

Copepods Collected along 33.5°E Longitude of the  
Antarctic Ocean in the 1976 SummerSatoshi YAMADA<sup>1</sup>, Atsushi TANIMURA<sup>2</sup> and Takashi MINODA<sup>3</sup>1976年夏季, 南極海インド洋区の東経 33.5° 線に沿って得られた  
カイアシ類資料山田 智<sup>1</sup>・谷村 篤<sup>2</sup>・箕田 嵩<sup>3</sup>

**要旨:** 1976年2月25日から3月2日の間, 南極海インド洋区の東経 33.5° 線に沿った南緯 50° 以南の 6 観測点において採集したカイアシ類の種組成を調査した。採集はノルパックネット (口径 45 cm, 目合 0.33 mm) を用いて水深 200 m から表面までの鉛直曳によって行われた。各測点ともカイアシ類が最も卓越して出現し, 動物プランクトン総個体数の 85% 以上を占めた。Oncaeidae を除く 14 属 18 種類のカイアシ類が同定された。 *Calanus propinquus*, *Calanoides acutus*, *Rhincalanus gigas*, *Ctenocalanus vanus*, *Scolecithricella glacialis* および *Oithona similis* はほぼ全地点で出現した。 *Miclocalanus pygmaeus*, *Lucicutia* sp., *Haloptilus ocellatus*, *Haloptilus oxycephalus* および *Metridia gerlachei* は南緯 60° 以南で, *Calanus simillimus*, *Clausocalanus laticeps*, *Metridia lucens* および *Oithona frigida* は南緯 60° 以北でのみ出現した。 *Euchaeta antarctica*, *Racovitzanus antarcticus* および *Heterorhabdus austrinus* は偶発的にあるいは少数が出現しただけであった。

**Abstract:** Zooplankton samplings were conducted at 6 stations along 33.5°E in the Indian sector of the Antarctic Ocean from 25 February to 2 March in 1976 by the 17th Japanese Antarctic Research Expedition. Vertical hauls from a depth of 200 m to the surface with a Norpac net (45 cm in diameter, 0.33 mm mesh openings) were carried out. Copepoda occupied more than 85% of the total individual numbers of zooplankton at all stations. The species composition and abundance of copepods were investigated. A total of 18 species except for Oncaeidae were identified. *Calanus propinquus*, *Calanoides acutus*, *Rhincalanus gigas*, *Ctenocalanus vanus*, *Scolecithricella glacialis* and *Oithona similis* were found commonly at almost all stations. *Miclocalanus pygmaeus*, *Lucicutia* sp., *Haloptilus ocellatus*, *Haloptilus oxycephalus* and *Metridia gerlachei* occurred south of 60°S and *Calanus simillimus*, *Clausocalanus laticeps*, *Metridia lucens* and *Oithona frigida* occurred north of 60°S. *Euchaeta antarctica*, *Racovitzanus antarcticus* and *Heterorhabdus austrinus* occurred sporadically and/or in small number.

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### 1. Introduction

To accumulate faunistic data of zooplankton in the west of Lützow-Holm Bay, we reported the species composition and abundance of copepods along 13°E in the Antarctic Ocean south of the Polar Front based on the samples obtained by the 14th Japanese Antarctic Research Expedition (JARE-14) (1973) (YAMADA *et al.*, 1991). For the above purpose, we report additional data on the species composition and abundance of copepods along 33.5°E. The data were obtained from the samples collected by the 17th Japanese Antarctic Research Expedition (JARE-17).

### 2. Materials and Methods

Plankton samplings were carried out in the Indian sector of the Antarctic and the Subantarctic waters during the summer season in 1975–1976 by JARE-17 (*cf.* FUKUCHI and TANIMURA, 1981). Samples of 16 were collected by vertical hauls from the 200 m depth to the surface with a Norpac net (45 cm in diameter, 0.33 mm mesh openings) at 16 stations. Six samples which were collected in the south of 50°S along 33.5°E from 25 February to 2 March in 1976 were investigated in the present study (Fig. 1). Processing of samples was made as described in YAMADA *et al.* (1991). Water temperature and salinity data were cited from SHIBAYAMA and OHNIWA (1977).

### 3. Results and Remarks

Total zooplankton abundance and vertical profile of water temperature and salini-

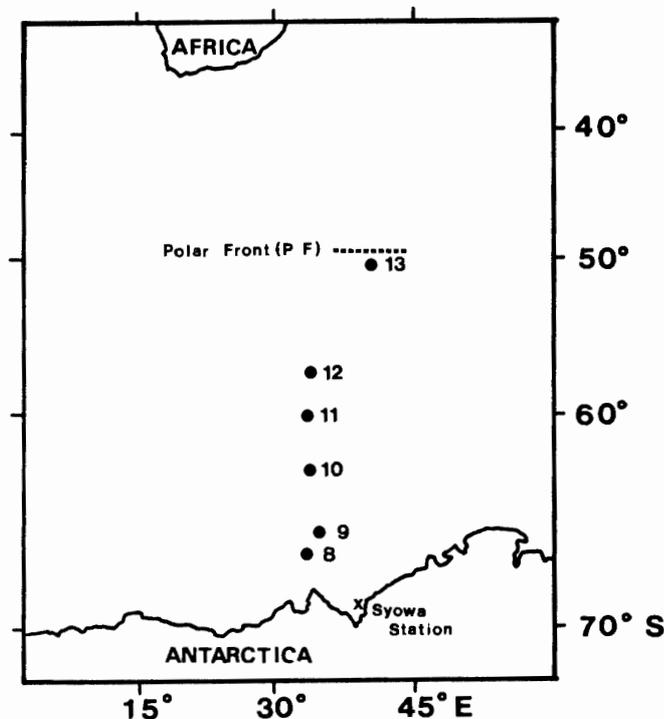


Fig. 1. Location of sampling stations occupied by the 17th Japanese Antarctic Research Expedition (JARE-17) from 25 February to 2 March, 1976. Station numbers are referred to FUKUCHI and TANIMURA (1981).

ty in the upper 200 m layer along 33.5°E are shown in Fig. 2. FUKUCHI (1980) reported that the Polar Front was located in the vicinity of 50°S in this cruise. The northern limit of temperature minimum layer of less than  $-1^{\circ}\text{C}$  was observed at 60°S. Low salinity surface water less than 34‰ existed in the upper 100 m layer. Relatively high zooplankton abundance over 200 indiv./m<sup>3</sup> was found in the north of 60°S, whereas the abundance decreased southward from 60°S and the low abundance less than 50 indiv./m<sup>3</sup> was seen in the south of 66°S.

Copepoda were most dominant zooplankton component, occupying more than 85% of individual numbers of zooplankton at all stations. Other than Copepoda 8 zooplankton taxa were identified. They were Chaetognatha, Gastropoda, Euphausiacea, Polychaeta, Ostracoda, Amphipoda, Appendicularia, Hydrozoa in the order of abundance.

A total of 18 species of copepods except for Oncaeidae were identified; *Calanus propinquus*, *Calanus simillimus*, *Calanoides acutus*, *Rhincalanus gigas*, *Miclocalanus pygmaeus*, *Clausocalanus laticeps*, *Ctenocalanus vanus*, *Euchaeta antarctica*, *Racovitzanus antarcticus*, *Scolecithricella glacialis*, *Metridia gerlachei*, *Metridia lucens*, *Lu-*

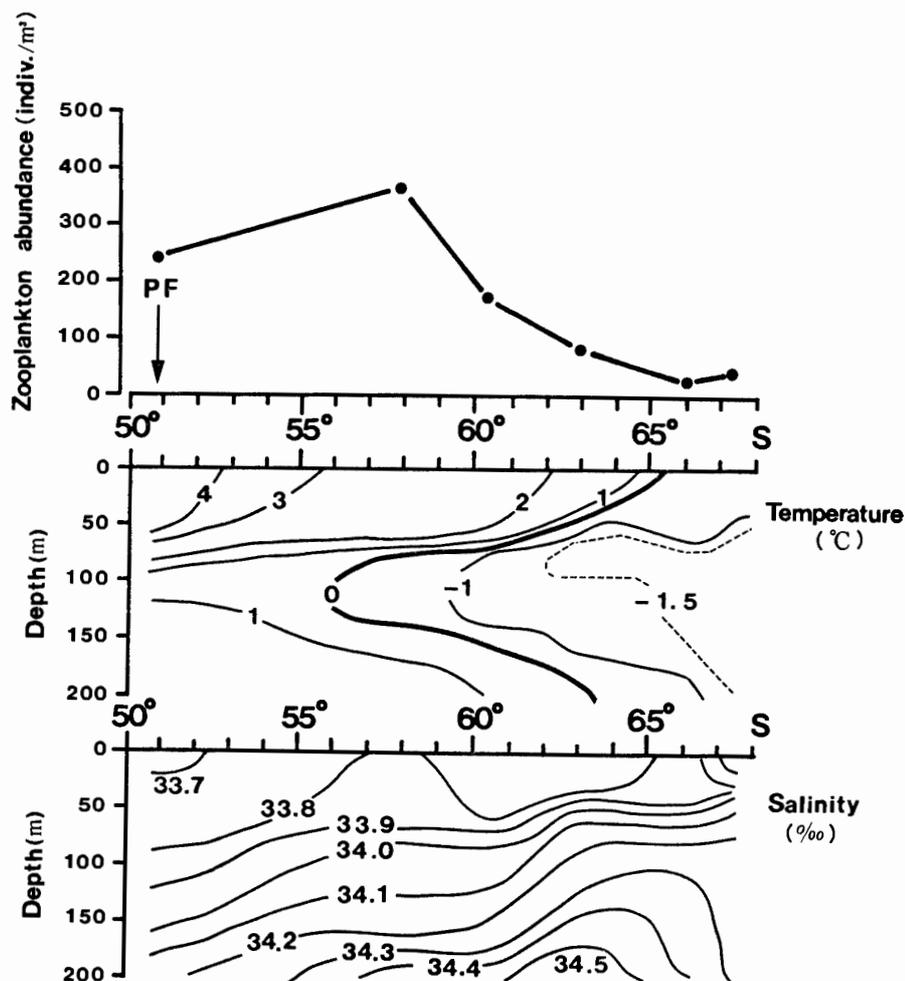


Fig. 2. Zooplankton abundance (upper), vertical section of water temperature (middle) and salinity (lower) in the upper 200 m layer observed along 33.5°E from 25 February to 2 March, 1976. PF: Polar Front

*cicutia* sp., *Heterorhabdus austrinus*, *Haloptilus ocellatus*, *Haloptilus oxycephalus*, *Oithona frigida* and *Oithona similis*. YAMADA *et al.* (1991) reported 15 species of copepods along 13°E. All of them but one, *Euchirella rostromagna*, were common to the present samples. Four species, *M. pygmaeus*, *H. ocellatus*, *O. frigida* and *Lucicutia* sp. were new to the present observation. The abundance of each copepod species is shown in Table 1. *C. propinquus*, *C. acutus*, *R. gigas*, *C. vanus*, *S. glacialis* and *O. similis* were distributed widely at almost all stations. These species were abundant in the samples of 13°E.

Table 1. List of planktonic copepod species collected with a Norpac net (45 cm in diameter, 0.33 mm mesh openings) along 33.5°E in the Indian sector of the Antarctic Ocean from 25 February to 2 March, 1973. Figures show the number of individuals per m<sup>3</sup>.

Stn. No.	8	9	10	11	12	13
Position	67°34'S 33°25'E	66°08'S 34°41'E	63°05'S 33°34'E	60°19'S 33°32'E	57°44'S 33°45'E	50°39'S 40°19'S
<i>Calanus propinquus</i>	0.9	3.2	10.7	2.6	8.8	0.5
<i>Calanus simillimus</i>	0	0	0	0	0	49.8
<i>Calanoides acutus</i>	0.1	0.6	6.0	3.5	37.2	1.5
<i>Rhincalanus gigas</i>	0	0.7	1.8	4.3	0.8	10.8
<i>Miclocalanus pygmaeus</i>	0.1	0	0	0	0	0
<i>Clausocalanus laticeps</i>	0	0	0	0.1	0.8	7.8
<i>Ctenocalanus vanus</i>	4.3	6.2	23.8	25.3	80.8	32.5
<i>Euchaeta antarctica</i>	0.3	0.4	0.1	0.6	0.3	0.8
<i>Racovitzanus antarcticus</i>	0.1	0	0.2	0	0.5	0
<i>Scolecithricella glacialis</i>	0.9	2.1	6.4	3.5	11.8	9.1
<i>Metridia gerlachei</i>	3.3	3.8	1.3	1.0	0	0
<i>Metridia lucens</i>	0	0	0	8.2	33.2	14.8
<i>Lucicutia</i> sp.	0	0	0.1	0	0	0
<i>Heterorhabdus austrinus</i>	0	0.1	0	0	0	0.5
<i>Haloptilus ocellatus</i>	0.1	0	0	0	0	0
<i>Haloptilus oxycephalus</i>	0.1	0.1	1.0	0.4	0	0
<i>Oithona frigida</i>	0	0	0	0	1.0	45.0
<i>Oithona similis</i>	32.1	11.5	2.8	100.5	159.3	28.2
<i>Oncaea</i> spp.	0.8	0.4	2.1	9.2	14.1	0.8
Total	43.1	29.1	56.3	159.2	348.6	202.1

*M. pygmaeus*, *Lucicutia* sp., *H. ocellatus*, *H. oxycephalus* and *M. gerlachei* occurred only in the south of 60°S, but in the samples of 13°E, *H. oxycephalus* and *M. gerlachei* were found as far as the north of 51°S. Both of *M. pygmaeus* and *H. ocellatus* appeared at only southernmost station, Stn. 8 and *Lucicutia* sp. at only Stn. 10 in small number less than 1 indiv./m<sup>3</sup>.

*C. simillimus*, *C. laticeps*, *M. lucens* and *O. frigida* were found in the north of 60°S. Although *C. laticeps* and *M. lucens* occurred at only northernmost station near 51°S in the 13°E samples, they were found as far as 60°S in the present samples. *O. frigida* which did not appear in the 13°E samples, occurred at Stns. 12 and 13 in the north of 58°S. *C. simillimus* occurred abundantly at only northernmost station near 50.5°S.

*E. antarctica*, *R. antarcticus* and *H. austrinus* occurred sporadically and/or in small number (less than 1 indiv./m<sup>3</sup>).

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