
Subject: Re: ratio imaging

Posted by [gerhard.holst](#) on Wed, 13 Mar 2002 12:39:44 GMT

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Dan Larson <drl16@cornell.edu> wrote in message

news:<MPG.16f7fce19edad53f989684@newsstand.cit.cornell.edu>...

> In article <9fe17a3c.0203120028.1a7caf67@posting.google.com>,

> gerhard.holst@pco.de says...

>> Craig Markwardt <craigmnet@cow.physics.wisc.edu> wrote in message

news:<on1yev3r9q.fsf@cow.physics.wisc.edu>...

>>> Dan Larson <drl16@cornell.edu> writes:

>>>> I am trying to do simple ratiometric

>>>> imaging with IDL. Of course, since

>>>> there is some pixelation noise, the

>>>> ratio is not very robust. I have

>>>> experimented with a number of

>>>> different filters (median, Gaussian

>>>> deconvolution, smooth) to try and

>>>> remove some of this instability.

>>>> Is there a filtering technique which

>>>> is minimally perturbative that will

>>>> remove some numerical artifacts

>>>> without changing the boundaries of

>>>> objects?

>>>

>>> Dan, you should be filtering the two images, *before* computing the

>>> ratio, right? I would have said that goes without saying, but now I

>>> am saying it. [The reason of course is that the ratio does not have

>>> a nice compact statistical distribution, so averaging is less

>>> robust.]

>>>

>>> Craig

>>

>> Dan,

>> if you are looking for more edge preserving filters you might

>> search for topics like "Savitzky-Golay" and "LOESS", both are

>> filters that might consume a little more time in calculation

>> (especially the LOESS I have found on the web, if you are interested

>> I can look for the link), but they do a good job in smoothing

>> while edge keeping, much better than boxcar, median etc.

>>

>> Gerhard

>>

> Gerhard,

>

> I am familiar with the Savitzky-Golay filter, but I have never used

> the LOESS filter. If you have an implementation that you like, I

> would like to hear about it. Do you know what the acronym stands

> for?
>
> Dan

Hi Dan,

to my knowledge it stands for an old German geological term,
it is no acronym, there is also a filter called Lowess very similar to that.
I have found the origin of the LOESS routines in IDL that I use,
they were developed by H. Freudenreich.

<http://www.astro.washington.edu/deutsch/idl/htmlhelp/slibrary14.html>
There is also the source for his routines based on a library from
AT&T Labs. I have attached 2 files (pdf&ps) that give some background
on the filter. If you use the Loess routine of Freudenreich, keep
the pixelwidth odd, otherwise you'll get error messages, if I remember
correct.

Gerhard
