

## ***Interactive comment on “Glider Technology for Ocean Observations: A Review” by David Meyer***

### **Anonymous Referee #1**

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This manuscript summarizes some historical and technological aspects of underwater glider technology. Moreover, the use of underwater glider technology in ocean research is analysed based on research topics covered by published papers.

All information that is presented has been published elsewhere (most of the papers are cited in the manuscript). I think the title is a bit misleading, although it claims to be “a review” the manuscript is not comprehensive - the author did not use the word “comprehensive” but given the existing, published reviews I would expect that yet another review would be more comprehensive or is topical e.g. glider use in ocean acoustics – both is not the case.

In fact it has been mentioned by the author (page 3, line 15) that nothing new is presented in the text and I am somewhat surprised that the manuscript has been sent out for review. . .

C1

The only part that is a bit different from former published reviews is a summary on use-of-glider in ocean research, based on publications addressing certain research topics. However, a similar strategy has been published as a report some years ago (GROOM deliverable 2.01, see link below). Moreover, a recent paper in press (Liblik et al. 2016, see below) include a review of glider-use in scientific research based on investigating 140 peer-reviewed publications and considering the following observing relevant topics:

- Ocean boundary currents
- (Sub)mesoscale processes
- Biogeochemistry
- Biology
- Shallow and marginal seas, coastal areas
- Assimilation, validation, data interpolation, network design
- Noise/ acoustic measurements
- Climate, extension or interpretation of historical data
- Internal waves, tides, turbulence, vertical mixing
- Thermohaline structure, heat content, freshwater content, stratification
- Circulation, current structure
- Sedimentary/geology

C2

These topics include the ones selected by the author of this OS submission.

However, in a second step the Liblik et al. also investigate the integration of data from other observing systems (moorings, Argo, drifter, satellite, ...) in underwater glider research. For sure the author of this OS submission could not know about the Liblik et al. paper in press.

In summary I am afraid to say that this manuscript has to me no (using OS review criteria 4: poor) scientific significance as no new results are presented. It is a bit strange to judge on scientific quality of a paper rated 4 but here I would say fair (3) - and which is only for the part that investigates the use of underwater glider technology for scientific research by revisiting the published literature. Here my critics are on why exactly this set of publications were selected and other are omitted - more information had to be provided.

The presentation of the manuscript is two to three. The text is written in proper English language, some sentences are not fully appropriate e.g. page 2, line 17: "And the success story of floats should be continued!" – it is unclear to me why this has been written. Is there a risk in float technology to be discontinued? and: What do you mean by "success story of floats"? and finally: why is it relevant in an article on glider technology?

For your information - from my point of view the most relevant papers that provide a comprehensive overview on underwater glider technology and its use in ocean research are:

*(CITED IN MS) Rudnick, DL. 2016. Ocean research enabled by underwater gliders. Annual Review of Marine Science, Vol 8. (Carlson CA, Giovannoni SJ, Eds.):519-+, Palo Alto: Annual Reviews 10.1146/annurev-marine-122414-033913*

and

C3

*(CITED IN MS) Testor, P. et al. (2010): Gliders as a component of future observing systems, in: Hall, J., Harrison D.E., Stammer, D. (Eds.), Proceedings of the "OceanObs'09: Sustained Ocean Observations and Information for Society" Conference, vol. 2, Venice, Italy, 21-25 September 2009, Vol. 2, ESA Publication WPP-306, 2010.*

and the paper in press in Methods in Oceanography:

*(NOT CITED IN MS) Liblik et al. (in press) Potential for an underwater glider component as part of the Global Ocean Observing System, Methods in Oceanography, <http://dx.doi.org/10.1016/j.mio.2016.05.001>*

(based on a based on the EU FP7 GROOM project Deliverable D02.01 (NOT CITED IN MS) Current and future GOOS requirements and the need for a glider component ([http://www.groom-fp7.eu/lib/exe/fetch.php?media=public:deliverables:groom\\_d201\\_g\\_eomar.pdf](http://www.groom-fp7.eu/lib/exe/fetch.php?media=public:deliverables:groom_d201_g_eomar.pdf)))

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Interactive comment on Ocean Sci. Discuss., doi:10.5194/os-2016-40, 2016.

C4