

The Relationship between Earthquakes and Lightning Events of the globe during 2009-2017

*Ching-Chung Cheng¹, JANN-YENQ Liu^{1,2,3}

1. Graduate Institute of Space Science, National Central University, TAIWAN, 2. Center for Astronautical Physics and Engineering, National Central University, TAIWAN, 3. Center for Space and Remote Sensing Research, National Central University, TAIWAN

Lightning activities observed by WWLLN (World-Wide Lightning Location Networks) and 95 magnitude greater than 7.0 earthquakes within 30 degrees north and south latitude during 2009 - Nov. 2017 have been statistically examined. In particular, we investigate how the lightning activities relate to the magnitude, depth, and distance to the epicenter of the earthquakes. Results show that the lightning events 12-22 days before the magnitude greater than 7.9 earthquakes significantly increase around the epicenter. Furthermore, the area size around the epicenter with the statistical significance of lightning activity enhancements is proportional to the earthquake magnitude. These results suggest that lightning activities can be used to find the possible location of forthcoming large earthquakes.

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