IDENTIFYING EGRET SOURCES

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The NASA Technical Officer for this grant is Jay P. Norris, Code 660.1, NASA/Goddard Space Flight Center, Greenbelt, MD 20771.
This project was awarded funding from the CGRO program to support ROSAT and ground-based observations of unidentified sources from data obtained by the EGRET instrument on the Compton Gamma-Ray Observatory.

The critical items in the project are the individual ROSAT observations that are used to cover the 99% error circle of the unidentified EGRET source. Each error circle is a degree or larger in diameter. Each ROSAT field is about 30' in diameter. Hence, a number (>4) of ROSAT pointings must be obtained for each EGRET source to cover the field. The scheduling of ROSAT observations is carried out to maximize the efficiency of the total schedule. As a result, each pointing is broken into one or more sub-pointings of various exposure times.

This project was awarded ROSAT observing time for 4 unidentified EGRET sources, summarized in the table. The column headings are defined as follows: "Coverings" = number of observations to cover the error circle; "SubPtg" = total number of sub-pointings to observe all of the coverings; "Rec'd" = number of individual sub-pointings received to date; "CompCovs" = number of individual coverings for which the requested complete exposure has been received. Processing of the data can not occur until a complete exposure has been accumulated for each covering.

### Summary Table of ROSAT Pointings

<table>
<thead>
<tr>
<th>Source</th>
<th>Coverings</th>
<th>SubPtg</th>
<th>Rec'd</th>
<th>CompCovs</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGI443-6040</td>
<td>9</td>
<td>&gt;17</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>EGI239+4410</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>EGI742-2250</td>
<td>8</td>
<td>12</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>EGI811-2339</td>
<td>5</td>
<td>&gt;9</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

The data for EGI239+4410 have been processed. A total of 23 X-ray sources with a signal-to-noise (S/N) of >2.5 have been identified over the complete EGRET error circle. Three of these sources have a S/N ≥ 4.0 and will become the highest-priority objects for optical follow-up. Optical follow-ups are in progress.

The demise of ROSAT means that EGI443-6040 and EGI811-2339 will never be completed. We are considering a small request to Chandra to close the gaps.