
Subject: problems with SAVGOL and POLY_SMOOTH

Posted by [Francesca Scipioni](#) on Thu, 07 May 2015 21:41:29 GMT

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Hi!

I'm tryng to apply the savgol algorithm to a spectrum of Cassini VIMS.
The spectrum is defined as a float array and had a dimension of 256.

when I apply the convolution, I obtain an arry of zeros.

I used also with poly_smooth, but the result is the same.

I tryed all possible combination of nleft, nright, order, degree ecc., using very small or very big values, but the result doesn't change.

Any idea about which can be the problem?

Thanks,
Francesca

Subject: Re: problems with SAVGOL and POLY_SMOOTH

Posted by [Jeremy Bailin](#) on Fri, 08 May 2015 05:10:52 GMT

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On Thursday, May 7, 2015 at 4:41:31 PM UTC-5, Francesca Scipioni wrote:

> Hi!

>

> I'm tryng to apply the savgol algorithm to a spectrum of Cassini VIMS.

> The spectrum is defined as a float array and had a dimension of 256.

>

> when I apply the convolution, I obtain an arry of zeros.

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>

> I tryed all possible combination of nleft, nright, order, degree ecc., using very small or very big values, but the result doesn't change.

>

> Any idea about which can be the problem?

>

> Thanks,

> Francesca

Can you show us some specific code?

-Jeremy.

Subject: Re: problems with SAVGOL and POLY_SMOOTH
Posted by [Francesca Scipioni](#) on Fri, 08 May 2015 13:06:26 GMT
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On Friday, May 8, 2015 at 12:10:53 AM UTC-5, Jeremy Bailin wrote:

> On Thursday, May 7, 2015 at 4:41:31 PM UTC-5, Francesca Scipioni wrote:

>> Hi!

>>

>> I'm trying to apply the savgol algorithm to a spectrum of Cassini VIMS.

>> The spectrum is defined as a float array and had a dimension of 256.

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>> when I apply the convolution, I obtain an array of zeros.

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>> I used also with poly_smooth, but the result is the same.

>>

>> I tried all possible combination of nleft, nright, order, degree ecc., using very small or very big values, but the result doesn't change.

>>

>> Any idea about which can be the problem?

>>

>> Thanks,

>> Francesca

>

> Can you show us some specific code?

>

> -Jeremy.

```
files1 = '/Users/...../...../v1713114512_1_2_17_raw.txt'
```

```
Range = 260
```

```
Band1 = strarr(256)
```

```
Band_num1 = intarr(256)
```

```
Minimo1 = fltarr(256)
```

```
Massimo1 = fltarr(256)
```

```
spettro1 = fltarr(256)
```

```
st_dev1 = fltarr(256)
```

```
fmt = 'A,I,F,F,F,F'
```

```
readcol, files1, format=fmt, Band1, Band_num1, Minimo1, Massimo1, spettro1, st_dev1,
```

```
SKIPLINE = 4, NUMLINE=260
```

```
plot, spettro1
```

```
savgolFilter = SAVGOL(2, 2, 0, 4, /double) ; I also tried other combinations
```

```
spettro3 = fltarr(256)
```

```
spettro3 = CONVOL(spettro1, savgolFilter)
```

```
; or (with the same result)
; poly_smooth( spettro1, 1, DEGREE=0,NLEFT=1,NRIGHT=1,DERIV_ORDER=0 ) ;

oplot, spettro3, color = 65280
```

The spettro1 values are

```
0.944916
0.953161
0.921698
0.954911
0.922925
0.918666
0.934583
0.907393
0.890279
0.885527
0.878185
0.907191
0.913401
0.896080
0.883359
0.918613
0.898005
0.872932
0.858413
0.851442
0.839940
0.818498
0.806320
0.807368
0.807541
0.800929
0.839457
0.827864
0.835938
0.832519
0.820482
0.811595
0.789620
0.759132
0.691918
0.598652
0.489183
0.445673
0.436680
```

0.436939
0.445523
0.438651
0.481776
0.547756
0.562844
0.564608
0.534664
0.594535
0.605254
0.676105
0.728975
0.748324
0.758822
0.733740
0.736142
0.748694
0.755424
0.768868
0.739329
0.726352
0.696078
0.632748
0.535247
0.434597
0.362188
0.326092
0.300800
0.285309
0.295063
0.266328
0.258386
0.250205
0.279463
0.325751
0.383798
0.451696
0.497129
0.540487
0.601897
0.643704
0.703089
0.709999
0.703514
0.688517
0.648048
0.595995
0.574927

0.554001
0.482696
0.469066
0.454911
0.444607
0.427108
0.451923
0.437827
0.401862
0.384808
0.377747
0.366368
0.351537
0.343991
0.356969
0.362911
0.353184
0.352417
0.328512
0.317759
0.292930
0.253015
0.206487
0.150402
0.106841
0.068634
0.042263
0.028128
0.022334
0.011552
0.001091
0.010740
0.012075
0.013127
0.005055
0.011474
0.014138
0.011764
0.011638
0.012457
0.002001
0.054650
0.008618
0.012289
0.010589
0.010678
0.013499
0.017883

0.021377
0.014646
0.020465
-0.004447
0.014564
0.016018
0.018516
0.030274
0.053877
0.045241
0.057105
0.067577
0.076199
0.087730
0.090628
0.104401
0.118718
0.126779
0.135805
0.149264
0.156811
0.171011
0.167874
0.170038
0.180615
0.177197
0.177835
0.157974
0.181071
0.182442
0.165855
0.177703
0.167839
0.166708
0.153052
0.154515
0.159896
0.139181
0.130814
0.119656
0.105711
0.109424
0.104764
0.093651
0.092645
0.063382
0.079162
0.076415

0.074927
0.071939
0.067798
0.064759
0.055266
0.108703
0.063316
0.057371
0.021088
0.040337
0.049434
0.042531
0.028866
0.022093
0.009693
0.049018
0.040305
0.039561
0.035064
0.033877
0.024407
-0.066850
-0.041002
0.021828
0.034775
-0.001342
0.054239
0.023999
0.064247
0.094230
0.024452
0.014036
0.028097
0.041927
0.045239
0.002342
0.027923
0.030359
0.031697
0.028263
0.029457
0.112607
0.028961
0.298060
0.064623
0.041895
-0.039256
0.031361

0.036728
0.036564
0.043188
-0.055092
0.017969
0.056107
0.044531
0.017920
-0.048235
0.029972
0.035818
0.102898
0.020244
0.058096
0.228025
0.109548
0.260482
0.049248
0.090254
0.005142
-0.000006
0.027815
0.060429
0.043408
0.036377

end

Subject: Re: problems with SAVGOL and POLY_SMOOTH
Posted by [David Fanning](#) on Fri, 08 May 2015 13:23:37 GMT
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Francesca Scipioni writes:

> Any idea about which can be the problem?

I think your filter is too narrow. Try this:

```
savgolFilter = SAVGOL(8, 8, 0, 4, /double)
```

This works well with the data you supplied.

Cheers,

David

--

David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: <http://www.idlcoyote.com/>
Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Subject: Re: problems with SAVGOL and POLY_SMOOTH
Posted by [Francesca Scipioni](#) on Fri, 08 May 2015 13:43:23 GMT
[View Forum Message](#) <> [Reply to Message](#)

On Friday, May 8, 2015 at 8:23:43 AM UTC-5, David Fanning wrote:

> Francesca Scipioni writes:
>
>> Any idea about which can be the problem?
>
> I think your filter is too narrow. Try this:
>
> savgolFilter = SAVGOL(8, 8, 0, 4, /double)
>
> This works well with the data you supplied.
>
> Cheers,
>
> David
> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
> Coyote's Guide to IDL Programming: <http://www.idlcoyote.com/>
> Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Dear David,

the result is the same, a flat, 0 values, array

Subject: Re: problems with SAVGOL and POLY_SMOOTH
Posted by [Francesca Scipioni](#) on Fri, 08 May 2015 14:08:18 GMT
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On Friday, May 8, 2015 at 8:43:25 AM UTC-5, Francesca Scipioni wrote:

> On Friday, May 8, 2015 at 8:23:43 AM UTC-5, David Fanning wrote:
>> Francesca Scipioni writes:
>>
>>> Any idea about which can be the problem?
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>> I think your filter is too narrow. Try this:
>>

```
>> savgolFilter = SAVGOL(8, 8, 0, 4, /double)
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>> This works well with the data you supplied.
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>> Cheers,
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>> David
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>> Sepore ma de ni thue. ("Perhaps thou speakest truth.")
>
> Dear David,
>
> the result is the same, a flat, 0 values, array
```

Using poly_smooth with high degree values the problem i solved!

Subject: Re: problems with SAVGOL and POLY_SMOOTH
Posted by [David Fanning](#) on Fri, 08 May 2015 14:19:41 GMT
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Francesca Scipioni writes:

> the result is the same, a flat, 0 values, array

Humm. Not on my machine. :-)

Cheers,

David

--

David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Subject: Re: problems with SAVGOL and POLY_SMOOTH
Posted by [Helder Marchetto](#) on Fri, 08 May 2015 14:22:01 GMT
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Maybe it's not necessary anymore to comment, but I've tried what David suggested and it works wonderfully...

If you're getting a zerod array out, then there is something doggy going on (you're using other

data?).

If you want, I can send you a copy of the plot, but it looks like a savgol filter to me... The first savgol filter you suggested does not do much... you need to make it broader. But I see absolutely always NON-zero values.

Cheers,
Helder

On Friday, May 8, 2015 at 4:08:19 PM UTC+2, Francesca Scipioni wrote:

> On Friday, May 8, 2015 at 8:43:25 AM UTC-5, Francesca Scipioni wrote:

>> On Friday, May 8, 2015 at 8:23:43 AM UTC-5, David Fanning wrote:

>>> Francesca Scipioni writes:

>>>

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>>> I think your filter is too narrow. Try this:

>>>

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>>>

>>> This works well with the data you supplied.

>>>

>>> Cheers,

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>>> David

>>> --

>>> David Fanning, Ph.D.

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>>> Coyote's Guide to IDL Programming: <http://www.idlcoyote.com/>

>>> Sepore ma de ni thue. ("Perhaps thou speakest truth.")

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>> Dear David,

>>

>> the result is the same, a flat, 0 values, array

>

> Using poly_smooth with high degree values the problem i solved!

Subject: Re: problems with SAVGOL and POLY_SMOOTH

Posted by [Francesca Scipioni](#) on Fri, 08 May 2015 14:53:58 GMT

[View Forum Message](#) <> [Reply to Message](#)

On Friday, May 8, 2015 at 9:22:02 AM UTC-5, Helder wrote:

> Maybe it's not necessary anymore to comment, but I've tried what David suggested and it works wonderfully...

> If you're getting a zerod array out, then there is something doggy going on (you're using other

data?).

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>

>

>

> On Friday, May 8, 2015 at 4:08:19 PM UTC+2, Francesca Scipioni wrote:

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>>> On Friday, May 8, 2015 at 8:23:43 AM UTC-5, David Fanning wrote:

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>>>

>>> Dear David,

>>>

>>> the result is the same, a flat, 0 values, array

>>

>> Using poly_smooth with high degree values the problem i solved!

I didn't try again savgol since now poly_smooth is working really good. I verified that the two functions work in almost the same way using the data taken in the exelis example for savgol.

Thank you for yoyr hellp|
