

^{210}Pb -DATING OF ACCUMULATION-FREE PERIOD AT $\gamma 1$, EAST QUEEN MAUD LAND, ANTARCTICA (ABSTRACT)

Yoshiyuki FUJII¹ and Nobuyasu MASUDA²

¹National Institute of Polar Research, 9-10, Kaga 1-chome, Itabashi-ku, Tokyo 173

²Faculty of Fisheries, Hokkaido University, 1-1, Minatocho 3-chome, Hakodate 041

The ^{210}Pb (^{210}Po) method has for the first time been successfully applied for determining accumulation-free period at the glazed surface of $\gamma 1$ (2520 m a.s.l.) in East Queen Maud Land, Antarctica, assuming that the flux of ^{210}Pb at $\gamma 1$ was the same in the last about 200 years as the present flux, $^{210}\text{Po} = 2.58^{208}\text{Po}$, referred from the measurement value of snow collected at Mizuho Station, 150 km north-east of $\gamma 1$, in 1974-1975. The dating of surface snow layers using 10-m cores shows 56 years old at 0.45-1.01 m (mean depth 0.73 m), 77 years old at 1.58-2.24 m (mean depth 1.91 m) and older than 122 years at 8.64-9.09 m in depth. This may lead to the mean annual accumulation rate of 5.6 cm a⁻¹ and the age of the surface 43 years old. In other words, the period of accumulation-free is 43 years. This approach shows the present ^{210}Pb (^{210}Po) method is useful to determine not only the accumulation rate but also long-term accumulation-free period which is not measurable by the stake method.

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PIT OBSERVATIONS OF SURFACE LAYER AT THE INLAND ICE SHEET, EAST QUEEN MAUD LAND, ANTARCTICA (ABSTRACT)

Kunio KAWADA¹, Yoshiyuki FUJII² and Minoru YOSHIDA^{3*}

¹Faculty of Science, Toyama University, 3190, Gofuku, Toyama 930

²National Institute of Polar Research, 9-10, Kaga 1-chome, Itabashi-ku, Tokyo 173

³Water Research Institute, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464

Pit observations at 1-m depth were carried out in some inland places of East Queen Maud Land along the JARE-25 traverse routes in October-December 1984. At the observation points of G1 (2416 m), G6 (3006 m), Advance Camp (3193 m), and $\gamma 5$ (3396 m), the characteristics of the surface layer *i.e.* the structure of layer, density, the grade of depth hoar, the size of snow particles, and relative hardness, were investigated.

The layers seemed to be comparatively parallel to the surface in the coastal region, but inland they showed irregular structure and annual layers are not clearly recognized. In a high elevation region, a glazed surface was developed, indicating that there has been no accumulation over a long period of years. We also measured tritium concentration by core samples of $\gamma 1$ and $\gamma 5$. The vertical distribution of tritium concentration was compared with the profile of the characteristics of the surface layer. At present, we cannot specify the age of layers as the data along that route are scarce. In order to get information of past accumulation in the inland region, we must refer to the other kinds of data.

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* Present address: Hakusan Industry Co., Ltd., 1-18, Musashidai, Fuchu-shi, Tokyo 183.