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 : 30 September 2000

(2) Proposal title : Clues to Unusual Bending in 0735+178

(3)	INVESTIGATORS	INSTITUTION
P.I.	Denise C. Gabuzda	JIVE (Netherlands)
co-I.	José L. Gómez and Ivan Agudo	IAA, Granada (Spain)
co-I.	Timothy V. Cawthorne	University of Central Lancashire (U.K.)
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co-I.		
co-I.		
co-I.		
co-I.		

(4) Principal Investigator (or contact person) details...

Name : Denise C. Gabuzda
E-mail : gabuzda@jive.nl
Fax : +31 521 597332
Phone : +31 521 596536

Address : JIVE
: Postbus 2
: 7990 AA Dwingeloo
: The Netherlands
:

(5) Proposal Abstract :

Our joint analysis of quasi-simultaneous total intenstiy and polarization images of 0735+178 made at 5 GHz using VSOP and at 15 GHz using the VLBA revealed surprising evidence for free–free absorption near a bend of about 90° about 0.8 mas to the east of the VLBI core. The presence of strong absorption suggests that this bend is associated with an interaction between the jet and the surrounding medium (a cloud?). We propose here for new 5 GHz VSOP + 15 GHz VLBA polarization observations to confirm the presence of strong absorption in this location and attempt to detect Faraday rotation associated with the absorbing medium. Estimation of both the opacity and Faraday rotation of this region could place strong constraints on the nature of the absorption and interactions between the jet and the absorbing medium.

(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: 1

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	0735+178			
Alternative name				
RA(J2000) (hh mm ss.ssss)	07 38 07.4			
Dec(J2000) (dd mm ss.sss)	17 42 19.0			
Observing frequency band (GHz)	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				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	3.0			
Correlated flux (mJy)	1500			
Ground Radio Telescopes:				
Suggested array given at Item (11)?	☑	☐	☐	☐
GRT observing mode:				
128Mbps LCP (standard)	☐	☐	☐	☐
128Mbps LCP/RCP	☐	☐	☐	☐
256Mbps LCP/RCP	☑	☐	☐	☐
Preferred correlator:				
No preference	☐	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☐	☐	☐	☐
Socorro	☑	☐	☐	☐
Monitoring programs:				
Number of observations				
Mean interval (days)				
Related VSOP proposal code(s)	w016			

(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 :

Our preferred array is VLBA + one or more large ground antennas (phased VLA, EF, WSRT). This type of array has been proven effective for previous VSOP polarization observations. It is desirable to observe with the phased VLA, since this automatically provides the integrated polarization measurements required for absolute calibration of the polarization position angles.

The ground schedule must include observations of a compact source for use in the polarization angle calibration.

The proposed project requires that the VSOP observations be roughly simultaneous with VLBA observations at 43, 22, and 15 GHz, which will be proposed for separately.

(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 LaTeX 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 LaTeX 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