Preparing a Competitive Radio Proposal

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OUTLINE
VLA-ORIENTED

Properties of Radio Observations

Proposal Types and Time Frames

Important Coversheet Information

<u>Hints on Writing the Proposal</u>

Many web-site locations

This talk will cover main topics. The complete talk will be placed on the conference web-site.

Properties of Radio Observations

Important Web-sites for NRAO telescope

VLA*: http://www.vla.nrao.edu/astro/guides/vlas/current*

VLBA*: http://www.aoc.nrao.edu/vlba/obstatus/obssum/obssum.html*

GBT: *http://www.nrao.edu//GBT/proposals/short_guide.shtml*

NRAO Newsletter: *http://www.nrao.edu/news/newsletters*

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GBT: *http://www.nrao.edu//GBT/proposals/short_guide.shtml*

NRAO Newsletter: *http://www.nrao.edu/news/newsletters*

Resolution

Arcmin's -- Single Dish   Arcsec's -- VLA (ATCA, WSRT)
Milliarcsec's – VLBA.

Wide range of resolutions may be needed. Same resolution at different frequencies means several VLA configurations.

Sensitivity

RMS noise → amount of observing time. Use VLA Exposure Calculator *(http://www.vla.nrao.edu/astro/guides/exposure)*

Other limitations (low freq, confusion; high freq, troposphere)

Dynamic Range (line on strong continuum)

Image Quality

Average quality (<50:1): Rms noise usually limit. Reduction expertise not needed.

High quality (>500:1): (U-v) coverage, dynamic range usually limit. May need expertise.

Polarization

Linear Polarization: Almost for free with little extra calibration and observation for VLA, ~3% accuracy.

Circular Polarization: Needs very good amplitude stability unless high percentage.

Amplitude Stability for Variability

Amplitude stability 3% for VLA, 5% for VLBA with inclusion of standard calibrator and apriori calibrations.
Stability <1% possible with careful calibrations at ν<23 GHz
(*http://www.aoc.nrao.edu/~gtaylor/calib.html*)

Positional Accuracy

Relative positional accuracy between objects in same field limited to 0.03 x resolution if sufficiently strong.

Absolute positional accuracy more complicated. Tied to a calibrator source. VLA A-configuration about 0.05”. VLBA-accuracy about 0.001” with normal calibration. Special astrometric observations needed for higher accuracy.

(http://www.vla.nrao.edu/vla/html/astrometry.shtml)

Spectral-Line observations

Careful calculations of sensitivity and brightness limits. Use VLA exposure calculator.

Justify bandwidth and channel widths.

Bandpass calibration important for line/continuum <1%

Proposal Types and Time Frames

Types of Proposals (Normal, Rapid Response, Large)

Normal:<300 hours, observe within next 12 months.

Rapid Response (Known transient, Exploratory, Target of Opp.)

(http://www.vla.nrao.edu/astro/prop/rapid)

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Rapid Response (Known transient, Exploratory, Target of Opp.)

(http://www.vla.nrao.edu/astro/prop/rapid)

Time Frame

Deadline for submission: Feb 1, June 1, Oct 1 at 1700 Eastern Time

VLA configuration schedule:

(http://www.vla.nrao.edu/genpub/configs)

Outside refereeing completed 6 weeks later after deadline

Scheduling committee (TAC) meets 9 weeks later after deadline

Notice of observing status 12 weeks later after deadline

When to Propose for a Configuration

As soon as possible, even before desired configuration.

Allows iteration and resubmission next deadline.

Multi-telescopes Proposals

Acknowledge other instrument time in proposal, coordination.

CXO-NRAO agreement

Joint proposals sent only to CXO.

(http://cxc.harvard.edu/proposer/CfP/html), section 4.5.4

Look at NRAO coversheet for VLA, VLBA information.

NRAO Support

Travel support if from an American institution: see Appendix A.

Technical/logistic help *(http://www.aoc.nrao.edu/~schedsoc).*

Email: schedsoc@nrao.edu, 505-835-7392 (Joan Wrobel).

Important Coversheet Information

See Appendix B for VLA example

Item 4. Fill in related VLA proposals.

Item 12. Dynamic scheduling not yet implemented.

Item 13. Abstract. Short and sweet with main objective.

Item 16. Spectroscopy.   Very important to specify correctly.

Item 18. Source list. Fill in as completely as possible.

Item 19-21 Any time constraints and coordination considerations.
Should elaborate in proposal.

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See Appendix C for VLBI example

For more Information:

http://www.aoc.nrao.edu/vlba/html/vlbahome/observer.html#D4

http://www.aoc.nrao.edu/vlba/obstatus/obssum/obssum.html

Advice on Writing a Good Proposal

The Obvious

Abstract of 50 words on the cover sheet. Make this good.

Less than 1000 words in the scientific justification (Barry Clark has an automatic word counting algorithm).

15-month rotation through the VLA configurations (A, BnA, B, CnB, C, DnC, D)

A “killer” scientific proposal will get observing time even if the proposal is somewhat poorly written and justified. Sometimes the referees and the NRAO scheduling committee will give advice, increase observing time.

A “poor” scientific proposal will fail to get time. Adding on famous astronomers as co-Pi’s does not help.

Out-of-the-box proposals are encouraged. But, be realistic.

For the 95% of the proposals between the above two extremes, the following guidelines are suggested.

Advice on Writing a Good Proposal

General Organization

Do not repeat abstract in justification—a waste of ~50 words.

Statement of the scientific goals. Some background but assume that the referees are up-to-date. Important new evidence on astro-ph should be referred. Lead into how radio observation will advance the scientific goals.

Often, previous radio observations have been made. Succinctly explain what they have provided, and clearly state why more observation are needed.

Discuss the observing parameters. These may be obvious for many proposals. Justify time, configuration, observing method if non-standard. Use hybrid arrays if δ<-25 deg.

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Often, previous radio observations have been made. Succinctly explain what they have provided, and clearly state why more observation are needed.

Discuss the observing parameters. These may be obvious for many proposals. Justify time, configuration, observing method if non-standard. Use hybrid arrays if δ<-25 deg.

Avoid buzz-words like “Rosetta-Stone”, “Missing-link”, “Definitive experiment”, “Unprecedented”, “Almost unique”, “Holy grail”.

Surveys

The VLA and VLBA are powerful survey instruments. Use them efficiently. Often called snap-shot observations.

Justify large samples with good arguments. Referees do not like “fishing expeditions”.

Check on archive for already observed sources. Using analysis of these data to help in justification and reduce observing time.

Make extensive use of radio catalogs NVSS, FIRST, WENSS, etc *(http://www.nrao.edu/astrores)*

If sources are small-diameter, be flexible in the choice of configuration, and use of VLA subarraying.

Detections

The VLA is a sensitive instrument and detection experiments are common.

But, non-detection of the object(s) should provide a significant result.

Do not use the VLBA to detect sources. Use the VLA first, or another instruments (egs GBT for a line detection).

RMS noise level does decrease as $t^{-0.5}$ up to 100 hours between 1.4 GHz and 8 GHz which is usually the best detection frequency.

Confirmation of 2-σ or 3-σ previous results needs good justification, especially if additional time is >12 hours. For support a figure is very worthwhile – to show that the near detection was made.

Supporting Tables, Figures, etc.

DO NOT USE DIAGRAMS TO CIRCUMVENT THE 1000 WORD LIMIT. Page-long figure captions are not appreciated.

Use diagrams and figures if really needed.

No massive postscript files > 5 Mbyte

Tables have less impact. Tables for the source list are needed for telescope scheduling and to check on possible previous work. See Appendix D

References are useful, especially astro-ph versions which may contain pertinent recent results are useful. Every statement need not be cited.

Do not include reprints or significant parts of published papers.

NRAO Refereeing System

About 150 proposals are received each 4-month cycle for the VLA, with an oversubscription of ~2:1.

There are ~24 referees, split into about six groups (egs. Stellar, cosmology, solar), each reading about 25 proposals. All communication is done by e-mail.

Proposals are graded, time reallocation, comments.

Scheduling Committee (TAC) collates the referee reports, makes adjustments, and dynamically makes a schedule for the four-month period, going down in the proposal priority until the schedule is filled for the four-month period.

Because of uneven coverage of proposals in the sky, occasionally a lower ranked proposal gets time.

NRAO guidelines to referees are given in:

http:/www.nrao.edu/administration/directors_office/refguide

Proposer Response

Each proposer receives the reviews from the referees. An example is given in Appendix E with some additional comments. The observing status will be given. For multi-configuration or monitoring proposals, the status of future configurations will be given.

If the proposal is not given observing time, a stronger proposal can be made, based on these reviews, for the next proposal deadline.

Submitting a proposal at least one proposal submission period before the needed configuration will be scheduled allows time to resubmit and not miss-out on the needed configuration.

Other Topics

Spectral properties. For accurate spectral properties of extended sources, you should used scaled arrays. Scaling does not have to be perfect, but more than a factor of two in resolution between observations at different frequencies may cause problems.→ **Do not submit a one-configuration VLA proposal for spectral index determinations from 1.3cm to 21 cm unless the sources are point sources.**

Do not over-resolve the source: For diffuse sources, start with a relatively short VLA configuration. Add longer configurations in the proposal if there is known fine-scale structure, or wait until the results of the present proposal observations.

One big proposal is better than many small proposals: The conventional wisdom that two 50-hour proposals stand a better chance of getting some observing time compared with one 100-hour proposal is wrong. Projects with similar goals should be placed in one proposal – or clearly link to present and previous proposals in the write-up.

Final Comments

Symbiotic relationship between referees and proposers: The NRAO wants to observe the best science and will add in comments to the observer (regardless if the proposal in accepted or rejected for time) on possible observational improvements.

Proposals from non-English speaking users: Some latitude is made for proposals from scientists with somewhat limited English ability. As long as the basic goals are clear, "Shakespeare" quality is not necessary.

Possible Ph.D. Candidates: Every effort is made to support and schedule observations associated with dissertations.

Overlapping and Conflicting Proposals: Overlapping proposals from competing groups are handled primarily to produce the best scientific results. Proposal arrival dates are only one of several factors used. Combining forces is generally attempted, with some negotiations.

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NOW, GET THOSE PROPOSALS IN

TRAVEL SUPPORT FOR NRAO OBSERVING RUNS AND DATA REDUCTIONS FOR NON-NRAO EMPLOYEES

SUMMARY

For each observing program scheduled on an NRAO telescope, reimbursement may be requested for one of the U.S. investigators to travel to the NRAO to observe, and for one of the U.S. investigators to travel to the NRAO to reduce data. Reimbursement may be requested for a second U.S. investigator to either observe or reduce data provided the second investigator is a student, graduate or undergraduate. In addition, the NRAO will, in some cases, provide travel support to the Observatory for research on archival data. The reimbursement will be for the actual cost of economy airfare, up to a limit of $1000, originating from within the U.S. including its territories and Puerto Rico. Costs of lodging in NRAO facilities can be waived on request in advance and with the approval of the relevant site director. No reimbursement will be made for ground transportation or meals.

ELIGIBILITY

To qualify, the U.S. investigator must not be employed at a Federally Funded Research and Development Center (FFRDC) or its sponsoring agency. Exceptions are possible (eg, investigators early in their careers); contact pvandenb@nrao.edu to request an exception. The NSF maintains a master government list of some FFRDCs at http://www.nsf.gov/sbe/srs/ffrdc/start.htm.

REIMBURSEMENT

The U.S. investigator should:

* Complete an NRAO Outside Observer Travel Authorization and Expense Voucher, available from the office of the relevant site director.
* Have the Voucher approved by the relevant site director.
* Upon completion of the authorized travel, submit the Voucher and original ticket receipts to the U.S. institution's travel office.

The U.S. institution should:

* Request reimbursement to it by submitting the Voucher and original ticket receipts to the NRAO Fiscal Office indicated on the Voucher.
* Make its request within 30 days of the completion of the authorized travel.

Appendix A

Travel support for observing and data reduction from an American institution.

Page Charge Support:

http://www.nrao.edu/library/page_charges.shtml

Appendix B: VLA Cover Sheet

VLA OBSERVING APPLICATION

NRAO

A

rcvd:

DEADLINES: 1st of Feb., June., Oct. for next configuration following review
INSTRUCTIONS: Each numbered item must have an entry or N/A
E-MAIL TO: propsoc@nrao.edu
OR MAIL TO: Director NRAO, 520 Edgemont Rd., Charlottesville, VA 22903-2475

(1) Date Prepared: 20 January 2003

(2) Title of Proposal: Probing the Star-Formation History of the Universe with Local Templates: Radio Continuum of Extremely Low-Metallicity Blue Compact Dwarfs

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	Grad Students Only: For Ph.D. Thesis?	Grad Students Only: Anticipated Ph.D. Year
[redacted]	[redacted]	[redacted]		

(4) Related VLA previous proposal number(s):

(5) Contact author for scheduling: address: [redacted]

(6) [redacted]

(7) Scientific Category: ○ solar system ○ galactic ⊗ extragalactic ○ other:

(8) Configurations (one per column) (A+Pt, A, B, C, D, BnA, CnB, DnC, Any)	A				
(9) Wavelength(s) (400, 90, 20, 6, 3.5, 2, 1.3, 0.7 cm)	1.3, 3.6, 6, 20				
(10) Time requested (hours)	12				

(11) Type of observation: ⊗ continuum ○ spectroscopy ○ multichannel continuum ○ polarimetry ○ solar
(check all that apply) ○ pulsar ○ high-time resolution ○ Pie Town link ○ other:

(12) Suitable for dynamic scheduling? ⊗ Suitable ○ Unsuitable

(13) ABSTRACT (do not write outside this space)

Because they are little affected by dust, radio wavelengths are ideal for measuring the cosmic star-formation rate (SFR) at high redshift. However, the radio may not reliably trace SFR of the low-mass chemically unevolved "primordial building blocks" predicted by hierarchical galaxy formation models: low-metallicity blue compact dwarfs (BCDs) – local analogs of the postulated high-redshift progenitors – have abnormally low radio emission relative to the far-infrared. This proposal is aimed at a better understanding of this puzzle, through a multifrequency study of extremely metal-poor BCDs. We will be able to broadly separate thermal/non-thermal emission, study the role of compactness in the radio properties of BCD star-forming regions, and search for optically thick emission. The proposed data will allow us to study trends in radio properties down to the metallicities and masses typical of hierarchical building blocks, and investigate star-formation properties in chemically unevolved environments with a precision impossible at high redshift.

NRAO use only
(03/02)

(14) Observer present for observations? ⊗ Yes ○ No Data analysis at? ○ Home ○ AOC or CV (2 weeks notice)

(15) Help required: ⊗ None ○ Consultation ○ Friend (extensive help)

(16) Spectroscopy only	line 1	line 2	line 3	line 4
Transition (HI, OH, etc.)				
Rest Frequency (MHz)				
Velocity (km/s)				
Observing frequency (MHz)				
Correlator mode				
IF bandwidth(s) (MHz)				
Hanning smoothing (y/n)				
Number of channels per IF				
Frequency Resolution (kHz/channel)				
Rms noise (mJy/bm, nat. weight., 1 hr)				
Rms noise (K, nat. weight., 1 hr)				

(17) Number of sources: 4

(If more than 10 please attach list. If more than 30 give only selection criteria and LST range(s).)

(18) NAME	Coordinates 1950 ○ 2000 ⊗ RA hh mm Dec. ± xx.x°	Conf.	λ (cm)	Corr. mode	Band-width per IF (MHz)	Total Flux (mJy)*	LAS	Required rms (mJy/bm)	Required dynamic range	Time request (hr)
SBS0335-052	03 38 -05 03	A	1.3		50	0.4	2″	0.05	10:1	2
SBS0335-052	03 38 -05 03	A	3.6		50	0.8	2″	0.025	30:1	2
SBS0335-052	03 38 -05 03	A	6		50	1.1	2″	0.025	40:1	2
SBS0335-052	03 38 -05 03	A	20		50	0.4	2″	0.025	15:1	1.25
NGC 2363	07 29 +69 11	A	1.3		50	4.2	2″	0.1	40:1	0.45
NGC 2363	07 29 +69 11	A	3.6		50	7.4	2″	0.1	70:1	0.5
Mrk 996	01 28 -06 20	A	1.3		50	0.7	2″	0.1	200:1	0.5
Mrk 996	01 28 -06 20	A	3.6		50	1.2	2″	0.1	200:1	0.5
Mrk 996	01 28 -06 20	A	6		50	1.9	2″	0.1	200:1	0.25
Mrk 996	01 28 -06 20	A	20		50	4.3	2″	0.1	200:1	0.25
Mrk 1089	05 02 -04 15	A	1.3		50	18	2″	0.05	30:1	2

*For spectral line, this should be the total flux density at the peak of the line

Notes to the table (if any): The dynamic range for Mrk 996 takes into account background sources.

(19) Restrictions to elevation (other than hardware limits) or HA range (give reason):

(20) Preferred range of dates for scheduling (give reason):

(21) Dates which are not acceptable:

(22) Special hardware, software, or operating requirements:

(23) Please attach a self-contained Scientific Justification **not in excess of 1000 words.** (Preprints or reprints will be ignored.)

Please include the full addresses (postal and e-mail) for first-time users or for those that have moved (if not contact author).

When your proposal is scheduled, the contents of the cover sheets become public information (Any supporting pages are for refereeing only).

v4.1 3/02

Appendix C: VLBI Cover Sheet

PROPOSAL COVERSHEET

DEADLINES: 1st of Feb., June, Oct.

revd:

(1) Date Prepared: February 3, 2003

(2) Title of Proposal: VLBI/INTEGRAL 48-Hour Observations of Sco X-1

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	Grad Students Only: For Ph.D. Thesis?	Grad Students Only: Anticipated Ph.D. Year
E. Fomalont	NRAO/CV	efomalon@nrao.edu		
B. Geldzahler*	NASA/HQ	bgeldzah@hq.nasa.gov		
C. Bradshaw	George Mason Univ	cbradsha@qwestinternet.net		
R. Fender, M. van der Klis, T. DiSalvo	University of Amsterdam	rpf@science.uva.nl, michiel@astro.uva.nl, disalvo@astro.uva.nl		
L. Stella	Astronomical Obs. of Rome	stella@coma.mporzio.astro.it		

(4) Related previous or current VLBI proposal(s): GF07, V130 (APT) ⊗ Resubmission BF65?

(5) Contact author for scheduling: E. Fomalont
Address: NRAO
520 Edgemont Road
Charlottesville, VA 22903

(6) Telephone: 434-296-0232
Fax: 434-296-0278

(7) Scientific Category: ◯ astrometry & geodesy ⊗ galactic ◯ extragalactic ◯ other:

(8) Wavelength(s) requested (those not available on the global network are indicated with a small circle):
◯ 90cm ◯ 50cm ∘ 30cm ◯ 21cm ◯ 18cm ◯ 13cm ◯ 6cm ∘ 5cm ⊗ 3.6cm ◯ 3.6/13cm
∘ 2cm ◯ 1.3cm ◯ 7mm ∘ 3mm
◯ Global Network standard bands ◯ Special frequencies:

(9) Recording format: ◯ Default continuum setup (VLBA only), ⊗ VLBA/MkIV, ◯ MkIII: Mode
Bandwidth per BaseBand channel: 16 MHz
Aggregate bit rate: 256 (4 BB channels at 16M Samples/sec of ◯ 1 bit, ⊗ 2 bit)

(10) ⊗ Multi-epoch observation: 3 epochs of 13 hours each, separated by 24 hours

(11) Network	Requested antennas	Total time requested
EVN & MERLIN	Eb Wb On Nt Tr Hh Sh	7h x 3
VLBA	ALL	13h x 3
other NRAO	Y27, GBT	13h x 3
DSN	Ti	3h x 3
Non-VLBI Intruments	INTEGRAL (RXTE probable)	48h continuous

(12) ABSTRACT (Do not write outside this space. Please type)

INTEGRAL observations have been scheduled for Sco X-1 for a continuous 48-hour period in the window July 30 to Sept 25, 2003 (Proposals 0120284, van der Klis and 0120236, Stella). The goals of the these observations are to track the variation and spectrum of the optical, hard X-rays and gamma-ray using the four instruments on board: IBIS imager, SPI spectrometer, OMC optical monitor, and JEM-X X-ray monitor. Simultaneous VLBI monitoring with the INTEGRAL observing period are proposed here. The hard X-ray and soft gamma-ray emission are probably produced by synchrotron and/or inverse-Compton emission which are associated with the radio emission. Hence, correlation of the radio with high energy emission is expected and will be crucial in understanding the processes and evolution in Sco X-1. The VLBI imaging, which will be similar to the 56-hour experiment in June 1999, will also determine the radio evolution of the core, which may correlate with the gamma rays, and the lobes. We propose for 8 GHz radio observations, full polarization, which are coincident with the INTEGRAL observations, and which will be higher in resolution compared with the previous radio campaign.

Scheduler use only

(13) Observation type: ⊗ Interferometry, ◯ Spectroscopy, ◯ Pulsar, ⊗ Phase referencing

(14) Proposal is ◯ Suitable ⊗ Unsuitable for dynamic scheduling.

(15) Polarization: ◯ Single Polarization ⊗ Dual Circular Polarization
Global network standard for single polarization is LCP for all λs except 13cm (RCP) and 3.6cm (RCP).

(16) Tape usage (Show <recording time>/<total time>): ______

(17) Assistance required:
Observation Setup: ◯ Consultation, ◯ Extensive help, ◯ Observe file preparation
Postprocessing: ◯ Consultation, ◯ Extensive help, ◯ Calibration service

(18) Processor: ⊗ Socorro, ⊗ JIVE, ◯ Haystack, ◯ Bonn, ◯ Washington, ◯ Other______
Special processing: ⊗ XPol, ◯ Pulsar gate, ⊗ Multiple Fields: 2
Averaging time: 4 sec Spectral channels per baseband channel: 16 ch
◯ Other special processing: ______

(19) Postprocessing Location: ______

(20) Source list: ⊗ J2000 ◯ B1950
If more than 4 sources, please attach list. If more than 30, give only selection criteria and GST range(s)

	Source 1	Source 2	Source 3	Source 4
Name(s)	Sco X-1			
RA (hh mm)	16 20			
Dec (dd.d)	-15.6			
GST range (Europe)	14h to 21h			
GST range (US)	16h to 05h			
GST range (Other)	16h to 5h; (Ti 02h to 05h)			
Band(s)	X			
Flux density (Total, Jy)	0.010			
Flux density (correlated, mJy)	5			
RMS needed (mJy/beam)	0.1			
Peak/RMS needed	30			

(21) Preferred VLBI session or range of dates for scheduling, and why:
INTEGRAL will observe Sco X-1 in the window July 30 to Sept 25, 2003. Hence, radio observations must be coordinated with the INTEGRAL schedule. Please contact Paul Barr, inthelp@rssd.esa.int.

(22) Dates which are NOT acceptable, and why:

(22) Attach a self-contained scientific justification, not in excess of 1000 words.
Preprints or reprints will not be forwarded to the referees.

Information about the capabilities of the VLBA may be found on the World Wide Web by starting at the NRAO home page, http://www.nrao.edu, and selecting the VLBA from "Sites and Telescopes."

A brief summary of the capabilities of the EVN antennas is given in the EVN STATUS TABLE in the EVN USER GUIDE, which may be found at http://www.evlbi.org/user_guide/user_guide.html.

Please include the full postal addresses for first-time users or for those that have moved (if not contact author).

Appendix D: Observing Parameters

NAME	Coord. J2000	Conf	λ (cm)	Corr.	Bandwidth MHz	Flux Density mJy	LAS	rms mJy/b	Dynamic range	Time h
A13	00 14 -19 30	A	400	4(4P)	1.56	6000	3′	83	10:1	3
		A	90	4(4P)	6.25	630	3′	0.4	10:1	(3)
		BnA	400	4(4P)	1.56	6000	3′	83	10:1	3
		BnA	90	4(4P)	6.25	630	3′	0.9	10:1	(3)
		CnB	90	4(PP)	6.25	630	3′	14	10:1	2
A2255	17 13 64 04	A	400	4(4P)	1.56	6900	20′	40	10:1	6
		A	90	4(4P)	6.25	536	20′	3	10:1	(6)
		B	400	4(4P)	1.56	6000	20′	40	10:1	6
		B	90	4(4P)	6.25	536	20′	3	10:1	(6)
		C	90	4(PP)	6.25	536	20′	0.5	10:1	2
A665	08 31 65 50	A	400	4(4P)	1.56	1017	3′	30	10:1	6
		A	90	4(4P)	6.25	108	3′	3	10:1	(6)
		B	400	4(4P)	1.56	1017	3′	30	10:1	6
		B	90	4(4P)	6.25	108	3′	3	10:1	(6)
	archival	C	90	4(PP)	6.25	108	3′	2	10:1	(6)
	archival	D	90	4(PP)	6.25	108	3′	2	10:1	(1.7)
A115	00 56 26 22	A	400	4(4P)	1.56	6580	8′	25	10:1	6
		A	90	4(4P)	6.25	699	8′	0.4	10:1	(6)
		B	400	4(4P)	1.56	6580	8′	25	10:1	6
		B	90	4(4P)	6.25	699	8′	0.4	10:1	(6)
		C	90	4(PP)	6.25	699	8′	4	10:1	2
A85	00 42 -09 19									
	archival	A	400	4(44)	1.56	34000	2.5′	20	10:1	(5.3)
	archival	A	90	4(PP)	6.25	3200	2.5′	2	10:1	(1.5)
	archival	B	400	4(44)	1.56	34000	2.5′	20	10:1	(2.8)
	archival	B	90	4(PP)	6.25	3200	2.5′	2	10:1	(1.1)

NOTES: Noise is not the ideal noise but the rms required to achieve the science goals. Times in parentheses do not contribute to the total requested either because 400 cm and 90 cm can be observed simultaniously or because data already exists in the archive.

Appendix E: Referee's Report

PROPOSAL CODE: AH818
PROPOSAL TITLE: Extremely low-metallicity blue compact dwarfs
PROPOSAL STATUS (05/07/03): No time currently scheduled, no further consideration.

Time requested:
1 times 12.0 hrs in A config centered at 4.5

Referee A Rating= 5.0 Time rec= 30 % Ref mean 4.0
The connection of these objects to anything that will be observable in the distant universe anytime soon seems tenuous at best. Including a large metallicity baseline is interesting, but what predictions are being made or tested? Considerable data exists in the archives on most of these galaxies which would enable a good start on this program. A configuration at 1 frequency would serve to establish the presence of compact radio sources. The source list in Table 1 does not seem to match the source list on the cover page.

Referee B Rating= 6.0 Time rec= 0 % Ref mean 4.7
Is a 1.3 cm A-array observation practical during the summer? The goal of this project is to measure the radio luminosities and spectra of 4 local "primordial" low-metallicity galaxies in order to infer the radio properties of the CDM galaxy building blocks at high redshifts. These proposed high-resolution (LAS ~ 2 arcsec) observations of much larger (optical size ~ 1 arcmin) nearby low-metallicity galaxies will probe individual star-forming regions but will miss extended emission, which may be a significant fraction of the total nonthermal flux. Still, these are worthwhile galaxies to observe in their own right, just to understand their compact regions of star formation.

Referee C Rating= 5.0 Time rec= 0 % Ref mean 4.1
This sounds like an interesting project, but I have the impression that the authors have not spent much time thinking about the correct observational technique to achieve their science goals. To correctly separate thermal and non-thermal emission and study the compactness of radio sources in these galaxies they will need matched beams at the different frequencies.

--observing status-

--slightly below average

Use archive and start with one frequency

Missing large-scale emission

Difficult to obtain spectrum