

18 Sep 2007
D. Cohen

Catalog search for sources at the locations of the four non-beta-Cru-A sources detected in the Chandra observation of beta Cru.

Using *Vizier*, and searching all catalogs, based on the positions determined for the Chandra sources (see Table 2 in the manuscript).

1. Testing the procedure with beta Cru A: 12 47 43.35 -59 41 19.2 – in the Tycho catalog and HST guidestar catalog, this position is about 0.3 or 0.4 arc seconds from beta Cru's optical position. In various other catalogs (including other versions of the same, or similar, catalogs it's 0.6 or 0.7 arc seconds or more). Note that the source position in various ROSAT catalogs is 4 or 5 arcseconds from the position derived from the Chandra observation (and from the very similar position in optical catalogs).

2. beta Cru D: 12 47 43.80 -59 41 21.3 – aside from something in the DENIS database at 1.9 arcsecs, there's nothing closer than 2 arcsecs, and generally the closest thing that shows up in many, many catalogs is beta Cru A at about 4.0 arcsecs.

3. 12 47 52.53 -59 43 45.8 – there is a 16th magnitude object at about 4 arc seconds in multiple catalogs (e.g. NOMAD); it's in 2MASS with J,H,K mags of ~14;

There's something in the ROSAT PSPC WGACAT at 19.2 arcseconds – J1247.8-5943 (count rate is $4e-4$ c/s); observation is the beta Cru pointing. In the ROSAT All-sky Bright Source Catalog (1RXS) there are two entries, with the same position (exactly), 7.1 arcseconds away. Note that they each have 1RXS identifiers that are (a) different from their positions and (b) different from each other; however, their "source IDs" agree with their positions. *I suspect that this object in the ROSAT catalogs is the same object we've detected with Chandra (count rate is about right); and if it's not, then it's curious that these catalogs don't have the source we've found with Chandra, because this object they do have listed is very faint (1/1000 the count rate of beta Cru A).

4. 12 48 23.91 -59 36 11.8 – nothing closer than 11 arcseconds, and nothing in the ROSAT catalogs closer than 30 arcseconds. The object at ~11 arcsecs appears to be a faint star.

5. 12 48 33.22 -59 37 36.8 – a few faint (~15 mag) stars between 6 and 10 arcseconds, but nothing in the ROSAT catalogs within 30 arc seconds.