SKA AFRICA
SQUARE KILOMETRE ARRAY

MHONGOOS

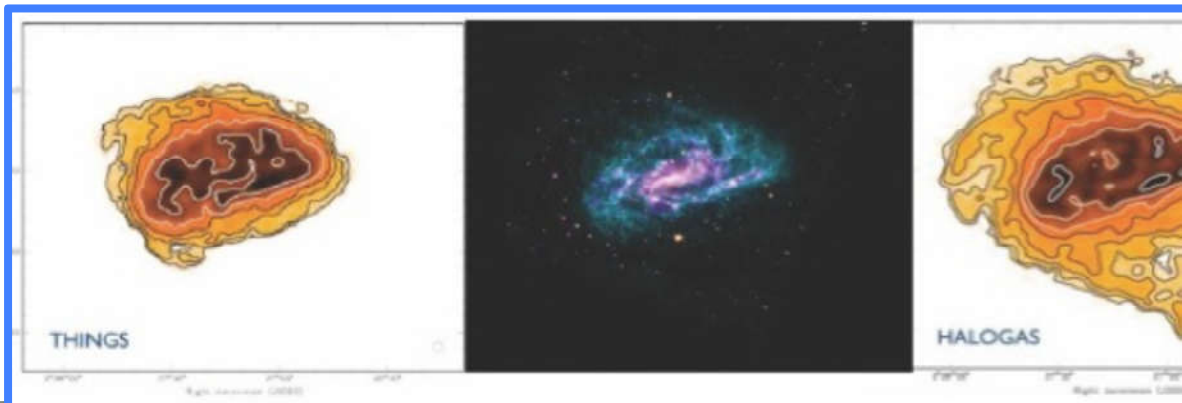
PI: de Blok (UCT, ASTRON)

- MHONGOOSE: extremely sensitive observations of the neutral hydrogen distribution in a sample of 30 nearby galaxies
- Map cosmic web, and gas connections between galaxies, tidal tails, dwarf galaxy formation

SKA AFRICA
SQUARE KILOMETRE ARRAY

MHONGOOS

- Major collaboration with HALOGAS
- Software testing
- Analysis testing
- HALOGAS results might result in re-scope if sc demands



GETTING READY WITH commissioning: MHONG

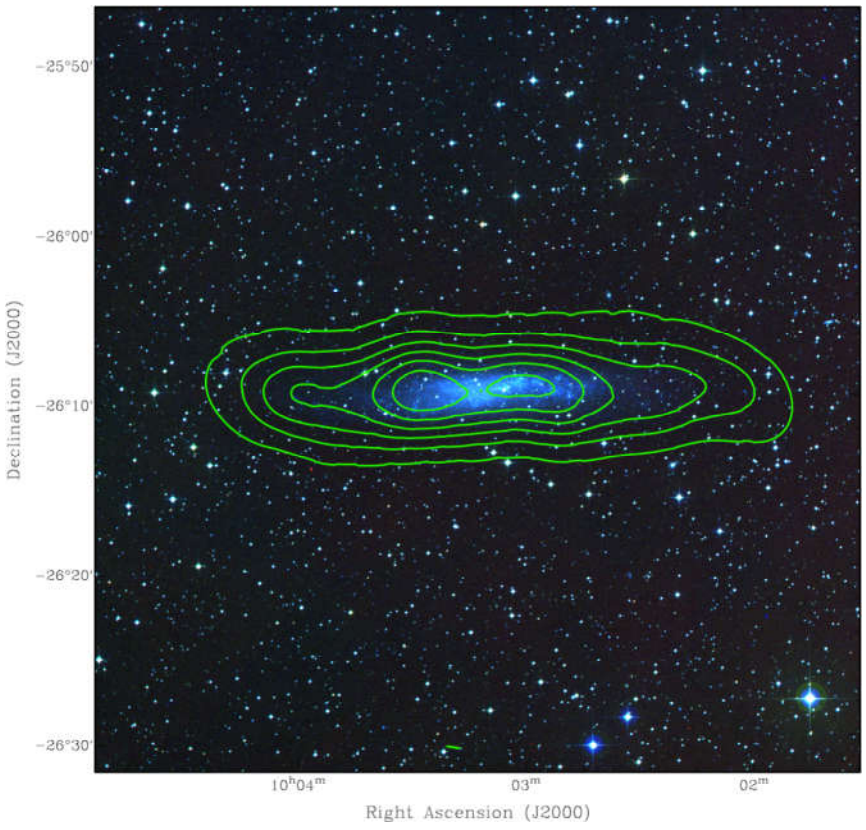
MEDIA RELEASE

Extra-galactic milestone for South Africa's KAT-7

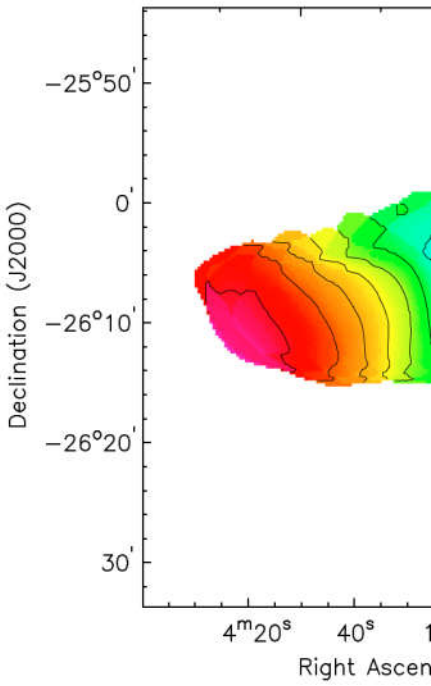
- First atomic hydrogen spectral line images of a nearby galaxy

Carnarvon, 14 March 2012. South Africa's KAT-7 telescope, a seven-dish a to the much larger MeerKAT telescope in the Karoo and to the Square Kilo reached another major milestone by observing the radio emission from th (HI) in a nearby galaxy. Hydrogen gas emits radio emission in a spectral lin frequency of 1420 MHz.

GETTING READY WITH commissioning: MHONG

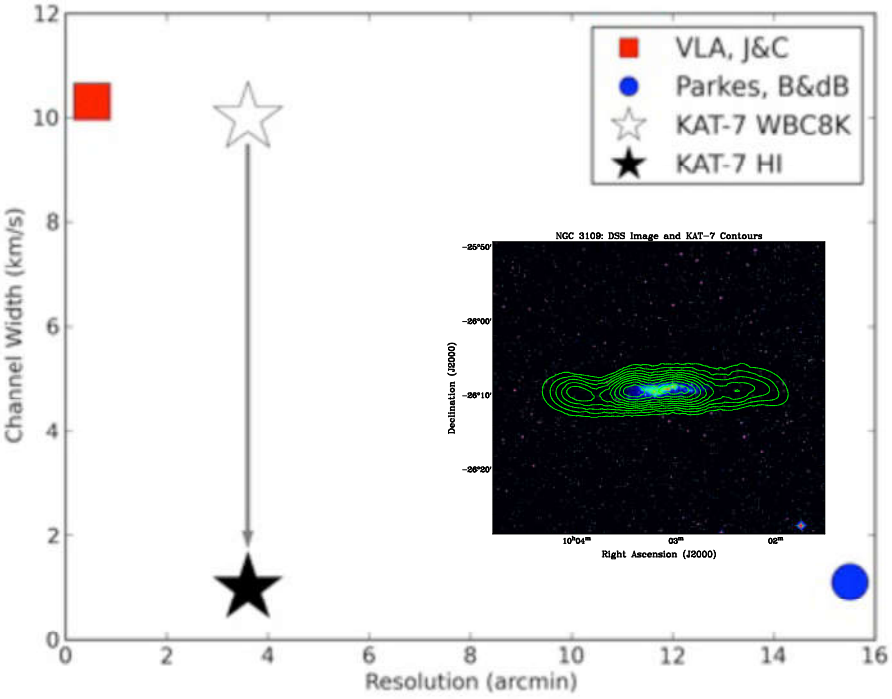


Results form part of
of Brad Frank, UCT



GETTING READY WITH (MHONGOOSE)

NGC 3109



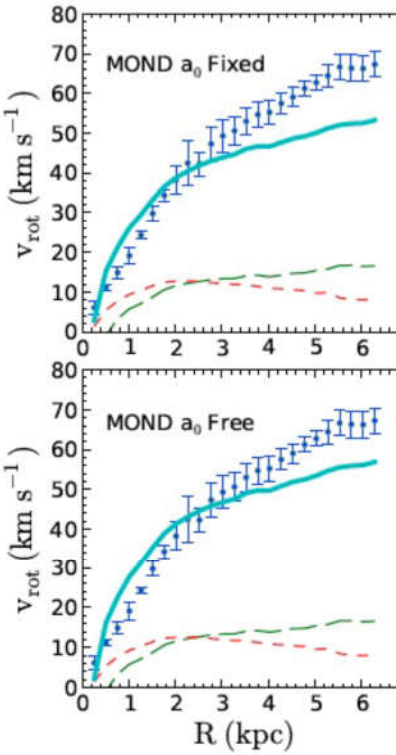


Figure 11: Rotation curve fit for NGC

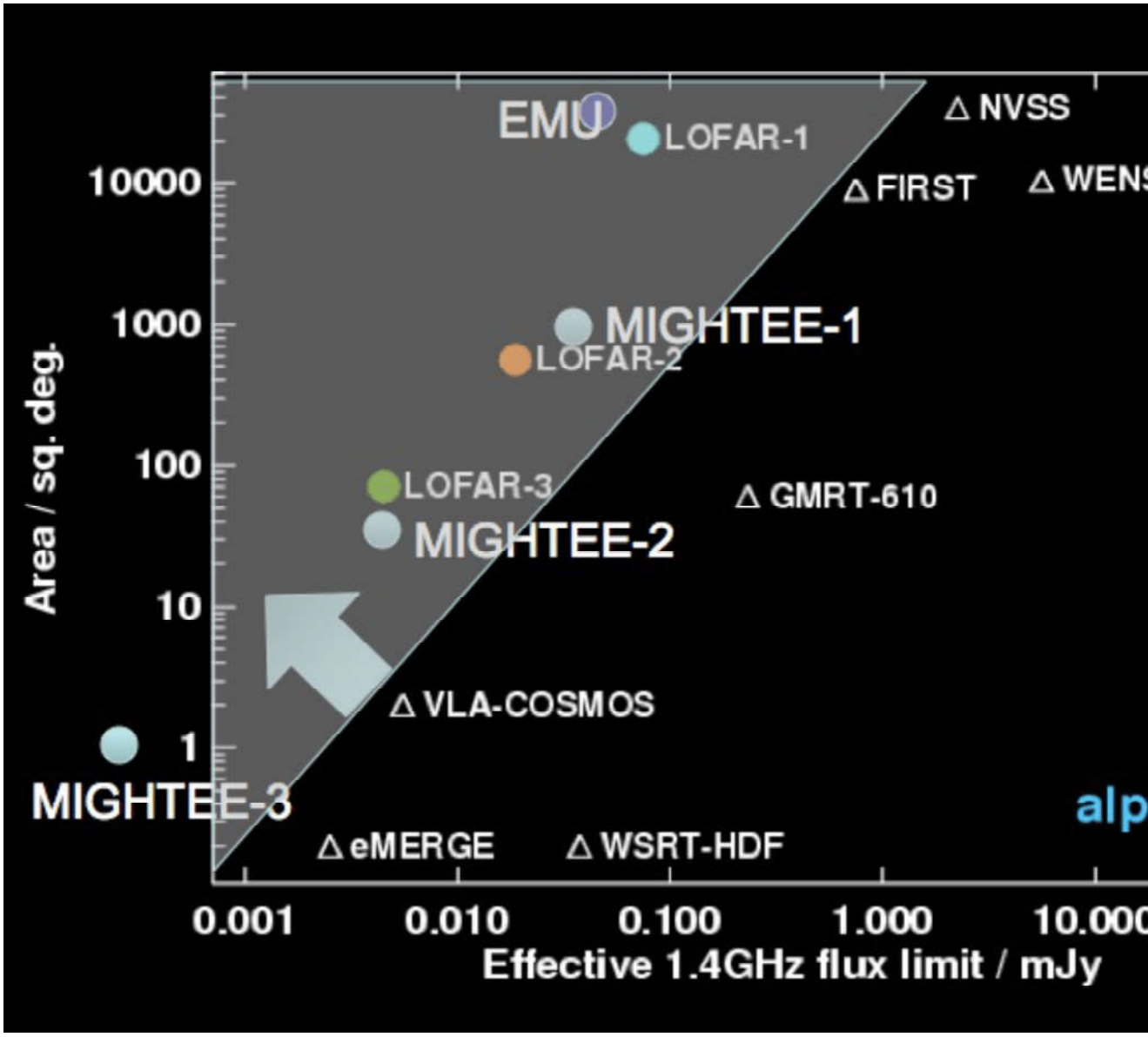
MIGHTEE

MeerKAT International Giga-Hertz Tiered Extragalactic Exp

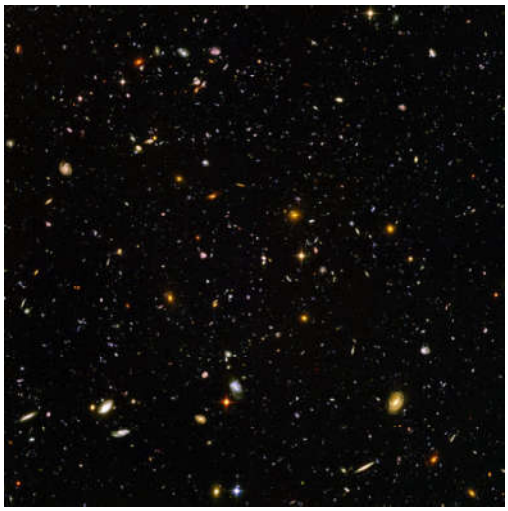
PI's: Kurt van der Heyden (UCT) &
Matt Jarvis (UWC, Oxford)

- The Evolution of Star-formation activity acros
  - Philip Best (Edinburgh), Seb Oliver (Sussex)
- The Evolution and impact of AGN activity over
  - Martin Hardcastle (Herts), Isabella Prandoni (Bologna), Chris Sin Jarvis (Herts/UWC)
- Galaxy Clusters and Galaxy evolution in dense
  - Marcus Bruggen (Jacobs), Ian Smail (Durham)
- Cosmology and Large Scale Structure
  - Matt Jarvis (Herts/UWC), Catherine Cress (UWC), David Bacon (
- HI and OH absorption studies
  - Hans-Rainer Klockner (Bonn/Ox), Rob Beswick (Mancs)
- The Polarized Sky
  - Anna Scaife (Dublin), Russ Taylor (Calgary), Richard Battye (Man

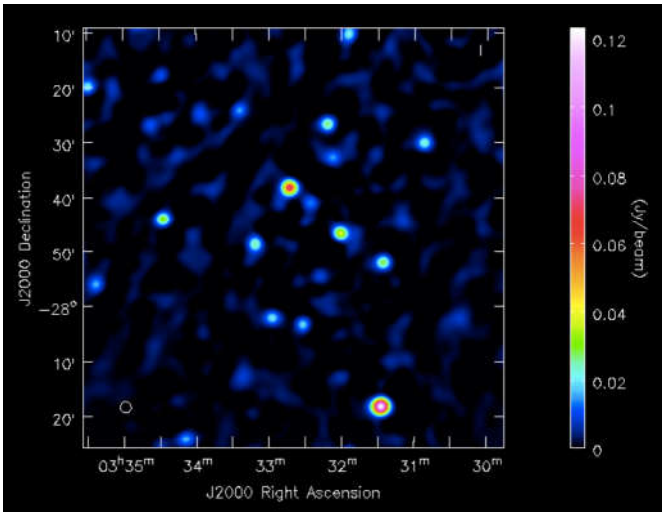
The MIGHTEE Survey



GETTING READY WITH KA
(continuum)



Hubble Deep Field

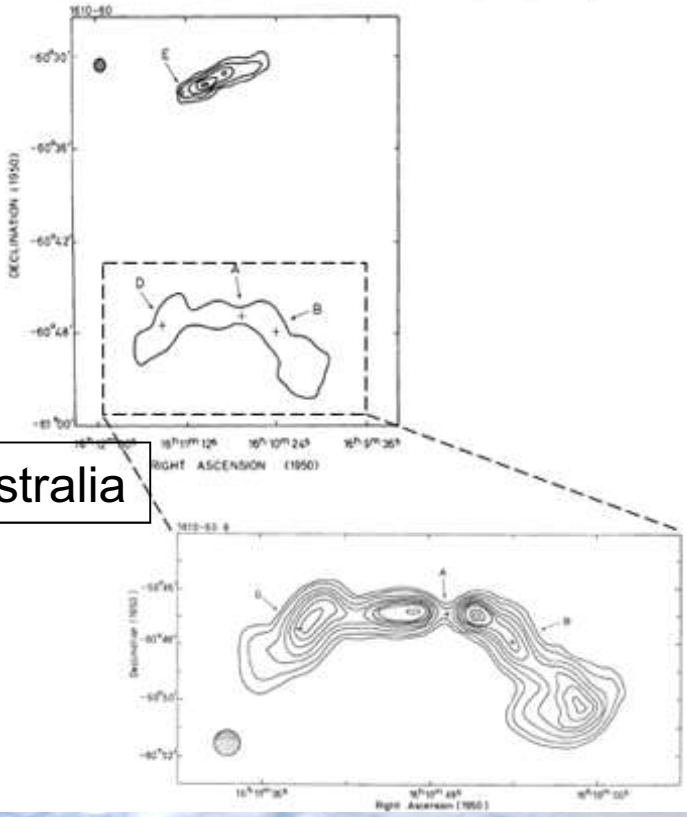


KAT7, 7 hours

NR
(N

GETTING READY WITH K
(continuum)

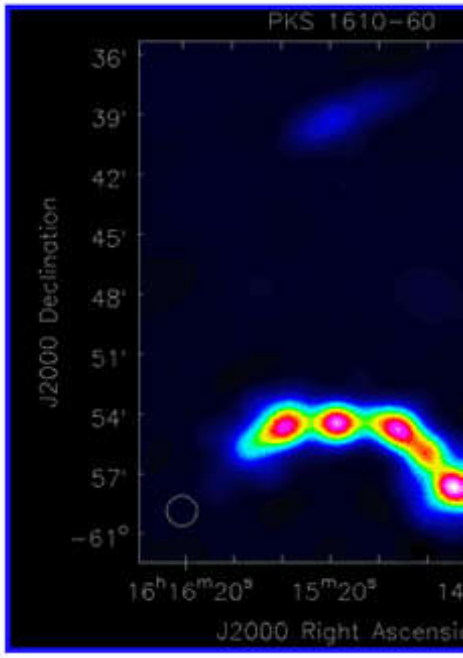
1610-60.5 & 1610-60.8 at 1415 MHz.
Galaxies A, B, D & E are identified.
(Christiansen, et al. 1977, MNRAS, 181, 183)



Fleurs, Australia

Core of central clust

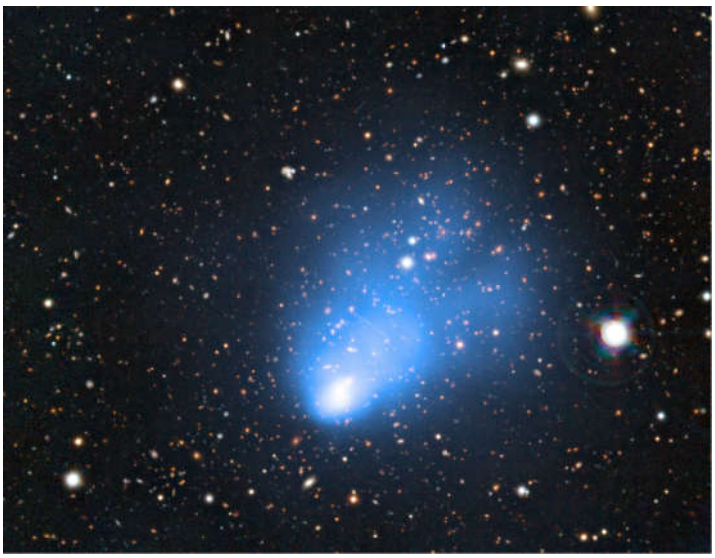
1610-60.5 & 1610-60.8 observed with

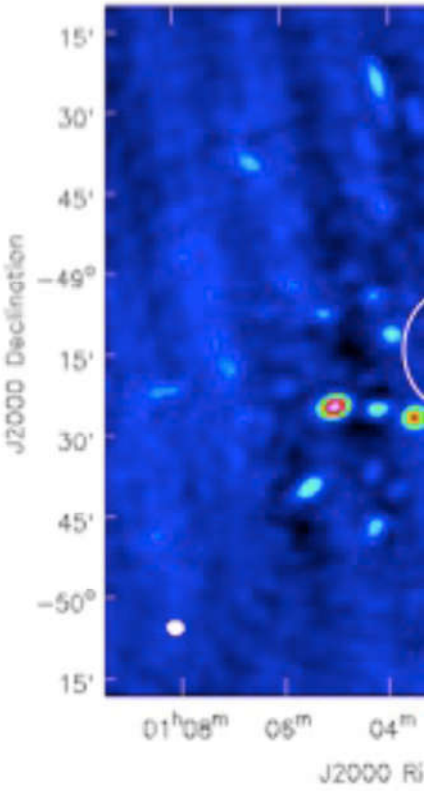


at the core of the Gr

GETTING READY WITH K
comissioning: MIGHTI

- Cluster El Gordo
- Large cluster @ z~0.87

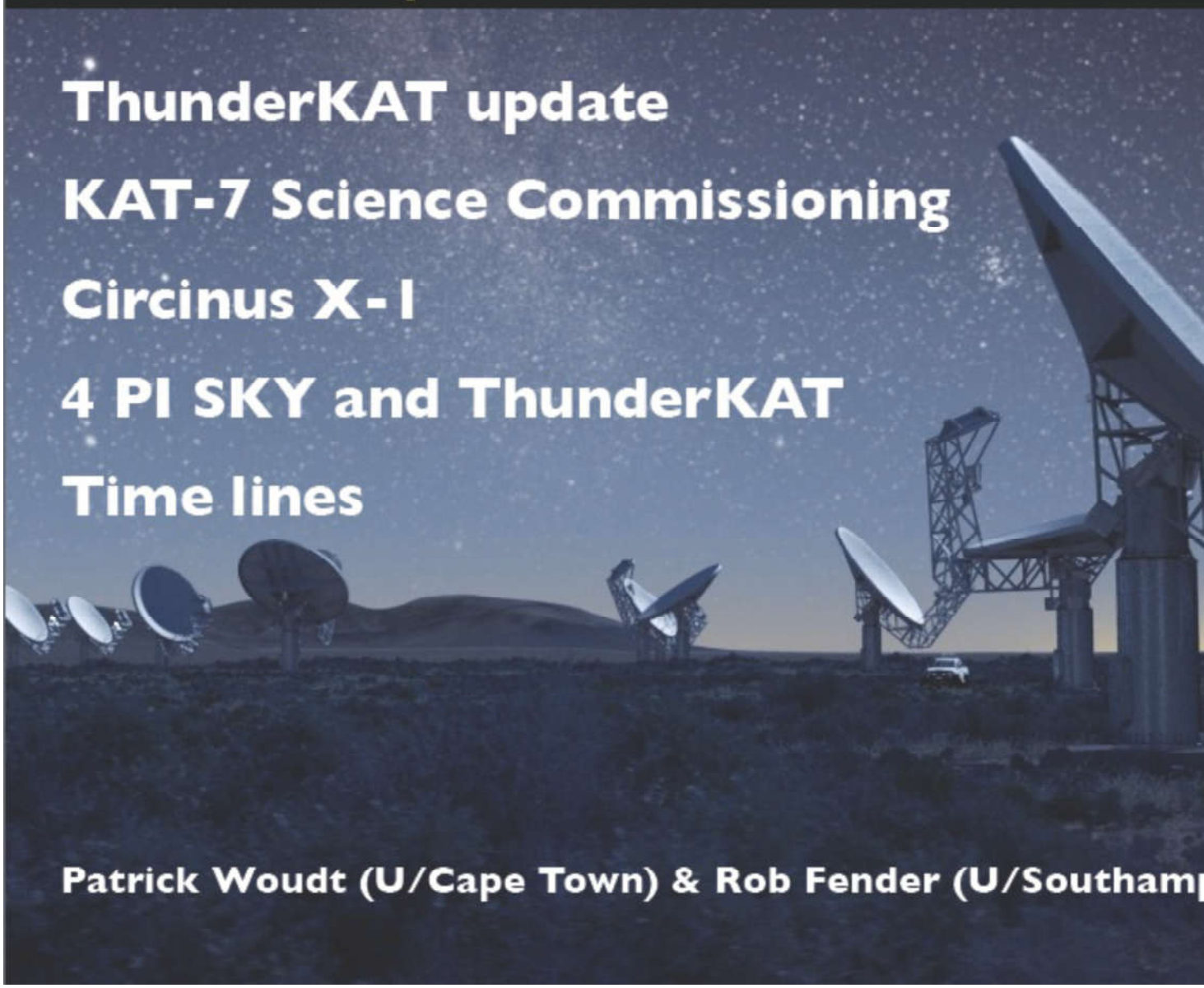




"This cluster is the most massive, the hottest, and gives off the
any known cluster at this distance or beyond."

ThunderKAT

An update on recent act



ThunderKAT update

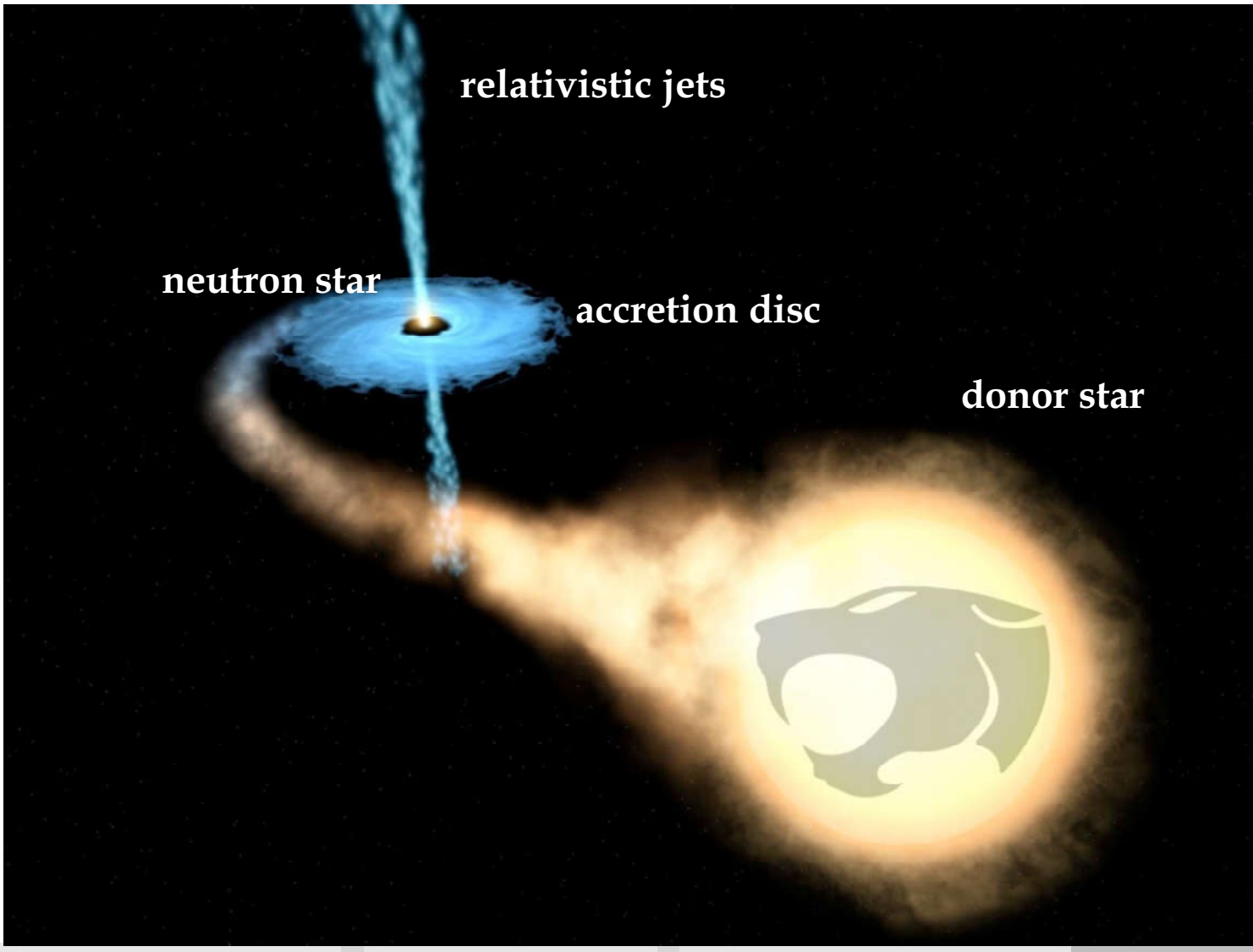
KAT-7 Science Commissioning

Circinus X-1

4 PI SKY and ThunderKAT

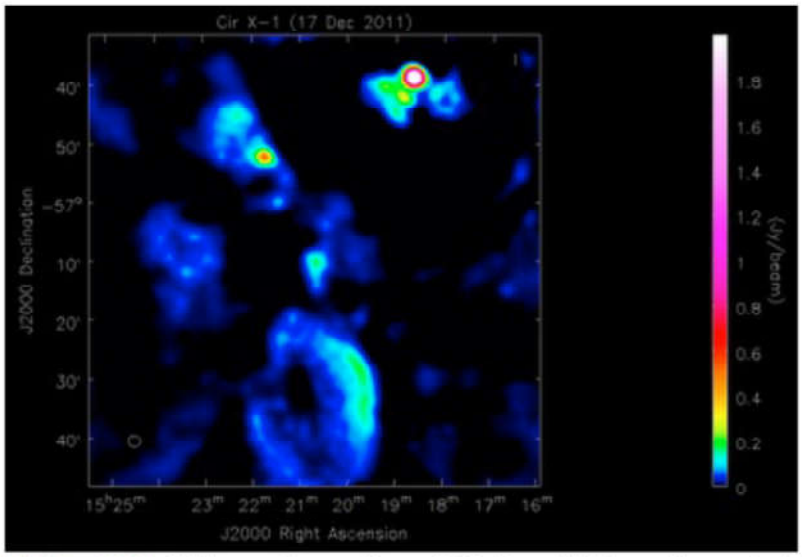
Time lines

Patrick Woudt (U/Cape Town) & Rob Fender (U/Southamp

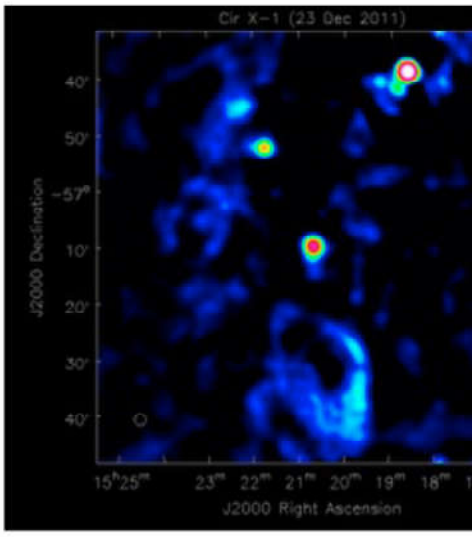

relativistic jets
neutron star
accretion disc
donor star

GETTING READY WITH
commissioning: Thund

Circinus X-1



17 Dec 2011: **14 hour observation of Circinus X-1 in quiescent state (7 antennas)**

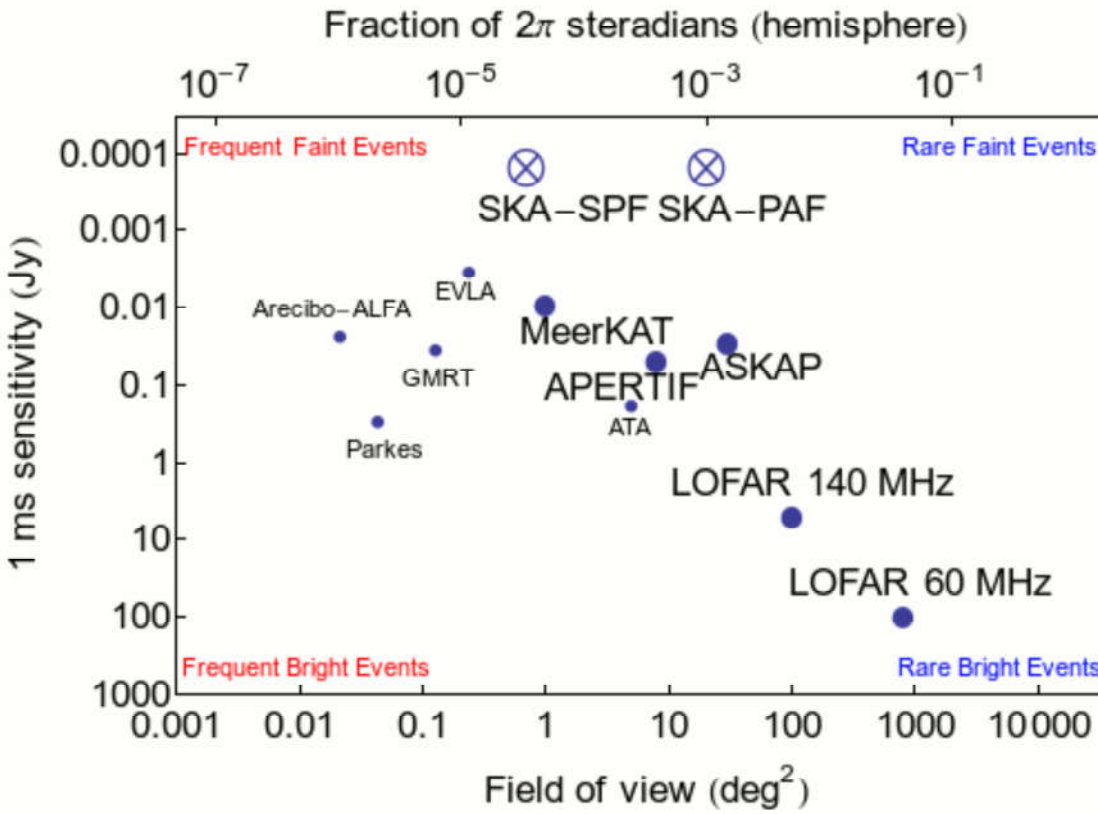


23 Dec 2011: **11 hour observation of Ci antennas)**

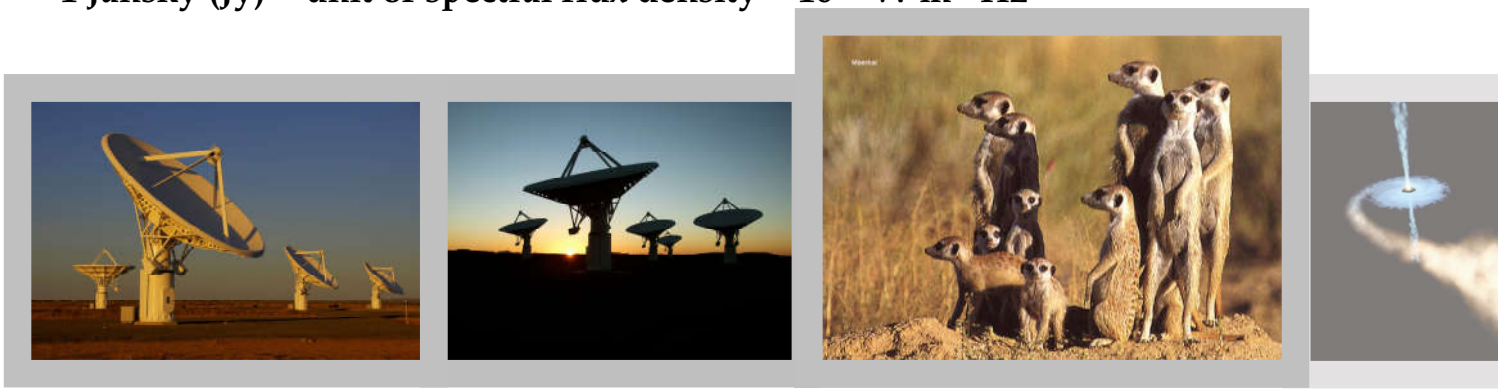
GETTING READY WITH
(RSS Spectroscopy: Thund

- ToO time assigned to program 2011-3-RSA-UKS used to observe Cir X-1.
  - This program was set up to perform high resolution r of X-ray binaries throughout outbursts.
- In total 5 observations of Cir X-1 have been mad using the RSS, R~11000.
- The first of these was on 1st April 2012 (4 x 1200 last was on 29th April 2012 (1 x 1400s).
- Timed to coincide as closely as possible to perias (16.6d orbital period) but spaced orbits apart to r variations.

MeerKAT: sensitivity and



1 Jansky (Jy) = unit of spectral flux density = 10^{-26} W m^{-2} Hz^{-1}



Circinus X-1

MWL campaign on Circinus X-1 in June

Optical spectroscopy (SALT), **Near-infrared pho**
polarimetry (IRSF: J, H and K_S), **radio** (HartRAO
KAT-7), **X-ray** (Swift) centred on periastron pa

ThunderKAT: spigots and sim

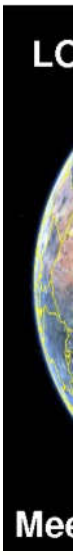
Global radio transient network:

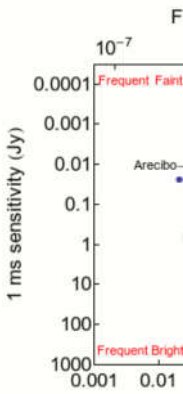
LOFAR: Transient Key Science Project

MeerKAT: ThunderKAT

ASKAP: VAST

4PI SKY (R. Fender, ERC advanced)





http://www.astro.soton.ac.uk/~rpf/4PI