A cold surge occurs when air over a cold place, such as the Siberian High, moves to low latitude region. The cold surge is accompanied by a strong northerly wind near the surface with strong cold advection near the edge of the Siberian High, resulting in a rapid temperature drop. The cold surge in the East Asia has an enormous social and economic impact on the East Asian countries. Recently, the intensity of cold surge in the East Asia regions has been intensified and frequency is also increasing. The purpose of this study is to analyze the factors related to cold surges in the East Asia using modern reanalysis data (JRA-55) and to analyze the fluctuation of synoptic wave patterns. The period of this study was from the boreal winter season from December to February, 1979 to 2017.

**Key words:** Winter, Cold surge, East Asia, correlation, wave pattern