VSOP PROPOSAL COVER SHEETS

ID :

TR :

SR :

DEADLINE : 17 November, 1995
SEND TO : VSOP SOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229, JAPAN

Please read Appendix C of Announcement of Opportunity for details on how to fill in this Cover Sheet.

(1) Date prepared : 17-Nov-1995

(2) Proposal title : VSOP mapping of maser spots

(3)	INVESTIGATORS	INSTITUTION
P.I.	Yasuhiro Murata	ISAS, Japan
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co-I.	Takahiro Iwata	Communication Research Lab., Kashima, Japan
co-I.	Rey Furuya	Ibaragi University, Japan

(4) Principal Investigator (or contact person) details...

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(5) Proposal Abstract :

We will observe well-known star forming regions to investigate the intrinsic structure of the maser spots. We selected 6 strong water maser sources closer than 1 kpc, to avoid the interstellar scatterring. Purpose of this observation is to get high resoluton / high dynamic range maps for the water maser spots. Output of this observation will be used not only for studying each source, but used as the basic data for study of maser emission mechanisum and the study of the astronomical objects which has the maser emission.

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

Object type:

☐ AGN, ☑ Masers, ☐ Stellar, ☐ Other :

Experiment type:

☑ Single-observation, ☐ Monitoring, ☐ Polarization,
☐ Time-critical, ☐ Target of Opportunity, ☐ Other :

(7) VSOP spacecraft observing mode (see Section 3 and Table 5 of the VSOP Proposer's Guide):

☑ 2 channel x 16 MHz, 2-bit (Standard mode),
☐ 2 channel x 32 MHz, 1-bit,
☐ 1 channel x 32 MHz, 2-bit

Phase calibration tones:

☐ On (Standard continuum mode),
☑ Off (Standard spectral line mode)

(Include justification of any non-standard choice at (14) below)

(8) Ground radio telescope setup

Polarization :

☑ VSOP Standard (IEEE LCP), ☐ Non-standard :

Recording mode :

☑ As for VSOP spacecraft (Standard), ☐ Other :

(9) Investigator participation in scheduling

☑ PI (or co-I) wishes to participate in scheduling ground radio telescopes
☑ PI (or co-I) wishes to participate in scheduling the space radio telescope

(10) Preferred correlator (see Sections 9.11 and 12 of VSOP Proposer's Guide):

☐ No preference, ☑ Mitaka, ☐ Socorro, ☐ Other :

(11) Preferred post-correlation data analysis location:

☑ Home Institution, ☑ Mitaka, ☐ NRAO AOC, ☐ JIVE, ☐ Other

(12) Post-correlation data analysis assistance required:

☐ None, ☑ Consultation, ☐ Extensive help

(13) Details of proposed experiments

All experiments are one observation of one source in 22 GHz band.
All experiments are spectral line observation, but require dynamic range.

Number of experiments in this proposal: 6

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name	Orion-KL	IRAS16293-2422	NGC2071	YLW16
RA (hh mm ss.s)	05 32 47.0	16 29 20.9	05 44 31.3	16 24 26.0
Dec (dd mm ss)	−05 24 23.0	−24 22 15.9	+00 20 48.0	−24 32 52.9
J2000 or B1950?	B1950	B1950	B1950	B1950
Observing frequency band (GHz)	22	22	22	22
Continuum observations:				
Standard VSOP freq. channels?	☐	☐	☐	☐
Channel A range (MHz)	22226-22242	22226-22242	22226-22242	22226-22242
Channel B range (MHz)	22242-22258	22242-22258	22242-22258	22242-22258
Spectral line observations:				
Ch.A spectral line rest freq. (MHz)	22235	22235	22235	22235
Ch.A LSR velocity (km/s)	0.0	0.0	0.0	0.0
Ch.B spectral line rest freq. (MHz)	22251	22251	22251	22251
Ch.B LSR velocity (km/s)	0.0	0.0	0.0	0.0
Min. spectral channels per IF channel	1024	1024	1024	1024
Correlator averaging time (sec)	0.3	0.3	0.3	0.3
FWHM of field of view required (mas)	900	900	900	900
No. of correlating passes (if >1)	4			
Measured total flux density (Jy)	248300.0	2806.0	740.0	451.9
Measured correlated flux density on > 5000 km baseline (Jy)	9932.0	1122.4	296.0	180.8
Image RMS needed (mJy/beam)	1	1	1	1
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	8	8	8	8
Number of large telescopes	1	1	1	1
Suggested array given at Item (14)	☑	☑	☑	☑
Minimum acceptable:				
Number of medium telescopes	6	6	6	6
Number of large telescopes	0	0	0	0
Suggested array given at Item (14)	☑	☑	☑	☑
Length of observation:				
Preferred length (orbits)	3	3	3	3
Minimum acceptable length (orbits)	2	2	2	2
Scheduling constraints:				
Preferred P.A. of beam *major* axis (deg)				
'No holes' (u,v) coverage?	☐	☐	☐	☐
Or maximum resolution (u,v) coverage?	☐	☐	☐	☐
Preferred range of dates for scheduling (for monitoring experiments give range for 1st observation only)	to	to	to	to
For monitoring programs:				
Number of observations				
Mean interval (days)				
Acceptable variance from mean (days)				

	Experiment 5	Experiment 6	Experiment 7	Experiment 8
Source name	Cep-A	OMC2		
RA (hh mm ss.s)	22 54 18.9	05 32 59.8		
Dec (dd mm ss)	+61 45 44.0	−05 11 28.9		
J2000 or B1950?	B1950	B1950		
Observing frequency band (GHz)	22	22		
Continuum observations:				
Standard VSOP freq. channels?	☐	☐	☐	☐
Channel A range (MHz)	22226-22242	22226-22242		
Channel B range (MHz)	22242-22258	22242-22258		
Spectral line observations:				
Ch.A spectral line rest freq. (MHz)	22235	22235		
Ch.A LSR velocity (km/s)	0.0	0.0		
Ch.B spectral line rest freq. (MHz)	22251	22251		
Ch.B LSR velocity (km/s)	0.0	0.0		
Min. spectral channels per IF channel	1024	1024		
Correlator averaging time (sec)	0.3	0.3		
FWHM of field of view required (mas)	900	900		
No. of correlating passes (if >1)				
Measured total flux density (Jy)	404.3	188.7		
Measured correlated flux density on > 5000 km baseline (Jy)	161.7	75.5		
Image RMS needed (mJy/beam)	1	1		
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	8	8		
Number of large telescopes	1	1		
Suggested array given at Item (14)	☑	☑	☐	☐
Minimum acceptable:				
Number of medium telescopes	6	6		
Number of large telescopes	0	1		
Suggested array given at Item (14)	☐	☑	☐	☐
Length of observation:				
Preferred length (orbits)	3	3		
Minimum acceptable length (orbits)	2	2		
Scheduling constraints:				
Preferred P.A. of beam *major* axis (deg)				
'No holes' (u,v) coverage?	☐	☐	☐	☐
Or maximum resolution (u,v) coverage?	☐	☐	☐	☐
Preferred range of dates for scheduling (for monitoring experiments give range for 1st observation only)	to	to	to	to
For monitoring programs:				
Number of observations				
Mean interval (days)				
Acceptable variance from mean (days)				

(14) Additional notes to the scheduler :

Exp 1–4,6 Pref Array = One or Two of southern hemisphere telescopes (HO, MR, CG, PA, TI)
Exp 1–6 Please contact PI for accurate positions for correlation.

All correlated flux at 5000 km baseline is estimated assuming the source size is 0.2 mas.

(15) Attach a scientific and technical justification, not in excess of 2 pages of text and 2 pages of figures. Up to one page of (u,v) plots per source may optionally be included.
(Refer to the VSOP Announcement of Opportunity for detailed instructions.)
Preprints and reprints will not be forwarded to the Scientific Review Committee.

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 JAPAN

In addition, e-mail the completed LaTeX file to submit@vsopgw.isaslan1.isas.ac.jp

Cover Sheets of accepted proposals will be made available to the astronomical community.

Proposals must be received at ISAS by 17 November 1995