Subject: REGRESS and sky background
Posted by Gray on Tue, 06 Jul 2010 00:06:55 GMT
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Hi all,

I'm baffled with how one of my programs is acting, and would love some insight, if there is any to be had.

The routine is designed to fit the sky background image (in my case, a 128x128 subdivision of a larger astronomical image) to a plane (Ax+By +C) using REGRESS. My subdivisions are small enough that I think a plane is a pretty good approximation; the idea is to do a 3.5-sigma mean clip to remove sources, then regress the sky pixels to a plane and subtract the plane, and iterate until the fitted plane reaches 0. The problem is that it seems the slope of the background increases with increasing iterations, which it theoretically should not do.

Here's my general algorithm; I actually use a different mean clipping routine, but astrolib's MEANCLIP gives the same (unwanted) results. Take a look and tell me what you think. Thanks!

--Gray

```
FUNCTION find_skybg, image, sigma
  img = image
  s = size(img,/dim)
  lx = rebin(indgen(s[0]),s[0],s[1])    ;x and y coordinates
  ly = rebin(indgen(1,s[1]),s[0],s[1]) ;to construct bg plane
  abc = fltarr(3)
  iter = 0
  repeat begin
    meanclip, img, m, subs=clips, clipsig=3.5 ;don't care about mean,
just clips
    xy = array_indices(s,clips,/dim)
    ab = reform(regress(xy,img[clips],const=c))
    sigma = stddev(img[clips])
    abc += [ab,c]
    bg = ab[0]*lx+ab[1]*ly+c
    img -= bg
    iter++
  endrep until (iter ge 10 or total([ab,c]/abc le 0.02) eq 3)
  background = abc[0]*lx+abc[1]*ly+abc[2]
  return, background
endfor
```