Answers to Referee #1

In response to comments 1, 2 and 5 of the reviewer, we want to clarify that the numerical simulations did not aim to reproduce the mean circulation of the lake and its interaction with the basin-scale wave field. Rather, it was our objective to complement the field data on the analysis of the structure of the seiches measured. In the revised version now we explain that the structure of the internal standing waves depends only on the bathymetry and on the stratification (P4L28-P5L1). So, the internal seiches can be analyzed without considering the mean circulation. In fact, some previous authors have based the analysis of the internal wave patterns on unforced models (Salvadé et al., 1988; Guyennon et al., 2014).

On the other hand, from all the possible standing waves, the internal seiches that are excited depend on the wind forcing, which is why we have forced the POM model with the wind prior to and during the campaigns. According to Sakai et al. (2011), wind forcing events persisting for some fraction of the wave period excite wave modes and this excitement can persist for several periods. For the purpose of this work, a 5-day spin-up period of the model was found to be enough for the standing waves to develop, although a longer spin-up period might be needed to accurately describe the circulation of the lake. Lorrai et al. (2011) also used a spin-up period of 5 days of the 3D hydrostatic Boussinesq model to study the seiching dynamics of a medium-size lake. Note that if the POM model had not reproduced the modes studied in this paper, the surface elevation filtered around the periods of the observed oscillations would not have presented a coherent structure throughout the lake as it is demonstrated in the Results section (P5 L3-L7)

Regarding comment 3, the model was initialized with the temperature and salinity profiles measured in the field, so the upper mixed layer was already introduced on the initialization. Some previous published studies, e.g. Lorrai et al. (2011) used the same initialization scheme. Some explanatory sentences have been added to the revised text (P4 L13-15).

For the analysis of the horizontal structure of the internal seiches, no transition from sigma levels to z-levels was required because the study is based only on the structure of the surface layer. Avoiding extrapolation between different vertical levels is, in fact, an advantage of the method (P5 L20). It is true, however, that for the analysis of the vertical structure of the waves, such a transition is made but only at a deep station in the center of the lake where no interpolation problems arise.

The higher noise in some of the filtered surface elevations at the southern part of the lake mentioned by the reviewer might be due to the fact that the total depth and transversal sections at this region are larger than in the northern part of the lake, making the vertical displacements at the surface smaller. Note also that the noise is higher in the fundamental mode in 2006 (Fig. 6a) which as discussed in the paper (P7 L15-16), might be damped.

We thank the reviewer for his comments which helped to clarify important aspects in the manuscript and improve it.