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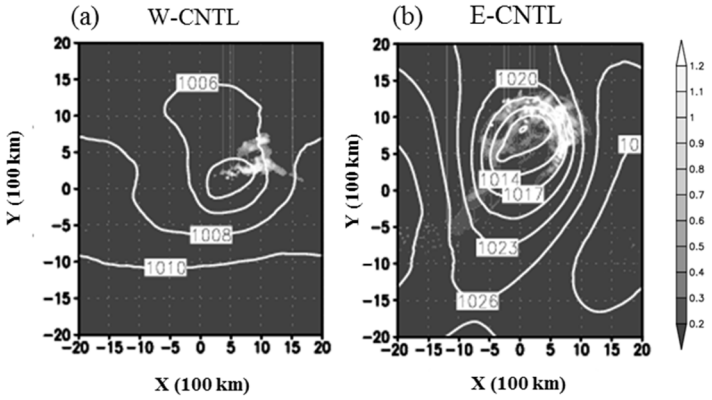

Fig. 1. A simulated (a) W-BFD and (b) E-BFD in idealized experiments: Vertically-integrated condensed water (color shading; kg m^{-2}) and SLP (contour lines; hPa)

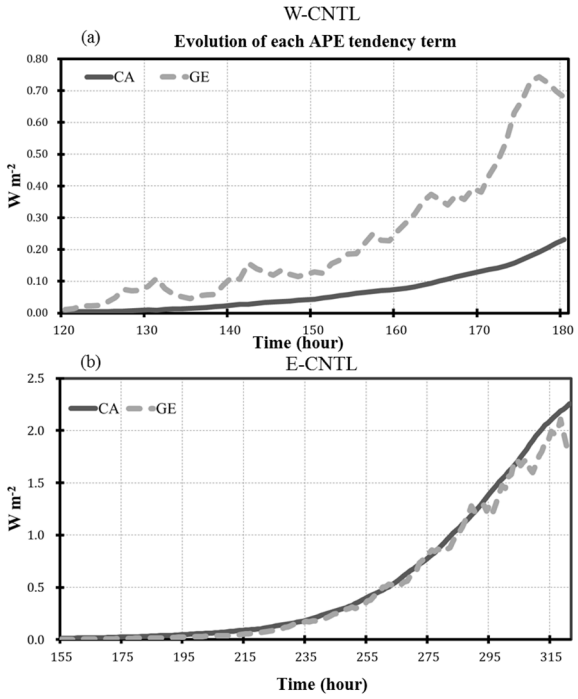

Fig. 2. Time series of each available potential energy (APE) tendency term （W m-2） for the (a) W-BFD and (b) E-BFD. Solid and dashed lines show baroclinicity and diabatic heating terms, respectively.

- To obtain generalized perspective of the development processes of BFDs in the western part of the Baiu frontal zone (W-BFDs) and those in the eastern part of the zone (E-BFDs), idealized numerical simulations with zonally homogeneous basic fields are conducted.
- The idealized simulations successfully reproduce a realistic W-BFD and E-BFD. The W-BFD has a slightly westward-tilted vertical structure, which is modulated by latent heating at low levels of the atmosphere. In contrast, the E-BFD has a westward-tilted structure through the troposphere, which is similar to the well-known baroclinic wave structure.
- The W-BFD has a mechanism mainly driven by latent heating yielding strong convection, while the E-BFD develops through baroclinic instability in moist atmosphere.