Subject: Re: Help with WV_CWT
Posted by Phillip M. Bitzer on Tue, 09 Oct 2012 01:25:50 GMT
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Balt-

AFAIK, there is no "simple" connection between frequency and scale. It's not quite as simple as an FFT (although you might argue to ordering of frequencies returned by IDL isn't exactly simple :-) )

There are a couple things to help you along. First, the IDL Wavelet toolkit helped me a lot when learning about wavelets:

vis.lbl.gov/NERSC/Software/idl/help/docs6.0/wavelet.pdf

I also suggest you take a peek at the site:

http://paos.colorado.edu/research/wavelets/

Chis Torrence wrote most (all?) of the wavelet routines for IDL. The article "A Practical Guide to Wavelet Analysis" he is lead author on is quite useful.

For the immediate problem of how scale relates to frequency, check out this from the aforementioned web site:

The period (or inverse frequency) is the approximate Fourier period that corresponds to the oscillations within the wavelet. For all wavelets, there is a one-to-one relationship between the scale and period. The relationship can be derived by finding the wavelet transform of a pure cosine wave with a known Fourier period, and then computing the scale at which the wavelet power spectrum reaches its maximum.

http://paos.colorado.edu/research/wavelets/faq.html#scale

I recall that I mucked around a lot "under the hood" with the wavelet routines to really understand them. I also use wv_applet quite a bit to check my own code.

Hope this helps!