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 : 9/27/99

(2) Proposal title : Completing the Pearson-Readhead Survey from Space

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(5) Proposal Abstract :

We propose to use VSOP to image an additional five sources from the Pearson-Readhead (PR) sample of active galactic nuclei (AGNs). As part of a proposal to the first VSOP AO, we are obtaining 5-GHz images of 31 compact sources from this well-studied sample. By observing five additional PR sources, our VSOP sub-sample will be fully complete in terms of flux density, spectral flatness, and gamma-ray-detected objects. When combined with the wealth of supporting data for this sample, this statistically complete data set will allow us to deduce more rigorously the general properties of the sub-parsec nuclear environment and jet dynamics of relativistically beamed AGNs (e.g., brightness temperature, bending, and general morphology). This high-quality imaging survey of a well-defined sample represents a unique product of the VSOP mission, and plays a pivotal role in the interpretation of the VSOP mission Survey.

(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: 5

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J0854+5757	J2354+4553	J0957+5522	J0410+7656
Alternative name	0850+581	2351+456	0954+556	0404+768
RA(J2000) (hh mm ss.ssss)	08 54 41.9963	23 54 21.6802	09 57 38.1825	04 10 45.0300
Dec(J2000) (dd mm ss.ssss)	+57 57 29.9390	+45 53 04.2360	+55 22 57.7330	+76 56 46.8000
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)	1.2	1.1	1.8	2.8
Correlated flux (mJy)	~ 800	~ 1000	~ 100	~ 100
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*)	J0728+6748			
Alternative name	0723+679			
RA(J2000) (hh mm ss.ssss)	07 28 11.6510			
Dec(J2000) (dd mm ss.ssss)	+67 48 47.5200			
Observing frequency band (GHz)	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)	0.6			
Correlated flux (mJy)	$\sim$ 100			
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			

(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 :

Our estimated correlated flux densities at 5000 km are based on a) existing 5 GHz VLBI data for three of the sources, and b) comparisons to measured HALCA brightness temperatures for other Pearson-Readhead AGNs with similar total flux density, spectral index, and core-dominance.

We request the full VLBA during a single orbit, to match the set-up of our previous Pearson-Readhead observations.

Based on snapshot VLBA data at 5 GHz, the correlated flux densities of 0954+556 and 0404+768 are $\sim$ 100 mJy at 5000 km. For these weak sources, we request that the phased VLA or Effelsberg be included in the ground array.

Since one of the objects in our sample (0723+679) has already been scheduled as part of another project (v054), we request a single-orbit extraction of this dataset.

(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