

THE WATER MASSES OF THE WESTERN PACIFIC
AT 170°E, BETWEEN 20°S AND 4°N (Abstract)

H. RUTSCHI, P. HISARD AND F. JARRIGE

(Horace Lamb Centre for Oceanographical Research, The Flinders University of South Australia - Survey paper n° 15, 18 pp + 92 plates).

This study has also been published in French, in "Travaux et Documents de l'ORSTOM" n° 19, with the title : "les eaux du Pacifique occidental à 170°E, entre 20°S et 4°N."

From november 1965 to may 1968, the R.V. CORIOLIS made eleven cruises at 170°E, between 20°S and 4°N. Direct current measurements and the study of the hydrological properties of the water masses show that the hydrological structure is highly influenced by the currents.

At the equator, the upwelling is frequent and the surface current is generally westward. In subsurface, between 50 and 300 m, the Cromwell current has two velocity cores. The water in the upper core has the same hydrological characteristics as the surface water. The lower core is composed of south Pacific subtropical water, of north-equatorial countercurrent water and of Coral Sea water. Below the Cromwell current, the westward equatorial intermediate current carries along a water relatively poor in oxygen and rich in nutrients; north and south of it there are two eastward currents richer in oxygen and then two westward currents formed with water from the oxygen minima off Central America and Peru.

In the intertropical zone, the general westward flow is divided in several branches by two countercurrents, the south equatorial countercurrent formed with low salinity water relatively poor in oxygen and rich in nutrients and the south tropical countercurrent which is also low salinity water but richer in oxygen and poorer in nutrients.

The region between 10°S and 15°S is a zone of mixing between the antarctic intermediate water rich in oxygen and poor in nutrients and the water of the oxygen minimum off Peru. There, the meridional gradients of the chemical properties are high.

O.R.S.T.O.M. Fonds documentaire
N° : 32308

Cote : A