Subject: adding up time series question
Posted by rlayberry on Mon, 15 Aug 2005 14:26:28 GMT
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Hi

I have an interesting problem that I want to solve on idl which I want to get some advice about....

I have 43 time series (thousands of points each). I want to add the times series together with weigthing such that the standard deviation of the summed time series is minimised.

For 2 time series

$sd(a+b)^2 = sd(a)^2 + sd(b)^2 + 2*corr(a,b)*sd(a)*sd(b)$

ie the standard deviation of 2 time series added together can be found from the standard deviation of the individual time series and the correlation between them.

if i add 43 time series together, is there a quick way of finding the standard deviation of the summed time series from the sd and correlation information from the individual time series?

basically, adding them up with different weights and finding the sd is very time consuming. can i find the sd from the sd and corr data, or is it just not possible to take a short-cut (i am tempted to think this?)

thanks for any advice

russ