

Extreme Rainfall and Flood related to Tropical Moisture Exports Related Extreme in Korea

Sumiya Uranchimeg*, Hyun-Han Kwon**, Kyung-Wook Kim***

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Abstract

In some case studies, the heavy precipitation events and rapid cyclogenesis in the extratropics can be caused by moist and warm tropical air masses. Tropical Moisture Exports (TME) correspond to the meridional transport of moist air masses, primarily born in tropical oceanic areas, to higher latitudes; and are closely related to flood events, especially in the mid-latitudes. The TME for the region of interest is mostly estimated by the back tracking approach using Lagrangian Analysis Tools (LAGRANTO) from ECMWF Re-Analysis (ERA) data. In this study, we aim to estimate the TME that are related to rainfall in Korea. The major moisture sources of the TME that contribute to heavy rainfall and extreme floods in Korea are identified. The TME is found to have significant connection with extreme events in Korea such as heavy rainfall and extreme flood events. The results show the most of the moisture sources comes from the west Pacific during the warm half of the year and it contributes significantly to the annual TME and is linked to the East Asian monsoon.

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Keywords : Tropical Moisture Exports, LAGRANTO, Extreme Rainfall and Flood

* Member · Ph.D student, Dept. of Civil Eng., Chonbuk National University · E-mail : sumya963@jbnu.ac.kr

** Corresponding Author · Member · Associate Professor, Dept. of Civil Eng., Chonbuk National University · E-mail : hkwon@jbnu.ac.kr

*** Member · Director of Hydropower Division, ISAN Cooperation · E-mail : kkw7006@hanmail.net