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An Analysis of Cloud-to-Ground Lightning in China during 2010–13

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The cloud-to-ground (CG) lightning data being detected by the China Lightning Detection Network between 2010 and 2013 are employed to gain insight into the spatial and temporal distribution of CGlightning in China. There are clear interannual and seasonal variations of CG lightning activity. The mean total CG and positive CG (PCG) flashes in 2010–13 are approximately 6.44 million and 0.42 million, respectively, and the mean percentage of PCG (PPCG) is 6.6%. CG and PCG flashes predominately occur during summer, with August being the peak month forCGand June for PCG. PPCG in the cold season is considerably greater than in the warm season; its maximum of 56.2% is in January and the minimum value of 4.0% is found in August.The centers of maximum mean annual CG density are scattered throughout southern China, the Sichuan basin, and the south of Jiangsu Province. The CG density in the high elevations and arid regions of western China is less than that in the low elevations and coastal regions of southeastern China. In addition, daily CG density and CG lightning days in southeastern China are greater than in northwestern China, but PPCG in western China is apparently greater than that in eastern China. Areas experiencing more than 30CGlightning days per year are primarily south of 308N, with 10–30 lightning days per year in northern and northeastern China, and approximately 10–20 lightning days per year over the central Tibetan Plateau.