Subject: Re: Noise calculation in IDL
Posted by Juggernaut on Fri, 28 May 2010 19:34:10 GMT
View Forum Message <> Reply to Message

On May 27, 10:43 pm, Suguru Amakubo <sfa2...@gmail.com> wrote:
> Dear all
>
> I am currently working on a new noise reduction method of a 400x400
> image. I have successfully programmed the codes in IDL to execute the
> above. However when it came down to measuring the noise and
> demonstrating the improvements. My lack of experience in dealing with
> signal noise made me struggle. Please explain to me how/what:
>
> 1)to display noise + signal graphically in IDL (I heard the use of
> histograms will help but not sure what this means)
>
> 2)the concept of adding white noise to the current signal in order to
> reduce the overall noise is and how to do this in IDL
>
> 3)equations I should use when adding/subtracting the noise from the
> signal
>
> also if there are any webpages or books that explains the concept of
> signal noise please reply a link.
>
> I am sorry if this is a bit off topic but since IDL is popular amongst
> astronomers who works with images frequently and I have written the
> code in IDL I thought I can get the most suitable help here.
>
> I am sorry if any of the above is trivial matter to you I just
> couldn't find much help on the web so far.
>
> Thank you for your help
>
> Suguru

Simply Google Image Denoising

The SNR can be represented by a peak pixel in a signal divided by the standard deviation of the background or the summed energy of a signal divided by the standard deviation of the background. Keep in mind when taking the standard deviation of the background you should make sure to not include the signal in your calculation by masking it out.
I'm not entirely sure how adding white noise reduces the overall noise unless it perfectly cancels the existing noise....