

# THE EQUATORIAL CURRENTS IN THE WESTERN PART OF THE PACIFIC OCEAN

by

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## SUMMARY

1. The North Equatorial Current of the western Pacific is much stronger in the northern winter than in the northern summer. Its confluence with the counter-current in winter lies in latitude  $6^{\circ}$  to  $7^{\circ}$  N., and runs regularly west-east; this convergence line oscillates in summer with undulating inflections between latitudes  $7^{\circ}$  and  $10^{\circ}$  N. The divergence line between its northern and southern branches is found practically always in the same position below latitude  $11^{\circ}$ , because it is conditioned by the mainland. The Mindanao Current, well defined in all months, which is the southern digitation of this current, is itself divided into two branches, one of which diverges to the right to the Celebes Sea, while the more important part winds to the left to form the counter current.

2. The South Equatorial Current manifests itself during the northern winter only in the south-eastern part of the region under consideration; it turns to the left at about long.  $140^{\circ}$  E. towards the region between New Guinea and New Pommern. At this season of the year, it contributes little or nothing towards the formation of the counter-current. During the northern summer, on the other hand, it becomes almost a swift current reaching as far as Halmahera; it then supplies, together with the water from the Molukken Sea, the greater part of the water comprising the counter-current.

3. The counter-current is supplied during the northern winter almost entirely by the northern hemisphere waters of the Mindanao Current; it is very probable that in this season the waters from this source, following a tortuous route, pass over to the southern hemisphere along the coasts of New Guinea. In its eastern half, it becomes narrower and narrower in the winter, between the latitudes  $7^{\circ}$  and  $5^{\circ}$  N. In the northern summer, in particular between August and September, it reaches the apogee of its development, in that it manifests itself with greater and greater intensity and constancy at about longitude  $130^{\circ}$  E. The southern edge, just as the northern edge, shows great irregularities in its flow in summer. The formation of an indentation extending to the equator is particularly noteworthy; this bears a definite relation to the division towards the E.-S.-E. and E.-N.-E. which occurs within the counter-current itself.

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