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 : 17-Nov-1995

(2) Proposal title : A Study of AGN Jet Acceleration by Monitoring of Cen A

(3)	INVESTIGATORS	INSTITUTION
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(5) Proposal Abstract :

We propose a monitoring observation of Cen A, the nearest Active Galactic Nuclei. The angular resolution of 0.1mas at 22GHz corresponds to a linear scale of only 2 light-days which is expected size of $15R_G$ of $10^9 M_\odot$ supermassive black hole. This observation make it possible to see a reletivistic region. Some proposed theoretical models of AGN jet formation predict different shapes of the jets and different acceleration of jet components. The monitoring can resolve the accelerating region and distinguish these theoretical models. Therefore the Cen A monitoring observation is one of the most promising observations of all AGN study by VSOP. Since the proposed project is in-line with one of the goals of the Key Science Program, we would like to suggest to it is in a part of the VSOP KSP.

(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	Cen A	Cen A		
RA (hh mm ss.s)	13 22 31.6	13 22 31.6		
Dec (dd mm ss)	-42 45 32.92	-42 45 32.92		
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)	1	1		
FWHM of field of view required (mas)	3	10		
No. of correlating passes (if >1)				
Measured total flux density (Jy)	20	40		
Measured correlated flux density on > 5000 km baseline (Jy)				
Image RMS needed (mJy/beam)	1	1		
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	7	10		
Number of large telescopes	2	2		
Suggested array given at Item (14)	☐	☐	☐	☐
Minimum acceptable:				
Number of medium telescopes	5	5		
Number of large telescopes	1	1		
Suggested array given at Item (14)	☐	☐	☐	☐
Length of observation:				
Preferred length (orbits)	4	4		
Minimum acceptable length (orbits)	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)	98-01-15 to	98-01-15 to	to	to
For monitoring programs:				
Number of observations	20	4		
Mean interval (days)	3.5	14		
Acceptable variance from mean (days)	1	4		

(14) Additional notes to the scheduler :

This observation needs high quality images so that the investigation of the detail jet structure is available. Our simulation showes the most preferable date of the observation starts from 98-01-15.

(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