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 : 9/29/99

(2) Proposal title : High-Brightness Objects in the Pearson-Readhead AGN Survey

(3)	INVESTIGATORS	INSTITUTION
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(5) Proposal Abstract :

Our space-VLBI observations of compact sources in the Pearson-Readhead survey have revealed five AGNs with rest-frame brightness temperatures (T_b's) exceeding 3×10^{12} K. These high-brightness objects (HBOs) are likely are likely to have the highest Doppler factors in the sample, and should therefore be representive of some of the fastest, most aligned jets in the Pearson-Readhead parent population. We propose to re-observe these rare objects with HALCA at 1.6 and 5 GHz, with the best ground array possible, in order to investigate structural variations, and the dependence of T_b on time and observing frequency. We will use also use our images to test statistical beaming models, which predict extremely small jet viewing angles for these HBOs. We believe these observations will help achieve one of the main goals of the VSOP mission, which is to gain a better understanding of ultra-compact, highly beamed AGNs.

(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: 10

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J0136+4751	J0217+7349	J0841+7053	J1642+6856
Alternative name	0133+476	0212+735	0836+710	1642+690
RA(J2000) (hh mm ss.ssss)	01 36 58.5947	02 17 30.8132	08 41 24.3652	16 42 07.8485
Dec(J2000) (dd mm ss.ssss)	+47 51 29.1000	+73 49 32.6210	+70 53 42.1730	+68 56 39.7560
Observing frequency band (GHz)	5	5	5	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)				
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)	1.8	3.0	2.2	1.2
Correlated flux (mJy)	1600	2200	1100	600
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)	v030	v030	v030	v030

	Experiment 5	Experiment 6	Experiment 7	Experiment 8
Source name (J*hhmm*±*ddmm*)	J0136+4751	J0217+7349	J0841+7053	J1642+6856
Alternative name	0133+476	0212+735	0836+710	1642+690
RA(J2000) (hh mm ss.ssss)	01 36 58.5947	02 17 30.8132	08 41 24.3652	16 42 07.8485
Dec(J2000) (dd mm ss.ssss)	+47 51 29.1000	+73 49 32.6210	+70 53 42.1730	+68 56 39.7560
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)	1.4	2.6	4.2	1.5
Correlated flux (mJy)	1200	1900	2000	500
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)	v030	v030	v030	v030

	Experiment 9	Experiment 10	Experiment 11	Experiment 12
Source name (J*hhmm*±*ddmm*)	J1740+5211	J1740+5211		
Alternative name	1739+522	1739+522		
RA(J2000) (hh mm ss.ssss)	17 40 36.9778	17 40 36.9778		
Dec(J2000) (dd mm ss.ssss)	+52 11 43.4070	+52 11 43.4070		
Observing frequency band (GHz)	5	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)	2.12	1.98		
Correlated flux (mJy)	1700	1000		
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)	v030	v030		

(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 (11) below)

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

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

(11) Additional notes to the scheduler :

- Since our proposal is to obtain the best possible images of these rare high-brightness objects, we request full ground tracks with the VLBA, plus a sensitive ground antenna, either the phased VLA (preferred), or Effelsberg.
- We ask that our source observations be scheduled during the following time intervals:

0133+476:	Aug—Nov 2000
0212+735:	Aug—Nov 2000
1642+690:	Feb—June 2000
1739+522:	Feb—June 2000
0836+710:	Feb or Apr 2000

(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