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Lightning in winter observed by the JLDN

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Abstract

The Japanese Lightning Detection Network (JLDN), owned and operated by Franklin Japan Corporation (FJC), began operation in 1998 and has covered the four main islands of Japan (Hokkaido, Honshu, Shikoku and Kyushu) since 2000. FJC is currently working to replace the older sensors in the network with new sensors. Only one old generation has yet to be replaced. As of October 2019, the JLDN consisted of one IMPACT-ESP, fourteen LS7002 and sixteen TLS200 sensors.

At the ILMC in 2008, the authors introduced four examples of lightning distributions: 1) Frontal type, 2) Mesoscale-low type, 3) Isolated type and 4) Coastline type observed by the JLDN in winter 2007 and each type seemed to have different lightning characteristics.

And at the ILMC in 2010, the authors showed there are discernable differences in the lightning characteristics of each type even though the classifications were done using only lightning distribution patterns.

This paper will report on our continued research in the same analyzed region. We will analyze the lightning distributions covering nine winter seasons in more detail, from October to March, starting in 2010 as observed by the JLDN. There were 1327 days that had one or more lightning discharges in the analyzed region. Also, we will analyze whether there are changes in the occurrence characteristics of winter lightning in Japan in recent years.

Topic Areas

Lightning Climatology

Submission Format

No preference