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 : 8 May 1998

(2) Proposal title : Multi-Frequency VSOP and VLBA survey for GPS Sources

(3)	INVESTIGATORS	INSTITUTION
P.I.	Seiji Kameno	VSOP Project, NAO Japan
co-I.	Kiyoaki Wajima	VSOP Project, ISAS Japan
co-I.	Masafumi Imai	VSOP Project, NAO Japan
co-I.	Makoto Inoue	VSOP Project, NAO Japan
co-I.	Satoko Sato	VSOP Project, NAO Japan
co-I.		
co-I.		
co-I.		
co-I.		

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

Name : Seiji Kameno
E-mail : kameno@hotaka.mtk.nao.ac.jp
Fax : +81-422-34-3869
Phone : +81-422-34-3807

Address : 2-21-1 Osawa, Mitaka, Tokyo
: 181-8588 Japan
:
:
:

(5) Proposal Abstract :

We propose a VSOP survey at 1.6 and 5 GHz for 19 GPS sources. This confirm that rising spectrum below peak frequency is due to free-free absorption (FFA) by cold dense plasma embedding compact nonage lobes. We already submitted a proposal to VLBA at 8 and 15 GHz for the same samples. Four-frequency survey containing the peak frequency with comparable beam size will provide pc-scale spatial distribution of FFA opacity and peak frequency. Sub-mas resolution at low frequency is crucial to resolve double lobe and detect asymmetry or inhomogeneity of abosorption feature. We expect to classify GPS type 1 and 2, which is associated with Seyfert 1 showing asymmetric FFA like OQ 208 and with Seyfert 2 showing less asymmetry, respectively. Furthermore, distribution of spectral index in lobes may show spectral flattening in working surface where expanding lobes are interacting with ambient gas.

(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 38

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: 38

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (*Jhhmm±ddmm*)	J0111+3906	J0111+3906	J0203+1134	J0203+1134
Alternative name	0108+388	0108+388	0201+113	0201+113
RA(J2000) (hh mm ss.ssss)	01 11 37.3168	01 11 37.3168	02 03 46.6570	02 03 46.6570
Dec(J2000) (dd mm ss.ssss)	+39 06 28.103	+39 06 28.103	+11 34 45.410	+11 34 45.410
Observing frequency band (GHz)	5	1.6	5	1.6
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)	50.0	50.0	50.0	50.0
Min. spectral channels per IF channel	32	32	32	32
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	1.28	0.7	1.20	1.0
Correlated flux (mJy)	200	180 (2.3 GHz)	580 (8.6 GHz)	1100 (2.3 GHz)
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)				

	Experiment 5	Experiment 6	Experiment 7	Experiment 8
Source name ($Jhhmm\pm ddmm$)	J0241-0815	J0241-0815	J0251+4315	J0251+4315
Alternative name	NGC 1052	NGC 1052	0248+430	0248+430
RA(J2000) (hh mm ss.ssss)	02 41 04.7984	02 41 04.7984	02 51 34.5367	02 51 34.5367
Dec(J2000) (dd mm ss.ssss)	-08 15 20.750	-08 15 20.750	+43 15 15.829	+43 15 15.829
Observing frequency band (GHz)	5	1.6	5	1.6
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)	50.0	50.0	50.0	50.0
Min. spectral channels per IF channel	32	32	32	32
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	1.40	0.82	1.21	0.96
Correlated flux (mJy)	200	770 (2.3 GHz)	500	691
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)				

	Experiment 9	Experiment 10	Experiment 11	Experiment 12
Source name ($Jhhmm\pm ddmm$)	J0503+0203	J0503+0203	J0650+6001	J0650+6001
Alternative name	0500+019	0500+019	0646+600	0646+600
RA(J2000) (hh mm ss.ssss)	05 03 21.1971	05 03 21.1971	06 50 31.3555	06 50 31.3555
Dec(J2000) (dd mm ss.ssss)	+02 03 04.677	+02 03 04.677	+60 01 44.546	+60 01 44.546
Observing frequency band (GHz)	5	1.6	5	1.6
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)	50.0	50.0	50.0	50.0
Min. spectral channels per IF channel	32	32	32	32
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	1.88	2.15	0.79	0.7
Correlated flux (mJy)	800	820 (2.3 GHz)	449	700
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)				

	Experiment 13	Experiment 14	Experiment 15	Experiment 16
Source name (*Jhhmm±ddmm*)	J0745+1011	J0745+1011	J0745-0044	J0745-0044
Alternative name	0742+103	0742+103	0743-006	0743-006
RA(J2000) (hh mm ss.ssss)	07 45 33.0595	07 45 33.0595	07 45 54.0823	07 45 54.0823
Dec(J2000) (dd mm ss.ssss)	+10 11 12.693	+10 11 12.693	-00 44 17.538	-00 44 17.538
Observing frequency band (GHz)	5	1.6	5	1.6
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)	50.0	50.0	50.0	50.0
Min. spectral channels per IF channel	32	32	32	32
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	3.84	3.17	1.77	0.79
Correlated flux (mJy)	1500	2100 (2.3 GHz)	1200	120 (2.3 GHz)
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)				

	Experiment 17	Experiment 18	Experiment 19	Experiment 20
Source name ($Jhhmm\pm ddmm$)	J0905+4850	J0905+4850	J1146-2447	J1146-2447
Alternative name	0902+490	0902+490	1143-245	1143-245
RA(J2000) (hh mm ss.ssss)	09 05 27.4647	09 05 27.4647	11 46 08.1033	11 46 08.1033
Dec(J2000) (dd mm ss.ssss)	48 50 49.958	48 50 49.958	-24 47 32.895	-24 47 32.895
Observing frequency band (GHz)	5	1.6	5	1.6
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)	50.0	50.0	50.0	50.0
Min. spectral channels per IF channel	32	32	32	32
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.529	0.60	1.18	1.5
Correlated flux (mJy)	480	610 (2.3 GHz)	900	750 (2.3 GHz)
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)				

	Experiment 21	Experiment 22	Experiment 23	Experiment 24
Source name ($Jhhmm\pm ddmm$)	J1335+4542	J1335+4542	J1357+4353	J1357+4353
Alternative name	1333+459	1333+459	1355+441	1355+441
RA(J2000) (hh mm ss.ssss)	13 35 21.9604	13 35 21.9604	13 57 40.6762	13 57 40.6762
Dec(J2000) (dd mm ss.ssss)	+45 42 38.251	+45 42 38.251	+43 53 59.671	+43 53 59.671
Observing frequency band (GHz)	5	1.6	5	1.6
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)	50.0	50.0	50.0	50.0
Min. spectral channels per IF channel	32	32	32	32
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.757	0.34	0.577	0.54
Correlated flux (mJy)	345	330	537	90 (2.3 GHz)
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)				

	Experiment 25	Experiment 26	Experiment 27	Experiment 28
Source name ($Jhhmm\pm ddmm$)	J1522-2730	J1522-2730	J1845+3541	J1845+3541
Alternative name	1519-273	1519-273	1843+356	1843+356
RA(J2000) (hh mm ss.ssss)	15 22 37.6759	15 22 37.6759	18 45 35.1097	18 45 35.1097
Dec(J2000) (dd mm ss.ssss)	-27 30 10.784	-27 30 10.784	+35 41 16.719	+35 41 16.719
Observing frequency band (GHz)	5	1.6	5	1.6
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)	50.0	50.0	50.0	50.0
Min. spectral channels per IF channel	32	32	32	32
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	2.28	1.22	0.812	0.96
Correlated flux (mJy)	2200	740 (2.3 GHz)	173	807
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)				

	Experiment 29	Experiment 30	Experiment 31	Experiment 32
Source name (J*hhmm*±*ddmm*)	J1850+2825	J1850+2825	J2052+3635	J2052+3635
Alternative name	1848+283	1848+283	2050+364	2050+364
RA(J2000) (hh mm ss.ssss)	18 50 27.59	18 50 27.59	20 52 52.0574	20 52 52.0574
Dec(J2000) (dd mm ss.ssss)	+28 25 12.7	+28 25 12.7	+36 35 35.299	+36 35 35.299
Observing frequency band (GHz)	5	1.6	5	1.6
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)	50.0	50.0	50.0	50.0
Min. spectral channels per IF channel	32	32	32	32
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.91	0.31	2.82	4.84
Correlated flux (mJy)	360	180 (2.3 GHz)	220	3600
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)				

	Experiment 33	Experiment 34	Experiment 35	Experiment 36
Source name ($Jhhmm\pm ddmm$)	J2129-1538	J2129-1538	J2151+0552	J2151+0552
Alternative name	2126-158	2126-158	2149+056	2149+056
RA(J2000) (hh mm ss.ssss)	21 29 12.1758	21 29 12.1758	21 51 37.8754	21 51 37.8754
Dec(J2000) (dd mm ss.ssss)	-15 38 41.040	-15 38 41.040	+05 52 12.954	+05 52 12.954
Observing frequency band (GHz)	5	1.6	5	1.6
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)	50.0	50.0	50.0	50.0
Min. spectral channels per IF channel	32	32	32	32
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	1.24	0.71	1.19	0.81
Correlated flux (mJy)	400	130 (2.3 GHz)	400	520 (2.3 GHz)
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)				

	Experiment 37	Experiment 38		
Source name (*Jhhmm±ddmm*)	J2340+2641	J2340+2641		
Alternative name	2337+264	2337+264		
RA(J2000) (hh mm ss.ssss)	23 40 29.0293	23 40 29.0293		
Dec(J2000) (dd mm ss.ssss)	+26 41 56.803	+26 41 56.803		
Observing frequency band (GHz)	5	1.6		
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)	50.0	50.0		
Min. spectral channels per IF channel	32	32		
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.82	1.00		
Correlated flux (mJy)	210 (2.3 GHz)	360 (8.6 GHz)		
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)				

(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