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 : 8 May 1998

(2) Proposal title : Monitoring of Helical Structure in 1156+295 at 5 & 1.6 GHz

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(5) Proposal Abstract :

We propose multi-epoch 5 and 1.6 GHz polarization-sensitive VSOP observations of the superluminal γ-ray blazar 1156+295. In the context of a helical jet model, these high resolution observations at moderate and low frequencies will better characterize the complex bends evidenced in ground-based VLBI on scales < 1 and up to ~ 15 milliarcseconds from the core. Combined with spectral information obtained from ground-only VLBI at matched resolution, the polarization measurements will aid local jet direction determination, and allow diagnosis of shocks (in contrast to helical pattern structure) and other physical properties of the emitting material. The relationship of this complex structure to the likelihood of γ-ray emission will also be investigated.

(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: 2

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J1159+2914	J1159+2914		
Alternative name	1156+295	1156+295		
RA(J2000) (hh mm ss.ssss)	11 59 31.8339	11 59 31.8339		
Dec(J2000) (dd mm ss.ssss)	+29 14 43.8272	+29 14 43.8272		
Observing frequency band (GHz)	5	1.6		
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	32		
Correlator averaging time (sec)	2	2		
No. of correlating passes (if >1)				
Total flux density (Jy)	1.29	1.9		
Correlated flux (mJy)	800	1000		
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	2	2		
Mean interval (days)	∼ 80	∼ 80		
Related AO1 proposal code(s)	v093e	VT801		

(9) 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),

☐ Other:

Phase calibration tones:

☑ 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 :

-Suggested Ground Array: VLBA+phased-VLA+Effelsberg (maximize polarization sensitivity)
-Suggested epochs: Dec 1999, Feb 2000 (3rd AO?) -Please schedule 1.6 and 5 GHz separately but contemporaneously at each epoch.
-Tracking coverage gaps should be scheduled for polarization position-angle calibration by the ground array alone.
-The 1st AO proposal for this source at 5 GHz (V093e) was accepted, yet deferred to the 2nd AO period due to space-craft constraints.

(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