



Ger de Bruyn from the Viewpoint of a Telescope Astronomer and Colleague

A. G. Willis

National Research Council of Canada
Dominion Radio Astrophysical Observatory

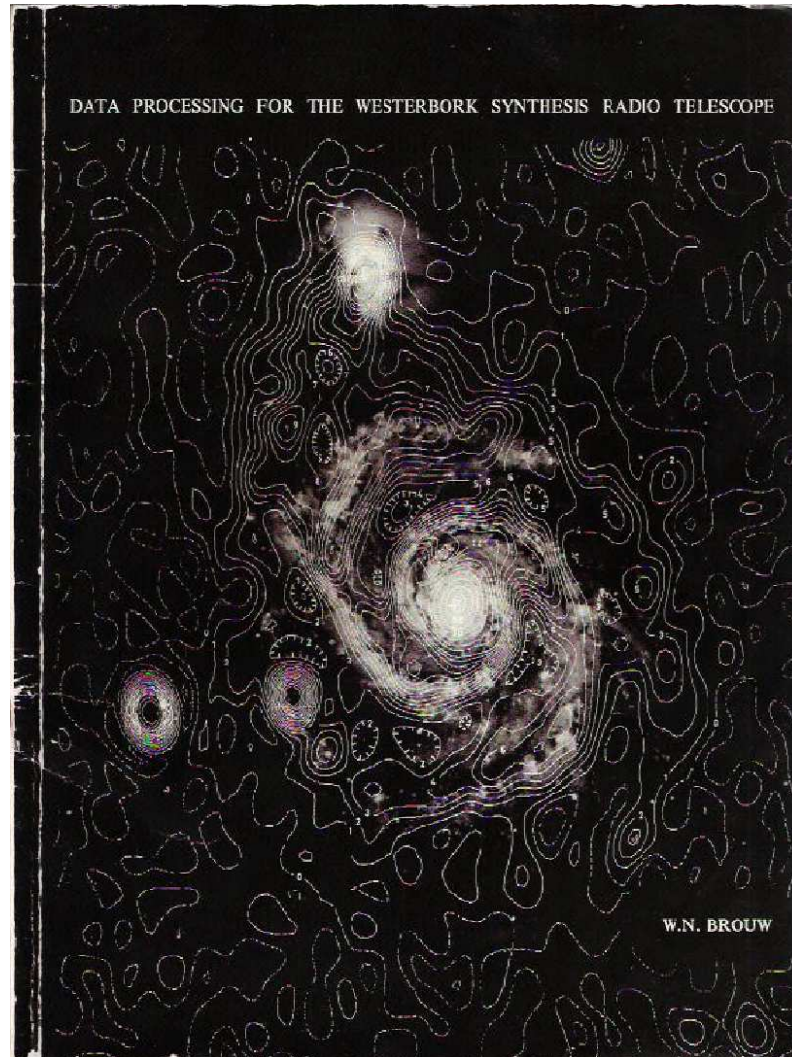
November 8, 2013

- ‘Old radio astronomers never retire, they just fade away’
 - to paraphrase General Douglas MacArthur

Lunchroom Scenario - Green Bank ca 1970

- Interferometrist #1 'The phase stability doesn't seem that good today.'
- Interferometrist #2 'It could be a problem with the delay settings.'
- Tony thinks 'What the heck are they talking about?'
-
- No TMS 'Bible', No Perley et al NRAO Summer School book, No NRAO Summer Schools, No ERIS Schools, No ATNF School etc etc
- One had to learn interferometry on the job with a mentor
- Well, I learned, thanks largely to Ger.

Why I became interested in the WSRT

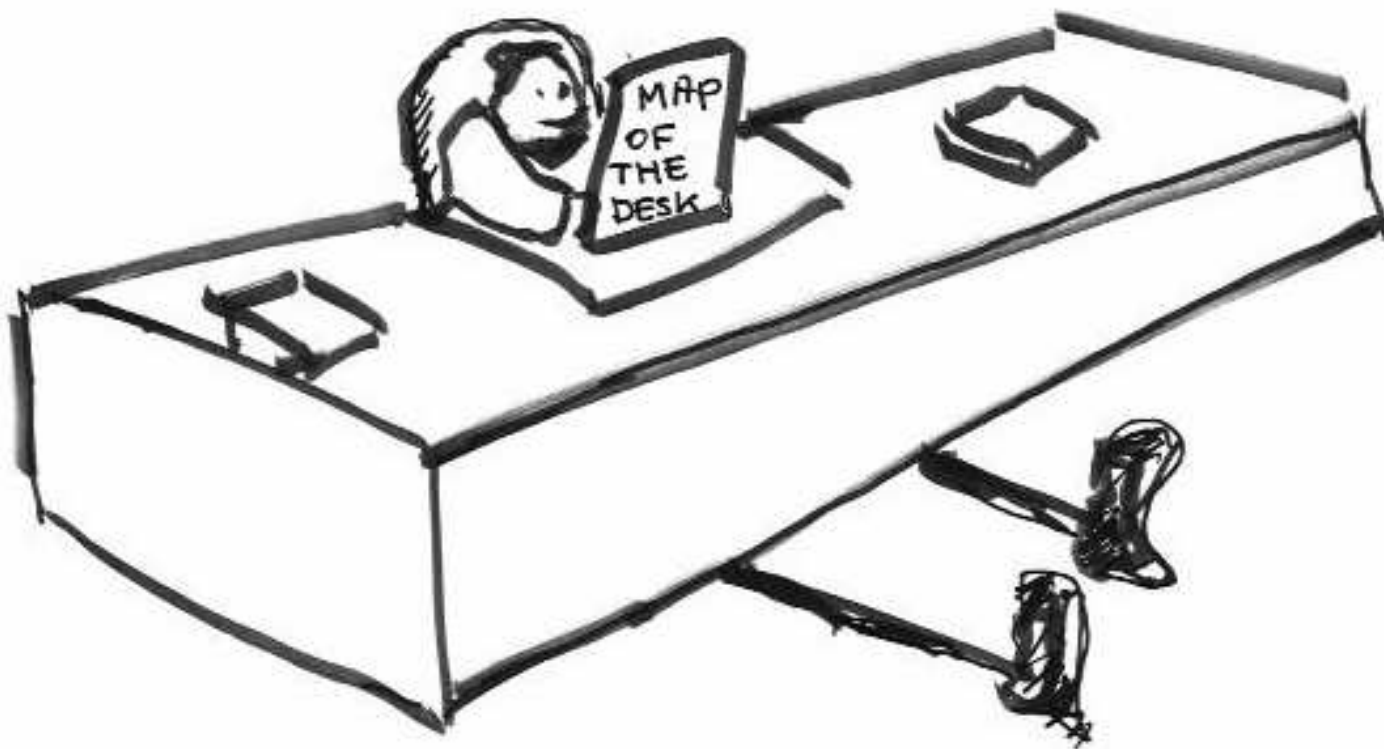


The Old Leiden Observatory



- The only place I have ever worked which looks better today than when I was there.

The Desk

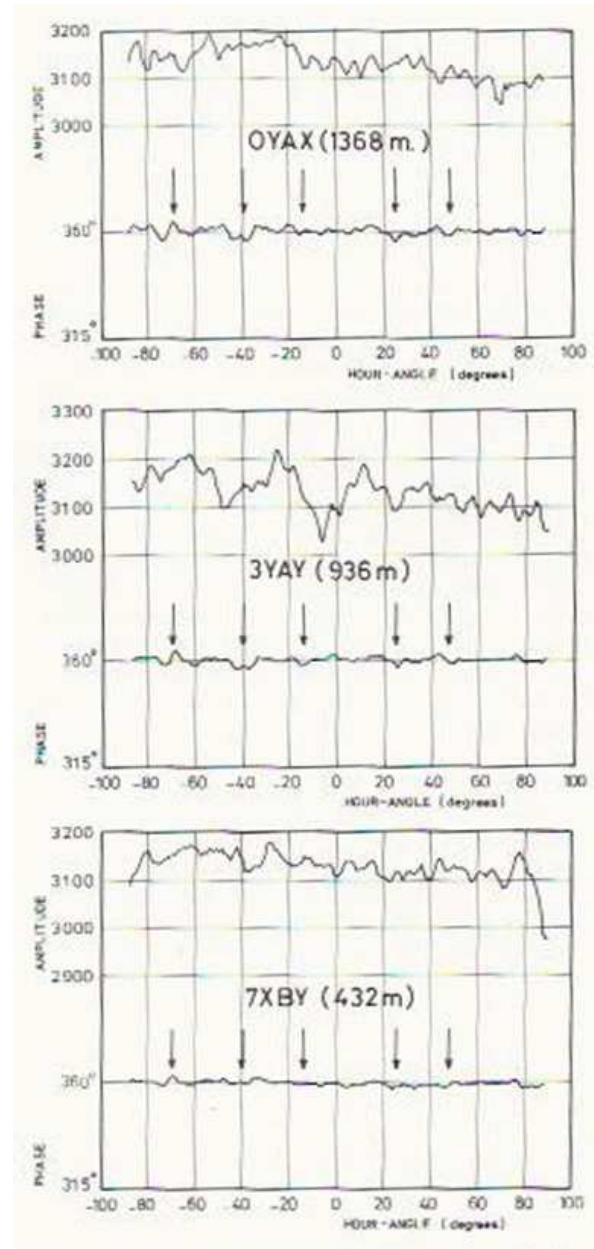


The Leiden Observatory Staff and Students 1974



- A bad day for attendance? J.Katgert, P.Katgert, G.Miley, F.Israel, R.Strom, T.Willis, H.van Someren-Greve, E.Valentijn, A.Segalowitz, I.de Pater, R.LePoole, A.Tielens not present
- Today, Leiden has almost as many PostDocs as the entire group shown here!

Original WSRT Phase Stability at 21 cm



Astron. & Astrophys. 33, 351—356 (1974)

High Resolution 6 cm Observations of Seyfert Galaxy Nuclei

A. G. de Bruyn and A. G. Willis

Sterrewacht Leiden

Received February 1, revised April 19, 1974

Summary. We present observations at 6 cm wavelength of the Seyfert galaxies NGC 1068, 3227, 4151 and 7469 as well as the Seyfert-like galaxy NGC 2782. Except for NGC 3227 all sources are resolved. The maximum resolution attainable is about 2". Each galaxy has a spectral index close to -0.80 . Our data and

those of Bash (1968) suggest a two component model for NGC 1068. The compact component has a flat spectrum but probably has not varied significantly over the last 8 years.

Key words: radio sources – Seyfert galaxies – spectra

A WSRT Paper with Visibility Functions

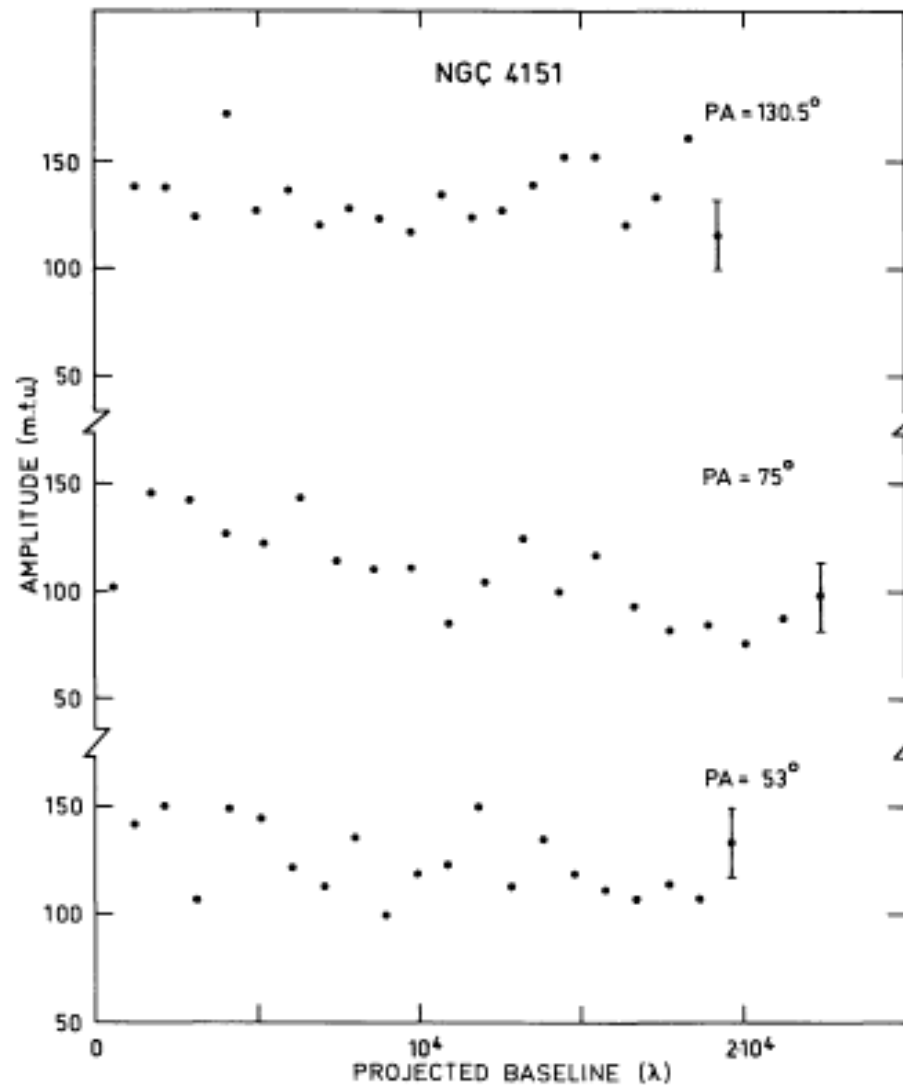


Fig. 1. Variation of amplitude with baseline for NGC 4151 in three position angles at 6 cm. The mean error of each measured amplitude is given by the error bar on the last point

Ger's Second Student?



Astron. Astrophys. 53, 93–105 (1976)

ASTRONOMY
AND
ASTROPHYSICS

A 1415 MHz Survey of Seyfert and Related Galaxies

A. G. de Bruyn¹* and A. S. Wilson²

¹ Sterrewacht, Leiden

² Astronomy Centre, University of Sussex, Falmer, Brighton BN1 9QH and Sterrewacht, Leiden

Received March 15, 1976

RM Synthesis: B.J. Burn and Leiden

1977, *Astron. Astrophys. Suppl.* **27**, 155-170.

MEASUREMENTS OF STRUCTURE AND POLARIZATION OF 72 SOURCES FROM THE 4C CATALOGUE

R.G. CONWAY*, B.J. BURN** and J.P. VALLEE***
Sterrewacht Leiden, Huygens Laboratorium, The Netherlands

Received December 10, 1975, revised May 25, 1976

Measurements to investigate the distribution of brightness and polarization of 72 sources from the 4C catalogue are presented, which were made with the Westerbork synthesis telescope at wavelengths of 6 and 21 cm. The observations have been analysed both by preparing maps of the sources, and by finding the successive moments of the distributions. The results are presented firstly as tables of parameters of the distribution, and secondly as maps, when the detail is more complex than can adequately be described in the tables.

Key words: radio source polarization – radio source brightness – galaxies – quasars

- Conway et al study radio sources with spectra flatter than -0.9; not much exciting stuff
- Miley, Willis and Tielens study sources with spectra steeper than -0.9
- Result:
 - ☐ Beginning of 35+ year research career for Miley in area of high redshift radio galaxies
 - ☐ Tielens thinks that extragalactic radio astronomy is a complete bore as radio sources have no optical identifications. Decides to focus on interstellar medium with end result - 2012 Spinoza Prize!!!

Getting advice from GdB 1

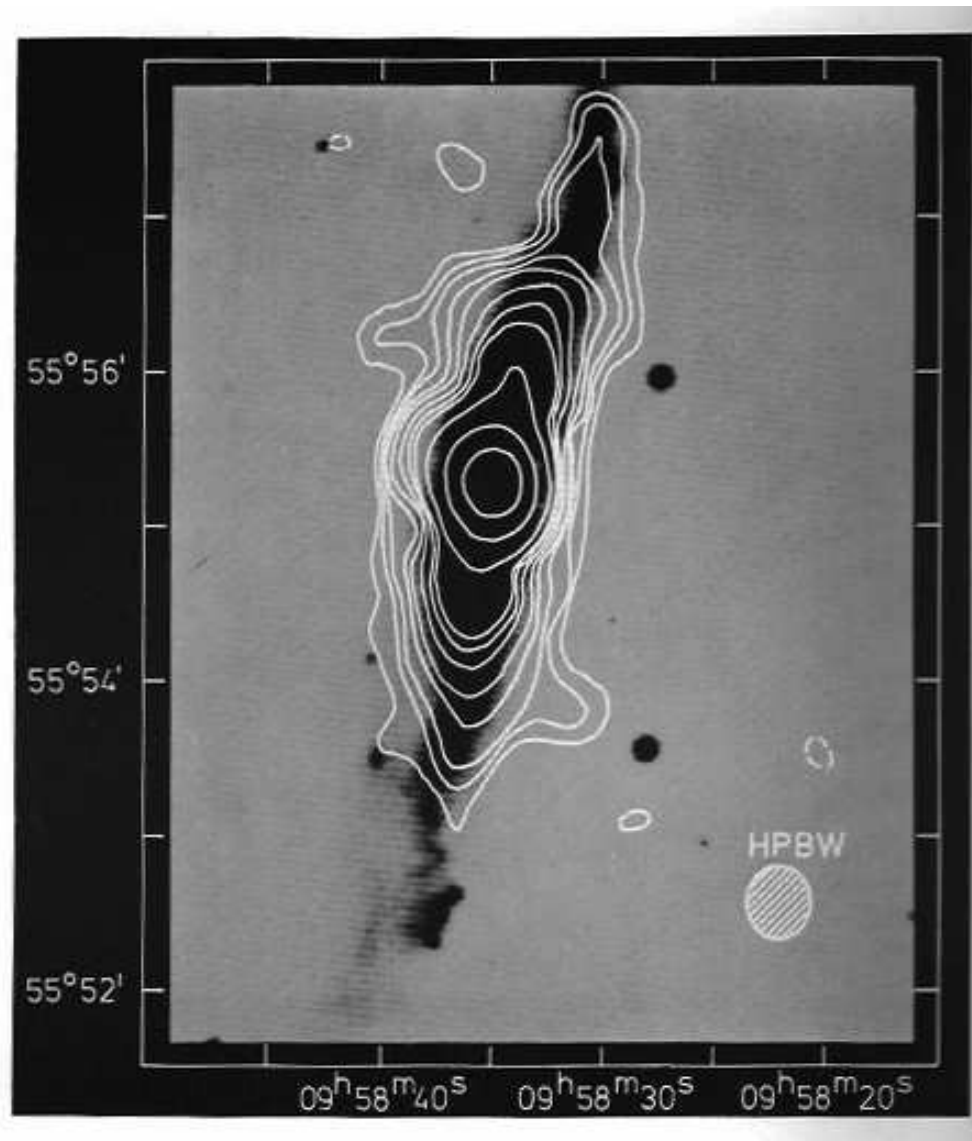


Getting advice from GdB 2

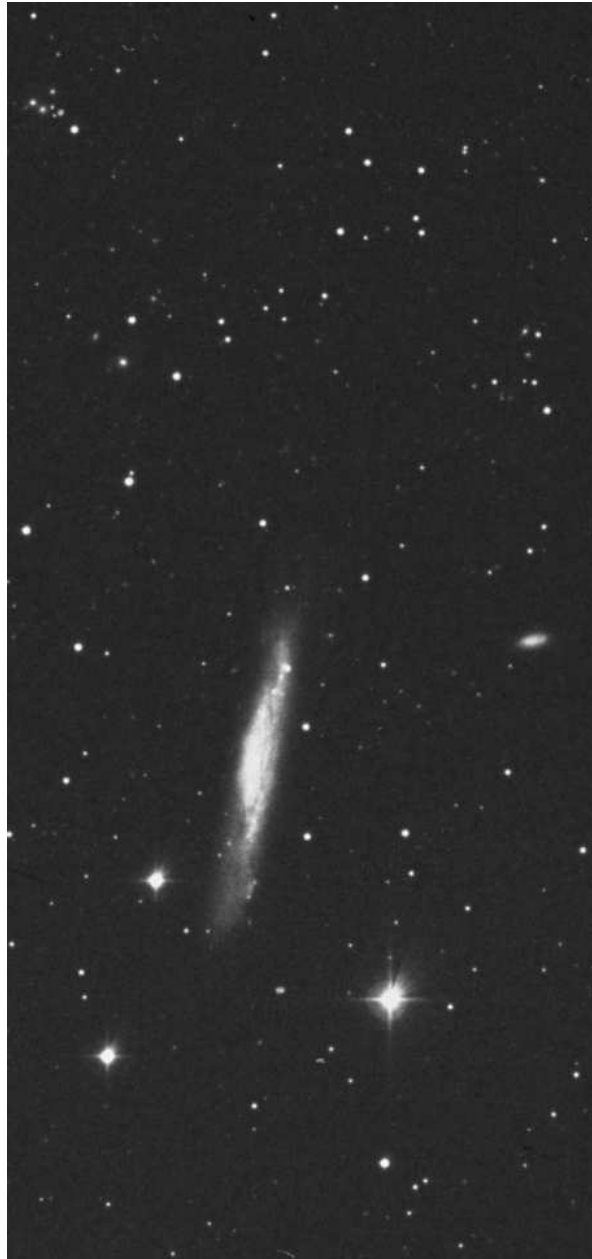
- Rick: 'So Ger, how does this counting stuff work?'
- Ger: 'Well Rick, to count to five you start with one.'



The One that Got Away 1



The One that Got Away 2



The One that Got Away 3



articles

0957+561 A, B: twin quasistellar objects or gravitational lens?

D. Walsh

University of Manchester, Nuffield Radio Astronomy Laboratories, Jodrell Bank, Macclesfield, Cheshire, UK

R. F. Carswell

Institute of Astronomy, Cambridge, UK

R. J. Weymann

Steward Observatory, University of Arizona, Tucson, Arizona 85721

- A May 1979 Article in Nature

The Little White Car 1



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**They said it couldn't be done.
It couldn't.**

We tried. Lord knows we tried. But we couldn't squeeze the Philadelphia 76ers' Wilt Chamberlain into the front seat of a Volkswagen.

So if you're 7'1" tall like Wilt, our car is not for you.

But if you're a mere 6'7", you're small enough to appreciate what a big thing we've made of the VW.

There's more headroom than you'd expect. (Over 37½" from seat to roof.) And more legroom in front than you'd get in a limousine. Because the engine's tucked over the rear wheels where it's out of the way (and where it can give the most traction).

You can put 2 medium-sized suitcases up front (where the engine isn't), and 3 fair-sized kids in the back. And you can fit a big baby in back of the back seat.

Actually, there's only one part of a VW that you can't put much into.

The gas tank.

But you can get about 29 miles per gallon out of it.



- If you are 7'1" (2.15m) you can't fit in a VW Beetle
- If you are 6'7" (2.00m) you CAN fit in a VW Beetle

The Little White Car 2



■ 1973 Austin Mini

The Little White Car 3



■ Stellingen #11

Ter voorkoming van tijdverlies en irritatie ware het wenselijk dat elke wetenschappelijk onderzoeker tijdens zijn opleiding de geheimen van de ~~dia~~-projector onder de knie krijgt.

laptop!

- In order to prevent irritation and loss of time it is desirable that, while going to school, each scientific researcher masters the secrets of the slide(laptop!) projector!!

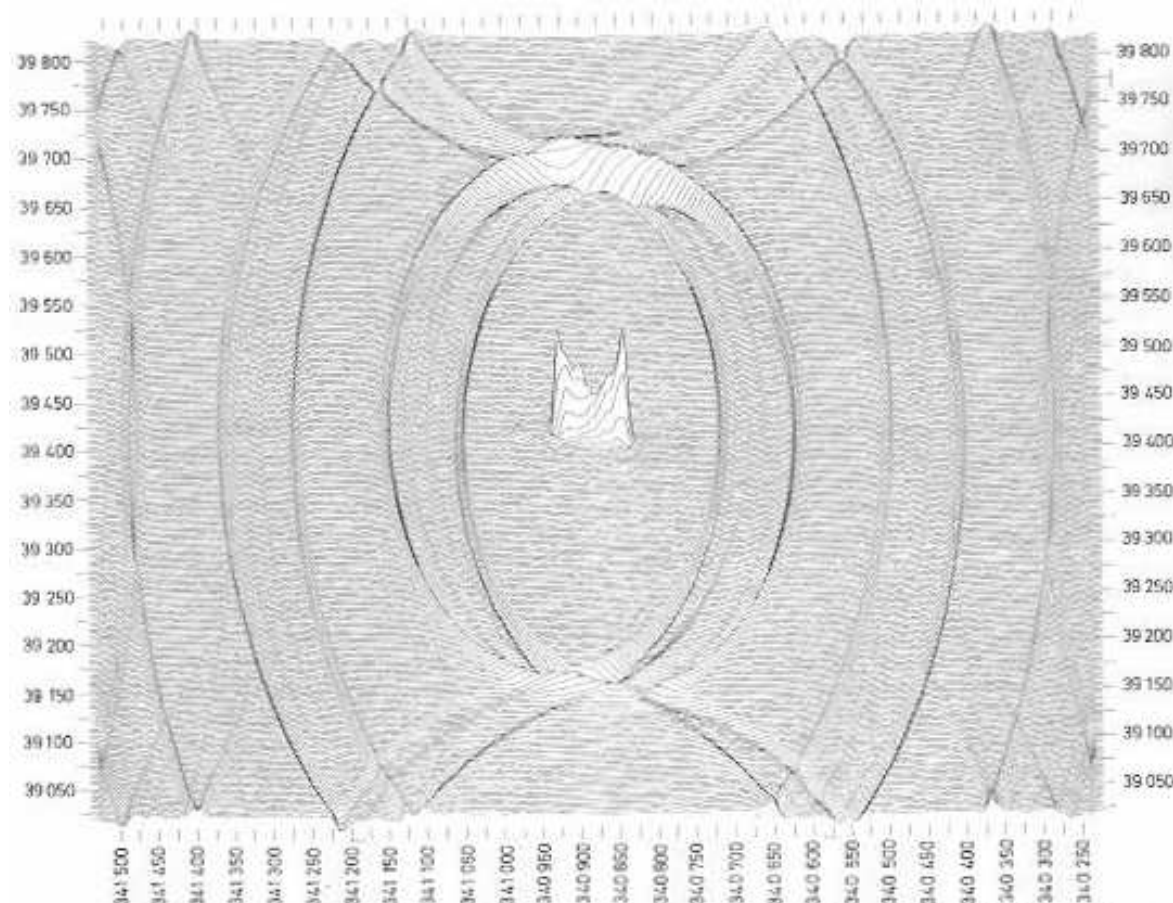
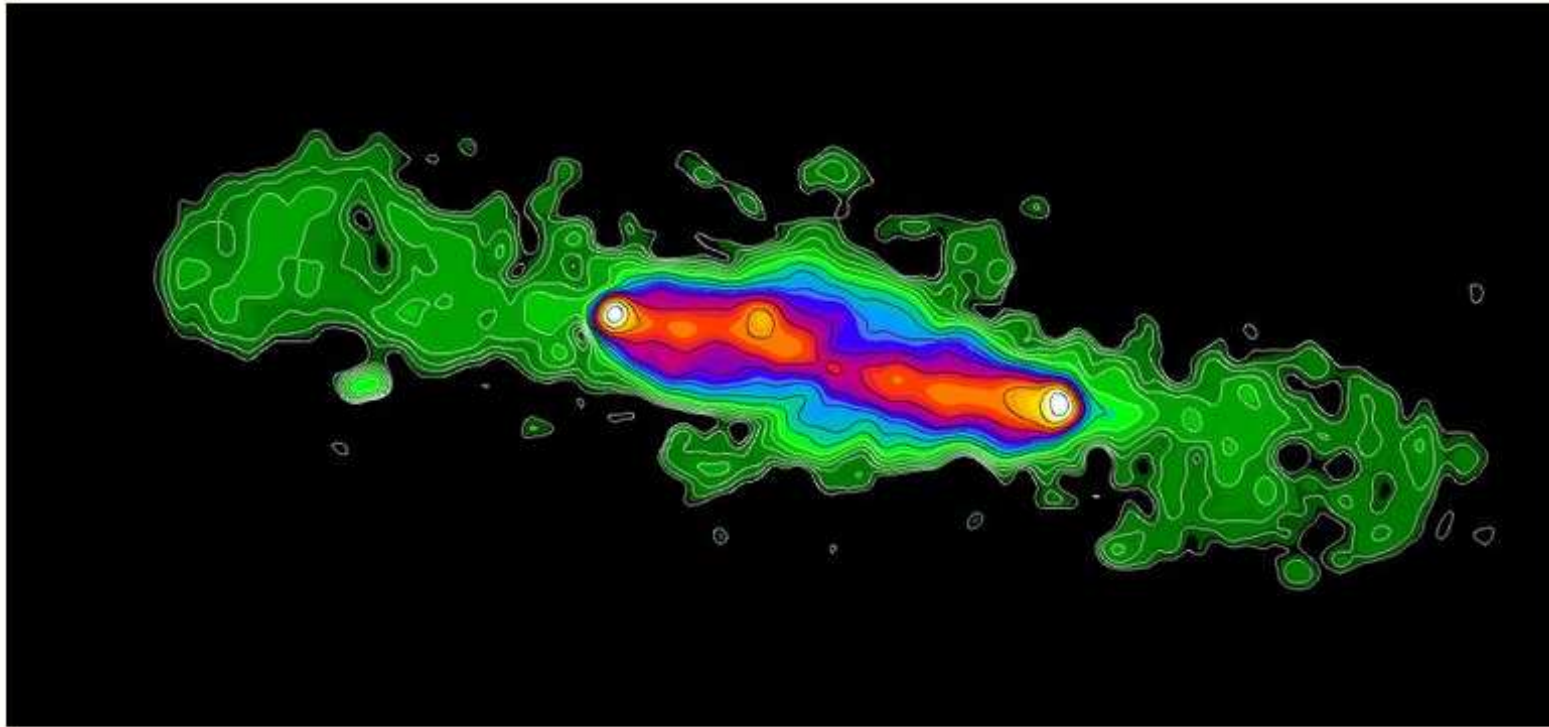


Fig. 5. Profile plot of an image containing the bright radio source 3C452 prepared from a single 12-h measurement at 1415 MHz. Note how the different parts of the source contribute to the confused grating disturbances and that the rings (as well as the main beam) are extended in declination ($\delta = +39^\circ$). The outer parts have been enhanced to compensate for the influence of the primary beam pattern and so make the amplitude scale uniform over the map. Parts of other grating rings centered at the repetition positions of the source outside the map (Section 5.3) can also be seen.

From Hogbom and Brouw 1974



- GMRT 325 MHz From Sirotha, Gopal-Krishna and Witta 2013

The Big Move



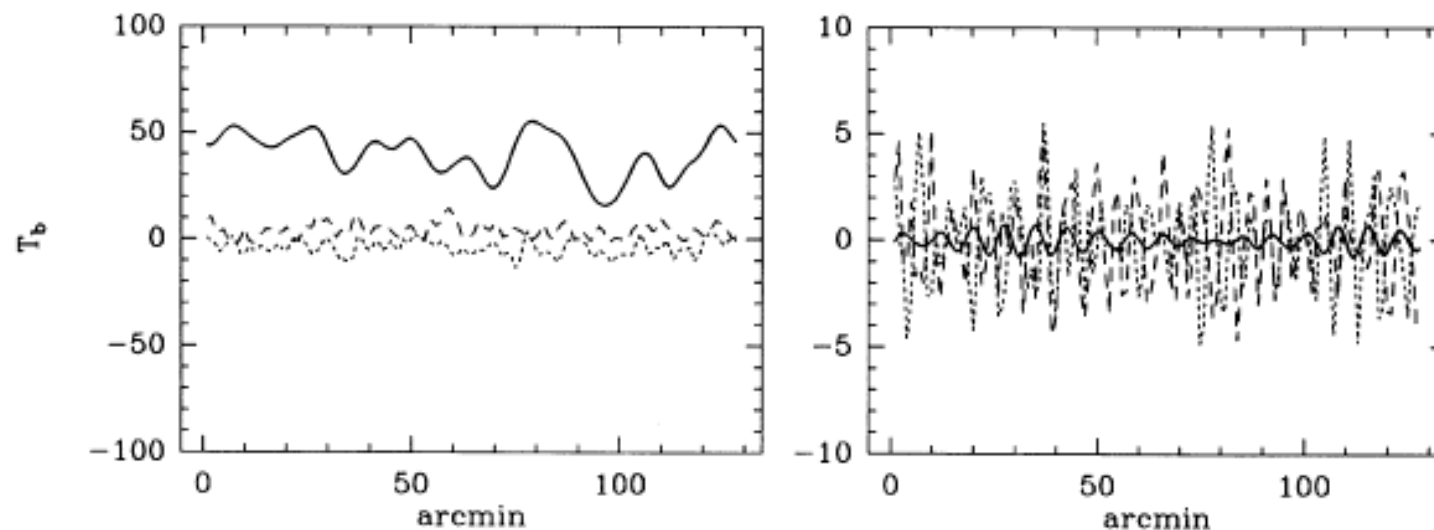
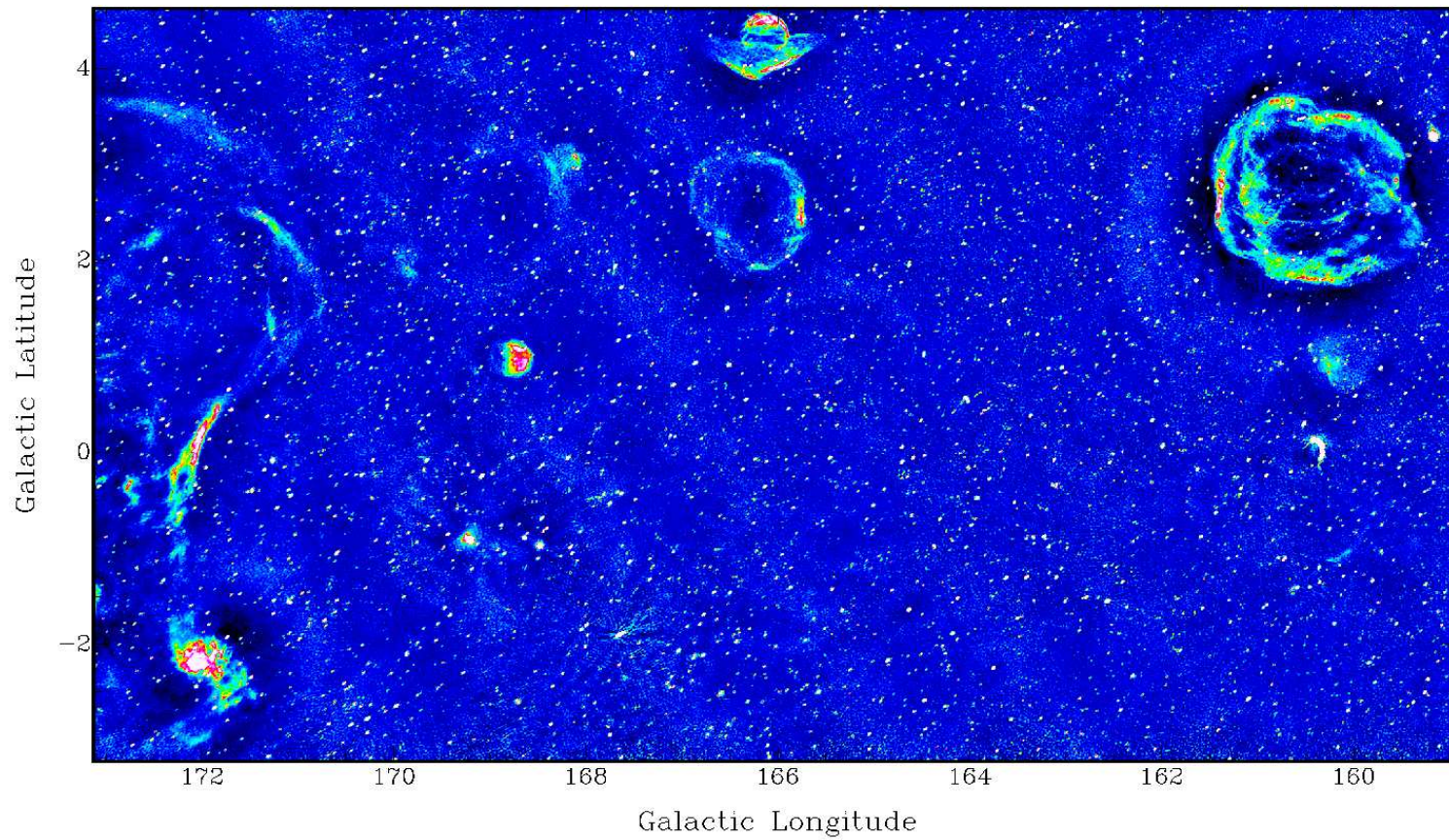


Fig. 8. Schematic illustration of the effect of missing short baselines when the polarized emission contains more fine scale structure than the total intensity; the synthetic I (full-drawn) and Q and U (dashed) distributions (left) were ‘convolved’ with the synthesized WSRT antenna pattern which filters out the low spatial frequencies to produce the apparent distributions (I, Q and U are coded as in left-hand picture); note the different effects on the rather smooth total intensity and the more fluctuating polarized intensities

■ from M.H.Wieringa, A.G.deBruyn, D.Jansen, W.N.Brouw and P.Katgert, A&A,1993

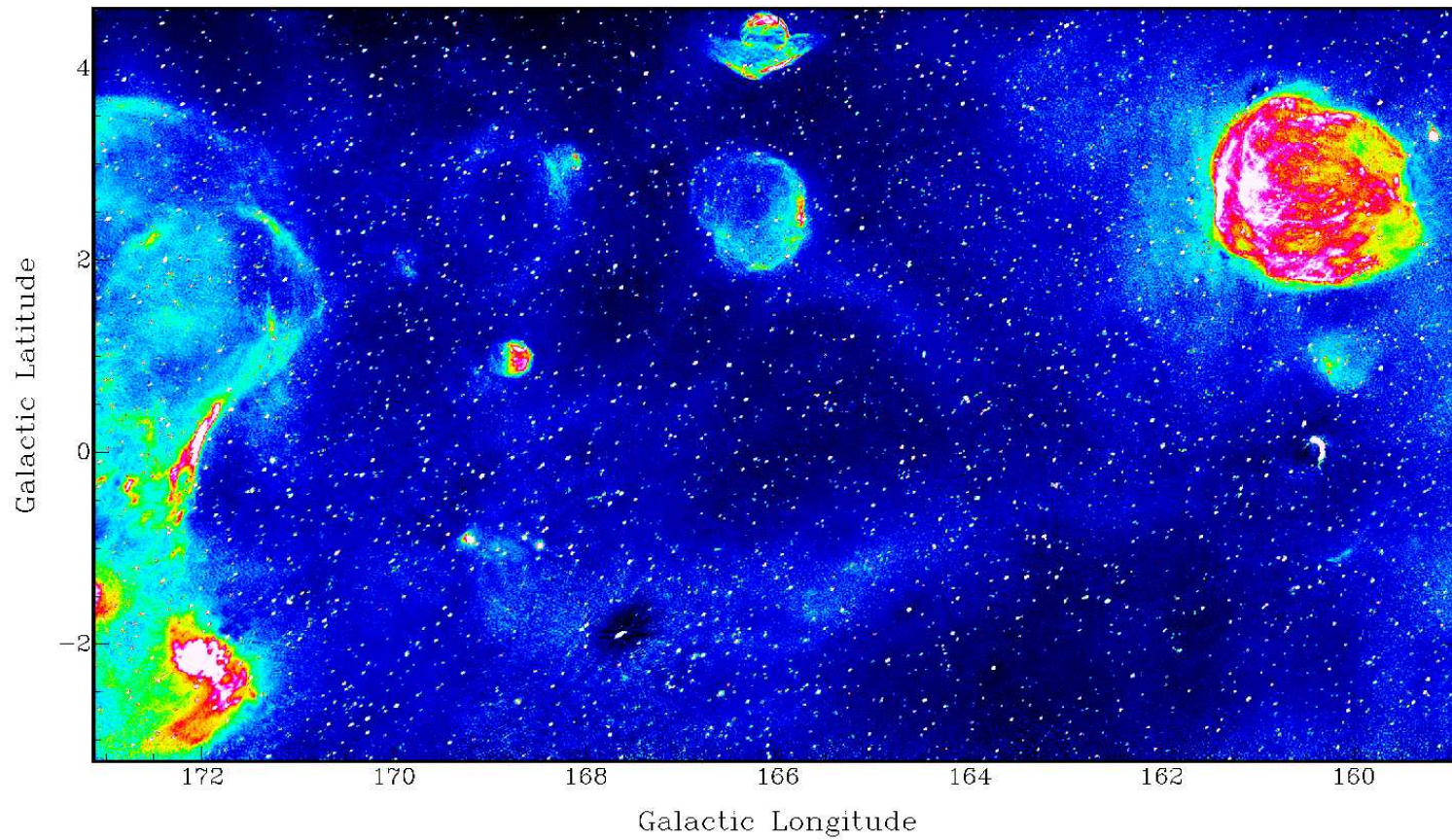
CGPS Stokes I Around $\ell = 165^\circ$

■ without short spacings



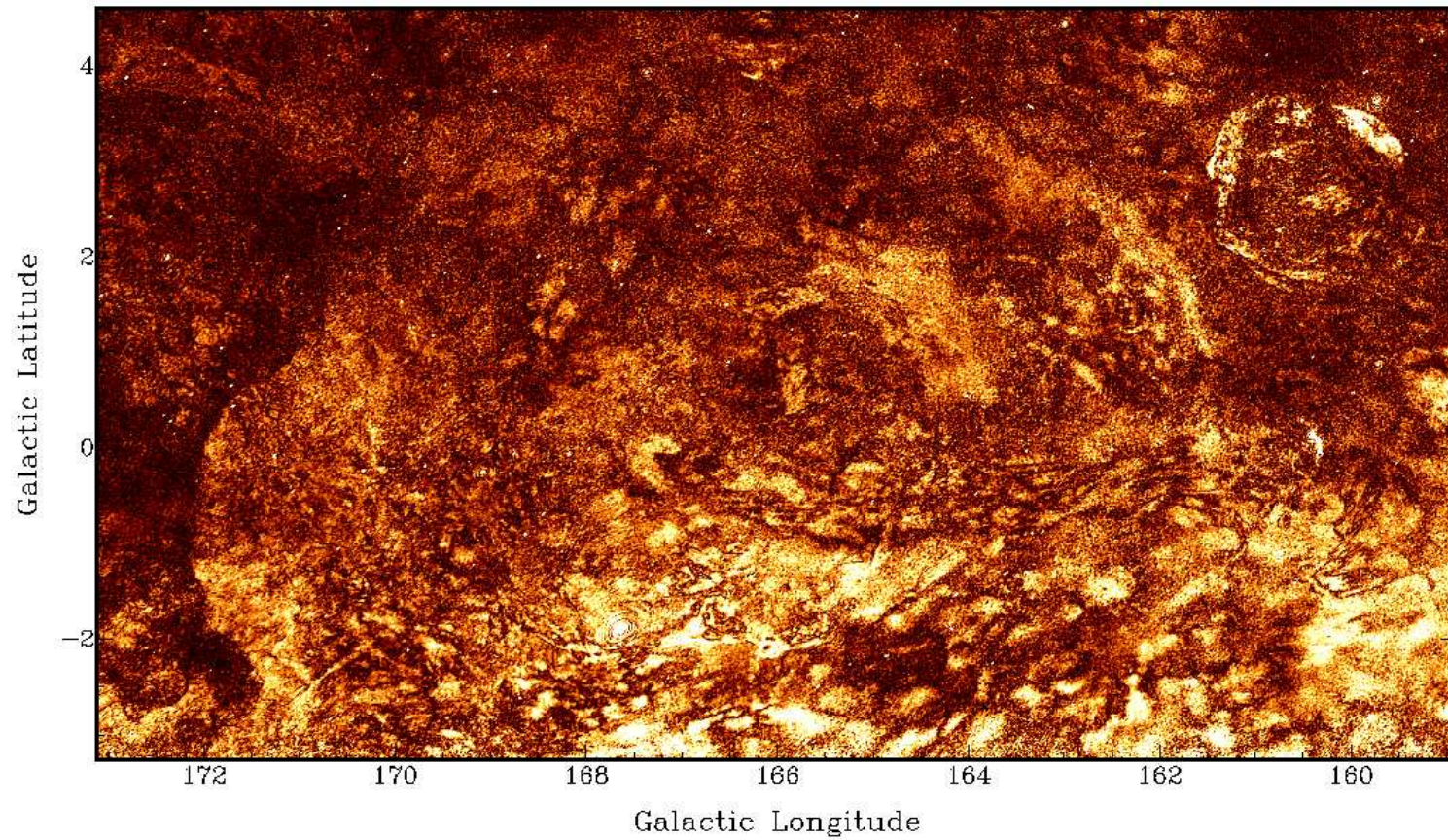
CGPS Stokes I Around $\ell = 165^\circ$

■ with short spacings



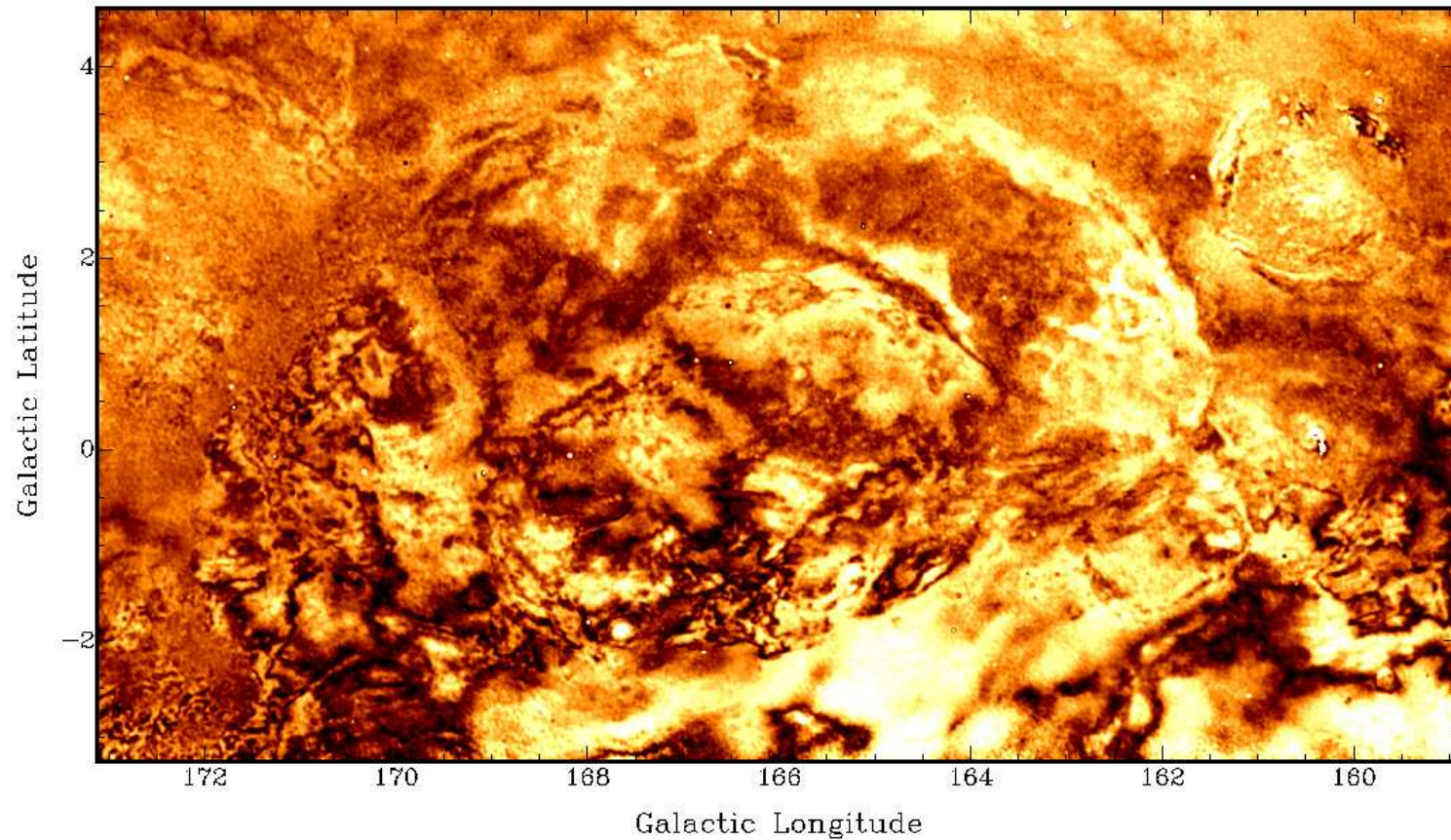
CGPS Polarized Intensity Around $\ell = 165^\circ$

■ without short spacings

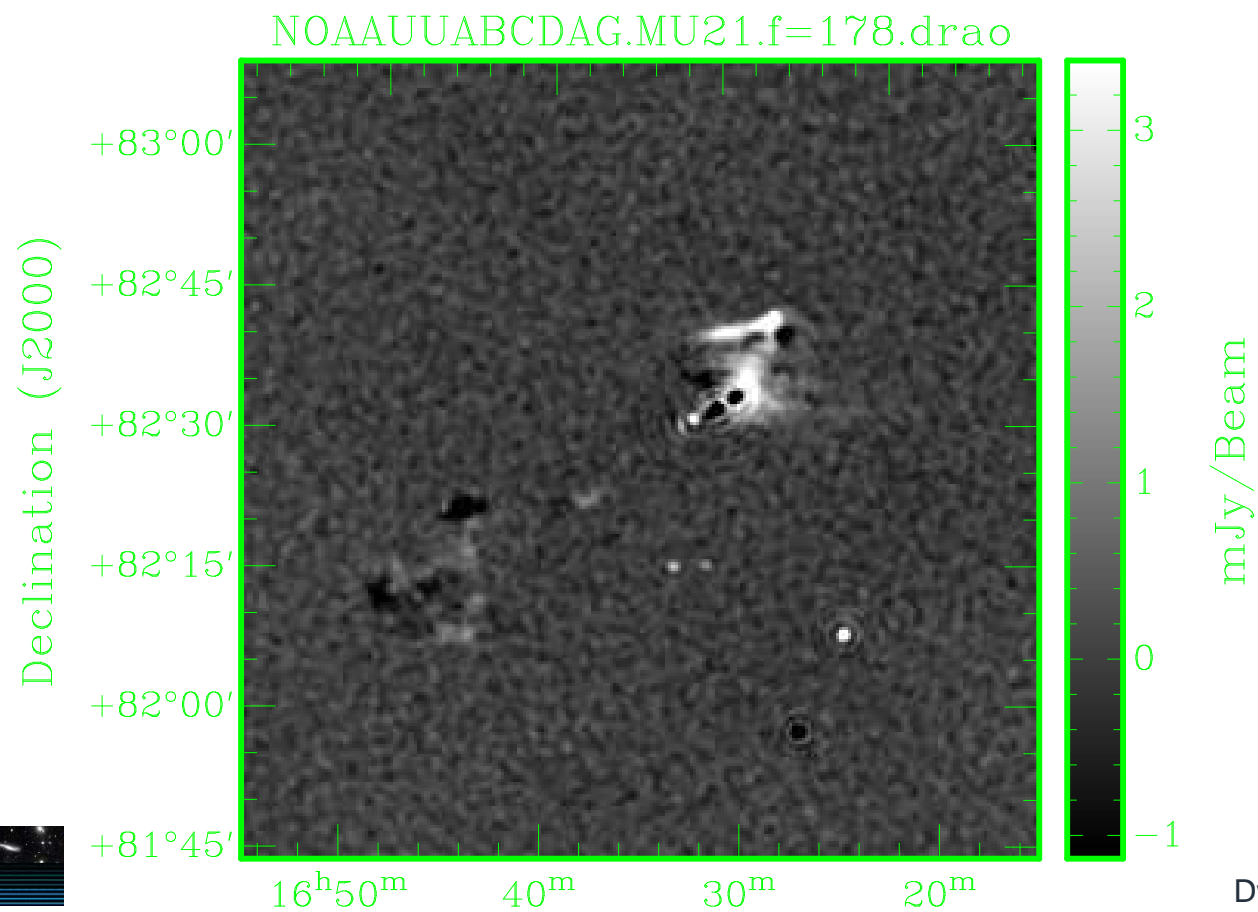


CGPS Polarized Intensity Around $\ell = 165^\circ$

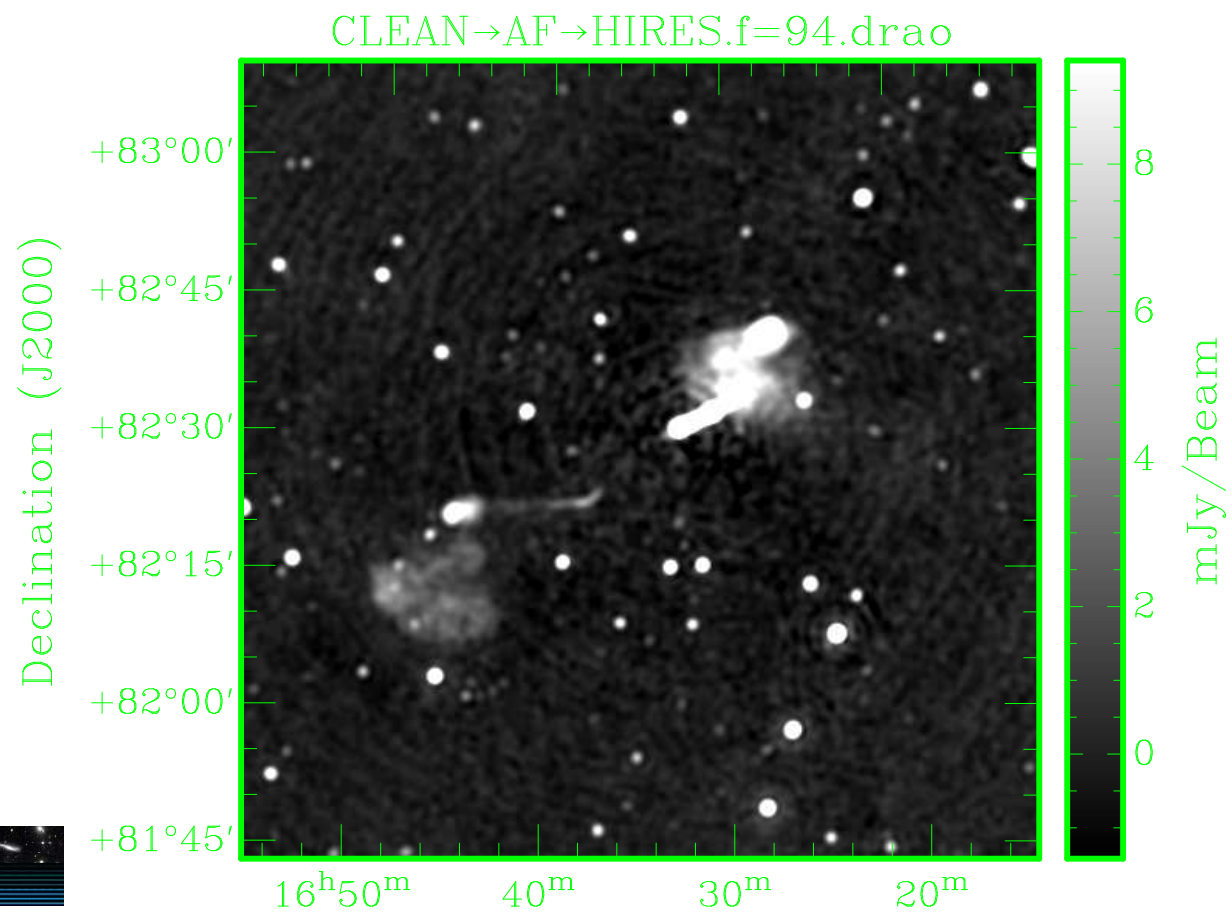
■ with short spacings



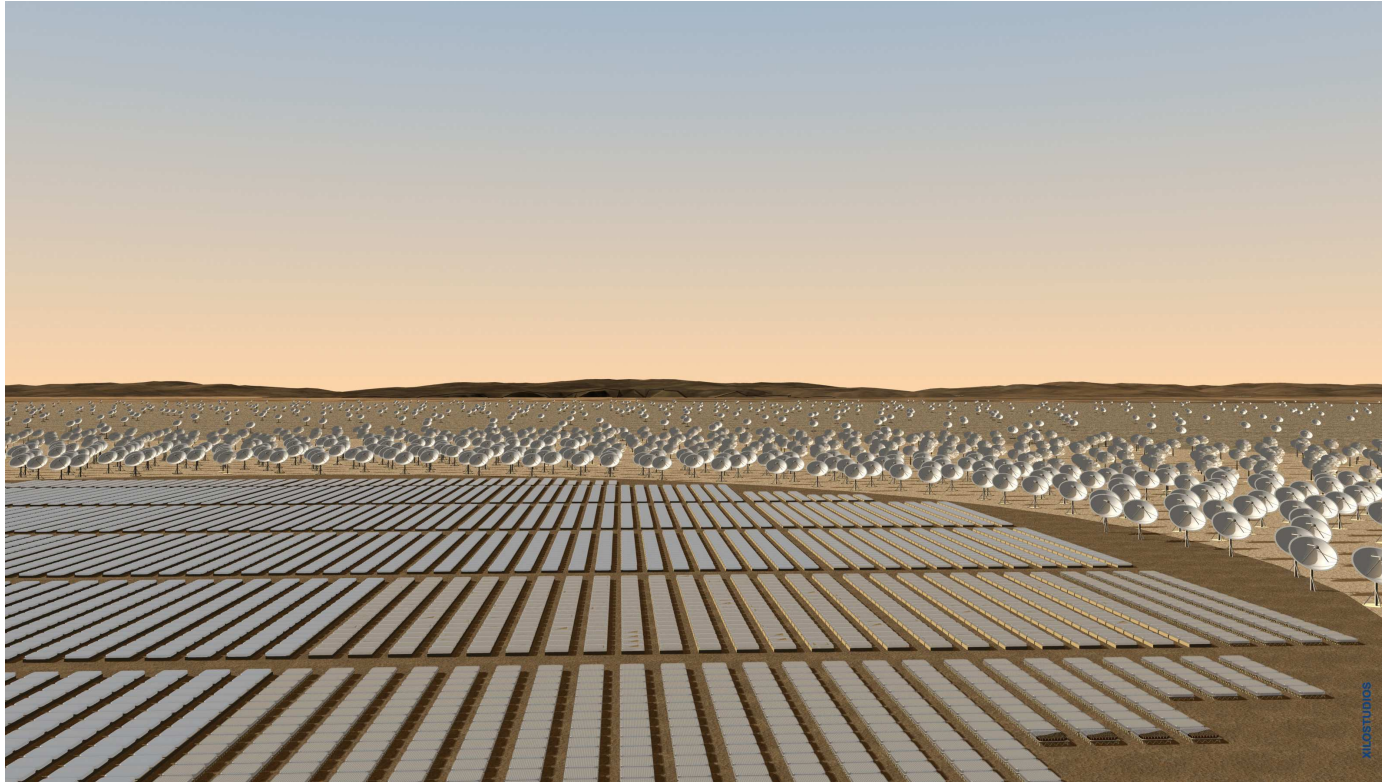
NGC 6251 Stokes U



NGC 6251 Stokes I



There is Always Serendipity!



- ‘... as has been so regularly the case in research with new types of instruments and new methods, it may well be that the instrument will lead in to new, at present unpredictable, types of research; and these might become the most important’ - J.H. Oort, 1961

A Big Thank-you!

- Thanks, Ger, for turning me into an expert interferometrist.
- Best of luck in your search for the EOR
- I hope that at least there is a Spinoza Prize somewhere in your future.