

Supertyphoon Boosters in the Northwest Pacific Ocean

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Most of the world's most powerful typhoons occur in the western North Pacific Ocean. How these category-five "supertyphoons" obtain their extraordinary strength remains a mystery. Although the ensemble of typhoon tracks span over the entire western North Pacific Ocean, they apparently intensify only across a confined zone. Here we use a combination of *in-situ* measurements, remote sensing, and numerical experiments to show that the intensification zone is delimited by an abundance of warm ocean eddies and by the thickest belt of warm subtropical gyre water. We suggest that the robust structure of these warm waters effectively limit typhoon's self-induced cooling that otherwise restrains the intensification of a typhoon.