
Subject: Re: Inverse CWT

Posted by [Chris\[2\]](#) on Wed, 20 Apr 2005 19:30:18 GMT

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Hi Marc,

There are two approaches you can take. Since the wavelet transform is just a convolution, you can use a deconvolution (or the inverse FFT if you are doing this via FFT). However, an even simpler approach is to just sum the real part (if complex) of the wavelet transform over all scales, and apply an appropriate scaling factor. The scaling factor depends upon the scale, the time sampling, and your wavelet function.

For details, I would recommend looking at Torrence and Compo, 1998: A Practical Guide to Wavelet Analysis, available at <http://paos.colorado.edu/research/wavelets/>

Hope this helps.

-Chris

Research Systems, Inc.

"m_schellens" <mschellens@gmail.com> wrote in message

news:1113989088.320194.139730@l41g2000cwc.googlegroups.com.. .

> Does somebody know how to calculate the inverse continuous wavelet
> transform
> in IDL?
> Thanks,
> marc
>

Subject: Re: Inverse CWT

Posted by [R.G. Stockwell](#) on Wed, 20 Apr 2005 22:47:12 GMT

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"m_schellens" <mschellens@gmail.com> wrote in message

news:1113989088.320194.139730@l41g2000cwc.googlegroups.com.. .

> Does somebody know how to calculate the inverse continuous wavelet
> transform
> in IDL?
> Thanks,
> marc

If you had used the S-Transform, you would average the local spectra over time to get the Fourier Spectrum (and then inverse FFT to get the time series). Other than having that very nice quality, the ST is very similar to the CWT

with Morlet wavelets.

more info at:

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

(see the menu on the left hand side for links to code, papers, etc)

Cheers,
bob

PS sorry for not answering the question. What wavelet did you use, and what scales do you have sampled (octave sampling?), and what range of scales do you have? It may not be possible to get the inverse if the full range of frequencies is not sampled.

Do you have only the CWT info and you need the time series? or are you asking a general question on how to invert the CWT?

Subject: Re: Inverse CWT

Posted by [m_schellens](#) on Thu, 21 Apr 2005 05:41:49 GMT

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Hi Chris, Bob,

I am using WV_CWT from the wavelet package of IDL.

Basically I want to use several wavelets but for now I am using morlets.

Then I want to delete certain frequency (scale) ranges and resemble what is left.

The wavelet can be retrieved from the `wv_fn_xxx` functions.

The scales from the WV_CWT function (I need to choose /SPATIAL right?)

Anyhow, the result looks not like it should...

marc
