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Effect of QBO on the solar cycle modulation of winter North Atlantic Oscillation

Yuhji Kuroda Meteorological Research Institute, Tsukuba, Japan

Effect of the Quasi-Biennial Oscillation (QBO) on the 11-year solar cycle modulation of the winter-mean North Atlantic Oscillation (NAO) is examined through analysis of observational data from 1958 to 2000. It is found that the solar cycle modulation of the winter NAO is more strongly enhanced in the westerly phase of the 50-hPa QBO wind. On this phase, signal of the winter-mean NAO extends more to the upper stratosphere and summer-AO reappears more strongly in high solar years, whereas the signal is weaker throughout in low solar years.