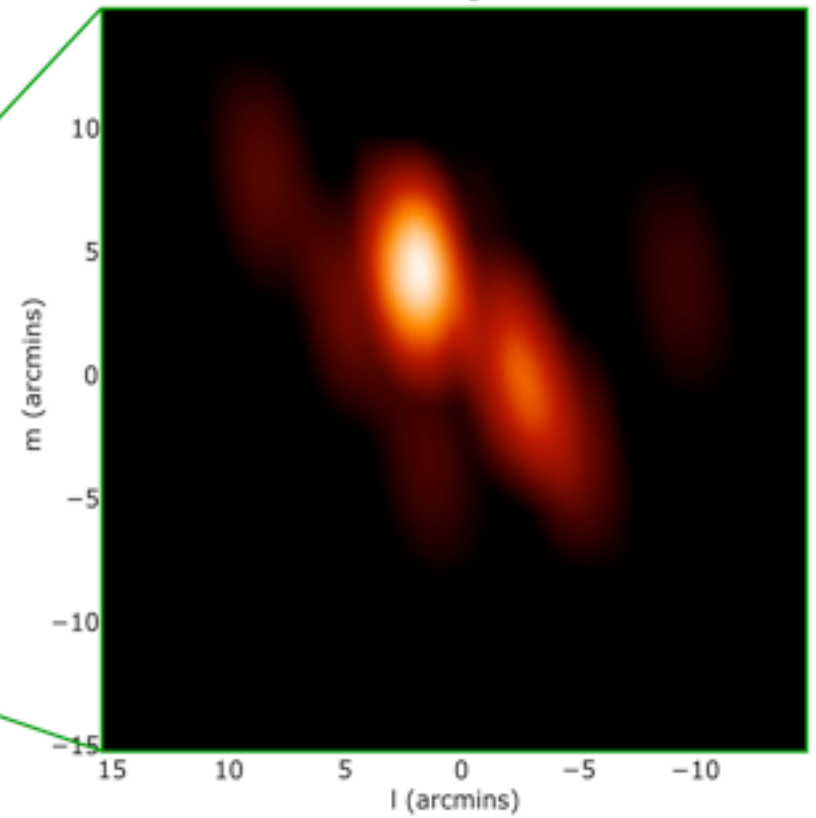
- Working monitor and control system being further developed by M&C team
- Basic data capture framework to HDF5 file and MS writing capability
- SCAPE commissioning package
- “Ludwig special” first imaging software
- Some great early results on the system (Anja’s talk)



Raster scan image of Centaurus A



Interferometric image of Centaurus A



What's next (2010)?

- Streaming framework prototype for later this year (Simon's talk - next)
- More mature imaging
- Start of some pulsar tools on KAT-7 (in collaboration)
- Start of more formal engagement with approved major science proposal teams
- Define systems for MeerKAT



What's needed?

- Discuss ...



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