VSOP AO2 PROPOSAL COVER SHEETS

DEADLINE : 8 May, 1998
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

(1) Date prepared : 07-May-1998

(2) Proposal title : The Jet of SS 433

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(5) Proposal Abstract :

SS433 is one of VSOP's most promising and challenging targets because of the radio-bright jet structure. A series of observations with intervals of < 1 day will reveal evolution of jet blobs within 1 day, or 10 AU. The central engine and each blob will be resolved, and parameters of the jet such as mass, density, electron energy, magnetic field will be constrained. The unknown brightening mechanism of blobs at 4×10^{15} cm from the jet engine will be explored. Decreasing-optical-depth mechanisms would be accompanied by expansion of blobs, while particle-injection scenarios would not necessarily. Distance, velocity, and inclination will be determined precisely by a method applicable only to this source. This observation would provide us a comprehensive understanding of the hierarchy of the jet structure, and of astrophysical jet phenomena ranging from binaries like GRS 1915+105 to AGN.

(6) Proposal Category (indicate all that apply):

Object type:

☐ AGN, ☐ Maser, ☑ Stellar, ☐ Pulsar, ☐ Other :

Observation type:

☑ Continuum, ☐ Spectral Line, ☐ Polarization, ☐ Time-critical, ☐ Other :

(7) Number of proposed experiments

An 'experiment' is one or more observations of one source at a fixed HALCA set-up. A request to observe the same source at 1.6 GHz and separately at 5 GHz requires two columns to be filled in in item (8) below. A request to observe the same source with HALCA simultaneously observing at 1.6 GHz and 5 GHz requires one column to be filled in. Multi-epoch observations of the same source at the same frequency – a 'monitoring experiment' – requires only one column to be filled in. Suggested observing dates, especially for for time-critical and monitoring experiments, should be specified in item (10).

The number of experiments in this proposal is: 1

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J1911+0458			
Alternative name	SS 433			
RA(J2000) (hh mm ss.ssss)	19 11 49.4843			
Dec(J2000) (dd mm ss.ssss)	+4 58 57.771			
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)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel	32			
Correlator averaging time (sec)	2			
No. of correlating passes (if >1)				
Total flux density (Jy)	> 0.5			
Correlated flux (mJy)	> 280			
Ground Radio Telescopes:				
Suggested array given at Item (10)?	☐	☐	☐	☐
GRT observing mode:				
128Mbps LCP (standard)	☑	☐	☐	☐
128Mbps LCP/RCP	☐	☐	☐	☐
256Mbps LCP/RCP	☐	☐	☐	☐
Preferred correlator:				
No preference	☑	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☐	☐	☐	☐
Socorro	☐	☐	☐	☐
Monitoring programs:				
Number of observations	5			
Mean interval (days)	< 0.5			
Related AO1 proposal code(s)				

(9) VSOP spacecraft observing mode (see Section 3 and Table 5 of the VSOP Proposer's Guide):

- [x] 2 channel x 16 MHz, 2-bit (Standard mode),
- [ ] Other:

Phase calibration tones:

- [x] On (Standard continuum mode),
- [ ] Off (Standard spectral line mode)

(Include justification of any non-standard choice at (10) below)

(10) Additional notes to the scheduler :

Monitoring intervals should be less than a day, since the evolving speed is so high ($\sim$ 10 mas/day). If possible, a continuous observation over a couple of days is desirable. To make sure detection of blobs, participation of the VLA, VLBA, and Effelsberg is desired.

(11) 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 229-8510 JAPAN
In addition, e-mail the completed LaTeX file to submit@vsop.isas.ac.jp

Information from the Cover Sheets of scheduled proposals will be made available from the VSOP WWW site.

Proposals must be received at ISAS by 8 May 1998