Subject: Re: Empirical Orthogonal Function Analysis in IDL
Posted by d.poreh on Sun, 27 Apr 2008 17:10:07 GMT
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David
It is very interesting to me. I've never heard about this method. I
have another problem now:
How we can extract the hottest point in the world based on this data
(for each year we have a maximum temperature somewhere) and plot this
on the world map (with a projection) for 1969 until now?
Cheers

On Apr 27, 5:01 am, David Fanning <n...@dfanning.com> wrote:
> Folks,
>
> I've been spending my time the past several weeks learning
> the ins and outs of Empirical Orthogonal Function (EOF)
> analysis. This is a multivariate statistical technique,
> identical to Principal Component analysis, which was
> developed in the 1950s by Edward Lorenz, of the famous
> "butterfly effect". Dr. Lorenz, a Boulder resident, just
> died a week or two ago.
>
> In any case, this is something we do quite a lot around
> the shop where I am now working, and I inherited some
> code I didn't really understand, so I started to write
> my own code, mostly as a way to understand the technique.
> The old code typically took hours, and in some cases, days
> to run.
>
> But in the course of writing my own, I stumbled onto a
> mathematical trick that allowed me to produce identical
> results compared to the old way in about four tenths of a
> second! Wow! Big breakthrough.
>
> I don't take credit for the trick (I found it in Wilks
> outstanding book, Statistical Methods in the Atmospheric
> Sciences) and it took about three of us, working together,
> to produce the serendipity needed to come to the realization
> of what we were doing. But it is definitely worth knowing
> about.
>
> So I've written an article that outlines the essential
> steps of the process. It is available here:
>
> http://www.dfanning.com/code_tips/eof_analysis.html

>
> Please let me know if you have any insights to add to this
> process. I can't say I know everything there is to know
> about this subject, but I am extremely happy with the
> code I have to do this now.
>
> Cheers,
>
> David
> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
> Coyote's Guide to IDL Programming:http://www.dfanning.com/
> Sepore ma de ni thui. ("Perhaps thou speakest truth.")
