Subject: Re: Dynamic Spectrum
Posted by lasse on Mon, 02 Jun 2008 09:59:19 GMT
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On 2 Jun, 10:23, "dux...@gmail.com" <dux...@gmail.com> wrote:
> On Jun 2, 11:44 am, David Fanning <n...@dfanning.com> wrote:
>
>
>
>> dux...@gmail.com writes:
>>> I have a set of data and their measued time.
>>> I want to get the similary Dynamic Spectrum which is shown in
>>> http://urap.gsfc.nasa.gov/www/reiner/spectra.html.
>>> Is there any IDL procedure to get the Dynamic Spectrum?
>
>> I'm not sure you need a procedure. The picture you
>> reference would take, at most, three IDL commands.
>
>> Which have you tried that you are having trouble with?
>
>> Cheers,
>
>> David
>> --
>> David Fanning, Ph.D.
>> Fanning Software Consulting, Inc.
>> Coyote's Guide to IDL Programming:http://www.dfanning.com/
>> Sepore ma de ni thui. ("Perhaps thou speakest truth.")
>
> I think you misunderstood my meanings.
> The data I have is a time series.
> I want to know how to get the dynamic spectrum from the time series
> data.
>
> Can three IDL commands achive this purpose?
>
> Du Jian

No, I have the feeling we did not misunderstand what you meant. To me
it seems that you have not understood what a dynamic spectrum is, if
you don't mind me patronising you here. It is pretty straight forward
to calculate a dynamic spectrum:

Say you have the data in an array called boogidiboo.
You then extract a certain subset of boogidiboo and calculate the FFT.
Move the subset by a certain number of points and caluclate FFT.
Move the subset by a certain number of points and caluclate FFT.
Move the subset by a certain number of points and caluclate FFT.

...

Or, as IDL code sniplet

```
raw_fft = make_array(fft_len, number_of_ffts, /float)
FOR i=0L, number_of_ffts-1L do begin
  data = boogidiboo[i*fft_len:(i+1L)*fft_len-1L]
  raw_fft[*,i] = FFT(data, -1)
ENDFOR
```

Ok, you could do that in three lines, I guess. ;-) However, you might want to think about tapering your data. Also, FFT returns complex numbers so if you want the FFT power, you need to do a ABS(raw_fft)^2. And also, FFT returns negative frequencies as well, which you can usually throw away. Read the IDL FFT help for more info.

Cheers
Lasse Clausen
