Subject: Bug in IDL {alpha OSF unix 4.0.1} SMOOTH()
Posted by steinhh on Tue, 19 Nov 1996 08:00:00 GMT
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I think I just stumbled over a strange bug in IDL's SMOOTH function (if this is not a bug, then there is a bug in my brain, and I'd be quite happy to have someone debug it, thank you).

For some reason, the smoothing introduces non-zero values in the result array along one column, and I cannot understand why..

I don't have the time to figure out exactly what kind of input is *necessary* to provoke the error, but at least I managed to isolate one case (they're not *that* hard to find, I've got many of them) in a program (thank heaven for emacs' macros..)

Haven't tested on any other platforms, it would be nice if someone could check. The problem is that during the smoothing, quite a lot of pixels in column 14 are set to 2.12873741e-09 for some reason or another....

The program included below should demonstrate it quite clearly.

Cheers,

Stein Vidar H. Haugan

```
PRO bug

  diffmap = $
    [$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  1,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  1,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  1,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
```

```
[0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1],$
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[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0],$
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[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0],$
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[0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
```

```
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]]
diffmap = [[diffmap],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0],$
    [0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
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    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
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    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
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    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
    [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],$
```

```
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  1],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  1,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  1,  1],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  1],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  1,  1,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  1,  1,  1,  1,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  1,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  1,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  1,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  1,  1],$
      [0,  0,  0,  0,  0,  0,  0,  1,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  1,  1,  0,  0,  0,  0,  0,  1],$
      [0,  0,  1,  1,  1,  0,  1,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  1,  1,  1,  1,  1,  1,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  1,  0,  0,  1,  1,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  1,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0],$
      [0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  1,  0,  0] ]

  window,0
  !P.multi = [0,4,1]

  smoth = 7
  kernel = replicate(1,smoth,smoth)

  smoot = smooth(float(diffmap),smoth,/edge_truncate) gt 0
  conv = convol(float(diffmap),kernel,/edge_truncate,center=smoth/2) GT 0

  tvscl,rebin(diffmap,45,286,/sample),0,0
  tvscl,rebin(smoot,45,286,/sample),50,0
  tvscl,rebin(conv,45,286,/sample),100,0
  tvscl,rebin(smoot-conv,45,286,/sample),150,0
  stop
END
```