

**CALCULATION OF DROPWISE CONDENSATION HEAT TRANSFER
USING A SIMULATION METHOD OF FALLING DROPS
ON A CONDENSATION SURFACE**

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ABSTRACT During dropwise condensation, very small droplets occur on the bare surface after departure of large drop, grow larger by condensation of steam and/or coalescence with neighbouring drops, reach the critical departure diameter, and depart from the occurrence point. This process is repeated randomly all over the surface. After departure, the drop flows down on the condensation surface and sweeps many smaller droplets in the downstream area. In dropwise condensation, departure drops fall absorbing the smaller droplets in the downstream area, grow larger, and then flow away out of the surface. So, heat flux during dropwise condensation can be calculated by the condensate volume per unit time, which is equal to total volume of drops through the lower end of the condensation surface. In this paper, the behaviour of the falling drops during dropwise condensation was simulated by a computer, and heat flux was calculated by the volume of drops obtained by the simulation. The effect of the dropwise condensation cycle on heat flux was investigated by the simulation. It was found that, since the condensation drops occurred actively in the shorter cycle and was slow in action in the long cycle, heat flux decreased with the cycle.