Subject: EOF analysis of large data with NAN's
Posted by anil on Sat, 12 Apr 2014 23:19:16 GMT
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Hi,
I am trying to conduct Empirical Orthogonal Function analysis on satellite data, which is highly covered by clouds. I tried to follow:
https://www.idlcoyote.com/code_tips/eof_analysis.html
but it seems I am doing something wrong.
I have temperature data (Avhrr- Satellite sea surface temperature) from 1981-2009, which is monthly. My space grid is 346X138.
So I do have 340 months, 346 longitudes and 138 latitudes, which makes a large array of 340x47748. Plus the data is highly invaded with not a number values.
Therefore I can not calculate the Covariance matrix using the ## operator. I get an error saying:
Unable to allocate memory: to make array.
  Cannot allocate memory

So what I try to make a 47748x47748 operation which does not work (this is normal I guess :)).
When I use the # operator only, it calculates a covariance matrix (I think it does a 340x340 this time). Then when I try to do:
LA_SVD, matrix, W, U, V
Then I get :

Loaded DLM: LAPACK.
% LA_SVD: Routine did not converge, STATUS=20.

I read about EOF analysis, but I could not figure out how to carry it out on a 340(time)x47748(space) dataset. Could it be NaN's that cause the problem? They are assigned to a certain value and set as Nan's in my code.
Could anyone please tell me what I am doing wrong?
Best,
Anil