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## Long-term Correlation between NAO and solar Activity

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Influence of changes in solar activity on the atmospheric circulation is currently debated. In particular, much attention has been given to the Northern Atlantic Oscillation (NAO). We examine the correlation between the NAO and two geomagnetic indices: the aa index which monitors a global geomagnetic environment and the high-latitude PC index which mostly identifies an intensity of the ionospheric electric field (IEF). Two distinctive periods the solar wind – NAO interconnection were found. Prior to 1940s the records of the NAO and the aa index were not closely related, while after 1940s their rhythm matches, and unlike the geomagnetic activity there is no a longterm positive trend in NAO. We compare the shift in the NAO-aa interconnection with recent results on the long-scale reconstruction of solar activity (SA) that shows a significant increase in SA after 1940s. The NAO-PC correlation is found to be higher than the NAO-aa. It implies that the atmospheric circulation are influenced by enhanced SA by means of such a mediatorial factor as high latitude IEF which exhibits more prominent variations caused by the interplanetary magnetic field strengthening. Numerical simulation of downward mapping of the IEF accompanied by current dissipation is performed