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Interactive comment on “Spatial distribution of benthic foraminiferal stable isotopes and dinocyst assemblages in surface sediments of the Trondheimsfjord, central Norway” by G. Milzer et al.

Anonymous Referee #2

Received and published: 5 May 2013

General comments

This study comprises data on modern benthic stable isotopes and dinocyst assemblages from a high latitude fjord, and it addresses relevant scientific questions within the scope of BG. The study is very welcome as there in general are few records of modern benthic isotope values and dinocyst assemblages from fjords. The overall objective of improving palaeoenographic proxies is also very timely. It is an excellent manuscript; however some minor things need to be addressed before publication.

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Specific comments

3.2 “Stable isotope measurements” - The measured specimens are minimum 200um - what is the maximum size?

4.1 “Benthic oxygen isotopes” and 4.2 “Benthic carbon isotopes” - The microhabitat influence on d18O and d13C should be discussed in more detail. Some references:

Fontanier et al., 2006. Stable oxygen and carbon isotopes of live benthic foraminifera from the Bay of Biscay: microhabitat impact and seasonal variability. *Marine Micropaleontology* 58, 159–183.

Jorissen, F., 1999. Benthic foraminiferal microhabitats below the sediment - water interface. In: Sen Gupta, B. (Ed.), *Modern Foraminifera*. Kluwer Academic Publishers, The Netherlands, p. 161–180.

Loubere et al., 1995. Benthic foraminiferal microhabitat selection, carbon isotope values and association with larger animals: A test with *Uvigerina peregrina*. *Journal of Foraminiferal Research* 25, 83–95.

Loubere et al., 2011. The structure of benthic environments and the paleochemical record of foraminifera. *Deep-Sea Research I* 58, 535–545.

Schmiedl et al., 2000. Trophic control of benthic foraminiferal abundance and microhabitat in the bathyal Gulf of Lions, western Mediterranean sea. *Marine Micropaleontology* 40, 167–188.

Technical corrections

1. “Introduction”

Page 5891, lines 7-8: There are made references to Wassman et al. (1996) and Aarseth (1997) with regard to fjord hydrology. These are not studies on strictly hydrology and can be left out.

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3.3 “Dinocyst assemblages”

Page 5896, line 6: “slightly modified at EPOC/Université Bordeaux 1” - Is this method described and published, so it is possible to make a reference to this modification? If no, leave this out and give only the description.

Page 5896, line 6: after “. . .added prior to sample treatment” add reference on this.

Page 5897, line 15: Add a reference on statistical methods.

Page 5896, line 4 – page 5897, line18: Both present and past tense are used throughout this paragraph, it need to be corrected. It is also necessary to correct “classical sample preparation. . .” to “standard sample preparation. . .”

Page 5897, line 8, and add a full stop after “Selenopemphix nephroides”.

"References"

Pages 5907-5913 – the references are marred by several mistakes that need to be corrected.

The following references are in the text but not in the list: Bugge et al., 1999; Cleve, 1900; Dale, 1977; Dale and Fjellsafi, 1994; Epstein et al., 1953; Erlenkeuser et al., 1999; Grossmann, 1987; Haugan et al., 1991; Kunz – Pirrung 1998; Kunz – Pirrung 1999; Leegard, 1920; Meunier, 1910; Mulitza et al., 2003; Sorrel et al., 2006; Wall, 1971.

Following references are included in the list but not in the text: Guiot and De Vernal, 2007; Husum and Hald, 2004; Pospelova et al., 2004

Two references are referred to in the text with a year and letter, however no letters are used in the reference list as there is only one reference from the year in question: De Vernal et al., 2000a; Harland et al., 2004b

In the reference list “Polyak et al., 2003” only reads “Polyak, 2003”

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