VSOP AO3 PROPOSAL COVER SHEETS

DEADLINE : 1 October, 1999
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

(1) Date prepared : 99/10/1

(2) Proposal title : AU-scale structure in the interstellar molecular clouds

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(5) Proposal Abstract :

We propose to observe three extragalactic compact sources, which positions are 10 degree above and below the galactic plane, to investigate the galactic absoption feature of OH molecules at 1655 MHz and 1667 MHz, and H_2CO molecules at 4830 MHz. Amang many strong extra-Galactic compact radio sources, 3C147, 3C111, NRAO150 is ideal to observe the absorption by galactic interstellar molecule by means of VLBI technique. High dynamic range and high resolution of the Space VLBI unable to image the absobed molecule lines in our Galaxy along the line of sight of these extra-Galactic sources. Higher resolution of the space baselines is needed for this study not only to determine the size on order of several AU, but also to detect the absorption with avoiding smearing of the absorption profile cause by large beam.

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

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

Observation type:
☑ Continuum, ☑ Spectral Line, ☐ Polarization, ☐ Time-critical, ☐ 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:6

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J0542+4951	J0542+4951	J0359+5057	J0359+5057
Alternative name	3C147	3C147	NRAO150	NRAO150
RA(J2000) (hh mm ss.ssss)	05:42:36.138	05:42:36.138	03:59:29.747	03:59:29.747
Dec(J2000) (dd mm ss.ssss)	49:51:07.234	49:51:07.234	50:57:50.162	50:57:50.162
Observing frequency band (GHz)	1.6	5	1.6	5
Continuum observations:				
Standard VSOP freq. channels?	☐	☐	☐	☐
Channel A range (MHz)				
Channel B range (MHz)				
Spectral line observations:				
Ch.A spectral line rest freq. (MHz)	1612.231	4829.6594	1612.231	4829.6594
Ch.A LSR velocity (km/s)	8	8	-11	-11
Ch.B spectral line rest freq. (MHz)	1665.401	4829.6594	1665.401	4829.6594
Ch.B LSR velocity (km/s)	8	8	-11	-11
FWHM of field of view required (mas)				
Min. spectral channels per IF channel	8192	4096	8192	4096
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	7.0	7.5	10.1	9.0
Correlated flux (mJy)	0.5	0.8	0.4	0.3
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)				

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (*Jhhmm±ddmm*)	J0418+380	J0418+380		
Alternative name	3C111	3C111		
RA(J2000) (hh mm ss.ssss)	04:18:21.3262	04:18:21.3262		
Dec(J2000) (dd mm ss.ssss)	38:01:35.676	38:01:35.676		
Observing frequency band (GHz)	1.6	5		
Continuum observations:				
Standard VSOP freq. channels?	☐	☐	☐	☐
Channel A range (MHz)				
Channel B range (MHz)				
Spectral line observations:				
Ch.A spectral line rest freq. (MHz)	1612.231	4829.6594		
Ch.A LSR velocity (km/s)	-2	-2		
Ch.B spectral line rest freq. (MHz)	1665.401	4829.6594		
Ch.B LSR velocity (km/s)	-2	-2		
FWHM of field of view required (mas)				
Min. spectral channels per IF channel	8192	4096		
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.9	1.0		
Correlated flux (mJy)	0.4	0.3		
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)				

(9) 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),

☐ Other:

Phase calibration tones:

☐ On (Standard continuum mode),

☑ 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, ☑ Consultation desired, ☐ No assistance required

(11) Additional notes to the scheduler :

(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 October 1999