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 : 11th November 1995

(2) Proposal title : Helical jet confinement & strong interaction with ISM in the CSS quasars 3C309.1 and 3C380

(3)	INVESTIGATORS	INSTITUTION
P.I.	Andrzej Kus	TRAO – Torun, Poland
co-I.	Roy Booth	OSO – Onsala, Sweden
co-I.	Peter Wilkinson	NRAL – Jodrell Bank, England
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(4) Principal Investigator (or contact person) details...

Name : Andrzej Kus
Address : Radio Astronomy : Copernicus University : 87-100 Torun : Gagarina 11, Poland.
Internet : ajk@astro.uni.torun.pl
Other e-mail :
Fax : 48–5611651 Telephone : 48–5611651

(5) Proposal Abstract :

This work is a continuation of our study of two luminous CSS quasars. We plan to observe 3C309.1 and 3C380 at 1.6 and 5 GHz to get information on the structure of the parsec-scale jet region to study the confinement mechanism of helical tubes and the interaction with exceptionally dense medium. The second epoch spanned over one year time will give us information on changes within the flow. The history of such interaction (variation of brightness, motion of shocks, structural changes, magnetic field changes) gives us direct information on the physical processes in the region and on indirect measure of central engine activity. Both quasars are bright, jet dominated, embeded in dense medium and therefore are the best examples for the proposed study.

(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: 4

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name	3C309.1	3C380	3C309.1	3C380
RA (hh mm ss.s)	14 58 56.7	18 28 13.46		
Dec (dd mm ss)	71 52 11.0	48 42 41.0		
J2000 or B1950?	B1950	B1950		
Observing frequency band (GHz)	1.6	1.6	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)				
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)	50	30	30	20
No. of correlating passes (if >1)				
Measured total flux density (Jy)	7.0	14.0	3.0	4.8
Measured correlated flux density on > 5000 km baseline (Jy)	0.5	0.6	0.2	0.3
Image RMS needed (mJy/beam)	0.1	0.1	0.1	0.1
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	16	16	16	16
Number of large telescopes	5	5	5	5
Suggested array given at Item (14)	☑	☑	☑	☑
Minimum acceptable:				
Number of medium telescopes	12	12	12	12
Number of large telescopes	4	4	4	4
Suggested array given at Item (14)	☐	☐	☐	☐
Length of observation:				
Preferred length (orbits)	4	4	4	4
Minimum acceptable length (orbits)	2	2	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 97-04-20	97-03-10 to 97-04-10	97-02-01 to 97-04-20	97-03-10 to 97-04-10
For monitoring programs:				
Number of observations	2	2	2	2
Mean interval (days)	364	364	364	364
Acceptable variance from mean (days)	30	30	30	30

(14) Additional notes to the scheduler :

Preferred telescopes are :
Large: Effelsberg, Lovell, Goldstone, Green Bank, VLA27
Medium: Medicina, Noto, Onsala, Torun, Urumqi, WSRT, VLBA

(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