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 : 13-Nov-1995

(2) Proposal title : SVLBI of the Nearby Broad Line Radio Galaxy 3C390.3

(3)	INVESTIGATORS	INSTITUTION
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(4) Principal Investigator (or contact person) details...

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(5) Proposal Abstract :

The nearby broad line radio galaxy 3C390.3 (FR II type with 1-sided jet) is well studied from radio to X-ray. Our VLBI investigations have shown that the active core exhibits a 1-sided jet with superluminal and stationary components. While the jet is straight from about 5 mas out to the extended lobe, in the inner 4 mas the trajectory is curved as visible at high resolution. 2 epochs of VSOP+VLBA+EF+NR observations (of 4 orbits each) are requested at 5 GHz and 1.6 GHz. The aims are: determination of the spectra, trajectories, and separations of core and components, especially in the flaring region ($\sim$ 4 mas from core); probing the B field structure and environment of the jet forming region.

(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 : best UV coverage

(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 : (see (14) below)

☐ VSOP Standard (IEEE LCP), ☑ Non-standard : RCP & LCP

Recording mode :

☐ As for VSOP spacecraft (Standard), ☑ Other : 4 chan x 16 MHz x 2-bit (see (14))

(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: 2

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name	3C390.3	3C390.3		
RA (hh mm ss.s)	18 42 09.094	18 42 09.094		
Dec (dd mm ss)	79 46 17.129	79 46 17.129		
J2000 or B1950?	J2000	J2000		
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)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
FWHM of field of view required (mas)				
No. of correlating passes (if >1)				
Measured total flux density (Jy)	0.3-0.8 (variable)	0.3-0.8 (variable)		
Measured correlated flux density on > 5000 km baseline (Jy)	0.15 - 0.4	0.15 - 0.4		
Image RMS needed (mJy/beam)	0.1	0.1		
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	10	10		
Number of large telescopes	2	2		
Suggested array given at Item (14)	☑	☑	☐	☐
Minimum acceptable:				
Number of medium telescopes	10	8		
Number of large telescopes	1	1		
Suggested array given at Item (14)	☑	☑	☐	☐
Length of observation:				
Preferred length (orbits)	4	4		
Minimum acceptable length (orbits)	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 (for monitoring experiments give range for 1st observation only)	97-02-01 to 97-07-01	97-02-01 to 97-07-01	to	to
For monitoring programs:				
Number of observations	2	2		
Mean interval (days)	360	360		
Acceptable variance from mean (days)	90	90		

(14) Additional notes to the scheduler :

Exp. 1: (5 GHz; preferably with polarization): Pref. Array = VLBA, EF, NR; Min. Array = VLBA, EF.
Exp. 2: (1.6 GHz, standard mode for GRT): Pref. Array = VLBA, EF, NR; Min. = EVN
The nominal bit rate for full sensitivity VSOP polarization observations for the GRT is 256 Mbits/sec, but the aggregate bit rate could be reduced by preferentially recording during periods at which coverage on the ground-space baselines is maximized. Limited observations of standard polarization calibrators would be necessary on the ground array (see (9) above). If dual polarization recording is not approved, the standard VSOP and GRT observing mode will be used, and the minimal array for the 5 GHz observations (Exp. 1) is the same as for Exp. 2.

(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