Linear Polarization Calibration at 1.4 GHz

A Consistency Check between CASA and MIRIAD

Data Specification

KAT-7 Continuum Observation of 3C286 at 1.4 GHz

Data acknowledgment: Lindsay Magnus, Maik Wolleben (South Africa SKA)

Antenna = 7
Diameter= 12 m
Primary Beam ~ 1 degree
Synthesized Beam ~ 4 arcmin

MeerKAT L-band (0.95 – 1.65 GHz)

Frequency Range for this observation ~ 1.20 – 1.60 GHz

1 Spw, 1024 Channel
Bandwidth= 400 MHz

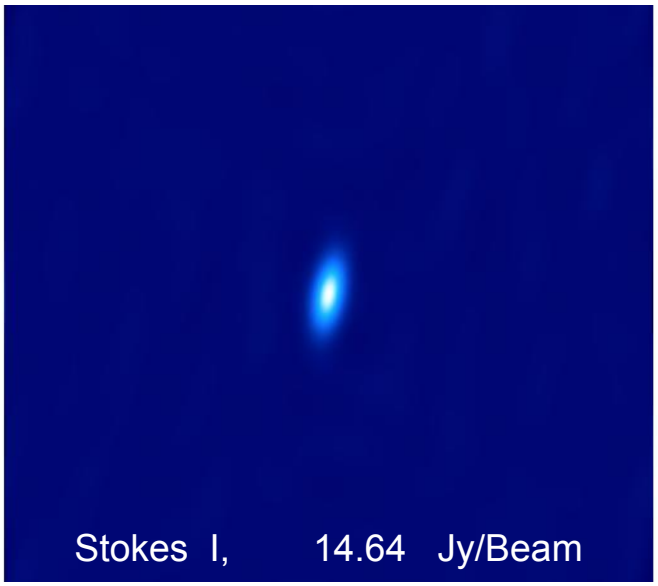
Channel width ~ 0.40 MHz

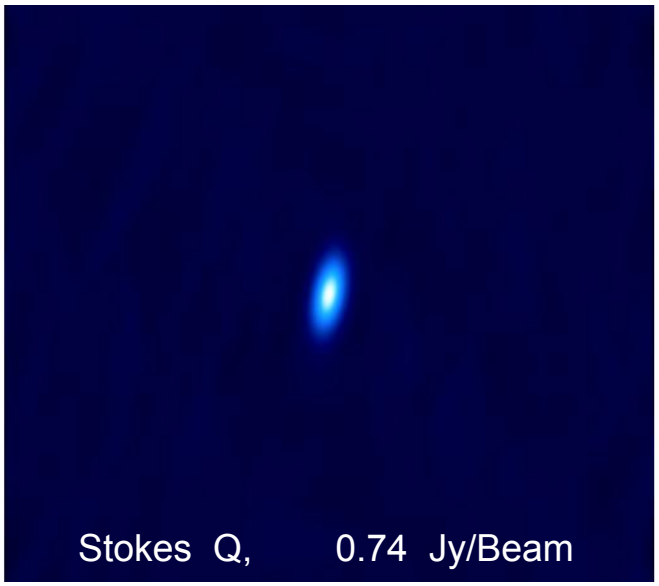
Good parallactic angle coverage ~ 90 deg

(Note: work on JVLA P-band linear polarization is in progress)

MIRIAD

CARMA Version

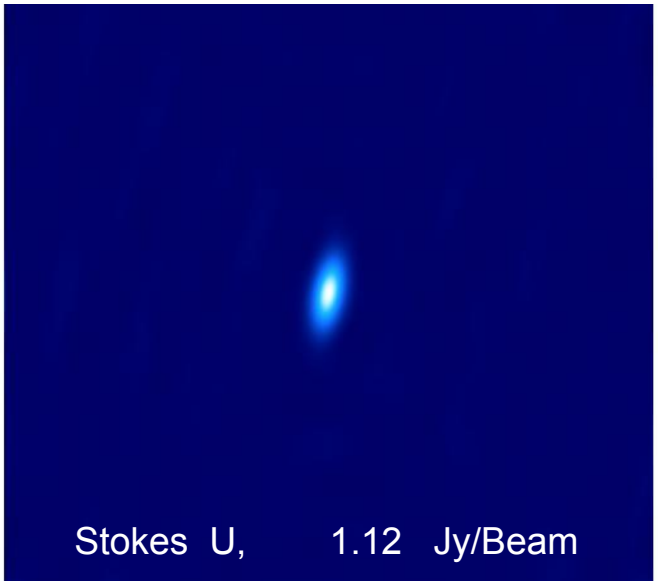


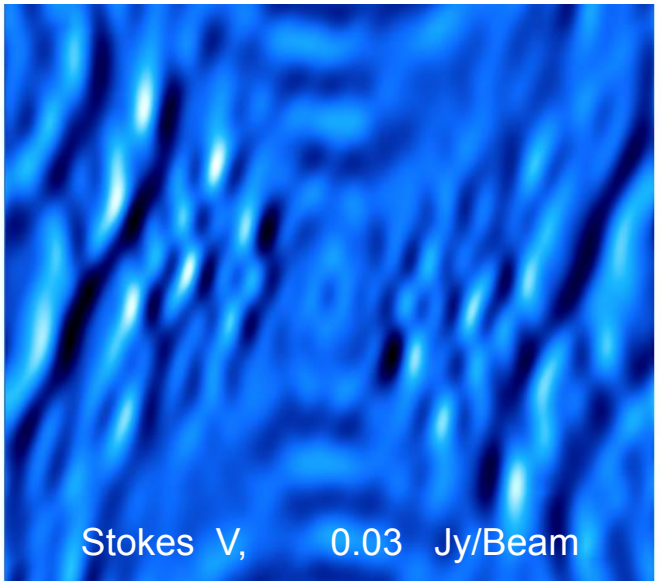


invert,clean,restor

mfs,mosaic,fft, uniform

psfmode=clark
niter=500





CASA

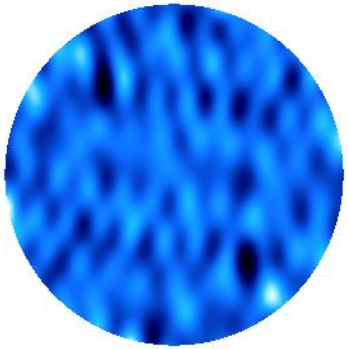
Stokes I, 14.86 Jy/Beam

Stokes Q, 0.77 Jy/Beam

clean
mode = mfs
psfmode=clarkstokes

imagermode=mosaic
ft, uniform, niter=500

Stokes U, 1.17 Jy/Beam



Stokes V, 0.01 Jy/Beam

Conclusion: So far, Its good

For L-band linear polarization of 3C286, both CASA and MIRIAD give consistent results

It will be an interesting exercise to observe a strongly polarized source at P-band and repeat the exercise

CASA linear polarization calibration package is moving towards the direction where most of the loosely connected tasks will be incorporated into one method