

## Regional snowfall and precipitation distributions in a Japan-Sea side of central Japan associated with low-frequency variabilities in the Eurasian and East Asian regions

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This study found that regional snowfall distributions in a Japan-Sea side area of Japan are controlled by intraseasonal jet variability, particularly the 10-day-timescale quasi-stationary Rossby waves across the Eurasian continent and the atmospheric blocking over the East Asian region. Our results revealed that distribution types in which heavy snowfall events occurred over the area were related to the southward shift of the westerly jet over Japan associated with an intensified trough, i.e., cyclonic anomalies, originating from quasi-stationary Rossby waves along westerly jets over Eurasia (Eurasian jets). The cyclonic anomalies were found to be also related to blocking cyclones because the frequency of blocking events considerably increased in the East Siberian region.

Similar data analyses were conducted for regional precipitation distributions in the same area. Climatological features of the precipitation, such as seasonal marches and interannual frequencies were different from those for the snowfall events. However, composite fields for heavy precipitation events rather show similar features near Japan Island, such as the cyclonic anomalies, with those for the snowfall events. Those results imply that underlying mechanisms and/or boundary conditions which connect the global with the local atmospheric circulations can be different between the heavy snowfall and precipitation events.