*We thank **Anonymous Referee #5** for his time and effort to review our manuscript and for his highly helpful comments and encouragement.*

Review of Influence of the North Atlantic subpolar gyre circulation on the 4.2 ka BP event by Bassem Jalali, Marie-Alexandrine Sicre, Julien Azuara, Violaine Pellichero ˙ and Nathalie Combourieu-Nebout for CP

This paper is a bold effort to investigate the state of the North Atlantic SPG during the so called 4.2 event and the effect seen in climate archives in the Euro- Mediterranean region. It presents some new and also previously published paleoclimatic data from a number of archives from mostly marine setting. It is a special focus on two North Atlantic records of alkenone derived SST with relative high time resolution and a pollen record from the Gulf of Lyon. The paper is written in the context of an increased understanding of (mostly from modelling) the role SPG plays in the climate system and its possible relationship with the strength of the AMOC. The paper is well written, the theme is central for a journal like CoP, and the paper shows a sound scientific rational, therefore I will strongly support a publication of the paper. However, there are some points/suggestions I would like the authors to consider in a revision of the manuscript.

1. Short pollen record presented; how is the 4.2 event sticking out in terms of vegetational changes through the Holocene. How unique are the presented changes in vegetation in the Gulf of Lion region. Add some information with references.

We now use the ratio Fagus/Quercus for which we generated a longer record in the nearby core Palavas Lagoon (Azuara et al, 2015, revised Fig 4b, c) that shows a similar trend towards more humid conditions as in the KSGC-31 core. This put into perspective the 4.2 event in a longer time scale and addresses the issue raised.

2. Chronology. A central part of the paper is the timing of the changes seen in the marine record. For the core north of Iceland previous age model (papers by Eiriksson, Knudsen and others) have by the use of combined radiocarbon and tephra studies estimated Delta R in the order of 100 to 200 years and partly developed age models accommodating this. The authors should explain how they have handled this in the paper and also give an assessment of the influence of possible variability in the delta R can have on the comparing of terrestrial and marine sites.

We now used the similar Bayesian approach to build the age model of core MD95-2015 and KSGC-31 (Oxcal). The ΔR for those cores were derived from the Global Marine Reservoir Database using the eight nearest site reservoir ages (http://calib.org/marine/), we obtained a ΔR age of 73±69 for MD95-2015 and of 23+71 for KSGC-31.

Line 90 . . ..collected as part of the international. . .

Done

Line 121 Could have been nice to see this illustrated with a cross correlation analyses

Given the age uncertainties this approach is not suitable.

Line 146 Reword from Ionita (2016) something like . . .demonstrated that atmospheric blocking over Greenland could result in more freshwater flow from the arctic through increased flux of sea ice and possibly result in features like the GSAs. . .

Done

Line 180-185 This needs to be better explained. Hatun (2005) suggested an increased Nordic sea inflow of water with higher temperature and salinity both in the east and west during periods with a weak SPG in the late 20th century.

Even though the Atlantic waters are saline and warm, reduced transport to the north can on the long-term (multi-decadal to centennial) leads to a cooling in the Nordic Seas. The study of Hatun et al (2005) is limited to the SPG area and on short time scale.