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Interactive comment on "Chronology of Lake El'gygytgyn sediments" *by* N. R. Nowaczyk et al.

K.P. Kodama

kpk0@lehigh.edu

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Does the paper address relevant scientific questions within the scope of CP? Yes, I believe it does. It presents an excellent chronostratigraphy for the Lake El'gygytgyn sediments. It shows that parameters such as magnetic susceptibility, total organic carbon, silica, Ti etc appear to co-vary and can be tuned to the marine oxygen isotope record over the past 3.6 million years. Also, a paleomagnetic reversal stratigraphy determined for the sediments can be tied to the GPTS to provide good absolute age control.

Does the paper present novel concepts, ideas, tools, or data? Only in so far that tuning to the oxygen isotope record is novel. It's becoming more common and is a powerful geochronological technique.

Are substantial conclusions reached? Yes, simply the chronostratigraphy derived for

the Lake El' core.

Are the scientific methods and assumptions valid and clearly outlined? Yes, this is done reasonably well.

Are the results sufficient to support the interpretations and conclusions? Yes.

Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? Yes, this part is a little uneven. The color measurements and silica measurements appear to be more completely explained than the paleomagnetic analysis.

Do the authors give proper credit to related work and clearly indicate their own new/original contribution? Yes.

Does the title clearly reflect the contents of the paper? Yes.

Does the abstract provide a concise and complete summary? Yes.

Is the overall presentation well structured and clear? Yes.

Is the language fluent and precise? There are some English usage problems. I have attached a pdf annotated with suggestions for better English usage.

Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? No formulae. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? No. Are the number and quality of references appropriate? Yes, Is the amount and quality of supplementary material appropriate? NA

I have two scientific suggestions: 1. I'd like to see a better explanation of why (p 3072) TOC maxima are associated with minima in insolation. I would expect that increased biologic productivity would be associated with maxima in insolation. 2. I'd suggest an additional figure show time series analysis of tuned and untuned data (MS, TOC, silica etc.). When the data are tuned I would expect to see an improvement in the

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astronomically forced spectral peaks.This would be powerful support for the tuning.

Please also note the supplement to this comment:
http://www.clim-past-discuss.net/9/C1313/2013/cpd-9-C1313-2013-supplement.pdf

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Interactive comment on Clim. Past Discuss., 9, 3061, 2013.