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Developing Operational Oceanography for Marine Assessments

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Oceanography for assessments necessarily depends on the purposes of the assessments and on the ocean characteristics or variables required for the various purposes. Objectives and variables all have their own inherent time- and space-scales. For variables, these may be determined by sources, transport and/or dynamics, and evolution. Socio-economic interests determine the scales inherent in objectives; these scales are liable to range from a coastal locality to global, and from hours or days to decades. Measurements are limited by available technology and funding, and cannot be expected to resolve the smaller inherent scales as well as giving the coverage sought. Hence an emphasis is placed on (i) making the most of opportunities for concurrent measurements of variables with compatible intrinsic scales, (ii) data management to exploit measurements fully, (iii) development, testing and use of models with data assimilation, to interpolate measurements, to optimise measurements' effectiveness (measurement array design) and perhaps to infer earlier conditions when measurements were scarcer, (iv) models as a means of synthesising varied information to provide assessment "products", (v) feedback from users of these products to raise the quality of (i-iv). Whilst objectives determine the variables of interest, the inherent scales of variables are emphasised as the appropriate control on the density of measurements. This may foster efficiency in operational measurements and their application through models, after further research.