

OBSERVATIONS ON THE EVAPORATION-CONDENSATION PROCESS
AND HEAT-BALANCE DURING THE AUSTRAL SUMMER AT THE SNOW
SURFACE OF DOME FUJI STATION, EAST ANTARCTICA (ABSTRACT)

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Observations on the evaporation-condensation process and heat-balance were conducted at Dome Fuji Station, the highest point of Queen Maud Land, East Antarctica, during the austral summer of 1994/1995. Evaporation and condensation at the snow surface were measured by weighing evaporation-pans filled with undisturbed snow twice a day; 0600 a.m. and 1800 p.m. Heat fluxes of net radiation (Q_n) and in the snow (Q_c) were measured by a net radiometer and a series of thermistor sensors installed in the snow, respectively.

The evaporation amounted, at its maximum, to approximately $10^{-1} \text{ kg m}^{-2}$ from 0600 a.m. to 1800 p.m., while the condensation was $2 \times 10^{-2} \text{ kg m}^{-2}$ during the night from 1800 p.m. to 0600 a.m. As a result, evaporation dominated condensation during the two summer months of 1994/1995 at Dome Fuji Station.

If we calculate the latent heat flux (Q_l) on the basis of observations of the evaporation and condensation, and the residue of heat flux components is assigned to the sensible heat flux (Q_s), the average amounts of each component during the two summer months were calculated to be 12 W m^{-2} (Q_n), -4 W m^{-2} (Q_c), -1 W m^{-2} (Q_l), -7 W m^{-2} (Q_s).

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