Subject: Re: what is the dist function's mean?
Posted by Benjamin Hornberger on Sat, 23 Apr 2005 17:16:22 GMT
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lixiaoyao wrote:
> I still a little bit confusing about the use of it.I will read the
> manual again.thank you.
>

Chapter 21, "Signal Processing", in the "Using IDL" manual is quite helpful. It sais that if you use the FFT() function on some sampled data, the actual frequency associated with a frequency index m is

f(m) = m / (N delta)

where N is the number of data points (in that dimension) and delta is the sampling interval. The online help to FFT() explains which array index corresponds to which frequency index:

0, 1, 2, ..., N/2-1, N/2, -(N/2-1), ..., -1

if you have an even number of data points. So, if you do a 2-dimensional F.T. (say, of an N x N array), DIST() will give you the frequency indices. Then you can create an array with spatial frequencies by

freq = dist(N, N) / (N * delta)

where delta is your real space sampling interval.

If this is what you have to work on, you should fully understand discrete Fourier transforms before you try to do calculations in IDL. I can recommend the book "The Fast Fourier Transform" by E. Oran Brigham.

Benjamin