VSOP AO2 PROPOSAL COVER SHEETS

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

(1) Date prepared : 4th MAY 1998

(2) Proposal title : Exploring limits to Space VLBI astrometry: the pair 1308+326,8

(3)	INVESTIGATORS	INSTITUTION
P.I.	M.J.Rioja	Istituto di Radioastronomia, Bologna, ITALY
co-I.	R.W.Porcas	MPIfR, Bonn, GERMANY
co-I.	H. Hirabayashi	ISAS, Kanagawa, JAPAN
co-I.	Y. Asaki	NAO, JAPAN
co-I.	J. Machalski	Obs. Jagellonian Uni,Cracow, POLAND
co-I.		
co-I.		
co-I.		
co-I.		

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

Name : Maria Rioja
E-mail : rioja@ira.bo.cnr.it
Fax : 39 51-639 9431
Phone : 39 51-639 9383

Address : Istituto di Radioastronomia,
: Via P. Gobetti 101
: I-40129 Bologna
: ITALY
:

(5) Proposal Abstract :

Observations of close source pairs with VSOP provide a unique opportunity to test the capabilities and limits of Space VLBI relative astrometry. Although VSOP cannot change pointing rapidly, close separation pairs can be investigated if both sources are within the VSOP primary beam. From observations of the close (33") pair 1038+52A,B in November 1997 (with both sources in the GRT beams also) we have successfully transferred the VSOP instrumental phase found from one source to the other and have thus been able to make a phase-referenced map. Now we wish to extend our investigations by observing the source pair 1308+326/8, with angular separation 14 arcmin; both are in the VSOP beam at 1.6 and 5 GHz, but require switching with the GRTs. We will investigate the extent to which orbit errors propagate into the ground-space VLBI visibility difference phases, and how these might be used to refine the satellite position.

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

Object type:
☑ AGN, ☐ Maser, ☐ Stellar, ☐ Pulsar, ☐ Other :

Observation type:
☑ Continuum, ☐ Spectral Line, ☐ Polarization, ☐ Time-critical, ☑ Other : Astrometry

(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*)	J1310+3226	J1310+3226		
Alternative name				
RA(J2000) (hh mm ss.ssss)	13 10 44.000	13 10 44.000		
Dec(J2000) (dd mm ss.ssss)	32 26 46.000	32 26 46.000		
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				
Correlator averaging time (sec)				
No. of correlating passes (if >1)	(2)			
Total flux density (Jy)	1.0	1.0		
Correlated flux (mJy)	500	500		
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				
Mean interval (days)				
Related AO1 proposal code(s)	V046,V049	V046,V049		

(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 :

Our strongly preferred GRT array is the VLBA + EVN (+Ro and Go at 1.6 GHz, +VLA27 at 5 GHz) because we need global coverage to observe for up to 4 orbits. We need large GRTs to ensure independent detection of the 1308+328 signal.
Experiment 1 (1.6 GHz): VLBA + EVN + Ro + Go
Experiment 2 (5 GHz) : VLBA + EVN + VLA-27
The position provided is the mid-point between the sources which should be used for observing with VSOP. The GRTs will switch between 1308+326 and 1308+328 on a timescale of ca 2 minutes.
We hope that both JB1 AND JB2 will be available for 1.6 GHz observing, to circumvent the problem of infrequent source switching with JB1.
In this case, we would like a second correlator pass for the JB1-VSOP scans.

(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