PROPOSAL COVERSHEET

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

(1) Date Prepared: August 29, 2007
(2) Title of Proposal: 3C 111 in Outburst (Target of Opportunity)

(3) AUTHORS
(Add * for new location)

<table>
<thead>
<tr>
<th>AUTHORS</th>
<th>INSTITUTION</th>
<th>E-mail</th>
<th>G/U</th>
<th>For Thesis?</th>
<th>Ph.D. Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. Kadler</td>
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<tr>
<td>T.P. Krichbaum, E. Ros,</td>
<td>MPIfR</td>
<td>tkrichbaum, ros, ykovalev, lfuhrmann,</td>
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</table>

(4) Related previous or current VLBI proposal(s): GL029A ☐ Resubmission

(5) Contact author for scheduling: Matthias Kadler
Address: Astrophysics Science Div., Code 662 NASA GSFC
         Greenbelt, MD 20771, USA

(6) Telephone: +1 301-286-4390 Fax: +1 301-286-1684

(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: 512 (16 BB channels at 16 MSamples/sec of ☐ 1 bit, ☒ 2 bit )

(10) ☐ Multi-epoch observation: _______ epochs of _______ hours each, separated by _______

(11) Network   Requested antennas                  Total time requested
EVN & MERLIN
VLBA   14 hr
other NRAO
GMVA   Effelsberg, Pico Veleta, Pl. de Bure, Onsala, Metsahovi, +
       VLBA (all available) 14 hr
Non-VLBI Intruments

(12) ABSTRACT (Do not write outside this space. Please type)
Millimeter flux density measurements performed at IRAM and the SMA reveal an ongoing major flux-density outburst in the radio galaxy 3C 111. Recent measurements with the IRAM 30-m telescope show more than 8 Jy at 1 mm and more than 12 Jy at 3 mm! We would like to use this unique opportunity and request 14 hours of GMVA time to observe the very early state of the flaring jet base. We will study an expected forward-reverse shock-in-jet structure in response to an enhanced injection of relativistic plasma in the 3C111 jet utilizing the unprecedented angular resolution and the high observing frequency of the GMVA.

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>): 0.49

(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: MPIfR, NASA GSFC

(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)

<table>
<thead>
<tr>
<th>Name(s)</th>
<th>Source 1</th>
<th>Source 2</th>
<th>Source 3</th>
<th>Source 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>3C111</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RA (hh mm)</td>
<td>04 18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec (dd.d)</td>
<td>+38.0</td>
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<td>GST range (Europe)</td>
<td>22:00 - 12:00</td>
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<tr>
<td>GST range (US)</td>
<td>03:00 - 17:00</td>
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<tr>
<td>GST range (Other)</td>
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<tr>
<td>Band(s)</td>
<td></td>
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<tr>
<td>Flux density (Total, Jy)</td>
<td>&gt;10</td>
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<td>Flux density (correlated, mJy)</td>
<td>5000 – 7000</td>
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<tr>
<td>RMS needed (mJy/beam)</td>
<td>5</td>
<td></td>
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<tr>
<td>Peak/RMS needed</td>
<td>~500</td>
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(21) Preferred VLBI session or range of dates for scheduling, and why:

- Oct 2007

(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).