VSOP AO3 PROPOSAL COVER SHEETS

DEADLINE : 1 October, 1999
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

(1) Date prepared : 29 Sep. 1999

(2) Proposal title : Continued VSOP observations of 3C279

(3)	INVESTIGATORS	INSTITUTION
P.I.	B.G. Piner	JPL, USA
co-I.	H. Hirabayashi, P.G. Edwards, T. Takahashi	ISAS, Japan
co-I.	A.E. Wehrle	JPL, USA
co-I.	H. Kubo	Tokyo Metropolitan University, Japan
co-I.	F. Makino	NASDA, Japan
co-I.		
co-I.		
co-I.		
co-I.		

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

Name :B.G. Piner
E-mail :B.G.Piner@jpl.nasa.gov
Fax :1-818-393-6890
Phone :1-818-393-3986

Address :Jet Propulsion Laboratory
:MS 238-332
:4800 Oak Grove Dr.
:Pasadena, CA 91109
:USA

(5) Proposal Abstract :

We propose to continue our VSOP monitoring of 3C279 at 1.6 and 5 GHz with additional epochs in June 2000 and Jan-Feb 2001. The bright component at 3 mas has recently undergone an acceleration and polarization change; further monitoring of this component may allow the 3-dimensional trajectory of the jet to be mapped. We also propose to make the June 2000 epoch a coordinated multiwavelength observation with the ASCA X-ray satellite and the VLBA at higher frequencies. Spectral index maps made from matched resolution VSOP and VLBA observations show great promise; this matched resolution will help significantly in fitting component spectra and in determining the inverse Compton Doppler factor and the dominant X-ray emitting component in 3C279. Homogeneous and inhomogeneous SSC and external Compton emission models will be tested.

(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 (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 (J*hhmm*±*ddmm*)	J1256-0547	J1256-0547		
Alternative name	3C279	3C279		
RA(J2000) (hh mm ss.ssss)	12 56 11.1665	12 56 11.1665		
Dec(J2000) (dd mm ss.ssss)	-05 47 21.5237	-05 47 21.5237		
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	128	128		
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	~12	~16		
Correlated flux (mJy)	~4000	~9000		
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)	 2 7-8 months	 2 7-8 months		
Related VSOP proposal code(s)	v027,v147,w094	v027,v147,w094		

(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 (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 :

We request the VLBA for consistency with our other VSOP monitoring observations of this source and the ATCA to improve the north-south resolution.
The first epoch should be coordinated with the ASCA observation and with the VLBA-only observations at higher frequencies. Since ASCA can only observe this source during June 2000, we request the first VSOP epoch during June 2000.
We request recording mode 256-4-2 for the VLBA so we can retain both HALCA IFs in these dual polarization observations. However, since 3C279 is very strong, the experiment could be successfully performed using mode 128-2-2 if double speed recording is not granted.
We also request use of a single VLA antenna close in time to the VSOP observations for use as a polarization calibrator.

(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 1 October 1999