VSOP AO2 PROPOSAL COVER SHEETS

DEADLINE : 8 May, 1998
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

Please read Appendix C of Announcement of Opportunity for details on how to fill in this Cover Sheet.

(1) Date prepared : May 04 1998

(2) Proposal title : Physics of the Jet in Quasar 3C 345 at Light-Year Resolution

(3)	INVESTIGATORS	INSTITUTION
P.I.	J.A. Zensus	MPIfR, Germany
co-I.	A.P. Lobanov	MPIfR
co-I.	S.C. Unwin	JPL, USA
co-I.	M.H. Cohen	Caltech, USA
co-I.		
co-I.		
co-I.		
co-I.		
co-I.		

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

Name : J.A. Zensus
E-mail : azensus@mpifr-bonn.mpg.de
Fax : +49 228 525 229
Phone : +49 228 525 378

Address : MPIfR
: Auf dem Hügel 69
: Bonn 53121
: GERMANY
:

(5) Proposal Abstract :

We propose to continue extensive VSOP imaging of the quasar 3C 345 (3 epochs at 18 cm and 3 at 6 cm), complemented by our ongoing comprehensive ground monitoring campaigns. Our objectives are: (1) Measuring the epoch of occurrence, flux and size evolution, trajectories, velocities, and accelerations of superluminally moving regions; (2) Superior dynamic-range/resolution imaging of the complex jet brightness structure (total and polarized intensity and spectral index distribution); (3) Measuring the relative location and size (or an upper limit thereof) of the thus far unresolved central region; (4) Measuring the magnetic field strength and spatial distribution along the jet. Our scientific motivation is to study this archetype of a high-luminosity, core-dominated, superluminal source with unprecedented angular resolution, and to constrain models for the overall jet flow, the prominent emission regions' kinematics and emission properties.

(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*)	J1642+3948	J1642+3948		
Alternative name	3C345	3C345		
RA(J2000) (hh mm ss.ssss)	16 42 58.8099	16 42 58.8099		
Dec(J2000) (dd mm ss.ssss)	+39 48 36.993	+39 48 36.993		
Observing frequency band (GHz)	1.6	5.0		
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)	8.0	5.2–13.2		
Correlated flux (mJy)	4300	1200–2800		
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	3	3		
Mean interval (days)	120	120		
Related AO1 proposal code(s)	V064	V064		

(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 :

(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