

NGC7538 領域の水メーザー分布

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Abstract

NGC7538 molecular cloud is one of active massive star forming regions in Perseus arm region. This region has at least three active regions (IRS1-3, IRS9, and IRS11) each of which consists of IR source, ultracompact HII region, CO outflow, high-dense gas core, H2O maser, OH maser, methanol maser, etc. The details of each activity are described.

VLBI observation of H2O masers of NGC 7538

Observation date, time: 2005yr103d (April 14th) 4h-15hJST

Stations: VERA 4 stations

Recording mode: GEO1D mode 16MHz-2bit-2ch Recorder1000(256Mbps) (5 volumes)

Freq.: 22.235GHz (H2O maser)

2 beam separation: ~2degree

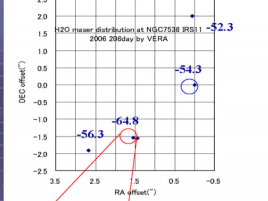
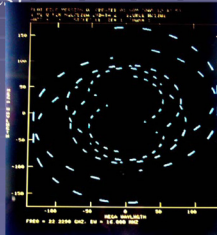
A beam: NGC7538S or N masers

B beam: Cepheus A masers

Calibrator: BL Lac, J2005+7752

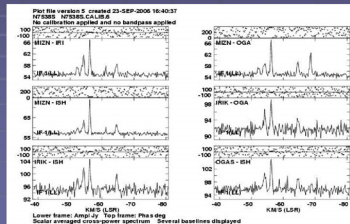
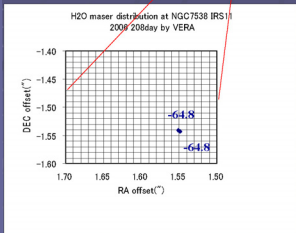
Tsys: Miz:185-340K Irk:196-280K

Oga: 350-700K Ishi:360-620K



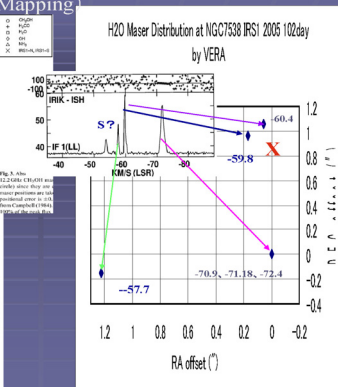
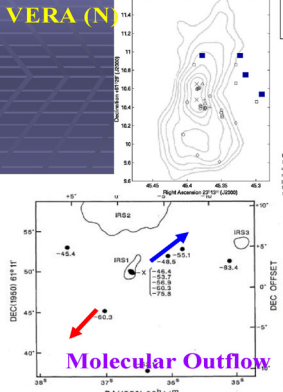
Results of VERA Mapping of S (IRS11) 2006 208day

(0,0)の座標 (1950.0) = (23h11m36. s03±0.05s, 61° 10'30".35±0.35")

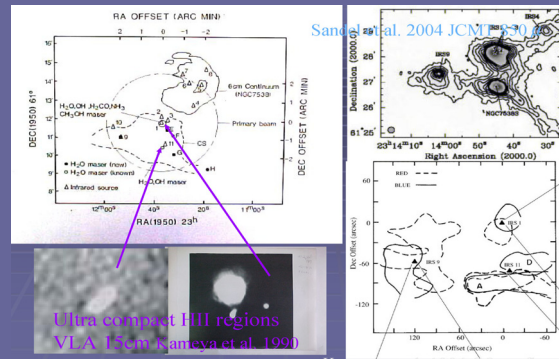


Results of VERA (N)

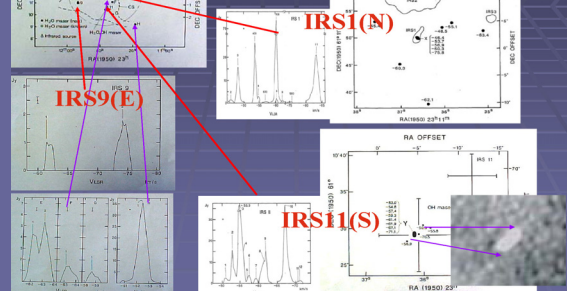
Results (Mapping)



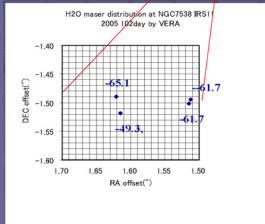
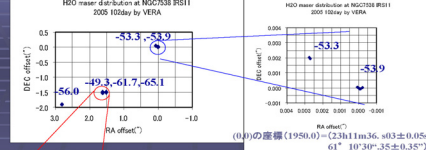
Kameya et al. 1990 NMA H2O 1987 May 9



H2O maser NGC7538 H2O Masers (Kameya et al. 1990) NMA(1987.5)

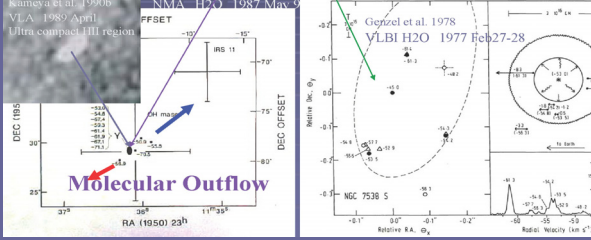
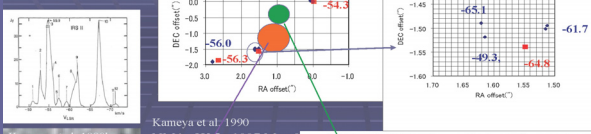


Results of VERA Mapping of S (IRS11) 2005 105day



V. Int (mJy)	Jy/Beam	RA offset	DEC offset
-4.93E+01	7.40E+00	1.81E+03	5.22E+03
-5.31E+01	1.22E+01	9.50E+02	7.00E+03
-5.35E+01	3.98E+01	6.90E+02	3.20E+02
-5.35E+01	7.47E+01	3.00E+02	-3.82E+02
-5.37E+01	1.03E+00	9.20E+02	1.82E+03
-5.39E+01	1.12E+02	0.00E+00	0.00E+00
-5.41E+01	9.12E+01	7.00E+01	1.82E+03
-5.43E+01	5.27E+01	5.82E+02	4.90E+02
-5.46E+01	4.02E+00	7.00E+01	1.82E+03
-5.58E+01	3.88E+00	7.00E+01	3.09E+01
-5.60E+01	1.90E+00	7.00E+01	7.00E+01
-5.18E+01	1.90E+01	1.31E+03	1.19E+03
-6.17E+01	2.09E+01	1.31E+03	-1.19E+03
-5.31E+01	1.31E+01	1.32E+03	1.19E+03
-5.33E+01	4.19E+00	2.70E+00	2.02E+00
-5.32E+01	2.82E+00	2.70E+00	1.82E+03
-5.58E+01	2.18E+01	2.80E+03	1.90E+03
-5.60E+01	9.17E+01	2.80E+03	1.90E+03
-5.62E+01	5.27E+01	2.80E+03	1.90E+03
-6.18E+01	2.89E4	1.32E+03	1.90E+03
-6.11E+01	3.23E+00	1.32E+03	1.90E+03

Results of VERA (S)



Summary and Conclusion

NGC7538 Region

- Most detailed H2O maser distribution of N(IRS1-3) and S(IRS11) of NGC7538 Region has been obtained by two-epoch VLBI observations by VERA.
- These distributions are consistent with the distribution of the High dense cores, IR source, Outflow, Ultra-compact HII Region, H2O, OH, methanol, and the other masers.

Future Works

- VLBI Observations of NGC7538 Region can make clear the dynamics of each star forming region (N&S).
- Distance measurement for Cep A H2O maser using VERA.
- Distance measurement for NGC7538 using VERA.