

# 雲頂相當黑體溫度和熱帶氣旋強度關係之初步分析

吳鳳娥 李清勝

台灣大學大氣科學系

## 摘要

本文利用衛星紅外線類比資料轉換成數據資料，分析 1985 和 1986 年 21 個熱帶氣旋個案，共 556 張衛星影像資料，探討雲頂相當黑體溫度和熱帶氣旋強度的關係。結果發現強度較強的颱風在六度（緯度）之範圍內具有較低的雲頂溫度，而且強烈颱風和中度或輕度颱風雲頂溫度值最大差異發生在距中心 0.5-1 度之間。同時約百分之七十的資料顯示：氣旋最大強度和 0.5-1.5 度之內平均灰度最大值存在落後關係，亦即平均灰度最大值出現之後，氣旋才達到最大強度。另外，從灰度值徑向梯度分析，發現在氣旋增強階段，若灰度梯度下降，將使氣旋暫時停止發展；在減弱階段，若灰度梯度上升，將使氣旋暫時停止減弱；此現象顯示深對流雲之徑向分佈對熱帶氣旋發展相當重要。

關鍵詞：相當黑體溫度，熱帶氣旋

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## The Relationship Between Equivalent Blackbody Temperature of Cloud Tops and Tropical Cyclone Intensity

Feng-Er Wu Cheng-Shang Lee  
Dept. of Atmospheric Science, National Taiwan University

### ABSTRACT

The relationship between the equivalent blackbody temperature of cloud tops and tropical cyclone intensity in the western North Pacific is analyzed. Data used include 556 observations of tropical cyclone which occurred during 1985-1986. The satellite infrared measurement were made by Geostationary Meteorology Satellite, JMA. The intensities and positions of tropical cyclone were based on the best track data of Annual Tropical Cyclone Report (JTWC).

Results indicate that the mean cloud top temperatures are lower for stronger systems than for weaker systems inside 6° radius. Seventy percent of the cases also show that minimum cloud top temperature leads the maximum intensity of the cyclone. Although there are certain relationships between the cyclone intensity and cloud top temperature, the linear correlation coefficient between these two is not high. This implies a large variation among individual cases.

Key words: Equivalent Blackbody Temperature, Tropical Cyclone