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Reinforcement and decay of Tropical Storm Linfa with a mid-latitude trough

Soo Min Choi1 and Hyo Choi2\*

1 Department of Computer Engineering, Konkuk University, Chungju 27478, Republic of Korea;

Email: fuledoc@naver.com

2\* Atmospheric and Oceanic Disaster Research Institute, Dalim Apt. 209, Songjungdong 940-23, Gangneung 25563, Republic of Korea; Email: [du8392@naver.com](mailto:du8392@hanmail.net)

\* Corresponding author:

Using Communication, Ocean and Meteorological Satellite (COMS) images and UM-KMA model-derived streamline and moisture flux analyses, complex interactions between three typhoons and a mid-latitude trough associated with a thick cloud band (MLTTC) were investigated from July 1 to 10, 2015. As severe tropical storm (STS) Linfa entered an area of warmer SSTs reaching 310C in the South China Sea, it gained more moisture due to both thermal convection of marine water vapor and interaction with the MLTTC and typhoon (TY) Chan-Hom. These processes resulted in increased cloud formation. However, Linfa weakened due to friction created by the shallower sea bottom approaching land on July 6 and then disconnected from the MLTTC between July 7 to 9. It then re-intensified with increased wind speeds by interacting with an intensified TY Chan-Hom entering the path of the Kuroshio Current which supplied added moisture from the 300C SSTs. Interaction then occurred with both the rapidly developed TY Nangka following behind, and the MLTTC. This facilitated enhanced moisture flux transferring from Chan-Hom into Linfa. Finally, after Linfa made landfall at the Chinese coast, it decayed to a weak low pressure system before dissipating owing to increased friction provided by shallower water near the coast and the land itself.

**Keywords:** complex-interaction; typhoon; mid-latitude trough; sea surface temperature

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