

## ***Interactive comment on “Fish oil in a wave tank: a look at the air-water response” by Alvise Benetazzo et al.***

**Anonymous Referee #1**

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The manuscript “Fish oil in a wave tank: a look at the air-water response” is not suitable for publication in the present form because the text lacks clarity and structure to such a degree that I find it impossible to evaluate the quality of the underlying scientific work. It is also not clear how the work relates to previous studies of the past 30 years, and what any potential new findings are.

The first part of the introduction (line 1-30) do not communicate relevant information about the scientific background or this study but instead seem more like a philosophical discussion about some scientific methods, for instance, line in 18-23:

“The interest is not only on the results of the experiments, but on the physics they reveal and the considerations they allow on the general problem of wind wave generation. Following this logical link we have carried out a series of experiments aimed at, if not

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solving the whole problem (a daunting task), at least shading new light on some of its aspects. Science proceeds often by negations. New results may not only hint in one direction, but also exclude a solution, in so doing helping focusing along the right path.”

Section 1.1 then proceeds with text on the physical background, but does not prepare the reader for the work that follows. For instance, large parts of the paper seem to be about Marangoni damping. In line 17 in section 1.1, the author write “This resonance-type Marangoni damping (to be soon described)...” , but it is never described in the following text. The next time Marangoni damping is mentioned, the authors already assume that the reader is familiar with it.

The ongoing discussion in the introduction jumps from topic to topic without a continuous thread the reader could follow. The authors do not present what the motivation for this study is (is the goal to “still angry waters”?), nor do they present a knowledge gap that they want to address or a goal for this study.

Section 3 (the results) continues to provide introductory material, instead of focusing on presenting the results. I doubt that all this information is needed to discuss their experiments and results. Background knowledge, results, and discussions are intertwined throughout the entire result section which makes it very difficult to read.

The discussion section does not establish a link to previous works, e.g. experimental studies on oil in a wave tank or similar. The authors claim that they provide a new look at air-sea interaction, but it is not clear to me what the new findings are. In the conclusion section, one finally learns what the aim of the study is ( to evaluate the influence of the oil film on the frequency spectrum and growth of waves), but I doubt that these are new finding and they should be discussed in context with recent studies.

Beside the quality of how the work is presented, I am also in doubt if new knowledge is provided in this study. Most of the presented references on water-oil-wave interaction are more than 30 years old, and the conclusion that an oil film dampens wind-waves but not swell is considered general knowledge. It should be made clear what new findings

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is, and what confirmations of previous experimental or theoretical results are.

It seems to me that the experiments carried out for this study are of good quality, and that they can provide useful results. However, the paper should be entirely re-written, focusing on the experiments and results instead of philosophical questions and needless history details.

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