VLA OBSERVING APPLICATION

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 (different for some Rapid Response Science)
OR MAIL TO: Director NRAO, 520 Edgemont Rd., Charlottesville, VA 22903-2475

(1) Date Prepared: 30 September 2003

(2) Title of Proposal: Molecular Masers in V838 Monocerotis

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only For Thesis?	Ph.D. Year
Mark Claussen	NRAO	mclausse@nrao.edu			
Kevin Healy	ASU	kevin.healy@asu.edu	G	No	2004
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(4) Related VLA previous proposal number(s):

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(7) Scientific Category: ○ solar system ⊗ galactic ○ extragalactic ○ other:
Rapid Response Science: ○ Known Transient ⊗ Exploratory ○ Target of Opportunity

(8) Configurations (one per column) (A+Pt, A, B, C, D, BnA, CnB, DnC, Any)	Current				
(9) Wavelength(s) (400, 90, 20, 6, 3.5, 2, 1.3, 0.7 cm)	18, 1.3, 0.7				
(10) Time requested (hours)	2				

(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)

We propose to search the circumstellar environment of V838 Monocerotis for molecular masers (OH, H_2O, and SiO). If V838 Mon is a very cool oxygen-rich supergiant with circumstellar material, molecular masers may very well reside in this circumstellar gas as in the well-known M supergiants VX Sgr, VY CMa, NML Cyg, or S Per. If masers were detected in the circumstellar environment of V838 Mon, high angular resolution follow-up observations could exploit the properties of these bright kinematic, dynamic, and distance (through possible parallax measurements) tracers.

NRAO use only
(08/03)

(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.)	OH 1612/1720 MHz	OH 1665/1667 MHz	H_2O	SiO
Rest Frequency (MHz)	1612,1720	1665,1667	22235.08	43122.808
Velocity (km/s)	0	0	0	0
Observing frequency (MHz)				
Correlator mode	2AD	2AD	2AD	2AD
IF bandwidth(s) (MHz)	1.5625	1.5625	6.25	6.25
Hanning smoothing (y/n)	n	n	n	n
Number of channels per IF	256	256	64	64
Frequency Resolution (kHz/channel)	6.1	6.1	97.7	97.7
Rms noise (mJy/bm, nat. weight., 1 hr)	4.1	4.1	1.8	4.4
Rms noise (K, nat. weight., 1 hr)	120	120	53	132

(17) Number of sources:	**1**

(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 (Jy)*	LAS	Required rms (mJy/bm)	Required dynamic range	Time request (hr)
V838 Mon	07 04, -03.8	Current	18	2AD	1.5625			8		40 min.
V838 Mon	07 04, -03.8	Current	1.3	2AD	6.25			5		10 min.
V838 Mon	07 04, -03.8	Current	0.7	2AD	6.25			8		40 min.

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

Notes to the table (if any):

(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).

v4.2 8/03