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On Oct 25, 4:16 am, Craig Markwardt < craig.markwa...@gmail.com> wrote:
> On Oct 24, 11:46 am, Anne <anne...@gmail.com> wrote:
>
>> Hi,
>> I have an images with periodic stripes with various orientation which
>> I would like to find the periodicity of. I've Fourier transformed the
>> image and found the peak in the transform (via a radial average) so I
>> have the q value (in I assume pixels^-1) corresponding to my stripe
>> periodicity. I now need to get a real space value out but I'm lost as
>> to where the factors of 2pi etc go. Can anyone point me in the right
>> direction? I've read the help files online but I'm still horribly
>> confused.
>
> Assume your original image has a linear size of L in whatever units
  you want. Let's say you have a satellite image that covers 7 km x 7
  km. Then L = 7 km. Let's also say that your image has N pixels.
>
  The FFT() produces Fourier coefficients which are a function of
  "frequency" which in this case is (1/length). (in physics we would
  call that a wavenumber)
>
 The fundamental frequency is 1/L. Every fourier coefficient is an
 even multiple of that frequency. So if you have N real pixels, there
 are N/2 unique fourier coefficients, and they have a frequency
  assignment like this:
>
> Coeff #:
              0(DC) 1
                             2
                                   3
                                         4 ... N/2
  Frequency: 0 (1/L) (2/L) (3/L) (4/L) ... (N/(2*L))
>
  Once you determine the frequency of your stripes, the linear size
  corresponding to that frequency is just (1/frequency).
>
>
 For example, if the stripes on our 1 km image have a fourier peak at
> sample 42, that is equal to frequency of 6.0 km^(-1), and a linear
 size of (1/6) km = 0.167 km.
>
> Craig
Thank you for the solution, I'd lost the factor of I but I've now
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Subject: Re: Fourier back to real space

Posted by Anne[2] on Tue, 25 Oct 2011 12:54:33 GMT

Anne

included it and all is well.