

Abstracts of the papers printed or to be printed

ON THE OCEANOGRAPHICAL SURVEYS IN THE SOUTHERN OCEAN*

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南極環海における海洋調査について*

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This paper is based on the oceanographical surveys by the Tokyo University of Fisheries

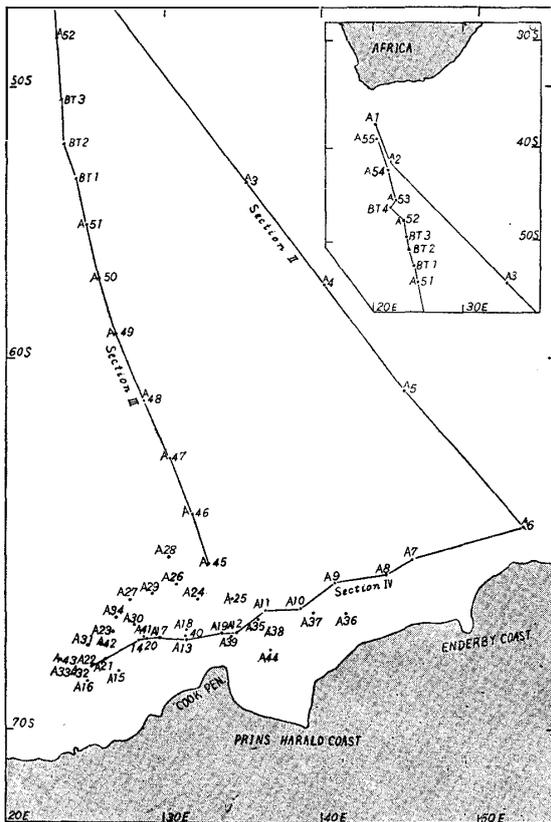


Fig. 1. Location of the oceanographic stations in the Southern Ocean.

ship Umitaka-maru during the period from Dec., 1956 to March, 1957 in the Antarctic waters. The location of observations are shown in Fig. 1. The summarized results are as follows.

1. In our oceanographical sections (section I and III) from the southern Indian Ocean to the Antarctic waters, we can show the sub-tropical convergence nearly at Lat. 43°S ., and the Antarctic convergence nearly at 53°S and $50^{\circ}20'\text{S}$ respectively. The positions of those convergences are marked with the arrows. In those cases we have recognized that the measurement of silicate-Si is as suitable as temperature measurement for discovering those fronts.

The extended region of dichothem (temperature minimum) water characteristic to the pure Antarctic water is clearly distinguished.

2. In the Antarctic waters the surveys were generally carried out at the stations close to the pack-ice zone. Consequently, the mutual movements of the Antarctic cold water, the mesothermal deep water and the Antarctic bottom water in the exceedingly southern region were investigated closely. Moreover, in the far western part centered at about Lat. 69°S ., Long. 24°E . we found out an oceanographically peculiar water area (turbid, somewhat discolored, pH and oxygen content higherly compared to the surrounding waters). It is considered that the area may be a patch of the water resulting

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from the abnormal increment of phytoplankton. The mechanism of its increment is not illustrated; however, it might be attributed to the convective

mixing in the vertical water column and to the melted colder stream from the ice-field.

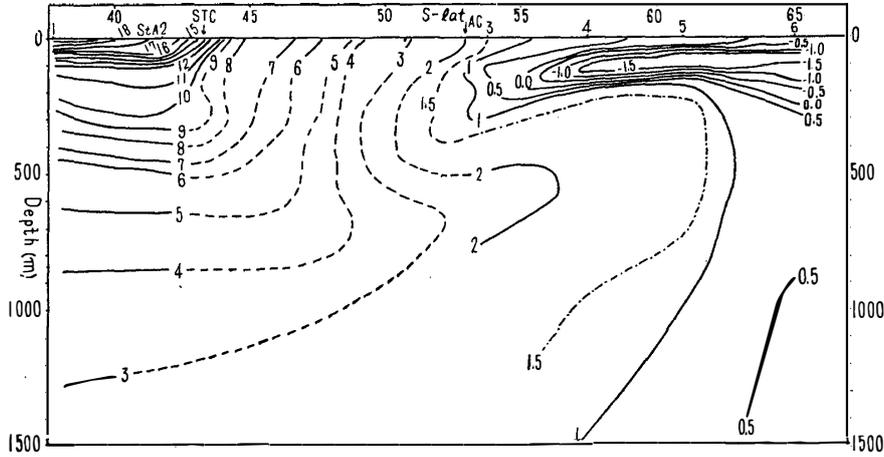


Fig. 2-1. Distribution of temperature (°C) in the vertical section (Section II) in the Southern Ocean. Location of section is shown in Fig. 1.

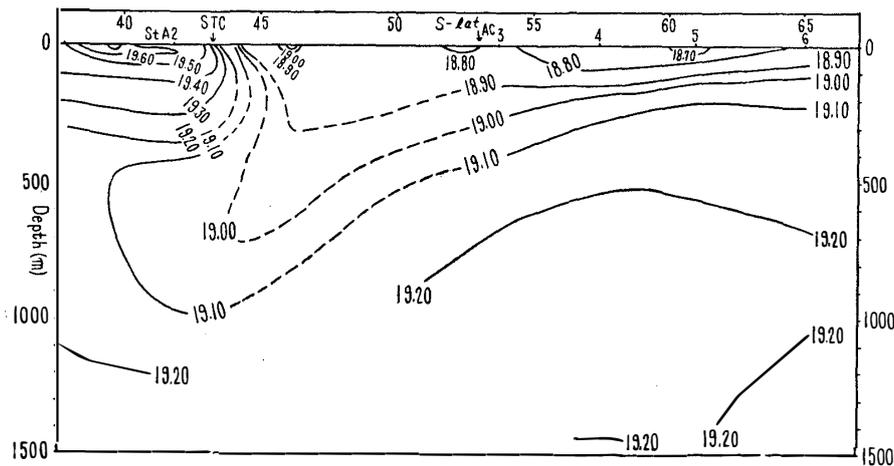


Fig. 2-2. Distribution of chlorinity (‰) in the vertical section in the Southern Ocean.

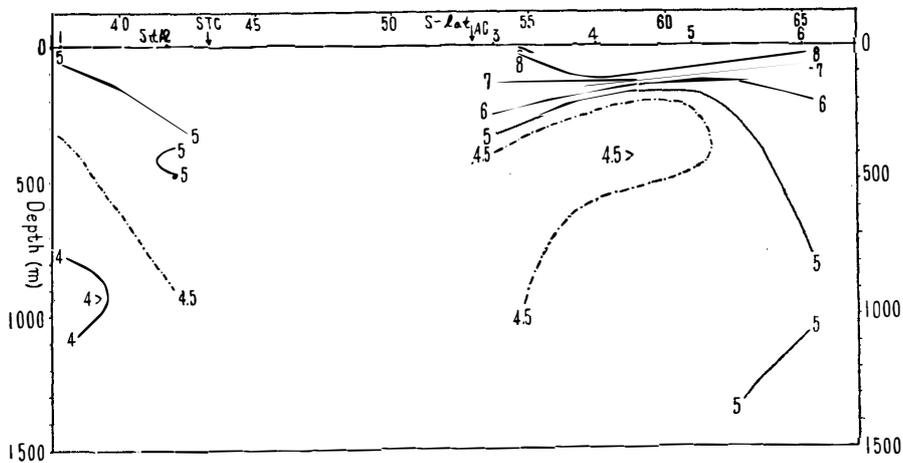


Fig. 3. Distribution of oxygen content (cc/l) in the vertical section in the Southern Ocean.

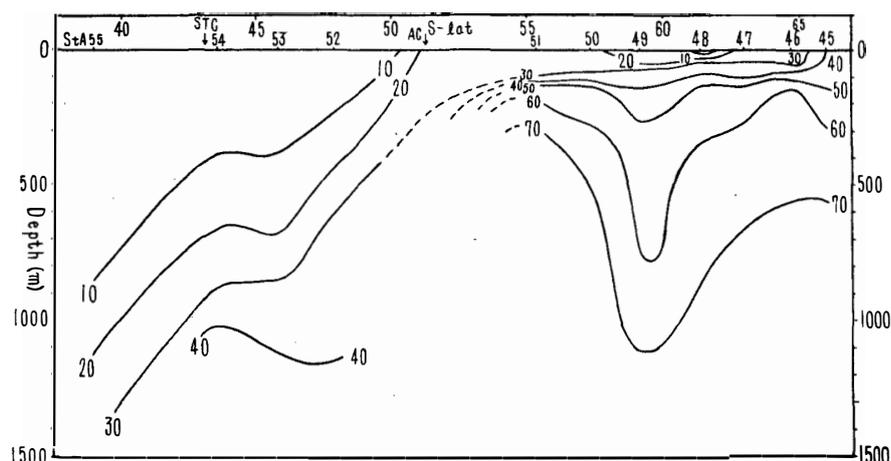


Fig. 4-4. Distribution of silicate-Si ($\mu\text{gA/l}$) in the vertical section in the Southern Ocean.

RECURVATURE CURRENT IN THE SOUTHERN OCEAN CURRENT*

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南極洋における循環転流

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Introduction By the influence of the strongest westerly wind in the southern ocean, the eastward flowing current has been streamed the greater part of this area along the Antarctic continent. In the near part of the Antarctic continent of the Southern Ocean there is the area of the eastward wind blowing. By its wind, westward flowing current has been streamed along the Antarctic continent. The north part of the eastward flowing current caused by the westerly wind streamed into the south side current of the equator and the south limit of the current is Lat. 60°S . on the average.

This current is interrupted by the Grahamland

projecting the Antarctic continent and south point of South America.

Its current advanced to the narrow Drake passage and then streamed toward the east to northward. In this passage there is filled by the easterly current to the bottom and the strongest drift has been continued to Long. 60°W . We observed the south limit of the eastward flowing current is Lat. 60°S . and the north limit of the current is Lat. 40°S . in Long. 20°E . to 50°E . in the Antarctic expedition, 1957 (January to March).

At the same time we discovered the recurvature current to southward at the southern parts (Lat. 55°S .- 60°S .) of the eastward flowing current and then found streamed into the westward flowing current.

The Antarctic stormy region in this year ranges from Lat. 43°S . to 51°S . early in January

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