Subject: Re: Fourier analysis of the Data with some gaps Posted by R.G. Stockwell on Tue, 14 Apr 2009 16:39:25 GMT

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<duxiyu@gmail.com> wrote in message

news:55d7a5d9-0fc3-462d-a680-3be22f337271@k19g2000prh.google groups.com...

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

There is a lot. A straight forward Short Time Fourier Transform is simple and easy to understand. Simply parse the time series into small overlapping regions and FFT it.

There are wigner type transforms, that in my opinion are very useful for real data with noise.

There are wavelets (two disctinct branches, you'd want the CWT with morlet wavelets or perhaps mexican hat wavelets if you are interested in local spectra.

Orthogonal wavelets are not directly related to the fourier spectrum)

And there is the S-transform, which is combination of STFT and Wavelets, and has several advantageous characteristics.

http://www.cora.nwra.com/stransform/

cheers, bob

PS disclaimer, the ST stuff is mine, so I may be a bit biased when I say it is superior to all other methods for the analysis of transient quasimonochromatic signals in geophysical data. :)

Source code is available on that website.