VSOP AO2 PROPOSAL COVER SHEETS

DEADLINE : 8 May, 1998
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

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

(1) Date prepared : 04.05.1998

(2) Proposal title : Phase-referencing survey of weak extragalactic radio sources

(3)	INVESTIGATORS	INSTITUTION
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(5) Proposal Abstract :

We propose to observe a sample of 21 radio faint ($0.02 \leq S_{1.6GHz} \leq 0.05$) quasars using a modified phase referencing technique. The sources are selected to be accessible to 18 cm space VLBI by the presence (within 1 degree) of a nearby strong reference (JVAS) source.
The main objectives of this work are:
– To begin a study of the possible luminosity dependence and cosmological evolution of compact radio source properties with the highest angular resolution over a wide range in redshift
– To demonstrate feasability of a new modification of phase-referencing VLBI which might considerably enhance the scientific outcome of VSOP and future Space VLBI missions

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

Object type:

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

Observation type:

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

(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 (10).

The number of experiments in this proposal is: 21

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J1075+3170	J1069+2949	J1324+5470	J1272+3646
Alternative name				
RA(J2000) (hh mm ss.ssss)	10 45 23.4469	10 41 36.8018	13 14 27.5744	12 43 12.7371
Dec(J2000) (dd mm ss.ssss)	+31 42 31.631	+29 29 51.749	+54 41 48.502	+36 27 44.000
Observing frequency band (GHz)	1.6	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)				
Ch.A LSR velocity (km/s)				
Ch.B spectral line rest freq. (MHz)				
Ch.B LSR velocity (km/s)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.16	0.10	0.06	0.15
Correlated flux (mJy)				
Ground Radio Telescopes:				
Suggested array given at Item (10)?	☑	☑	☑	☑
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 AO1 proposal code(s)				

	Experiment 5	Experiment 6	Experiment 7	Experiment 8
Source name (J*hhmm*±*ddmm*)	J0227+0551	J0129+3169	J0937+4496	J0992+4735
Alternative name				
RA(J2000) (hh mm ss.ssss)	02 16 16.8579	01 17 35.0618	09 22 35.0153	09 55 40.2045
Dec(J2000) (dd mm ss.ssss)	+05 30 56.200	+31 41 28.886	+44 57 49.063	+47 21 54.508
Observing frequency band (GHz)	1.6	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)				
Ch.A LSR velocity (km/s)				
Ch.B spectral line rest freq. (MHz)				
Ch.B LSR velocity (km/s)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.11	0.05	0.05	0.06
Correlated flux (mJy)				
Ground Radio Telescopes:				
Suggested array given at Item (10)?	☑	☑	☑	☑
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 AO1 proposal code(s)				

	Experiment 9	Experiment 10	Experiment 11	Experiment 12
Source name (J*hhmm*±*ddmm*)	J1920+6543	J0209+1087	J0885+2018	J1319+3201
Alternative name				
RA(J2000) (hh mm ss.ssss)	19 12 05.9775	02 05 51.5210	08 51 33.2395	13 11 38.0880
Dec(J2000) (dd mm ss.ssss)	+65 26 30.053	+10 52 50.047	+20 11 00.284	+32 01 47.126
Observing frequency band (GHz)	1.6	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)				
Ch.A LSR velocity (km/s)				
Ch.B spectral line rest freq. (MHz)				
Ch.B LSR velocity (km/s)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.08	0.06	0.06	0.02
Correlated flux (mJy)				
Ground Radio Telescopes:				
Suggested array given at Item (10)?	☑	☑	☑	☑
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 AO1 proposal code(s)				

	Experiment 13	Experiment 14	Experiment 15	Experiment 16
Source name (J*hhmm*±*ddmm*)	J1434+4642	J1591+4455	J1291+5353	J1079+7264
Alternative name				
RA(J2000) (hh mm ss.ssss)	14 20 20.6777	15 55 02.8258	12 54 58.8416	10 47 47.5213
Dec(J2000) (dd mm ss.ssss)	+46 24 40.911	+44 33 21.619	+53 31 34.666	+72 38 12.945
Observing frequency band (GHz)	1.6	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)				
Ch.A LSR velocity (km/s)				
Ch.B spectral line rest freq. (MHz)				
Ch.B LSR velocity (km/s)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.05	0.05	0.03	0.04
Correlated flux (mJy)				
Ground Radio Telescopes:				
Suggested array given at Item (10)?	☑	☑	☑	☑
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 AO1 proposal code(s)				

	Experiment 17	Experiment 18	Experiment 19	Experiment 20
Source name (J*hhmm*±*ddmm*)	J0437+0050	J1088+3391	J1079+3480	J0048+3583
Alternative name				
RA(J2000) (hh mm ss.ssss)	04 22 41.8483	10 52 50.0575	10 47 53.6230	00 28 51.9697
Dec(J2000) (dd mm ss.ssss)	+00 30 20.844	+33 55 04.999	+34 48 01.655	+35 50 36.065
Observing frequency band (GHz)	1.6	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)				
Ch.A LSR velocity (km/s)				
Ch.B spectral line rest freq. (MHz)				
Ch.B LSR velocity (km/s)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.02	0.02	0.02	0.02
Correlated flux (mJy)				
Ground Radio Telescopes:				
Suggested array given at Item (10)?	☑	☑	☑	☑
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 AO1 proposal code(s)				

	Experiment 21	Experiment 22	Experiment 23	Experiment 24
Source name (J*hhmm*±*ddmm*)	J1061+5685			
Alternative name				
RA(J2000) (hh mm ss.ssss)	10 36 40.7438			
Dec(J2000) (dd mm ss.ssss)	+56 51 25.988			
Observing frequency band (GHz)	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)				
Ch.A LSR velocity (km/s)				
Ch.B spectral line rest freq. (MHz)				
Ch.B LSR velocity (km/s)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.07			
Correlated flux (mJy)				
Ground Radio Telescopes:				
Suggested array given at Item (10)?	☑	☐	☐	☐
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 AO1 proposal code(s)				

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

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

Phase calibration tones:

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

(Include justification of any non-standard choice at (10) below)

(10) Additional notes to the scheduler :

1) The total flux densities were obtained at 1.4 GHz (NVSS, Condon et al., 1998) or FIRST (White et al., 1997). The flat spectrum core flux densities are usually somewhat lower, in the range from 20-50 mJy.

2) In order to achieve the required imaging quality we request a global array consisting of EVN and VLBA telescopes. We request the participation of at least 11 telescopes, including one large telescope in each experiment.

3) The positions in the Tables refer to those of the faint sources. The final HALCA pointing positions may differ by up to 0.5 degrees and will be supplied to the VSOG by the proposers at the scheduling stage.

(11) 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 229-8510 JAPAN
In addition, e-mail the completed LaTeX file 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 8 May 1998