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 : 1998, April 30

(2) Proposal title : γ-ray loud and quiet AGN with VSOP at 5 GHz

(3)	INVESTIGATORS	INSTITUTION
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(5) Proposal Abstract :

We propose to image, using VSOP in conjunction with the SHEVE array and the VLBA, all of the EGRET-identified (γ-ray loud) AGN south of $\delta = -10^{\circ}$. In addition, we propose to image a sample of γ-ray quiet AGN which have been selected on the basis that their radio and optical properties are well matched to the γ-ray loud AGN. This is the second half of a proposal that was successfully initiated for VSOP AO1 (V115). Using Doppler factors estimated from VSOP-measured radio brightness temperatures to derive limits on jet speeds and angles to our line of sight, we can obtain an excellent indication of the importance relativistic beaming has for the γ-ray properties of AGN. We are also continuing to monitor these γ-ray loud and quiet sources with ground-based VLBI, to obtain additional constraints on beaming models from superluminal motion measurements.

(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: 12

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J0522-3627	J1427-4206	J1625-2527	J1626-2951
Alternative name				
RA(J2000) (hh mm ss.ssss)	05 22 57.985	14 27 56.2975	16 25 46.892	16 26 06.021
Dec(J2000) (dd mm ss.ssss)	-36 27 30.850	-42 06 19.437	-25 27 38.323	-29 51 26.968
Observing frequency band (GHz)	5	5	5	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	128	128
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	5.0	3.8	1.9	2.4
Correlated flux (mJy)	1500	2000	700	900
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)	V115	V115	V115	V115

	Experiment 5	Experiment 6	Experiment 7	Experiment 8
Source name (*Jhhmm±ddmm*)	J1733-1304	J1911-2006	J2056-4714	J1130-1449
Alternative name				
RA(J2000) (hh mm ss.ssss)	17 33 02.706	19 11 09.653	20 56 16.3598	11 30 07.0525
Dec(J2000) (dd mm ss.ssss)	-13 04 49.545	-20 06 55.106	-47 14 47.627	-14 49 27.387
Observing frequency band (GHz)	5	5	5	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	128	128
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	7.5	2.7	2.8	3.5
Correlated flux (mJy)	6500	1100	600	1400
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)	V115	V115	V115	V115

	Experiment 9	Experiment 10	Experiment 11	Experiment 12
Source name (*Jhhmm±ddmm*)	J2207-5346	J1107-4449	J1617-7717	J2110-4110
Alternative name				
RA(J2000) (hh mm ss.ssss)	22 07 43.734	11 07 08.695	16 17 49.278	21 09 33.189
Dec(J2000) (dd mm ss.ssss)	-53 46 33.813	-44 49 07.622	-77 17 18.465	-41 10 20.602
Observing frequency band (GHz)	5	5	5	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	128	128
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	1.3	2.4	3.0	2.8
Correlated flux (mJy)	600	1400	900	900
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)	V115	V115	V115	V115

(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 :

We request that the VLBA be used for the experiments in this proposal for which the sources lie at $\delta > -40°$, augmented by the following Southern Hemisphere GRTs: Mopra, Hobart, ATCA, Ceduna, and Hartebeesthoek. For those sources too far south for the VLBA, we simply request the Southern Hemisphere GRTs. If, for the combined VLBA/Southern Hemisphere observations, the volume of pre-correlation tape copying is impractical, we request separate correlation of the S2 and VLBA components of an observation. The two datasets can be combined during post-fringe-fitting data reduction, in which case we are prepared to forfeit the trans-pacific ground baselines.

(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