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Title: Summer and winter living coccolithophores in the Yellow Sea and the East China Sea

Introduction:
English language needs improvement.
p7679 L17-18 "but few studies on modern coccolithophores had been carried out in these areas.": "these areas" to be replaced by "Chinese sea areas".

A Google Scholar search came up with the following, apparently relevant references to the sea areas in question.

Tien-Nan Yang(1), Kuo-Yen Wei(1, 2) and Li-Ling Chen(1) 2003. Occurrence of Coccolithophorids in the Northeastern and Central South China Sea, Taiwania, 48: 29- 45 **NOT CITED**

Tien-Nan Yang1,3, Kuo-Yen Wei1,*, and Gwo-Ching Gong2 2001. Distribution of coccolithophorids and coccoliths in surface ocean off northeastern Taiwan. Bot Bull Acad Sin, 42: 287-302. **CITED**

KEN FURUYA*, KIYO KURITA and TSUNEO ODATE**, 1996. Distribution of Phytoplankton in the East China Sea in the Winter of 1993. J Oceanogr, 52: 323-333. **CITED**

Tien-Nan Yang, Kuo-Yen Wei, Min-Pen Chen, Su-Jen Ji, Gwo-Ching Gong, Fei-Jan Lin and Teh-Quei Lee, 2004. Summer and Winter Distribution and Malformation of Coccolithophores in the East China Sea. Micropaleontology, Vol. 50, Supplement 1: Advances in the biology, ecology and taphonomy of extant calcareous nannoplankton, pp. 157-170 **NOT CITED**

Sun, Jun, 2007. Organic Carbon Pump and Carbonate Counter Pump of Living Coccolithophorid. Adv Earth Sci, 22(12) (in Chinese) **CITED**

Materials and Methods:
Survey area and sampling method
Seems OK

Coccolith data analyses and statistical methods ("Coccolith" should be "Coccolithophorid")
"n_i is the number of cells of the species" should be "n_i is the number of cells of the species i"
"f_i is the frequency of occurrence of the species in each sample" should be" f_i is the frequency of occurrence of the species i in each sample"

The CCA technique described is a standard and useful way to analyse such data. It should be stated whether or not any transformation was done (for example to normalise the data) before applying CCA.

Results:
Environmental factors
This section focuses mainly on the physical structure, water masses and currents of the area, defined by the T and S data. It is succinct, and it is supported by Figs 1, 2, and 3, which are very clear.

LC species in survey area
L 16 "absolutely" should b "overwhelmingly"
L 17 "sum" should be "summed"
It is a notable point that species found in winter are the same as those found in summer.
The English is still a bit curious in places, but otherwise the section is OK.

Horizontal distribution of common species
P7684 L 19 "off-sea": Does this mean "off-shore"?

Vertical distribution of LCs at different sections
    Vertical distribution of LCs at section A
    Same linguistic comments, as above.
    Otherwise fine.

    Vertical distribution of LCs at section F
    The remarks on layering are a good feature.
    Same linguistic comments, as above.
    Otherwise fine.

    Vertical distribution of LCs at section P
    L 7, L 15: "plaque distribution". Do you mean "layered distribution"
    L8, L 17 "off-sea". Do you mean "offshore"?

    Vertical distribution of LCs at section E
    Same linguistic comments, as above.
    Otherwise fine.

Discussion
P 7687 L 15 "dominated" should be "dominant". (Dominated is the opposite of dominant!)
P 7688 L 7-8 "These differences with the coccoliths were possibly caused by the sampling season, station locations or sample numbers." Say what you think more clearly or don't say it at all.
P 7688 L 19 to P7689 L 8: All this is a good point. The other studies cited concerned very different, mostly tropical and/or deep-ocean ecosystems. I think it is useful that the authors have briefly summarised the conclusions (or opinions) of other authors considering the associations of CPs in other areas with different oceanographic parameters. Even though it seems we have a long way to go, this may help slowly the science community to understand the driving forces and life cycles of the different CP species and strains/populations.
Last paragraph: Linguistic improvements needed, as mentioned for previous sections.

Tables & figures:
F 1 is very nice, and it is good to have an idea of the bathymetry.
It would be easier for the reader, however, if sections A, F, P and E were labelled the same (A, F, P and E), rather than A, B, C and D, as now.

Figs 2-24 are all very beautiful, didactic, and an important contribution. Congratulations!
Figs 25-28 are very valuable, but I needed to enlarge them and peer at them, as they are a bit faint.

T 3: "Furaya" should be "Furuya" (3 times) (spelt correctly in the refs.)

Statistical treatment
State if any prior transformation was done before applying CCA.

Abstract:
The first sentence is trite and largely untrue and should be dropped.
It should start off, "This paper describes the distribution of living coccolithophores (LCs) and coccoliths in the Yellow Sea…"
"The highest abundance was found at the bloom station." Seems meaningless. Drop or explain better.
The Abstract should be carefully re-written last. It is your paper's advertisement!

Some general comments and suggestions.

Survey area
The survey area between the two cruises was almost identical. This is an excellent feature, and make the comparison of the phytoplankton at the two times of year easy to write, and easy to understand. It would be good feature for the future if such surveys remain the same to allow future intra- and inter- annual comparisons.

CCA treatment:
In summer, most spp. (liths and LCs) were negatively related to temperature with notable exceptions of *G. oceanic* (positive relationship) and *E. hux* (neutral). (figs
In winter, most spp. showed a positive correlation with a swathe of related parameters, T, S, NO_3, and depth.

Figs 25-28 all show axis 2 longer than axis 1, even though in CCA, axis 1 generally extracts more information than axis 2. It would be more appropriate that the presentations give axis 1 and axis 2 of equal length. (The information extracted by each axis is not given, but this is probably not needed.)

"Depth"
Make it perfectly clear throughout the manuscript whether "depth" means, "water-column depth" or "sample depth" (E.g. "Species A showed a positive relationship with depth.")

Biovolume and biomass
The last authored is a renowned authority on conversion of phytoplankton cell counts to biovolume and biomass. It would therefore be a valuable addition to present the biovolumes and biomasses of the LCs, as well as cell numbers. This should not be too much extra work.