

Relationship between typhoon occurrence and solar activity

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It has been pointed out that atmospheric activity has ~27-day periodicity, which implies the connections between solar activity and the earth's climate since the rotation period of the sun near its equator is 27 days. We have showed a close relationship between globally synchronized thunderstorm/cloud activities in the tropical latitudinal range and solar parameter with ~one-month periodicity for a certain half year, using lightning data, a proxy of thunderstorm activity, obtained by the global radio wave network and a proxy of cloud amount, Outgoing Longwave Radiation (OLR). It was reported that the thunderstorm activity in Asia Maritime Continent (AMC) shows a seesaw correlation with the cloud in Western Pacific Warm Pool (WPWP), which show strong correlation with intensity of cosmic ray without time lag. It was revealed that this cloud increases in WPWP correspond to typhoon occurrences. Here we found a strong similarity and synchronization between the variation of lightning activity in AMC and that of the averaged OLR in broad longitudinal range in equatorial region (280E - 110E, 10S - 10N), where very limited numbers of typhoons take place. Moreover, all these parameters apparently show a clear correlation with solar parameters, such as galactic cosmic rays or F10.7 for the one-month periodicity. This fact suggests further and extensive studies, involving scientists in broader research fields, are needed to understand the global climate.

Keywords: typhoon, solar activity, 27-day, thunderstorm, WPWP