

Reply to the anonymous referee #2

We are indebted to the anonymous reviewer for his/her useful comments that will allow us to improve our paper. Comments are treated here below one by one.

It is a bit confusing to use "sea level" for both measured sea level and sea level reconstructed from IS. You should make some kind of a distinction, for example use RSL (reconstructed sea level) or something similar.

Accepted. We will rename the reconstructed sea level as RSL in the revised version of the paper.

Siracusa station seems to have very small oscillations in a long-wave period (a few cm). Have you considered applying the method to stations with larger oscillations and with truly extreme events? (e.g. Mazara de Vallo in Sicily).

Yes, we will apply this method also to the time series from Catania and Tremestieri (TSUNET network), where higher amplitude long-wave events (about 1 m) have been recorded. However, this is a planned future work while this paper will remain focussed only on Siracusa. We observe that the same approach could be interestingly applied also to other stations with longer time series (of several years) in order to properly estimate extreme events.

1. Longwave functions. What is the length of D_{IS} , T_{IS} , D_{SL} , T_{SL} , D_{BS} and T_{BS} periods chosen for analysis?

The values of T_{IS} , T_{SL} and T_{BS} and T_G are respectively 4, 10, 60 and 15 min, and the corresponding time intervals are $D_{IS}=[-4, 0]$, $D_{SL}=[-10, 0]$ and $D_{BS}=[-75, -15]$ with times in minutes. All these figures are actually given in the TEDA calibration appendix A1. However, in the revised paper, we will write these values also in those sections where the functions are defined.

4. Spectral analysis. "with high energy spectra in winter months" I would say from Figure 4 that high energy spectra is concentrated in months March to May.

Comment accepted. The text will be modified accordingly.

5. Spectral analysis of the longwave functions. Statement "Second, spectral peaks in the window 4-120 min are the same as the ones of the ordinary sea level average PSD" is not entirely correct. According to Figure 6, power spectra of the long-wave sea-level function SL misses two peaks on periods from 5 to 10 minutes, and energy of remaining two peaks at periods of 4 to 5 minutes is much smaller than original energy. This should be commented upon.

Figure 7. It seems that SL spectra shown in this figure resembles original sea level spectra much more than the SL spectra shown in Figure 6.

Yes, sorry! We inserted a wrong figure in the submitted manuscript. The correct PSD figure is here below. Spectral frequencies down to the 6.0 min peak are kept, while peaks at 5.25 and 4.5 min are slightly reduced in intensity. Spectral intensities below 4 min are strongly reduced. In the revised paper, the old Figures 6 and 7b will be replaced by the corrected ones, and the text slightly modified.

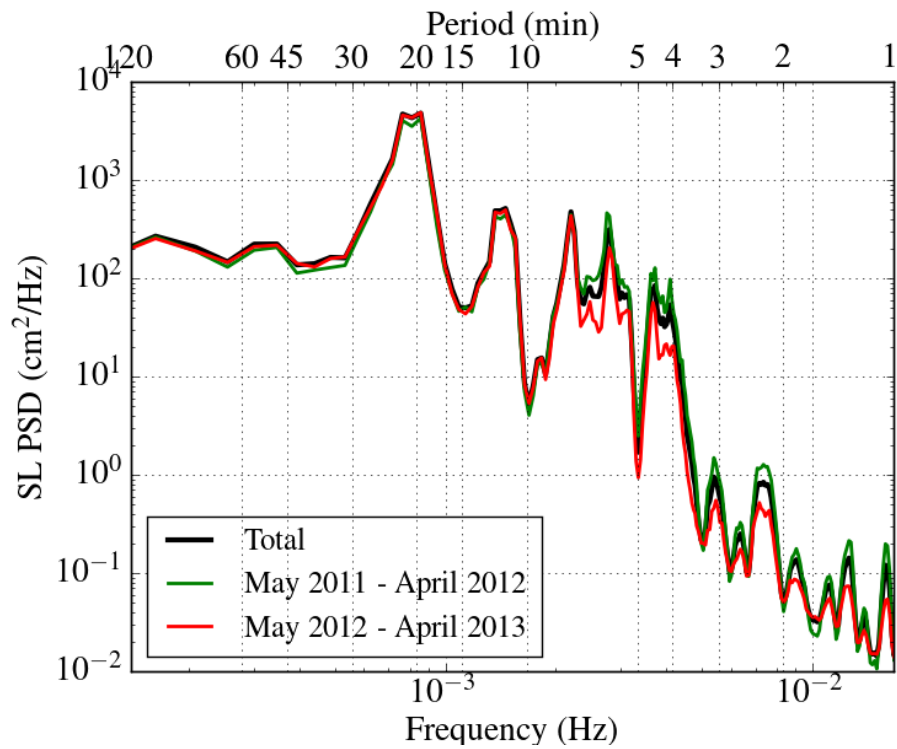


Figure 1. Not all lines are explained in Figure caption. What is blue line in top panel, and what is red line? I assume that blue line are 5-second sea level measurements, and red perhaps filtered sea level or estimated sea level? Also in the bottom panel, there is only one line, while caption suggests that there should be two.

Yes, all of this will be corrected.

Figure 3, 5, and 6. I suggest changing legend to say: "Total", "May 2011 - April 2012", "May 2012 - April 2013".

Yes, we agree that the legend is a bit confusing. It will be changed in the revised manuscript.