

Si, D., Y. Ding, and D. Jiang, 2021: A low-frequency downstream development process leading to the outbreak of a mega-cold wave event in East Asia. *J. Meteor. Soc. Japan*, **99**, <https://doi.org/10.2151/jmsj.2021-058>.

Plain Language Summary: An unprecedented cold wave swept through most parts of East Asia in January 2016, leading to record-breaking low temperatures and widespread snowfall in several regions. Our analysis indicated that this East Asian cold wave was triggered by a low-frequency downstream development process in the Northern Hemisphere from late 2015 to early 2016.

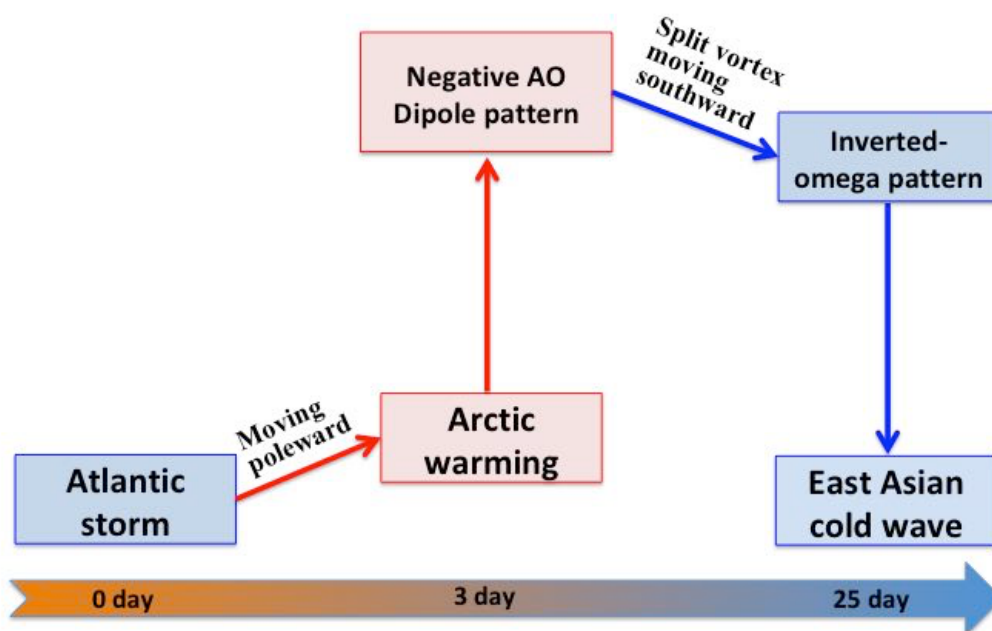


Figure 1. Schematic diagram of the influence of the severe Atlantic storm on explosive Arctic warming and the unprecedented East Asian cold wave. AO refers to Arctic Oscillation.

- In late 2015, a severe Atlantic storm entered the Arctic Circle, transported enormous warm and moist air masses, which led to an extraordinary Arctic warming event in late 2015.
- The Arctic warming event resulted in a distinct Arctic dipole pattern and an inverted omega-shaped circulation pattern (IOCP) over the Siberia–North Pacific region in early–mid–January 2016.
- The IOCP distinctly modulated the meridional circulation cell along the East Asia–Siberia regions, which intensified the Siberian high, eventually induced the outbreak of a mega-cold wave in East Asia on 21–25 January 2016.