Natural Hazards
and Earth System
Sciences

Open Access

Discussions

Interactive comment on "Time-frequency analysis of the sea state with the "Andrea" freak wave" *by* Z. Cherneva and C. Guedes Soares

Z. Cherneva and C. Guedes Soares

guedess@mar.ist.utl.pt

Received and published: 5 September 2014

The questions and the comments have the same character as the opinion of the previous discusser. Here we will give an answer only of these of them which are different.

(1) p.1490: In my experience, Welch method has to be carefully parameterized (number/length of segments: : :). When looking for integral properties, this is not crucial, but it may have a non-negligible influence on the peak-frequency evaluation. Any comments about this?

We understand the embarrassments of the discusser. Probably they are connected with differences in estimation of the peak frequency of the stationary spectrum and the carrier frequency ïĄůïĂř(t) – see answer to the previous referee. The method of the

estimation of the carrier frequency ïĄůïĂř(t) explained in this work gives a value that is too different of the peak frequency estimated for any reasonable "parameterization" of the series from Andrea. For us it was significant to have the same resolution by frequency of the stationary spectrum and of the time-frequency spectrum. The tools for presentation of 3D surface of the time-frequency spectrum are too scanty and this gives an impression that the frequencies of its peaks are not well estimated.

(2) Comments about location of energy maxima have to be given carefully (with respect to my previous comments). Furthermore, what is the frequency sampling of the time-frequency analysis presented?

The characteristics of our PC give us to estimate the time-frequency spectrum with the frequency sampling ïĄĎïĄůt-fr=0.01587 rad/s for 1024 ordinates of the part of the series used. The Welch method we used only to estimate the stationary spectrum of the series (ïĄĎïĄůWelch =0.0153 rad/s). It can be used any method for this purpose because the estimation of the stationary spectrum has not any connection with estimation of the time-frequency spectrum.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 1481, 2014.