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 10, 1995

(2) Proposal title : 3C 120 Structure from 0.1 to 250 pc

(3)	INVESTIGATORS	INSTITUTION
P.I.	R. C. Walker	National Radio Astronomy Observatory
co-I.	J. S. Ulvestad	Jet Propulsion Laboratory
co-I.	John M. Benson	National Radio Astronomy Observatory
co-I.		
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(4) Principal Investigator (or contact person) details...

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(5) Proposal Abstract :

We propose VSOP imaging observations of 3C 120 at both 1.6 GHz and 5 GHz. The nearness of this galaxy ($z = 0.033$) allows high-resolution imaging closer to the central engine than is possible in other superluminal sources; the resolution of VSOP at 5 GHz will be close to 0.1 pc, well within the galaxy's Broad Line Region. A large ground array is requested to enable high-fidelity imaging of this equatorial source. This will permit higher resolution studies of complex structures that seem to be present within the smooth outer envelope of the jet, as indicated by VLBA imaging. Separately, we will request contemporaneous MERLIN observations to extend the range of u-v spacings, providing the opportunity to study the jet structures over four orders of magnitude in size scale.

(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 :
Recording mode :
☑ As for VSOP spacecraft (Standard), ☐ Other :

(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	3C 120	3C 120		
RA (hh mm ss.s)	04 33 11.1	04 33 11.1		
Dec (dd mm ss)	+05 21 16	+05 21 16		
J2000 or B1950?	J2000	J2000		
Observing frequency band (GHz)	1.6	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)	3.0	3.0		
Measured correlated flux density on > 5000 km baseline (Jy)	0.3	0.3		
Image RMS needed (mJy/beam)	1	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	7	7		
Number of large telescopes	1	1		
Suggested array given at Item (14)	☐	☐	☐	☐
Length of observation:				
Preferred length (orbits)	4	4		
Minimum acceptable length (orbits)	3	3		
Scheduling constraints:				
Preferred P.A. of beam *major* axis (deg)	0	0		
'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)	97-01-15 to 97-03-10	97-01-15 to 97-03-10	to	to
For monitoring programs:				
Number of observations				
Mean interval (days)				
Acceptable variance from mean (days)				

(14) Additional notes to the scheduler :

(1) Preferred array for both frequencies: VLBA AR EF JO MC NO ON TR WB VL
(2) "Time-critical" has been checked because of desire to schedule contemporaneously with MERLIN.
(3) Best date free of holes in uv coverage is around 20 January 1997, given the nominal orbit.
(4) Fringe calibration using 0420−014 is desired, as specified in the Technical Justification.

(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