

Solar Rotational Cycle in Lightning Activity in Japan during the 18–19th Centuries

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Lightning and cloud activities sometimes show a 27-day period, and this has long been studied to uncover a possible important link to solar rotation. Because the 27-day variations in the solar forcing parameters become more prominent when the solar activity is high, it is expected that the signal of the 27-day period in meteorological phenomena will wax and wane according to the changes in the solar activity level. In this study, we examine in detail the intensity variations in the signal of the solar rotational period in lightning/thunder activity from the 18th to the 19th centuries based on the 150-year-long records found in old diaries kept in Japan and discuss their relation with the solar activity levels. We find that the signal of the solar rotational period in the lightning/thunder activity increases as the solar activity increases.

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