

## ***Interactive comment on “Observing using sound and light – a short review of underwater acoustic and video-based methods” by P. Jonsson et al.***

### **Anonymous Referee #2**

Received and published: 29 June 2009

Jonsson and co-authors have attempted what has proven to be a too difficult task: that of producing a coherent review paper on observing using sound and light in the oceans. This was their remit from the organisers of the Ocean Sensors 08 workshop, consequently the fact that the paper does not deliver reflects also on the inadvisability of such a broad topic being given to a set of authors.

The authors, however, could probably have done more to tackle their remit in a more coherent fashion, and they should certainly have made sure that the paper was proof read thoroughly.

The Introduction makes a number of sweeping statements, lacks scholarship and insight. The treatment of the propagation of electromagnetic waves, for example, is superficial, no reference being made to the determining equations of Maxwell in a con-

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ductive medium. The often overlooked point that for the same resolving ability (e.g. based on wavelength) sound may have a shorter range than light is not raised.

Section 2 on acoustics is weak, without coherence, and wanders into areas not central to the remit of “Observing”, such as positioning and communications. While these are important topics, there is no need to have them discussed in such brevity here. Section 2.1 is too long and goes over old ground. Much the same is true of section 2.2.1 and where there would be interest, e.g. in the strengths and weaknesses of seabed classification (p.826) there is no discussion. TOBI did not really supersede GLORIA, the difference in range is just one factor, the argument could be made that shipboard swath bathymetry, even with lower image quality, is what superseded GLORIA. The discussion on synthetic aperture sonar misses several recent commercial devices. Critical detail is missing in section 2.2.3, e.g. the contrasting lens and beamforming approach between the DIDSON and the Echoscope and what this means in practice. Positioning, communications and perhaps even networks are out of scope of the title.

Section 2.2.8 is long, tries to be a tutorial rather than a review, and is, in places, inaccurate, for example, Acoustic Travel Time has not been “abandoned”, both FSI and Nobska, for instance, make successful instruments based on this technique. Applications of coherent and incoherent Doppler are not discussed.

It is not clear why Bioacoustics in section 2.3.1 is a subsection of acoustic daylight. It makes no sense to choose one topic in bioacoustics for a paragraph of this length.

Section 3 on video methods is somewhat better structured, but there is a dearth of connective discussion. Section 3.0.1 reiterates fundamentals and principles in rather confusing English, while section 3.0.3 adds little. The description of the SIT camera principle of operation is also confused. The electrons from the cathode are accelerated to strike the anode (silicon target) where they form electron-hole pairs and it is the resulting charge (NOT electron flow) that is scanned by an electron beam. P848 line 9 “remarkable” dynamic range – how many bits? There is no discussion of dynamic

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range vs. spatial resolution – an active topic among the users of these cameras. P849 line 8 the pixel numbers seem odd, and do not reflect the aspect ratio of the physical size, should this be 9334 pixels?

The title for 3.1.6 does not quite reflect the content of the section – there is no substantial discussion of omnidirectional video.

The holography section is a little long,. A worked example for the upper limit for the in-line holography would help (e.g. <1mm at 2m ) and would help set the context if more connective text was included.

There are still a number of typographical errors, these are not listed here.

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Interactive comment on Ocean Sci. Discuss., 6, 819, 2009.

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