The CLIMAR community initiative: A 10-year vision

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The authors will report on priority activities for the next decade, which are needed to ensure that marine surface data play an effective role in climate research and climate services. Of particular focus is the subset of Global Climate Observing System (GCOS) Essential Climate Variables measured near the sea surface in both the marine atmosphere and the ocean. Specifically these ECVs are: marine surface air temperature, wind speed, wind direction, water vapour, surface pressure, precipitation, surface radiation budget, cloud properties, sea surface temperature and sea state. As described by GCOS, these marine surface ECVs are usually measured in support of numerical weather forecasting, or by the research community. Each data collection route presents challenges in terms of ensuring the quality, coverage and consistency required for climate applications. This presentation will focus on four areas. Firstly the observations themselves, their collection, management, description with appropriate metadata and the rescue of historical records. Secondly the assessment of the adequacy of these ECVs as a climate record and the feedback of such adequacy assessments into the planning of the observing system. The third priority area is adding value to the climate record through research into bias adjustments, uncertainty estimation and the development of methodologies to construct useful and well-characterised data products. Finally we consider the need for integration, recognizing the importance of dedicated infrastructure, interoperability, data discovery and standards to facilitate working together, but also the need for access to expert opinion in different communities to ensure wise use of data and products. Progress in all these areas is required to ensure that marine surface climate observations and products meet the needs of climate services. CLIMAR is a community of specialists in and users of surface marine climate data--brought together in a series of biennial meetings. The series of CLIMAR and MARCDAT workshops include experts in the collection, management, rescue, analysis, exploitation, homogenisation and assessment of marine climate data. CLIMAR workshops are formally called by the WMO and IOC, have a wider audience and bring a focus on enhancing the capacities of developing countries in the field of marine climatology; while MARCDAT workshops focus on advances in the use of marine climate data. The International Comprehensive Ocean-Atmosphere Data Set (ICOADS) forms the backbone of these activities but wider links have been fostered by CLIMAR to include, for example, the subsurface ocean, marine biological, land and satellite communities. CLIMAR has acted as a focal point for surface marine climate activities. Recent examples include providing marine expertise for the "Surface temperature datasets for the 21st Century" initiative and for the European Space Agency Climate Change Initiative (ESA CCI).