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 : November 10, 1995

(2) Proposal title : The Structure of Interstellar OH Masers

(3)	INVESTIGATORS	INSTITUTION
P.I.	Mark J. Reid	Harvard-Smithsonian CfA
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(4) Principal Investigator (or contact person) details...

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(5) Proposal Abstract :

We propose VSOP observations of three nearby sources of interstellar OH emission at 1665 MHz (W3OH, G34.3, & NGC6334). The primary goal of the observations is to study the structure of individual maser spots. Maser spot shapes may provide the key to determining whether interstellar OH masers are found in 1) spherically expanding shocked gas, 2) "champagne" flows, or 3) bow-shocks associated with the motion of the central exciting star with respect to the ambient cloud. Since observations with ground-only arrays have only partially resolved OH maser spots, the increased angular resolution afforded by VSOP may provide the crucial resolution.

(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

An 'experiment' is one or more observations of one source in one wavelength band.
A request to observe the same source in all 3 wavelength bands requires 3 columns to be filled in.
To observe the same source at the same frequency multiple times – a 'monitoring experiment' – requires only one column to be filled in.
Number of experiments in this proposal: 3

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name	W3OH	G34.3	NGC6334	
RA (hh mm ss.s)	02 23 16.4	18 50 46.4	17 17 32.3	
Dec (dd mm ss)	+61 38 57	+01 11 10	−35 44 04	
J2000 or B1950?	B1950	B1950	B1950	
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)	1665.402	1665.402	1665.402	
Ch.A LSR velocity (km/s)	−45	+ 3	− 7	
Ch.B spectral line rest freq. (MHz)	1667.359	1667.359	1667.359	
Ch.B LSR velocity (km/s)	−45	+ 3	− 7	
Min. spectral channels per IF channel	2 × 128 of 8196	2 × 128 of 8196	2 × 128 of 8196	
Correlator averaging time (sec)	0.25	0.25	0.25	
FWHM of field of view required (mas)	2000	3000	2000	
No. of correlating passes (if >1)				
Measured total flux density (Jy)	200	80	180	
Measured correlated flux density				
on > 5000 km baseline (Jy)	> 5	> 5	n.a.	
Image RMS needed (mJy/beam)	50	50	50	
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	3	4	5	
Number of large telescopes	3	4	2	
Suggested array given at Item (14)	☑	☑	☑	☐
Minimum acceptable:				
Number of medium telescopes	3	4	3	
Number of large telescopes	2	2	2	
Suggested array given at Item (14)	☐	☐	☐	☐
Length of observation:				
Preferred length (orbits)	4	4	4	
Minimum acceptable length (orbits)	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	97-01-01	98-08-15	98-02-25	
(for monitoring experiments give	to	to	to	to
range for 1st observation only)	97-03-15	98-10-15	98-06-01	
For monitoring programs:				
Number of observations				
Mean interval (days)				
Acceptable variance from mean (days)				

(14) Additional notes to the scheduler :

Preferred array for W3OH: EF, UD, VL, & VLBA-HN,-MK,-SC
Preferred array for G34.3: EF, UD, HT, TI, VL, & VLBA-HN,-MK,-SC
Preferred array for NGC6334: HT, TI, VL, & VLBA-FD,-MK,-SC

Note more VLBA stations would be valuable and should be included if tape copying at the Mitaka correlator is not a major issue.

(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