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

(1) Date Prepared: 10 Jan 2005

(2) Title of Proposal: A Comprehensive Study of the Morphology and Evolution of the Radio Afterglow from SGR 1806–20

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only For Thesis?	Ph.D. Year
Chryssa Kouveliotou	NASA/MSFC	chryssa.kouveliotou@nasa.gov			
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(4) Related VLA previous proposal number(s): AK598

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

Rapid Response Science: ○ Known Transient ○ Exploratory ⊗ Target of Opportunity

Joint Proposal: ○ VLA/VLBA ○ VLA/GBT ○ VLA/VLBA/GBT

(8) Configurations (one per column) (A+Pt, A, B, C, D, BnA, CnB, DnC, Any)	A / BnA	A / BnA	BnA / B	B	
(9) Wavelength(s) (400, 90, 20, 6, 3.5, 2, 1.3, 0.7 cm)	3.6	1.3	20, 6	3.6	
(10) Time requested (hours)	9.5	4	40	3	

(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)

The recent Giant Flare (GF) of 27 December 2004 from the Soft Gamma Repeater (SGR) 1806–20 was 1–2 orders of magnitude brighter than the only other two GFs seen to date. It was detected with multiple X-ray satellites and all indications suggest that this event was not just extraordinary, but possibly a once in a lifetime occurrence. Proximity to the Sun means that for the next month, radio observations will be the only way of studying the aftermath of this event. VLA observations can provide crucial information on the source's flux and morphology, allowing us to determine the energetics of the outflow from the SGR, especially in combination with our imaging on smaller scales provided by MERLIN and VLBI.

NRAO use only
(10/04)

(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:	**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)
SGR 1806–20	18 08, –20.4	A/BnA	3.6	Cont.	50	0.005	80 mas	0.02	100	9.5
SGR 1806–20	18 08, –20.4	A/BnA	1.3	Cont.	50	0.002	80 mas	0.05	40	4
SGR 1806–20	18 08, –20.4	BnA/B	20/6	Cont.	50	0.001	0.1″	0.04	25	40
SGR 1806–20	18 08, –20.4	B	3.6	Cont.	50	0.2	1-2″?	0.02	10	3

*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):
For 3.6 cm in A array, avoid LST 1400–1500, 2130–2230 (very poor beam). For 1.3 cm, need high elevation.

(20) Preferred range of dates for scheduling (give reason): 3.6 cm in A/BnA array: asap, 1.5 hrs every 2nd day until BnA, then every 4th day until 30 Jan; 1.3 cm in A array: near simultaneous with ATCA (possibly on 14 Jan; to be advised); 20/6 cm: 2 hrs per week starting on 30 Jan; 3.6 cm in B array: near simultaneous with *Chandra*

(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).

v4.3 10/04