**35- Title:** Acoustic backscattering strength of plankton predicted from in-situ digital holographic microscopy in an East Border upwelling

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Abstract: Ocean planktonic organisms are diverse in species, versatile in time and space. In-situ observations are acoustical and optical methods, but the difficulties exist on the consistency of these two methods. In this paper, a survey trial microorganism results, off the Senegal coast, combined the acoustic (scientific echosounder EK60) and optical (HoloFlow@Sea digital holography microscope DHMHoloFlow@Sea) present the information about the horizontal and vertical profile, size of objects,theobjects, the classes of microorganisms. For the identified objects through DHM, equivalent size of each kinds classes are used to process the acoustic backscatter strength according to scattering theory. Assuming the same observation value of EK60 scientific echosounder, prediction of backscatter strength is applied via integrated volume scatter. Trial results show that prediction method makes the combined use of acoustical and optical observation a promising way to reveal the fine and micro scale pattern of the zooplankton.

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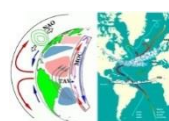
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