We would like to thank the two anonymous reviewers for their suggestions and comments. Following the suggestions, we included several improvements in the manuscript. Below, we will give a point-to-point replay to the comments.

Anonymous Referee #1:

General comments:

"…. It would be intersting to know, if the Co1260 allows palynomorph analyses to test and complete the results from the lake shore cores..."
Palynomorph analyzes are in progress and the results will by published seperately by Laura Sadori, University of Rome, in the near future.

Detailed comments:

Introduction:
Page 5744, line 20: "... this region can help..." This is too weak in my opinion. You should perhaps bring the point mentioned later (page 5745, line 15), that shallower lakes have advantages, already here and state that such records "are needed".

We changed this section accordingly.

Site Information:
Page 5746, line 8: "The climate at Lake Dojran is influenced by the..." Lake Dojran would surely be influenced by the Mediterranean Sea in any case (even if the Thessaloniki Plain was replaced with a mountain range). You should perhaps describe how the different aspects you mentioned influence the climate.

We changed the text accordingly.

Page 5746, line 13: "... leading to warm summers" This sounds like mild winters automatically lead to dry summers.

We changed the text accordingly.

Page 5746, line 16/17: "... there are... change..." "... there are... changes..."

We changed the text accordingly.

Hydro-acoustic survey
Page 5750, line 25: "... reflector 8 (1.3 m) Just for consistency, you should write "... reflector 8 (1.30 m)..."

We changed the text accordingly.

Lithostratigraphy and biogeochemistry
In section 4.1, you use m, in 4.2, you use cm. Not really a problem, but inconsistent.

We used m for sediment thickness derived from hydro-acoustic data and cm for core depth, as core depths can more precisely be defined (hydro-acoustic data have an uncertainty in a decimeter range).

Chronology

Your results, as discussed later, fit generally well with your used age model. Still, I think that some of your presumptions are too optimistic. E.g., considering that terrestrial plant material and charcoal show now reservoir effect may be problematic. As shown by Pross et al. (2009, Geology), even pollen-grain- and charcoal-based radiocarbon ages can be influenced by a significant hardwater effect. Plants do not only use atmospheric carbon, but also carbon from the lake water if they are close enough. Your own data shows that a plant part from 406.4 m shows a 1300-yr older age than a carbonate shell. I still think that your age model is convincing, but you should refer to possible errors in more detail. See also comment to 5.2!

We discussed the problems of radiocarbon dating on terrestrial plant material more in detail and fully agree with the reviewers suggestion. The curve of the age model crosses only the marginal part of the error range of the terrestrial plant material sample from 406.4 cm depth, which implies that the sample is affected by a reservoir effect. The carbonate shell from 404.9 cm depth apparently is re-deposited and was discarded from the age model.

Early Holocene

I am wondering if your lithofacies 2b may belong to the YD. This would be possible if you had incorporated some other of your radiocarbon ages in your age model. In other records from Greece/the Aegean, the YD reveals a second cooler/dryer phase around 11.8 kyr (e.g., Kotthoff et al., 2011, JQS), similar to the ice core records from Greenland. To me, the changes in your sedimentology record between lithofacies 2b and 3a could rather reveal the rapid changes after the YD revealed in other records.

We tested the suggestion that lithofacies 2b could belong to the YD. Such a change would require to discard the terrestrial plant material sample COL 1321.1.1 at 521.9 cm sediment depth and to include sample COL 1320.1.1 at 460.9 cm depth. As discussed in chapter 4.4, sample COL 1320.1.1 was picked from the surface of the opened cores and was most likely re-deposited during core opening. Core opening was complicated by a high occurrence of shell fragments, which could have promoted a re-deposition of terrestrial plant fragments during core splitting. If lithofacies 2b would belong to the YD, the sedimentation rate would distinctly change at ca. 520 cm depth. This is not supported by the more gradual change in sediment proxies. According to our age model, the cooler/dryer phase around 11.8 ka is probably represented by the minimum in TOC/TN in lithofacies 2a.

Conclusion

Page 5767, line 9: "The separation..." As written above, I am a little sceptical concerning the length of the YD in your record, but even if your interpretation is correct (probably), the sentence should be re-organized like: "... similarly to the western, contrasting findings from the eastern Mediterranean region and the northern high latitudes, the YD was separated..." or something like that.

We changed the text accordingly.

Figure 1:
Maybe you could show the positions of some other records referred to in your manuscript.

We added some geographic information and other records in Fig. 1.

Anonymous Referee #2:

General comments:
Use of language: the manuscript is written in a mixture of British and American English. For example, page 5747, line 18: analyzer, line 21: analyses. Ensure that the manuscript is written in a uniform language. Furthermore, sentences are sometimes too long and include too much information, which makes them difficult to read.

We checked the manuscript for consistent American English

Mid Holocene (7900 to 2800 yr BP)
This paragraph should be better structured, especially the first paragraph. It is sometimes unclear to which time interval your discussion related to. For example, to which time interval is your interpretion related, starting on page 5763, line 6? To the time interval between 7.9 kyr and 4.3 kyr or to the one between 6 and 4.3 kyr?

We re-organized this paragraph and tried to clarify ambiguities.

Scientific comments:

Late Glacial (>11 500 cal yr BP)
Since your record reach to ca. 12.5 kyr only, I would suggest to change the paragraph caption to: Younger Dyras (12 500 to 11 500 cal yr BP).

We changed the caption to Late Glacial (12 500 to 11 500 cal yr BP). However, we prefer to not use the term "Younger Drays" because this would require to also use the terms Boreal, Atlantic etc. for subsequent periods, which can hardly be defined by our data.

You may describe it more clearer, that the first period represented by lithofacies 1, is characterized by cool and arid climate conditions, while the second period (lithofacies 2a) is characterized by slighter higher temperatures and more humid conditions. Furthermore, you compare this climate transition with marine records from the western Mediterranean region and the North Atlantic. There are different marine records from the Aegean Sea and Levantine basin as well as the Tenaghi Philippon record that also cover this time interval and are much closer to your study area. Do these records also reflect the climate transition at ca. 12.1 kyr?

A comparable climate transition is not yet described for terrestrial records from the Balkan area. A potential explanation is that Lake Dojran is more sensitive to climate variability. However, the transition might correspond to a decrease in

salinity in the Levantine Basin and the Ionian Sea. We included this in our discussion and tried to describe the transition more clearer.

Early Holocene (11 500 to 7900 cal yr BP)
The formation of sapropel S1 in the eastern Mediterranean Sea started around 10.2 and 6.4 kyr BP (calibrated age range based on the conventional 14C AMS dates of 9.5-6 kyr by Mercone et al., 2000) and is related to particularly warm and humid climate conditions (e.g. Rossignol-Strick, 1985; Rohling, 1994; Emeis et al., 2000). Since the sapropel S1 formation was interrupted by the 8.2 kyr event (Rohling and Pälike, 2005), sapropel S1 is subdivided into S1a (ca. 10-8.2 kyr) and S1b ca. (7.9-7 kyr) (e.g. Schmiedl et al., 2010). Thus, I would suggest that the formation of your lithofacies 3a may coincide with the formation with the sapropel sub-unit S1a (page 5760, line 27).

We modified the text according to your suggestion.

Mid Holocene (7900 to 2800 yr BP)
The onset of a broad maxima in CaCO3 at ca. 6 kyr appears to correlate with the end of the humid period in the Mediterranean region, and thus with the end of the sapropel S1 formation. The increased productivity and relatively stable conditions as indicated by your data persisted until ca. 4.3 kyr. Subsequently, this period is followed by a distinct decrease in CaCO3 and a period of more unstable climate conditons. This should be described more clearer. What are the possible triggers for these more unstable climate conditions in the eastern Mediterranean region?

We added a discussion about possible triggers of the unstable conditions.

Page 5763, lines 6-11: This is in contradiction to your discussion before, where you suggest that the climatic conditions change from more humid to more arid conditons. But here, you argue that your d18Ocarb point to humid conditions and/or enhanced rainfall.

We modified this paragraph. The oxygen isotope record indicates rather stable conditions during this period. The overall lower $\delta^{18}O_{carb}$ compared to the early Holocene are explained by a lighter isotopic composition of rainfall.

Minor edits and comments

We added your suggested references at pages 5760 and 5761 and included the separation of S1 in S1a and S1b.

Minor edits and comments

Fig. 1: We added the country names and the border of Macedonia and Greece.
Fig. 2 and 3 will have larger sizes, when published in CP.
Fig. 4: We changed the color of the characters.
Fig. 6 uses bigger symbols now.
Fig. 7 and 8 are changed according to your suggestion.