Subject: Re: AO, SAO
Posted by Craig Markwardt on Thu, 29 Apr 2010 23:49:03 GMT
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On Apr 29, 6:16 pm, kiss <kishore1...@gmail.com> wrote:
> Hi
>
> I have 84 monthly temperature values at each height level. I am
> estimating the trends at each altitude levels using 84 monthly values.
> But I have to remove Annual Oscillation (AO) and Semi annual
> oscillation (SAO) and quasi biannual oscillation (QBO) trend from the
> monthly values.
> How to remove these oscillations from the monthly values.
> If anybody knows the methodology, pl. try to advice me.

First, it sounds like this type of analysis has been done in the past by people in your field. You should probably talk to them about your methodology, because you will probably want to use comparable techniques (or perhaps better if you understand the problem well enough).

Second, a way to capture such oscillations is with Fourier analysis. You can do a straight fourier transform, although you have to be careful if there are non-periodic trends in the data. Or, you could fit a series like,

```
  Y = A + B*t + $
      C*COS(2*!DPI*T/YEAR) + D*SIN(2*!DPI*T/YEAR) + $
      E*COS(4*!DPI*T/YEAR) + F*SIN(4*!DPI*T/YEAR) + ...
```

and so on for higher harmonics. This should be equivalent to fourier analysis, but the A & B terms could capture a constant+linear trend. Of course there are an infinite number of variations on this.

I still say you should start with whatever your colleagues use first.

Craig