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Characteristics of Lightning Strikes Distribution over the Korean Peninsula

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Abstract

Lightning accompanied by a thunderstorm of a meso-scale convective system occurs on the Korean Peninsula, and these lightning strike inflicts a lot of damages. Studies on the occurrence and distribution characteristics of lightning strikes are very important for responding to lightning strikes and identifying phenomena. The Korea Meteorological Administration (KMA) has operated the lightning network since 1987. In 2015, the KMA lightning network has been replaced from IMPACT 7 sites and LDARII 17 sites system to LINET (Lightning NETWORK) 21 sites system.

In this study, we analyzed the distribution of monthly, annual, and regional area of lightning strikes on the Korean peninsula for 10 years from 2009 to 2018. In particular, when the annual and 10-year average frequency distribution was analyzed, the average 10-year frequency of lightning strikes was 2 ~ 6 strikes / km² and maximum frequency region was over the western sea of the Korean peninsula. In land, the annual frequency distribution of lightning strikes was 1 ~ 12 strikes / km² and the averaged 10-year intensity and the annual intensity was 10 ~ 120 kA / km², 40 ~ 400 kA / km² respectively.

In the future, we will analyze the distribution and changes of lightning strikes by season, month of year for 10 years to identify the mechanism and phenomenon of lightning strikes on the Korean Peninsula.

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