
Subject: Histogram & Cumulative Distribution Functions

Posted by [sdj](#) on Fri, 27 Aug 2004 10:56:20 GMT

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Dear All,

I have the following problem to address and I was wondering if somebody could help me out:

I have a 1-D dataset which is "more or less" normally distributed. I would like to fit a gaussian distribution to it, then calculate the cumulative distribution function, and ultimately calculate the 95% percentile.

The 1-D dataset represents sst values over 300 months.

The steps I would like to go through are the following:

- i) Calculate the distribution function (histogram) of my original dataset
- ii) Plot the resulting histogram of my original dataset ("SST Value" vs "No. of Obs")
- iii) Fit a Gaussian to the original dataset distribution function with the original SST dataset Mean and Standard Deviation values.
- iv) [O]Plot the resulting Gaussian distribution function.
- v) Calculate the cumulative distribution function of the resulting Gaussian distribution function.
- vi) Plot the cumulative distribution function ("SST value" vs "Percentage of Total Obs")
- vii) Calculate the 95% percentile value: i.e. what is the Variable Value within which 95% of the data is LE to.

I have tried playing around with the functions HISTOGRAM, HIST_EQUAL and GAUSS (from the Johns Hopkins University/Applied Physics Laboratory) functions, and I manage to get to step no. iv), but from there on I cannot seem to progress. I have pasted the code to get to step no. iv below.

Any suggestions ?

Thanks in advance for your help.

Regards,
Pepe

Pepe S. D. Juevara

- No debe cambiarse de caballo al cruzar el río $\frac{1}{2}$ -

;Steps i) to ii)

;Calculate the original histogram and plot the data

h=histogram(dataset, nbins=30, locations=l)

plot, l, h, spym=10

;Steps iii) to iv)

;Calculate the gaussian fit and oplot the data

fit=gauss(l, h)

oplot, l, fit

;Step v

;Calculate binstep size

bs = l[1]- l[0]

cdf=hist_equal(fit, binsize=bs,/histogram_only)

plot, l, cdf

;doesn't work !