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 : 10. November 1995

(2) Proposal title : The Parsec-Scale Jet in Superluminal Quasar 3C 273

(3)	INVESTIGATORS	INSTITUTION
P.I.	E. Carrara	NRAO
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(4) Principal Investigator (or contact person) details...

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(5) Proposal Abstract :

The archetypical quasar 3C 273 is an excellent candidate for studies with VSOP. We propose to monitor this source at 5 and 22 GHz with VSOP to study the parsec-scale structural changes with extreme angular resolution. Our scientific objectives are (1) measuring component variations closer to the core than possible from the ground (where mm-VLBI imaging has not yet been able to produce detailed and reliable images); (2) high-dynamic range imaging of the jet structure and polarization properties; (3) measuring the transverse jet profile; and (4) measuring velocity gradients across the jet.

(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 :

(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 :

☐ VSOP Standard (IEEE LCP), ☑ Non-standard : DUAL POLARIZATION

Recording mode :

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

(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	3C273	3C273		
RA (hh mm ss.s)	12 26 33.2480	12 26 33.2480		
Dec (dd mm ss)	02 19 43.290	02 19 43.290		
J2000 or B1950?	B1950	B1950		
Observing frequency band (GHz)	22	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)				
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)	32.4	44.5		
Measured correlated flux density				
on > 5000 km baseline (Jy)	7.0	4.5		
Image RMS needed (mJy/beam)	3.0	1.5		
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	10	10		
Number of large telescopes	1	1		
Suggested array given at Item (14)	☐	☐	☐	☐
Minimum acceptable:				
Number of medium telescopes	7	7		
Number of large telescopes	1	0		
Suggested array given at Item (14)	☐	☐	☐	☐
Length of observation:				
Preferred length (orbits)	4	4		
Minimum acceptable length (orbits)	4	4		
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	to	to	to	to
range for 1st observation only)				
For monitoring programs:				
Number of observations	6	6		
Mean interval (days)	30	30		
Acceptable variance from mean (days)	10	10		

(14) Additional notes to the scheduler :

(1) For GRT: if 256 Mbit/s recording not available (on ground), use single polarization, 2 channels x 16 MHz, 2-bit. (2) P.I. wishes to participate in GRT scheduling to ensure optimum polarization calibration. (3) 1-orbit observation of polarization calibration source may be necessary.

(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