

Interactive comment on “Electrochemical techniques and sensors for ocean research” by G. Denuault

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General Comments

The paper presents a very useful overview of electrochemical techniques and sensors currently available and as such a valuable addition to the special issue “Ocean Sensors”. It is clear that the author has a comprehensive knowledge and understanding of fundamental electroanalytical methodology and he provides an interesting assessment of future trends in the field.

Specific comments

Given the high priority measurements of parameters involved in climate change monitoring, such as pH have, it could be useful to further expand on the state of develop-

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ment of such sensors and maybe to explain what the current difficulties with standard pH electrodes are for oceanographic applications (reference electrode drift, need to differentiate very small changes, interferences, susceptibility to pressure changes for proofing instruments etc).

It is useful that the authors also added a specific section dedicated to “bioelectrochemical sensors”, though it might be useful to refer to these as “biosensors” (see UPAC definition) and maybe to include a slightly wider reference base (the journal “Biosensors & Bioelectronics” is dedicated to this field and has over the years reported many combinations of electrode materials and manufacturing techniques, measurement techniques, biological sensing elements (ranging from whole cells to enzymes, nucleic acids, affinity ligands such as antibodies and receptors, natural or biomimetic), as have other journal such as Analytical Chemistry, Analytica Chimica Acta, Analytical Letters etc..

Generally for illustration purposes it would be useful to include more figures showing typical outputs from other electrochemical techniques, such as amperometry or impedance spectroscopy (ideally one example for each technique explained).

Technical comments

Text: A number of comas missing – it would be useful if native speaker/linguistic editor would check.

References: Grundig et al 1995 – capitalise NADH Kröger and Law 2005 (Umlaut in first authors name) Lacombe et al 2007 – “silicate determination” Luther et al 2001 appears not to be quoted in text Montenegro et al 1991, repeated quoted in text but missing in bibliography Thomas et al. both references capitalisation of CTD Van Den Berg et al 1991 – comas missing between listed analytes Whitfield and Jagner 1981 – correct quote with full book details

Figures Fig. 1: It would be useful if the peaks in the voltammogram would be labelled

and explained as done in Fig.2 Fig 3. is not referred to in the text

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