

## Structure of sea-breeze fronts over Koganei-shi, Tokyo from May to June 2008

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Since Koganei-shi, Tokyo, the west part of Tokyo metropolitan area, lies about 45 km north of Sagami Bay and about 30 km west of Tokyo Bay, sea breezes penetrate inland from Sagami Bay and Tokyo Bay. The sea-breeze fronts (SBFs) penetrating in the Tokyo metropolitan area are known as a key factor for cumulus convection initiation (e.g., Kai et al., 1985; Kanda et al., 2001) and long-range pollutant transport (e.g., Kurita et al., 1985, 1986). Since the instrumentation systems, such as pibals and sondes, used in many of the previous studies have provided temporally and spatially coarse information, the fine temporal and spatial structure of SBFs has not been revealed. Nakane and Sasano (1986) observed the finescale structure of a SBF as it moved inland using backscatter data from a non-Doppler lidar in the north-east part of the Tokyo metropolitan area, but the wind field of the SBF has not been revealed.

Doppler lidar observation of the wind field within the atmospheric boundary layer was carried out at NICT headquarters from 14 May to 15 June 2008. The present study focuses on 4 selected days, which are characterized by that the Doppler lidar observed distinct SBFs. Routine meteorological observation data from a local network in the Tokyo Metropolitan area showed four types of inland penetration of sea breezes: (1) the south-eastern sea breeze from Tokyo Bay is first, then the southern sea breeze from Sagami Bay on 18 May 2008; (2) the convergence of two sea breezes - the south-eastern sea breeze from Tokyo Bay and the southern sea breeze from Sagami Bay on 27 May 2008; (3) the southern sea breeze from Sagami Bay on 11 June 2008; (4) the south-eastern sea breeze from Tokyo Bay on 14 June 2008. In presentation, we report the structure and characteristic of these SBFs.