

VSOP AO4 PROPOSAL COVER SHEETS

DEADLINE : 2 October, 2000

SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

(1) Date prepared : 27 September 2000

(2) Proposal title : Structural variability in the brightest AGN: AO 0235+164

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(5) Proposal Abstract :

AO 0235+164 is a very compact, violently variable BL Lac object. Our earlier 5-GHz VSOP observation (v040b, 1 Feb 1999) revealed a compact core with the brightness temperature in excess of 5.8×10^{13} K (the highest value measured with VSOP to date) and a weak extension on sub-mas scale. We request time to enhance the earlier VSOP result on this source. The high dynamic range, 1.6 and 5-GHz polarisation monitoring observations proposed here could reveal structural changes on time scales of 2 weeks and 6 months. Supporting ground-based monitoring observations are planned to investigate the connection between the possible sub-mas scale structural, total and polarized radio flux density, and spectral variations, exactly at the same epochs as of the VSOP observations proposed.

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

Object type:

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

Observation type:

☐ Continuum, ☐ Spectral Line, ☒ Polarization, ☐ Time critical,

☐ Phase-reference, ☐ 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 (11).

The number of experiments in this proposal is: 2

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (<i>Jhhmm±ddmm</i>)	J0238+1636	J0238+1636		
Alternative name	0235+164	0235+164		
RA(J2000) (hh mm ss.ssss)	02 38 38.930	02 38 38.930		
Dec(J2000) (dd mm ss.sss)	+16 36 59.275	+16 36 59.275		
Observing frequency band (GHz)	5	1.6		
<i>Continuum observations:</i>				
Standard VSOP freq. channels?	☒	☒	☐	☐
Channel A range (MHz)				
Channel B range (MHz)				
<i>Spectral line observations:</i>				
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				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.5 – 4	0.5 – 4		
Correlated flux (mJy)	300 – 3000	300 – 3000		
<i>Ground Radio Telescopes:</i>				
Suggested array given at Item (11)?	☒	☒	☐	☐
<i>GRT observing mode:</i>				
128Mbps LCP (standard)	☐	☐	☐	☐
128Mbps LCP/RCP	☒	☒	☐	☐
256Mbps LCP/RCP	☐	☐	☐	☐
<i>Preferred correlator:</i>				
No preference	☐	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☐	☐	☐	☐
Socorro	☒	☒	☐	☐
<i>Monitoring programs:</i>				
Number of observations	4	2		
Mean interval (days)	15 and 180	180		
Related VSOP proposal code(s)	v040	v040		

(9) VSOP spacecraft observing mode (see Section 3 and Table 2 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 (11) below)

(10) Assistance with preparation of ground telescope schedule files:

- ☐ VSOG assistance requested, ☒ Consultation desired, ☐ No assistance required

(11) Additional notes to the scheduler :

Suggested ground array: EVN + VLBA (or parts of them) + phased VLA + Arecibo .

At 5 GHz, considering the current HALCA constraints, 2 sets of 2 monitoring experiments are requested, separated by ~ 6 months, with each pair separated by ~ 2 weeks.
Possible observing periods are around Jan and Jul–Aug 2001.

At 1.6 GHz, 2 experiments are requested, separated by ~ 6 months.
We ask to schedule these as close as possible to one of the 5-GHz experiments in each of the two seasonal periods, Jan and Jul–Aug 2001.

(12) Attach a scientific and technical justification, not in excess of 2 pages of text and 2 pages of figures. Refer to the VSOP Announcement of Opportunity for detailed instructions.
Preprints and reprints will not be forwarded to the Scientific Review Committee.

EITHER e-mail the completed L^AT_EX file to submit@vsop.isas.ac.jp and 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

OR e-mail the completed L^AT_EX Cover Sheets file and, in a separate e-mail, the postscript file of the scientific and technical justification, 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 2 October 2000