When it comes to measuring sea surface currents and waves in a close and near real time manner, hardly any other method is more efficient than the HF (frequency as high as 3-30MHz) radar. In fact, radar-derived data has been found ever more useful for marine ecology, marine economics, safe navigation, oil spill response, harmful algal bloom response, tsunami warning, and coastal sea surface circulation study.

This is evidenced by the presence of more than 110 oceanographic radars which are being operated in Asia and Oceania alone. Due to this dense distribution (Figure 1) and its potential inferences, operators need to be aware of other neighboring radars. Such awareness is also conducive to better operation, maintenance, data management and application.

This is why 70 radars from 10 countries (Australia, China, Indonesia, Japan, Korea, Russia, Taiwan, Thailand, Vietnam and US) were convened in Seoul, Korea, in May 2012 and presented 29 papers at the first Ocean Radar Conference for Asia (ORCA-1).

The top four oceanographic radars along with the overview of the Conference are recently published in the form of a special issue of the Ocean Science Journal (OSJ). The special issue (downloadable at http://www.springer.com/12601) is showcasing a brand-new way to estimate the current velocity errors by comparing radar data with data from other types of oceanographic instrumentations.

The spatial and temporal resolutions of the two main types of HF radar are compared with reference to the phased array and the crossed-loop direction-finding system. The main contribution of this work is its honest review of resolution of sea surface currents measured by HF radars. The special issue of the OSJ also shows how sub-tidal currents respond to winds and outflow plumes in a bay-shaped estuary created by a 33km-long tide dike and how data of the same current (Kuroshio) from different types of radar in different countries (Japan and Taiwan) are combined.