

## An effective radius of the sea surface enthalpy flux for the maintenance of a tropical cyclone

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The present study found that there is a radius within which the sea surface flux for moist enthalpy plays a vital role in determining the intensity of a tropical cyclone. From the results of the numerical experiments using an axisymmetric nonhydrostatic model, it was shown that when the sea surface fluxes are modified within the radius the intensity suddenly changes on a short time scale.

As long as the surface enthalpy flux diminishes outside this radius the tropical cyclone intensity does not decrease. In the simulated tropical cyclone, this radius locates 7–8 times the radius of maximum wind speed. The effective radius seems to be located near where the radial gradient of the quantity, radius times radial velocity, in the inflow layer sharply changes. This is because within this radius, the radial flux divergence in the conservation equation of enthalpy has nonzero values and contributes to the local balance.

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