Geophysical Research Abstracts
Vol. 18, EGU2016-6110, 2016
EGU General Assembly 2016

Reducing costs of marine monitoring: a case study

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Monitoring programmes are suffering budget restrictions nowadays, a trend that is expected to continue in the future. However, the need of sustained reliable, high quality and comprehensive observations persists. Under these conditions, optimising existing or future monitoring programmes is becoming a priority. Here, we present first results of a study to use simple methods to optimise the UK OSPAR eutrophication monitoring programme.
Since the results of the last UK OSPAR eutrophication assessment are known and the data are available, we have used this dataset as a case study to develop a generic system that allows i) to assess an observational network from a multi-variable point of view, ii) to get the most out of the data and iii) to reduce the cost of the monitoring programme. The method consists of tools to analyse, by means of simple statistical techniques, if any reduction of the available dataset would lead to similar results as the already known assessments, in combination with an estimate of the cost of the reduced programme. Data reduction must be done in a sensible way: either by calculating the relevant spatial and temporal scales (if enough data are available) or by trying ad hoc methods such as reducing a period of time, removing a complete dataset, a salinity group or some random reductions using Monte Carlo methods. Another way of reducing monitoring costs is using freely available third-party data (ferrybox data, satellite observations, etc). The developed method allows to combine all the available datasets and analyse if additional reductions in the monitoring programmes are possible by considering these additional datasets.