

# RADIOASTRONOMY AT IAG: FROM THE ISM TO AGNS

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# The Observational Procedure

The method used in the observations was beam switching, in which two horns were used, separated by 20' in azimuth.

The switching was made at a rate of 100 Hz and the position of the horn pointing to the source was changed every minute.

This method can cause large errors in the measured flux density of weak sources, due to small changes in gain between the two horns, inhomogeneities in the atmospheric emission and in the radome transmission.

To eliminate these problems, several new observational methods were introduced in Itapetinga, involving changes in the tracking and data acquisition.

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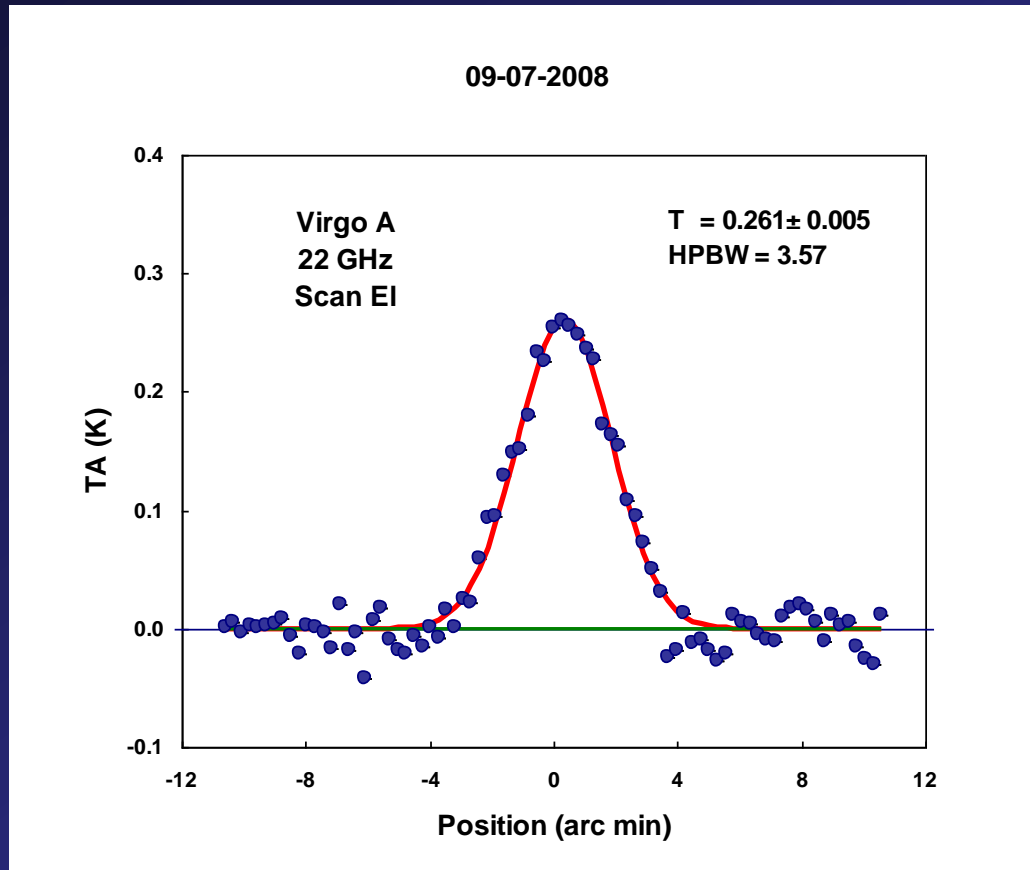
First the ON-ON switching was changed from 1 minute to 20 seconds

Afterwards, the ON-OFF synchronous method was introduced to eliminate possible standing waves due to the radome structure.

Finally, the method of SCANS (on-the-fly) was introduced, in which the radiotelescope scans the sky with amplitude, direction and duration fixed by the observer, passing in front of the source in the middle of the scan.

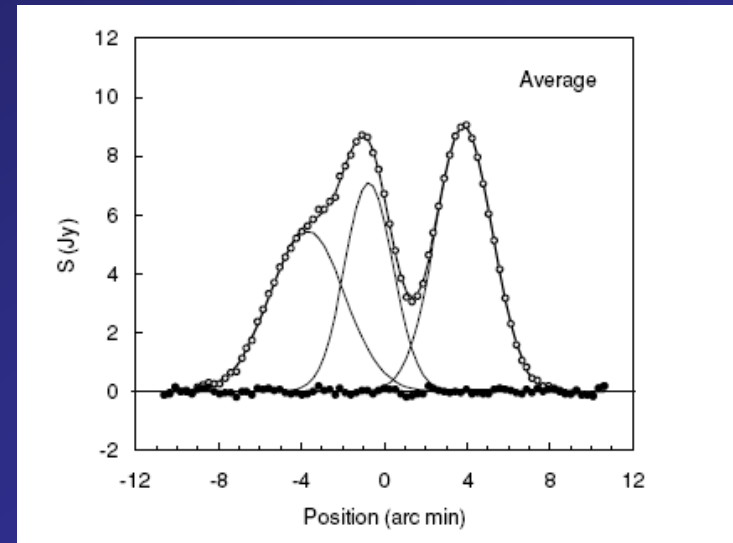
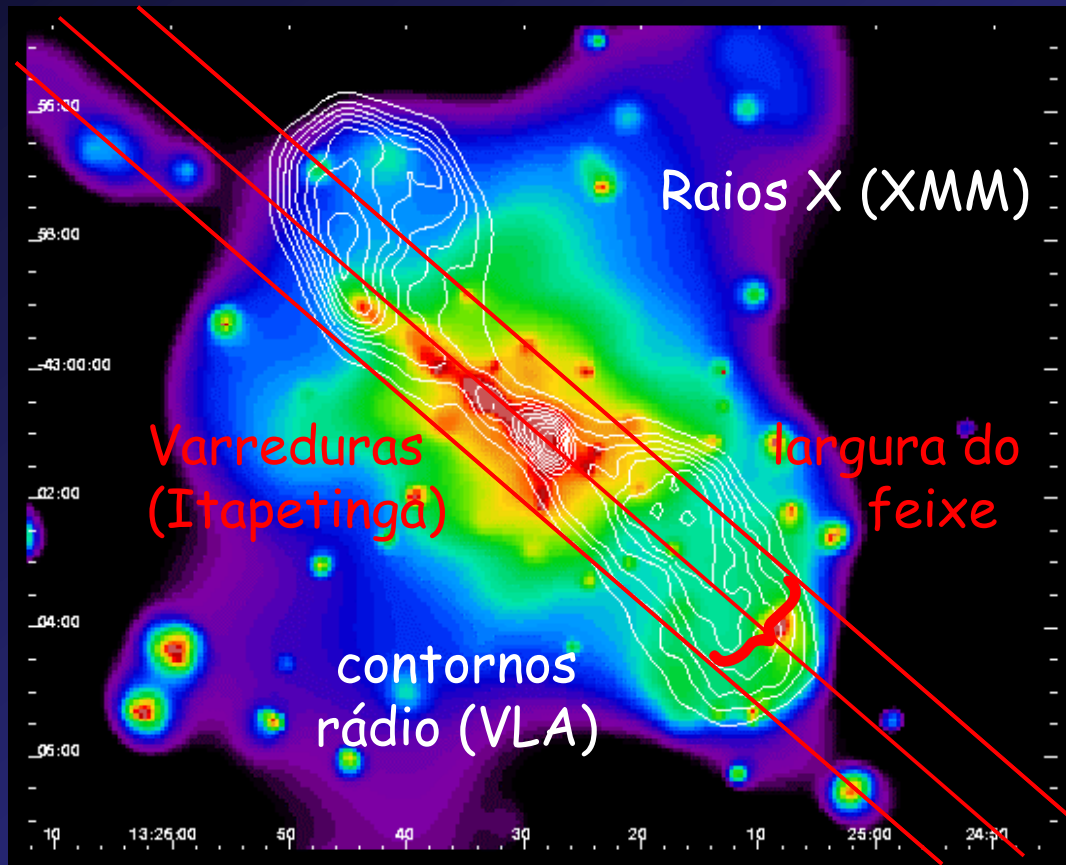
The last method is the most reliable, because it allows visualizing a point source as a Gaussian with half power equal to the HPBW

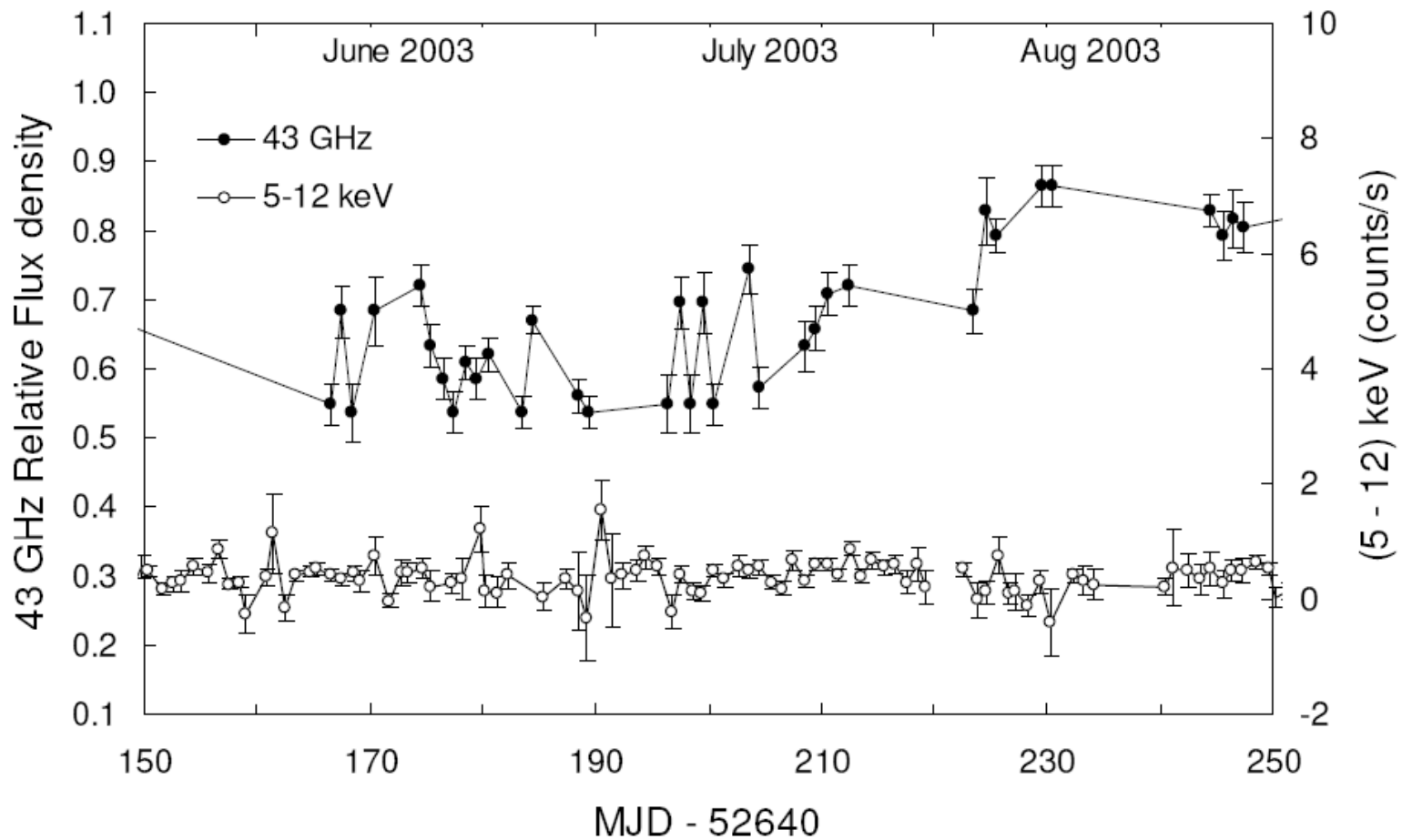
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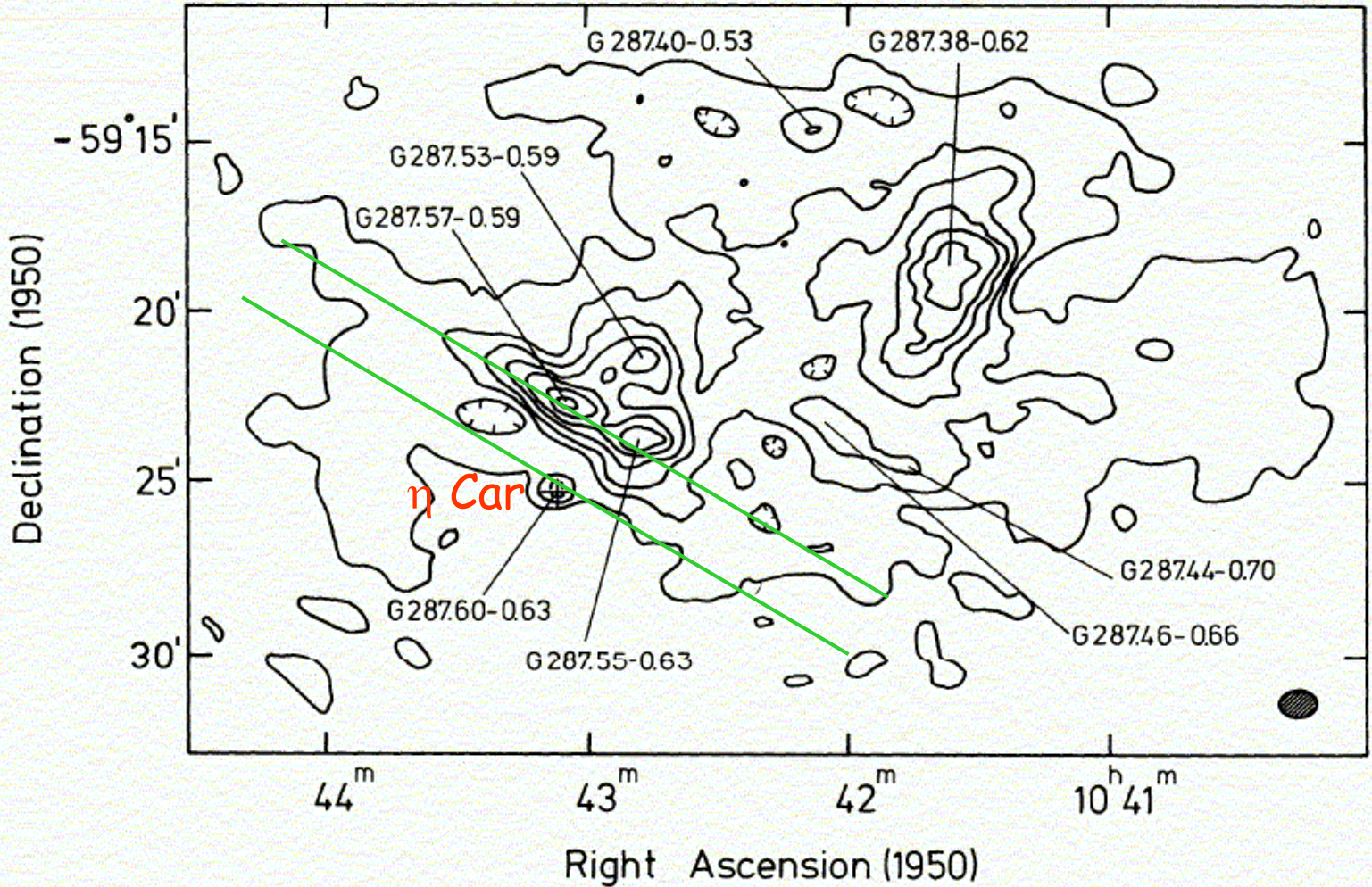
Recent variability studies make use of the scanning facility to instantaneously calibrate the observations, allowing reliable light curves.

For example, in Centaurus A, we use one of the two internal lobes as a calibrator, including it in a 24' scan of the variable central core.





# $\eta$ Carinae light curve



## Radio vs X-rays

