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eEarth Discussions



# *Interactive comment on* "Extracting low frequency climate signal from GRACE data" *by* O. de Viron et al.

**Anonymous Referee #1**

Received and published: 19 July 2006

The paper presents an EOF analysis of global gravity fields (22-monthly GRACE fields and a 86-month data set made by combining gravity data from different sources) to look for the ENSO signal. The authors find a highly significant correlation between the scaled Southern Oscillation Index and the first 2 EOF's of the graviity fields, however they admit that the gravity data sets are too short to state with absolute certainty that they have observed the ENSO signal in the gravity fields.

They go on to compare the SOI with an EOF decomposition of a surface hydrology model that spans 20 years and come up with very similar results to the comparison of gravity fields and the SOI.

The methods and statistics used in the paper are sound. And the conclusions follow

directly. The science is intriguing, albeit perhaps a bit tenuous given the short length of the gravity time series. However, the authors do recognize and state that their conclusions are limited based on this short time series.

It is an interesting result and I recommend that it should be published after attention is given to the spelling and grammar that need to be improved.

Minor comments:

1. Top of page 24, what is meant by a composite annual cycle?

2. Page 27, 'left right panel'

3. please make the global maps all the same size

4. Figure 4, the caption is confusing. Please label the EOF's in the left top panel.

5. if the LAD time series is 20 years long, why do you only show the time series for 2002-2004 in figure 4?

6. Please use the same red for the SOI in the top panel of figure 2 as in the subsequent figures.

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Interactive comment on eEarth Discuss., 1, 21, 2006.