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 : November 16, 1995

(2) Proposal title : The Obscuring System in 3C 84

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

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(5) Proposal Abstract :

The nearby AGN 3C 84 has several indications of obscuring material around the VLBI structure of ~ 15 mas. First, a toroidal or disklike region of gas is suggested from the spectrum of the counterjet. Second, the absence of detectable polarization in observations made thus far suggests the existence of dense plasma that reduces the intrinsic polarization by large Faraday rotation. We propose systematic high quality imaging, recombination line absorption, and polarimetric observations to reveal the obscuring system of 3C84.

(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 (LCP and RCP)

Recording mode :

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

(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: 3

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name	3C 84	3C 84	3C 84	
RA (hh mm ss.s)	03 16 30.0	03 16 30.0	03 16 30.0	
Dec (dd mm ss)	41 19 52	41 19 52	41 19 52	
J2000 or B1950?	B1950	B1950	B1950	
Observing frequency band (GHz)	22	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)		5009		
Ch.A LSR velocity (km/s)		5300		
Ch.B spectral line rest freq. (MHz)		4874		
Ch.B LSR velocity (km/s)		5300		
Min. spectral channels per IF channel		1024		
Correlator averaging time (sec)		1		
FWHM of field of view required (mas)		30		
No. of correlating passes (if >1)				
Measured total flux density (Jy)	25.8			
Measured correlated flux density on > 5000 km baseline (Jy)	0.5-1.5	0.2	0.2	
Image RMS needed (mJy/beam)	1.0	0.5	0.5	
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	10	10	10	
Number of large telescopes	3	3	3	
Suggested array given at Item (14)	☐	☐	☐	☐
Minimum acceptable:				
Number of medium telescopes	10	10	10	
Number of large telescopes	2	2	2	
Suggested array given at Item (14)	☑	☑	☑	☐
Length of observation:				
Preferred length (orbits)	4	4	4	
Minimum acceptable length (orbits)	3	3	3	
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)	97-07-31 to 97-08-20	97-07-31 to 97-12-18	97-07-31 to 97-12-18	to
For monitoring programs:				
Number of observations	3			
Mean interval (days)	60			
Acceptable variance from mean (days)	20			

(14) Additional notes to the scheduler :

Observations near perigee are important for both polarization and intensity calibration.
At the first and third epoch observings at 22 GHz, we want to make observing at 5 GHz as close as possible to each 22 GHz observing.
The ground telescopes will make dual polarization observations at all 22 GHz observations and the second observation at 5 GHz (Experiment 3). It is crucial that we participate in scheduling the ground telescopes to ensure adequate ground polarization calibration. Ground telescopes should be dual polarization.
Suggested minimum array: VLBA + EF + NB (22 GHz); VLBA + EF + UD (5 GHz)
In the first observation at 5 GHz (Experiment 2), Hα absorption observations will be made.
¿From the end of July till mid December 1997, the shape of u-v coverage is very similar, so that we request to observe during this period.
Correlated flux density at 5 GHz is from Walker et al. (1994) at 8 GHz.

(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