Subject: matching coordinates
Posted by jradavenport on Sun, 29 Jul 2007 09:01:24 GMT
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Hello, I'm a long time lurker of this group, and finally have a problem I can't solve efficiently enough! I have coordinates for stars (RA and DEC for us astronomers out there), from two sources. i.e. (x1,y1) and (x2,y2). These lists are huge, like 150k for one and 5million in the other (a lot of stars!). I need to find the matches from these catalogs within a tolerance. I've tried a few programs I've found online (close_match_radec for instance) and they have not given me results I believe (multiple matches and such). Here is some horrible code I wrote just now which solves the problem VERY slowly:

```
sep=0.0008
m1=[-1]
m2=[-1]
for i=0L,n_elements(ra1)-1 do begin
   dra=ra2-ra1[i]
   ddec=dec2-dec1[i]
   m=where(abs(dra) le sep and abs(ddec) le sep) ;find the star
within the separation, sep
   if m[0] ne -1 then begin
      m1=[m1,i]
      m2=[m2,m[0]]
   end
   dra=0
   ddec=0
endfor

if n_elements(m1) gt 1 then begin
   m1=m1[1:*]
   m2=m2[1:*]
   print,n_elements(m1),' matches found.'
endif

if n_elements(m1) eq 1 then print,'No matches found!'
```

I have the idea of concatenating the arrays, sorting them, then subtracting the n+1 element from the n element, and finding where the result is less than the separation tolerance, but this only works well for me in 1-D... Any thoughts or help would be very welcomed.