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The analysis of change of intensity of Longwang Typhoon using satellite data

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From 06UTC to 12UTC of September the 30th, 2005, the cloud of high level of typhoon Longwang is to flow outward in a near radiative way. By observing the animation of infrared image, analyzing the difference of distance from the typhoon's center to a situation with specific brightness temperature value in 16 different azimuths, it was found out that the typhoon's size is getting bigger and typhoon's pattern is changed from a non-symmetric distribution to a symmetric distribution during the period which the cloud system of high level of the typhoon is to flow outward in a radiative way. The data of the best track from Joint Typhoon Warning Center show that the intensity of typhoon Longwang is decreased obviously, the moving speed is almost unchanged and the radius of 34kt is increasing during that period. By analyzing the change of the distribution of the field of divergence and vorticity over time through the reanalysis data of ECMWF, both the outflow and rotation of high level are decreasing over time during 00UTC to 12UTC of September the 30th. This might be one of the most important reasons which caused the decreasing of the intensity of typhoon Longwang.

A vertical structure with low level inward convergence and high level anticyclonic outward divergence was considered to be benefit to deepen the pressure and be contributive to the typhoon's development by meteorological scientists. However, the high level airflow of typhoon Longwang shows a near radiative outward flow during the weakening period of typhoon Longwang. It shows the capability to predict the typhoon's intensity by recognizing the cloud pattern through infrared image. More discussion will be presented in the conference.