VLBA PROPOSAL COVERSHEET

DEADLINES: 1st of Feb., June, Oct.
EMAIL TO: toosoc@nrao.edu

rcvd:

(1) Date Prepared: February 13, 2006

(2) Title of Proposal: Resolving the radio emission from the 2006 outburst of the recurrent nova RS Ophiuchi

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only For Thesis?	Ph.D. Year
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(4) Related previous or current VLBI proposal(s): ◯ Resubmission

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(7) Scientific Category: ◯ astrometry & geodesy ⊗ galactic ◯ extragalactic ◯ other:
Rapid Response Science: ◯ Known Transient ◯ Exploratory ⊗ Target of Opportunity

(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:
Aggregate bit rate: (BB channels at MSamples/sec of ◯ 1 bit, ◯ 2 bit)

(10) ⊗ Multi-epoch observation: 4 epochs of 12 hours each, separated by 3-4 weeks

(11) Network	Requested antennas	Total time requested
EVN & MERLIN		
VLBA	VLBA	48 hours
other NRAO		
Non-VLBI Intruments		

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

RS Oph is a recurrent nova with previous outbursts in 1898, 1933, 1958, 1967 and 1985. It has just been identified (Feb 12) to be in outburst again reaching a visual magnitude of around 4.5. In 1985 we helped coordinate a multifrequency campaign of observations ranging from radio to X-ray. The radio observations revealed a rapidly evolving source with evidence for radio jets and a mix of thermal and non-thermal emission. Here we propose to obtain several epochs of VLBI imaging to confirm the existence of jet ejection and to follow their development. These will be complemented by VLA, MERLIN/EVN, Swift and XMM-Newton observations as well as optical/IR photometry/spectroscopy. We aim to understand the outburst, ejecta development and energetics of the system at a level of detail which was simply not possible 21 years ago.

Scheduler use only
(8/03)

(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>): 100%

(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: ______
Averaging time: ______ Spectral channels per baseband channel: ______
◯ Other special processing: ________________

(19) Postprocessing Location: Jodrell Bank

(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)	RS Oph			
RA (hh mm)	17 50			
Dec (dd.d)	-06.7			
GST range (Europe)				
GST range (US)				
GST range (Other)				
Band(s)				
Flux density (Total, Jy)	50 mJy			
Flux density (correlated, mJy)	30 mJy			
RMS needed (mJy/beam)	0.1			
Peak/RMS needed				

(21) Preferred VLBI session or range of dates for scheduling, and why:
Within 2-4 weeks in first instance then several epochs of monitoring

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

(23) 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).