

3D characteristics of lightning activity in Typhoon Faxai (2019)

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This study examined 3D characteristics of lightning activity associated with Typhoon Faxai (T1915) using Tokyo Lightning Mapping Array (Tokyo LMA) and JMA C-band Doppler radar. Lightning flashes were observed in the eyewall and outer-rainband in the typhoon. In the observation area of Tokyo LMA, the number of lightning in the eyewall were more observed than that in the outer-rainband. Most of lightning in the eyewall were observed when the typhoon center was located over the sea. On the other hand, lightning in the outer-rainband were observed when the typhoon center was approaching to Kanto region and passing over Tokyo bay or Kanto region. There were developed convective cells in the eyewall which had 10 km echo top height and lightning location sources were observed in the upper layer of the developed convective cells and surrounding upper stratiform region. Flash size in the eyewall was about 21 km in average off the coast of Ibaraki Prefecture.

Keywords: lightning, Typhoon, LMA