Subject: Re: Fourier analysis of the Data with some gaps
Posted by duxiyu@gmail.com on Tue, 14 Apr 2009 06:37:02 GMT
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Thank you for your explanation.
I am very intertesting in the local spectral technique you mentioned.
Could you recommend some references about it?

Best regards,
jdu

On Apr 14, 12:10 am, "R.G. Stockwell" <noemai...@please.com> wrote:
> "Kenneth P. Bowman" <k-bow...@null.edu> wrote in
messagenews:k-bowman-5F7B9B.10442113042009@news.tamu.edu...
>
>
>
>> In article
>> < 7cfa22f4-1133-48a1-9562-a84a0d932...@i28g2000prd.googlegroup s.com >,
>> "dux...@gmail.com" <dux...@gmail.com> wrote:
>
>>> Dear all,
>
>>> I want to take FFT on the data.
>>> But there are some shorts data gaps during this data interval.
>>> How should I deal with these gaps?
>
>>> Best regards,
>
>>> jdu
>
>> This is a very general question and there is no unique answer. You
>> need to be aware of the characteristics of the data.
>
> I agree, and would go a bit further. There is no unique answer, and
> no good answer.
>
>> You can interpolate to fill the gaps. (Many methods.)
>
> This is fine if the gaps are not too common, or too large.
>
>> You can use least-squares instead of FFT.
>
> The Lomb Scargle technique is often misused in this case.
> It does a fit of a _single_ sinusoid, and calculates the significance
> of it. It should not be used to calculate the spectrum (which of course
> is exactly what the Numerical Recipe book does).

> An actual least squares fit to all the fourier components, where there
> is gappy data, is almost always an ill posed matrix. The sinusoids are
> orthogonal
> with regular sampling, but when you remove a point in the time series, those
> sinusoids are no longer orthogonal.
>
> Perhaps a local spectral technique would be appropriate, which gives
> one the spectrum where there is data, and gaps where there are gaps.
>
> Cheers,
> bob
