

PRECIPITATION AT SYOWA STATION (ABSTRACT)

Makoto WADA¹, Shuhji AOKI¹, Katsumoto SEKO²,
Kouji MATSUBARA³, Motohisa DOI³, Tetsuro UEKUBO³,
Kenji OKADA³ and Sadao KAWAGUCHI¹

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

²*Water Research Institute, Nagoya University, Furo-cho,
Chikusa-ku, Nagoya 464-01*

³*Japan Meteorological Agency, 3-4, Otemachi
1-chome, Chiyoda-ku, Tokyo 100*

A 5-year project of "Antarctic Climate Research (ACR)" has been started from JARE-28 in 1987. Observations of clouds and precipitation were carried out using vertical pointing radar and two microwave radiometers in 1988 (JARE-29), the second year of this project. The observations of vertical pointing radar were begun on February 24, 1988, and the microwave radiometers observations were handed over to JARE-29 by JARE-28 on February 1, 1988.

The characteristics of the precipitation in 1988 at Syowa Station, on the coast of Antarctica, are described in this paper. Ten days variation of precipitation are calculated using radar echo intensity at 300 m altitude and the relation between radar reflectivity factor (Z) and rainfall rate (R), the so-called Z - R relation. The values obtained from this method are free from the contamination of drifting snow which affects precipitation obtained by rain gauge. The result shows the maximum precipitation in autumn (February and March) and the minimum precipitation in spring (September and October). Low precipitation in spring seems to be characteristic of 1988 at Syowa Station. Snow crystals of precipitation there can be classified into three types: graupel or a heavily rimed crystals, grathering bullets, and other types of crystals such as snowflakes, dendrites and plates. The first and second types of crystals were mainly observed throughout 1988. The height of the radar echo was relatively low; namely, the echo top was under 2 km in altitude, in the period when the first type of crystals mainly fell. On the other hand, in the period when the second type of crystals mainly fell, the echo top was often over 4 km altitude.

(Received February 3, 1990; Revised manuscript received February 20, 1990)

ACCUMULATION RATE ON THE ICE SHEET SURFACE
IN EAST QUEEN MAUD LAND, EAST ANTARCTICA
(ABSTRACT)

Shuheï TAKAHASHI

Kitami Institute of Technology, 165, Koen-cho, Kitami 090

In the East Queen Maud Project from 1981 to 1987, accumulation rate on the ice sheet surface was observed in an extensive inland area by the stake-method. Along a traverse route from Syowa Station (69°00'S, 39°35'E, 21 m a.s.l.) to Dome Camp (77°00'S, 35°00'E, 3761 m a.s.l.), variation of accumulation rate with elevation was obtained. The accumulation rate was large (about 50 cm/a snow depth) in the lower part of ice sheet between 800 m and 1500 m a.s.l.,