

v547a

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|--------------------|---|
| Description | 3D Kinematics in G339.884-1.259 at 10 to 1000 AU Scales |
| Antennas | At-Cd-Ho-Mp-Pa-Hh |
| Start | 301 21:00:00 |
| Stop | 302 10:00:00 |
| PI | V. Krishnan |

Setup v547a.1cm:

| | |
|----------------------|--|
| Station Modes | At Cd Ho Mp Pa |
| Channel 1 | I FP#1-L0 22230 - 22246 MHz USB RCP |
| Channel 2 | I FP#1-HI 22246 - 22262 MHz USB RCP |
| Channel 3 | I FP#2-L0 22230 - 22246 MHz USB LCP |
| Channel 4 | I FP#2-HI 22246 - 22262 MHz USB LCP |
| DAS 1 Skyfreq | 22246 MHz |
| Bandwidth | 16 MHz |
| DAS Mode | vsop.pro (telescope) |
| Station Modes | Hh |
| Channel 1 | 22230 - 22246 MHz USB RCP |
| Channel 2 | 22230 - 22246 MHz USB LCP |
| Channel 3 | 22246 - 22262 MHz USB RCP |
| Channel 4 | 22246 - 22262 MHz USB LCP |
| Bandwidth | 16 MHz |
| DAS Mode | Mark5 |

Setup v547a.1cm-icrf:

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|----------------------|--|
| Station Modes | At Cd Ho Mp Pa |
| Channel 1 | I FP#1-L0 21888 - 21904 MHz USB RCP |
| Channel 2 | I FP#1-HI 21904 - 21920 MHz USB RCP |
| Channel 3 | I FP#2-L0 22230 - 22246 MHz USB LCP |
| Channel 4 | I FP#2-HI 22246 - 22262 MHz USB LCP |
| DAS 1 Skyfreq | 21904 & 22246 MHz |
| Bandwidth | 16 MHz |
| DAS Mode | vsop.pro (telescope) |
| Station Modes | Hh |
| Channel 1 | 21888 - 21904 MHz USB RCP |
| Channel 2 | 21904 - 21920 MHz USB RCP |
| Channel 3 | 22230 - 22246 MHz USB LCP |
| Channel 4 | 22246 - 22262 MHz USB LCP |
| Bandwidth | 16 MHz |
| DAS Mode | Mark5 |

Mode changes:

301 21:00:00 v547a.1cm-icrf

301 22:30:00 v547a.1cm

301 23:59:59 v547a.1cm-icrf

302 00:45:00 v547a.1cm
302 02:45:00 v547a.1cm-icrf
302 03:30:00 v547a.1cm
302 05:30:00 v547a.1cm-icrf
302 06:15:00 v547a.1cm
302 09:30:00 v547a.1cm-icrf

Ftp: <ftp://ftp.atnf.csiro.au/pub/people/vlbi/v547/v547a>

Comments:

The aim of our project is to conduct astrometric observations of the 22 GHz water masers in G339.884-1.259 to sub-milliarcsecond accuracy. We will be phase referencing this source with respect to J1706-4600 to determine the absolute proper motions of the maser features to probe the 3D gas dynamics at scales of 10 to 1000 AU to understand the outflow structure of this source. The phase referencing observations will also be interspersed with geodetic bloc ICRF observations for tropospheric calibration as well as PKS1934-638 for D-term leakage for polarisation measurements.

Maser emission for G339.884-1.259 is at approximately 22,236.453 MHz.

During the ICRF runs we have sometimes had to exclude certain antennas from observations of some sources in order to get a good spread of azimuths and elevations.

Observing comments for each antenna:

Hobart, Ceduna: The 4 x 16 MHz bandpass setup requires feeding two separate LOs into IFP#1 and #2 on the DAS/frequency translator. For both Hobart and Ceduna the LOs should be set to 818 MHz (IFP#1) and 476 MHz (IFP#2) for the 4 x 16 MHz setup and 476 MHz for the 2 x 16 MHz setup. For Hobart use 16.37 GHz as the Agilent frequency and for Ceduna use 17.47 GHz. For the 4x16 MHz setup 875.72 and 889.4 MHz should give coherence in IF#1 and IF#2 respectively, while for the 2x16 MHz use 889.4 MHz to check coherence (these tones apply for both Hobart and Ceduna).

The level into IF#1 will change significantly between the two setups. Set the level into the DAS so that it is within range for both setups. Setup the system temperature measurement so that it works for both IFs for the v547a.1cm setup - it doesn't matter if the system temperature measurement doesn't work for the second IF during the ICRF observations as these are only to calibrate the delay. Please don't change the attenuation into the DAS when the setup changes as that may change the delay.

ATCA: Please phase-up antennas CA01 through CA05 for this experiment. During phase-referencing have scheduled regular 1m30s scans (frequency of ~15 mins) of 1646-50 to re-phase the array.

Parkes: Calibration observations will run between DOY 301, UT 21:00-22:00. After this observations are from DOY 302 UT 00:25 onwards.

DAS Profile Changes:

Single freq: av16_2_n.pro

Dual freq: av16_2_f.pro (for DAS1 only. DAS2 is unchanged)

DAS Attenuation: (pls verify with next mode change)

Single freq: C12 = 24/14 (second 2 are not used) & C40 = 8/ 2/ 6/ 4

Dual freq: C12 = 26/10 & C40 = 4/ 4/ 6/ 6

HartRAO: Participates in the fringe check betwee DOY 301, 21:00 - 22:00. Observations run between D.O.Y UT 07:14 - 09:10.

Observing comments for each antenna:

| | | | | | |
|----|----|----|----|----|----|
| At | Cd | Ho | Mp | Pa | Hh |
|----|----|----|----|----|----|

Observing Logs

[ATCA antenna summary](#)
[Parkes onsource flagging](#)
[ATCA onsource flagging](#)
[Mopra onsource flagging](#)
[Mopra Tsys \(plot\)](#)
[Parkes Tsys](#)

Weather

[ATCA Weather](#)
[Mopra Weather](#)
[Parkes Weather](#)

Monica log information - EXPERIMENTAL:

[Mopra Tsys](#)
[Parkes Tsys](#)
[ATCA Tsys](#)

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