VSOP AO5 PROPOSAL COVER SHEETS

DEADLINE : 1 February, 2001
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

(1) Date prepared :

(2) Proposal title : Interstellar OH masers at milliarcsecond scale

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(5) Proposal Abstract :

The sizes of OH maser spots are sometimes found to be about 10 times smaller than the expected in the models of interstellar scattering. To study the nature of OH masers and ISM scattering we propose VSOP observations to image interstellar OH masers in W75N, NGC7538, and Orion-KL at 1665 MHz and 1710 MHz. The maps of the maser regions and images of individual maser spots will be produced with an angular resolution of 1 milliarcsec which is several times higher than the angular resolution available on the ground. Since observations with ground-only telescopes, toward the sources in this proposal, so far have only partially resolved OH maser spots, VSOP high angular resolution may provide the crucial opportunity to achieve our goal.

(6) Proposal Category (indicate all that apply):

Object type:

☐ AGN, ☑ Maser, ☐ Stellar, ☐ Pulsar, ☐ Other :

Observation type:

☐ Continuum, ☑ Spectral Line, ☐ Polarization, ☐ Time critical,
☐ Phase-reference, ☐ Other :

(7) Number of proposed experiments

An 'experiment' is one or more observations of one source at a fixed HALCA set-up. A request to observe the same source at 1.6 GHz and separately at 5 GHz requires two columns to be filled in in item (8) below. A request to observe the same source with HALCA simultaneously observing at 1.6 GHz and 5 GHz requires one column to be filled in. Multi-epoch observations of the same source at the same frequency – a 'monitoring experiment' – requires only one column to be filled in. Suggested observing dates, especially for for time-critical and monitoring experiments, should be specified in item (11).

The number of experiments in this proposal is:3

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)				
Alternative name	W75N	NGC7538IRS1	Orion-KL	
RA(J2000) (hh mm ss.ssss)	20 36 50.016	23 11 36.646	05 32 47.0	
Dec(J2000) (dd mm ss.sss)	42 26 57 .127	61 11 49.84	-05 24 23.2	
Observing frequency band (GHz)	1.6	1.6	1.6	
Continuum observations:				
Standard VSOP freq. channels?	☐	☐	☐	☐
Channel A range (MHz)				
Channel B range (MHz)				
Spectral line observations:				
Ch.A spectral line rest freq. (MHz)	1665	1665	1665	
Ch.A LSR velocity (km/s)	10	-58	8	
Ch.B spectral line rest freq. (MHz)	1710	1710	1710	
Ch.B LSR velocity (km/s)	10	-58	8	
FWHM of field of view required (mas)	1500	700	1000	
Min. spectral channels per IF channel	8192	8192	8192	
Correlator averaging time (sec)				
No. of correlating passes (if >1)	2	2	2	
Total flux density (Jy)	40	30	50	
Correlated flux (mJy)	30	20	30	
Ground Radio Telescopes:				
Suggested array given at Item (11)?	☑	☑	☑	☐
GRT observing mode:				
128Mbps LCP (standard)	☑	☑	☑	☐
128Mbps LCP/RCP	☐	☐	☐	☐
256Mbps LCP/RCP	☐	☐	☐	☐
Preferred correlator:				
No preference	☐	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☑	☑	☑	☐
Socorro	☐	☐	☐	☐
Monitoring programs:				
Number of observations				
Mean interval (days)				
Related VSOP proposal code(s)	v103, w327, w428	v103, w327, w428	v103, w327, w428	

(9) VSOP spacecraft observing mode (see Section 3 and Table 2 of the VSOP Proposer's Guide):

- [x] 2 channel x 16 MHz, 2-bit (Standard mode),
- [ ] Other:

Phase calibration tones:

- [ ] On (Standard continuum mode),
- [x] Off (Standard spectral line mode)

(Include justification of any non-standard choice at (11) below)

(10) Assistance with preparation of ground telescope schedule files:

[ ] VSOG assistance requested, [x] Consultation desired, [ ] No assistance required

(11) Additional notes to the scheduler :

VLBA plus USUDA64m and/or Bonn100m

(12) Attach a scientific and technical justification, not in excess of 2 pages of text and 2 pages of figures. Refer to the VSOP Announcement of Opportunity for detailed instructions. Preprints and reprints will not be forwarded to the Scientific Review Committee.

EITHER e-mail the completed LaTeX file to submit@vsop.isas.ac.jp and send two paper copies of the complete proposal to:

VSOP Observing Proposals
VSOP Science Operations Group
Institute of Space and Astronautical Science
3-1-1 Yoshinodai, Sagamihara
Kanagawa 229-8510 JAPAN

OR e-mail the completed LaTeX Cover Sheets file and, in a separate e-mail, the postscript file of the scientific and technical justification, to submit@vsop.isas.ac.jp

Information from the Cover Sheets of scheduled proposals will be made available from the VSOP WWW site.

Proposals must be received at ISAS by 1 February 2001