

## BREEDING STATUS OF ADÉLIE AND EMPEROR PENGUINS IN THE MT. RIISER-LARSEN AREA, AMUNDSEN BAY

Akiko KATO<sup>1</sup> and Hideo ICHIKAWA<sup>2</sup>

<sup>1</sup>*National Institute of Polar Research, Kaga 1-chome,  
Itabashi-ku, Tokyo 173-8515*

<sup>2</sup>*The Museum, Faculty of Agriculture, Hokkaido University,  
Sapporo 060-0003*

**Abstract:** Adélie and emperor penguin colonies were surveyed in the southwestern part of the Mt. Riiser-Larsen area, Amundsen Bay (66°47'S, 50°33'E) on 17 December 1996 by JARE-38. A total of 877 pairs of Adélie penguins were located nesting on a moraine field; most were incubating and some eggs had started hatching. The emperor penguin colony was on a frozen pond in ice-free area. There were 25 adults (including 3 molting birds), 2 immatures and 250 chicks in a crèche.

**key words:** Adélie penguin, emperor penguin, breeding colony, Mt. Riiser-Larsen, Amundsen Bay

### Introduction

An emperor penguin (*Aptenodytes forsteri*) colony has been believed to exist in the vicinity of Amundsen Bay and Casey Bay, Enderby Land, Antarctica (BUDD, 1962; WOEHLER, 1993). However, there was no information on the location or population of the colony. An Adélie penguin (*Pygoscelis adeliae*) colony has been reported at Mt. Biscoe (66°19'S, 51°22'E) (BASSETT *et al.*, 1990). An Adélie penguin colony in the Mt. Riiser-Larsen area had been previously reported but no detailed information was available (HAYASHI, 1990). Here we present new data for Adélie and emperor penguin colonies in the Mt. Riiser-Larsen area.

### Methods

Adélie and emperor penguin colonies in the southwestern part of the Mt. Riiser-Larsen area, Amundsen Bay (66°47'S, 50°33'E) were visited and surveyed on 17 December 1996 (Fig. 1). The number of emperor penguins was counted directly. In order to count the number of Adélie penguin nests, photographs were taken from a hill *ca.* 200 m from the colony and 50 m in altitude. The area was observed again from a helicopter on 18 February 1997.

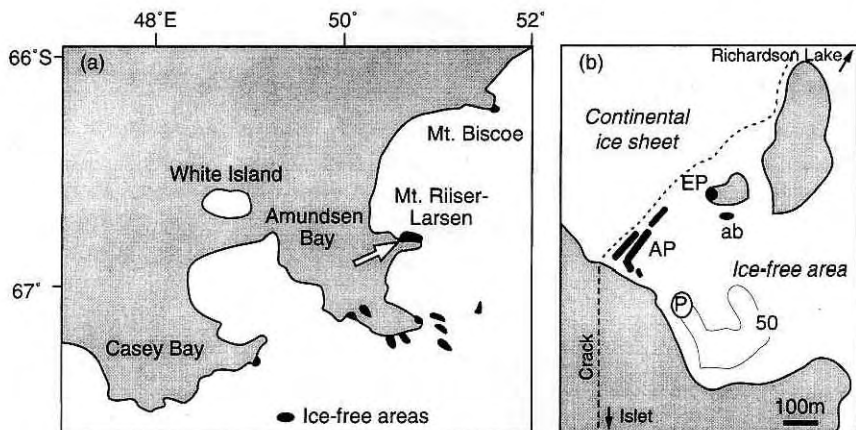


Fig. 1. Amundsen Bay area, Enderby Land, Antarctica. The area shown by the arrow in (a) was enlarged in (b). Locations of the Adélie penguin (AP), emperor penguin (EP) and abandoned Adélie penguin colonies (ab). The photographs to count the number of Adélie penguin nests were taken on a hill (P).

## Results and Discussion

Adélie penguin nests were distributed along a meltwater stream on a moraine field (Fig. 1b). Most were incubating and some eggs had started hatching. A total of 877 breeding nests were counted on the photographs. Many birds (more than about 500) were observed in the same area on 18 February 1997. Previous sightings of Adélie penguins in the area include 250 birds on 25 February 1995 (K. WATANABE, unpub. data), and 274 chicks and 150 molting adults during 19–21 February 1996 (Y. WATANUKI, unpub. data). An abandoned colony was found about 400 m inside from the coast, where small rocks and egg shells were found in the ground (H. MIURA, pers. obs.).

An emperor penguin colony was found on a frozen pond covered by snow, about 200 m inland from the Adélie penguin colony (Fig. 2). There were 25 adults (including 3 molting birds), 2 immatures and 250 chicks in a crèche. The chicks had grown to about the same size as the adults and some were molting. Some feedings of chicks were observed. Mid-December is the early fledging period for emperor penguins (WILLIAMS, 1995), and thus we estimate that at least 250 pairs were breeding there.

The emperor penguin colony reported here was formed on a frozen pond in the ice-free area. Forty-two colonies of emperor penguins are presently known along the coastline of Antarctica (WOEHLER, 1993). Most colonies occur on stable fast sea-ice, near open water or polynyas as a foraging site through the winter, and are sheltered from the wind by icebergs or cliffs (KOOYMAN, 1993). The pond was surrounded by hills and sheltered from the wind. Emperor penguins walked through the Adélie penguin colony to go to the sea. Some dead or starving fledglings were observed on Richardson Lake up to 8 km inland in January (H. MIURA, pers. obs.), suggesting that chicks mistakenly wandered inland on ice and were unable to go back to the sea when fledging.

Amundsen Bay was covered by sea-ice on 17 December 1996. The distance to the ice edge was about 50 km from the colony. There was a crack between the edge of the

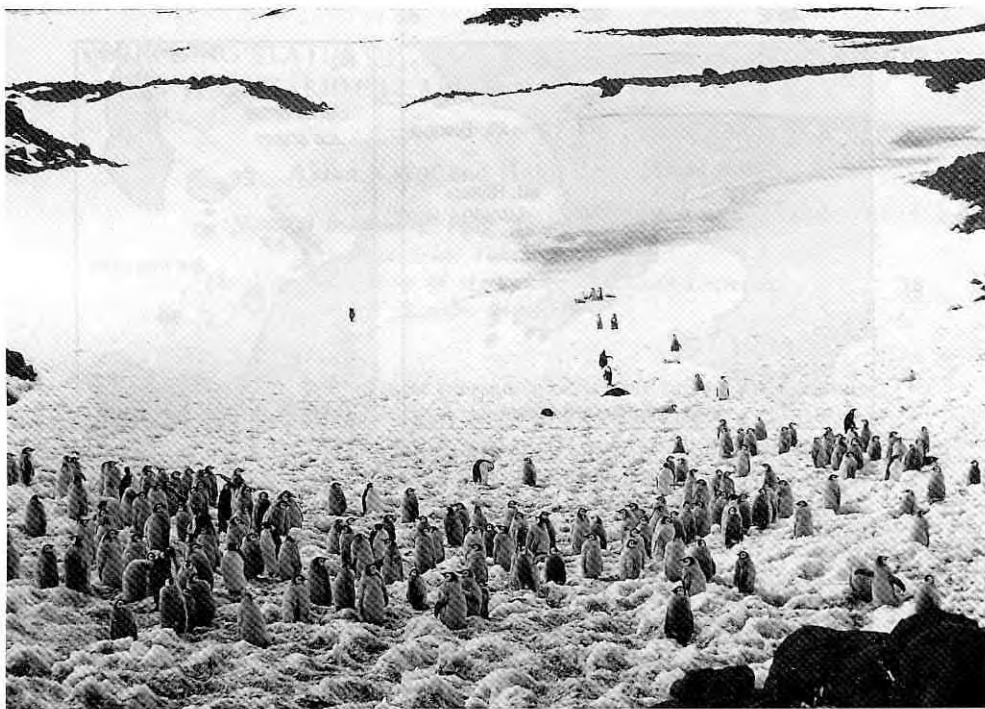


Fig. 2. Emperor penguin colony on a frozen pond in the Mt. Riiser-Larsen area, Amundsen Bay, Enderby Land, Antarctica.

continental ice sheet and an islet about 2 km south of the colony site (Fig. 1b). Many Adélie and emperor penguins and Weddell seals *Leptonychotes weddelli* were observed along the crack where they entered the sea to forage. When we visited the Mt. Riiser-Larsen area again in mid-February 1997, the sea-ice had gone and the sea in front of the colony was open. In contrast, the pond ice was still stable and the surface was flat without pressure ridges which are common on the sea-ice. As the sea-ice is not stable during the summer in this area, the frozen pond is the only available breeding site for emperor penguins with close access to the open sea for foraging. For both species of penguins, the short distance between the sea and breeding colony is an advantage, especially for emperor penguins as it is common for them to walk 50–120 km on sea-ice between the ice edge and their colony (WILLIAMS, 1995). These characteristics of the frozen pond were suitable as a breeding site of emperor penguins. The disadvantages to breed on the frozen pond would be the high possibilities of injury by accident when walking on rough rocky ground, and fledging failure.

In addition, there were 6 pairs of South Polar skuas (*Catharacta maccormicki*) breeding near the Adélie penguin colony. Two nests of snow petrels (*Pagodroma nivea*), 2 Wilson's storm-petrels (*Oceanites oceanicus*), 3 southern giant-petrels (*Macronectes giganteus*) and 2 kelp gulls (*Larus dominicanus*) were also observed around the area.

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### References

- BASSETT, J.A., WOehler, E.J., ENSOR, K.R., KERRY, K.R. and JOHNSTONE, G.W. (1990): Adélie penguin and Antarctic petrels at Mount Biscoe, Western Enderby Land, Antarctica. *Emu*, **90**, 58-60.
- BUDD, G.M. (1962): Population studies in rookeries of the emperor penguin *Aptenodytes forsteri*. *Proc. Zool. Soc. London*, **139**, 365-388.
- HAYASHI, M. (1990): Glacial history with special reference to the past lacustrine deposits in the Mt. Riiser-Larsen area, Enderby Land, East Antarctica. *Proc. NIPR Symp. Antarct. Geosci.*, **4**, 119-134.
- KOONYMAN, G.L. (1993): Breeding habitats of emperor penguins in the western Ross Sea. *Antarct. Sci.*, **5**, 143-148.
- WILLIAMS, T.D. (1995): *The Penguins*. Oxford, Oxford University Press, 295 p.
- WOehler, E.J. (1993): *The Distribution and Abundance of Antarctic and Subantarctic Penguins*. Cambridge, Science Committee for Antarctic Research, 76 p.

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