IOCAS Scientific Observing Network in the Western Pacific Ocean

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The Institute of Oceanology, Chinese Academy of Sciences (IOCAS) has been building the scientific observing network in the Western Pacific Ocean since 2013, supported by the Strategic Priority Research Program of the CAS entitled *Western Pacific Ocean System*. The network targets western Pacific circulations, climate, and deep blue. In this region, three-dimensional current system critically influences the western Pacific warm pool and the life cycle of El Niño/Southern Oscillation, which are the prominent sources of global and regional climate variability; and the heat uptake by the deep ocean has helped to modulate the global-warming.
Three arrays, comprising 16 subsurface moorings and including more than 440 instruments, form this mooring observing network. For each mooring, one upward-looking and one downward-looking TRDI 75kHz ADCPs were equipped on the main float. The ADCP measured the velocity over upper 1000 m depth. For the layer that is deeper than 1000 m, current meters and conductivity-temperature-depths were equipped on the mooring cable to monitor the deep-sea hydrography and currents. After the mooring design in 2013 and the initial deployment in 2014, the 2-3-year time series of mooring data have been retrieved. The unprecedented measurements in the intermediate and abyssal layers filled the gap in observing the deep ocean. Overstepping the sporadic observations in the past, we will get a comprehensive view of current system in the Western Pacific.
In 2016, we successfully upgraded two of moorings to achieve real-time transmission of ADCP data. The ADCP data were collected and transmitted to the surface buoy through the commutation cable and wireless acoustic modem every one hour. Then the data were sent to the users through the satellite. Real-time transmission of ADCP data will promote capabilities in the marine environment and climate prediction.

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