

## Structural and Intensity Changes in simulated Typhoon 1915 before landfall

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The energy source of tropical cyclone (TC) is underlying ocean and hence low sea-surface temperature in mid-latitudes is unfavorable for TCs. In addition, because of temperature gradient in the meridional direction, wind speed in the zonal direction is fast and vertical wind shear (VWS) is strong. VWS tends to weaken TC intensity. As a result, TCs in general weaken when they go to mid-latitudes, while some can re-intensify as a mid-latitudinal cyclone.

However, because of the increasing trend of SST over the globe due to global warming, the probability of strong TCs is also increasing in mid-latitudes. Typhoon Faxai (2019) made landfall at Tokyo area and caused severe damage in Boso peninsula. The intensity of Faxai at landfall was 955 hPa, which is the peak intensity of Faxai and is the strongest intensity out of typhoons that have made landfall around Kanto area.

We examine physical processes to change the intensity and structure of Faxai by conducting a numerical simulation, in order to explore the reason why the TC can sustain such a strong intensity until its landfall.

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