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 : 7-November-1995

(2) Proposal title : Continuous Monitoring of 1928+738

(3)	INVESTIGATORS	INSTITUTION
P.I.	D. W. Murphy	JPL, USA
co-I.	J. C. Guirado	JPL, USA
co-I.	J. E. Conway	Onsala Space Observatory, Sweden
co-I.	R. A. Preston, D. L. Jones, D. L. Meier	JPL, USA
co-I.	H. Hirabayashi, H. Kobayashi, Y. Murata	ISAS, Japan
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(4) Principal Investigator (or contact person) details...

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(5) Proposal Abstract :

One of the most valuable results of the VSOP mission will be an uninterrupted series of images for a few sources over the entire VSOP mission lifetime. Such continuous monitoring is only possible over a small region of the sky. We propose such a unbroken monitoring campaign (with the possible exception of the two months beginning in October 1997) at both 5 GHz and 22 GHz on the superluminal quasar 1928+738. We hope to confirm or reject the hypothesis that the observed wiggle in the jet is caused by the orbital motion of a massive binary black hole system as has been proposed to be the cause of helical jet motion seen in this and other core-dominated radio sources.

(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	B1928+738	B1928+738		
RA (hh mm ss.s)	19 28 49.35	19 28 49.35		
Dec (dd mm ss)	73 51 44.9	73 51 44.9		
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)	3.2	3.3		
Measured correlated flux density on > 5000 km baseline (Jy)	0.9	1.7		
Image RMS needed (mJy/beam)	4	2		
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	10	10		
Number of large telescopes	2	0		
Suggested array given at Item (14)	☑	☑	☐	☐
Minimum acceptable:				
Number of medium telescopes	8	8		
Number of large telescopes	1	0		
Suggested array given at Item (14)	☑	☑	☐	☐
Length of observation:				
Preferred length (orbits)	2	2		
Minimum acceptable length (orbits)	1	1		
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)	97-01-01 to 98-05-31	97-01-01 to 98-05-31	to	to
For monitoring programs:				
Number of observations	17	17		
Mean interval (days)	30	30		
Acceptable variance from mean (days)	5	5		

(14) Additional notes to the scheduler :

Exp 1, Pref Array = VLBA, EF, (GO or RO)
Exp 1, Min Acc Array = VLBA, (EF or GO or RO)
Exp 2, Pref Array = VLBA
Exp 2, Min Acc Array = VLBA

In general, at each monitoring epoch we want a 2-orbit observation at 22 GHz with the VLBA and two large antennas followed by a 2-orbit observation at 5 GHz with the VLBA only, except when apogee is in the far south and there are only long passes at Tidbinbilla. Under these conditions, we request a 2 good-orbit observation (i.e., long passes at Tidbinbilla) at 22 GHz followed by no observations for 2 bad-orbits (i.e., short passes at Tidbinbilla) and then a 2 good-orbit observation at 5 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