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Observations for climate: Development and implementation of integrated boundary current observing techniques (CORC)

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An integrated boundary current observing system is being developed and implemented in the California Current and the Solomon Sea under the CORC project. In the California Current it uses a mix of gliders, moorings, inverted echosounders with pressure sensors (PIES), XBT sections, surface drifters, and data assimilation. The gliders are now able to acoustically retrieve the data from subsurface moorings and bottom-mounted PIES and to telemeter them to shore. Continuous glider sampling of the California Current exists since 2006, and moorings have been operating since fall 2008. Both are starting to reveal the spatial, temporal, and depth structure of the California Current and of its time variability. XBT and ARGO analyses help to connect the boundary current to the interior circulation. Automated bottom-released surface drifters are now functioning and can also contribute to the system. Data assimilation in the form of state estimates is producing first results. The CORC project is thus entering a more routine and quasi-operational phase. The Solomon Sea is the western boundary current test location, and gliders have been sampling this flow since 2007. Preparations are underway to add an end-point array across the Solomon Sea for providing high-frequency integral information about the transports there.