Subject: Re: Normal Distributed Random Numbers Posted by Craig Markwardt on Tue, 04 Sep 2001 21:04:13 GMT View Forum Message <> Reply to Message

"Kay Bente" <KBente@lycos.de> writes:

- > Hi
- > I have to create arrays with normal distributed random numbers, but with
- > variable FWHM (Full width half max/standard deviation sigma?).
- > I want to add normal distributed noise to an image, so that the values
- > differ around a mean value.
- > has.

From the IDL Reference Guide:

- > The RANDOMN function returns one or more normally-distributed,
- > floating-point, pseudo-random numbers with a mean of zero and a
- > standard deviation of one.

So there you go, the deviates produced by RANDOMN have a gaussian sigma of 1, like this:

S = RANDOMN(SEED, 1000)

And then it's well established for a gaussian distribution that if you want a new mean, MU, and new gaussian sigma, SIG, then you would apply the following formula:

SPRIME = S*SIG + MU

And, knowing that gaussian sigma is approximately SIG = FWHM / 2.35, you are set. The key here is that SIG can be an array, not just a scalar, so you can have a different value of SIG (and hence FWHM) for each pixel.

Good luck. Craig Craig B. Markwardt, Ph.D. EMAIL: craigmnet@cow.physics.wisc.edu Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response