

Ageostrophic Winds Associated with a Tropical Cyclone and Northward Moisture Fluxes

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In Japan, heavy rainfalls often occur when a typhoon exists off the south coast of Japan. This phenomenon is often explained by northward moisture transport by a typhoon, however, ‘northward’ emission from a typhoon violates the relationship of geostrophic wind. These pre-typhoon rainfalls are also known in other countries and called as ‘PRE’, which is enhanced by deep poleward moisture transport ahead of the recurving TC. Saito (2019) examined the origin of the northward winds and explained that the ageostrophic winds are dynamically induced by the acceleration vectors.

In this presentation, based on the numerical experiment by Saito (2019), we show vertical profiles of ageostrophic winds and the associated northward moisture fluxes over a region off the south coast of western Japan.

References:

Saito, K., 2019: On the northward ageostrophic winds associated with a tropical cyclone. *SOLA*, **15**, 222-227.

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