
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 interesting 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
