Quality assurance and control issues for HF radar wave and current measurements

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HF radars are now widely used to provide surface current measurements over wide areas of the coastal ocean for scientific and operational applications. In general data quality is acceptable for these applications but there remain issues that impact on the quantity and quality of the data. These include problems with calibration and interference which impact on both phased array (e.g. WERA, Pisces) and direction-finding (e.g. SeaSonde) radars. These same issues and others (e.g. signal-to-noise, in-cell current variability, antenna sidelobes) also impact on the quality and quantity of wave data that can be obtained. These issues will be discussed in this paper, illustrated with examples from deployments of WERA, Pisces and SeaSonde radars in the UK, Europe, USA and Australia. These issues involve both quality assurance (making sure the radars perform to spec and the software is fully operational) and in quality control (identifying problems with the data due to radar hardware or software performance issues and flagging these in the provided data streams). Recommendations for the former, and current practice (of the author and within the Australian Coastal Ocean Radar Network, ACORN*) for the latter, will be discussed. The quality control processes for wave measurement are not yet as well developed as those for currents and data from some deployments can be rather noisy. Some new methods, currently under development by SeaView Sensing Ltd and being tested with ACORN data, will be described and results presented.

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