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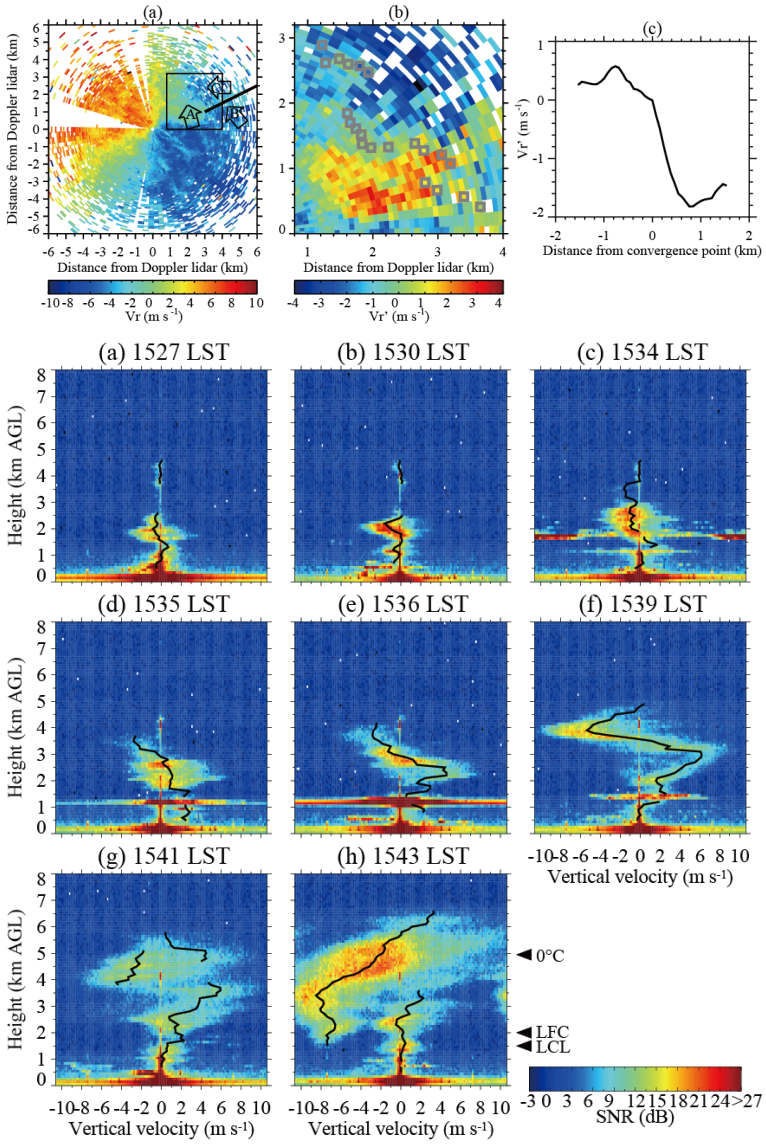

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Figure 1. Doppler lidar 4°-elevation PPI scan of the (a) Doppler velocity and (b) perturbation Doppler velocity at 1517 LST on August 17, 2012. The thick solid line in Fig. 1a indicates the convergence line. (c) Composite profile of the perturbation Doppler velocity along the radial direction.

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Figure 2. Height profiles of Doppler spectra measured in the vertical beam of the WPR and associated vertical velocity estimates (solid lines) at (a) 1527, (b) 1530, (c) 1534, (d) 1535, (e) 1536, (f) 1539, (g) 1541, and (h) 1543 LST on August 17, 2012.

- Many isolated convective storms developed in the southern Kanto Plain on August 17, 2012. We clarify the dynamics leading to the convection initiation of one of them using different remote sensing instruments.
- A convergence line in the form of a sea breeze front moved inland from Tokyo Bay. A near-surface air parcel was lifted to its lifting condensation level (LCL) by an updraft in a convergence zone with a 3 km horizontal scale, which formed the west edge of the convergence line (Fig. 1).
- The saturated air parcel at the LCL was then lifted to its level of free convection (LFC; Fig. 2) by the updrafts associated with thermals below the cumulus cloud base.