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 : 01 October 2000

(2) Proposal title : Extremely variable IDV source J1819+3845

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(5) Proposal Abstract :

We propose to observe an extremely variable IDV source J1819+3845, in which short term variations are attributed to interstellar scintillation of a component at most 30 micro-arcseconds in diametre. This highly variable and strong (up to 0.4 Jy in strong quasi-regular hourly outbursts) will help to detect and image a weaker ($\sim$ 60 mJy), stable component of sub-mas size. The latter component could not be detected by ground-based VLBI at higher frequencies due to its apparent steeper (or less inverted) spectrum but is of crucial importance for understanding the nature of the extremely violent variablity in the source. The project proposed will be closely coordinated with the ongoing monitoring at the Westerbork Synthesis Radio Telescope.

(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*)	J1819+3845			
Alternative name				
RA(J2000) (hh mm ss.ssss)	18 19 27.1			
Dec(J2000) (dd mm ss.sss)	+38 45 08			
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)	0.4 (mean)			
Correlated flux (mJy)	50–400			
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	2			
Mean interval (days)	$\sim$ 180			
Related VSOP proposal code(s)				

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

(10) Assistance with preparation of ground telescope schedule files:
[ ] VSOG assistance requested, [x] Consultation desired, [ ] No assistance required

(11) Additional notes to the scheduler :

MkIV/VLBA-recording and participation of WSRT and VLA are needed to detect variability pattern delay.

Ongoing WSRT monitoring will be coordinated with the VSOP observations proposed here in order to provide a synchronous IDV light curve.

The variability pattern and VSOP (uv)-coverage require observations in March and September 2001. The latter epoch could be later dropped based on the results of the former.

For the March 2001 epoch, we request at least two consecutive HALCA orbital periods in order to achieve full tracking with the Northern Hemisphere GRT's and up to ten high peaks of the total flux density.

(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