

Niu, N., S. Ren, D. Mao, Q. Wu, B. Yang, and D. Chyi, 2024: The Application of Meteorological Satellite Products in the Extreme Sea-effect Snowstorm Monitoring in East Asia. *J. Meteor. Soc. Japan*, **102**(6), <https://doi.org/10.2151/jmsj.2024-033>

Plain Language Summary: Under the background of global warming extreme sea-effect snowstorm events are occurring more frequently. Based on FengYun meteorological satellite including FY-3G/PMR datasets, the atmospheric circulation, the evolution of the sea-effect clouds, and the marine and atmospheric environments are examined during an extreme sea-effect snowstorm. Additionally, the topography has impact on the distribution and intensity of sea-effect snowstorm. This study provides a demonstration for the application of FY meteorological satellite data in global disaster weather real time monitoring and services.

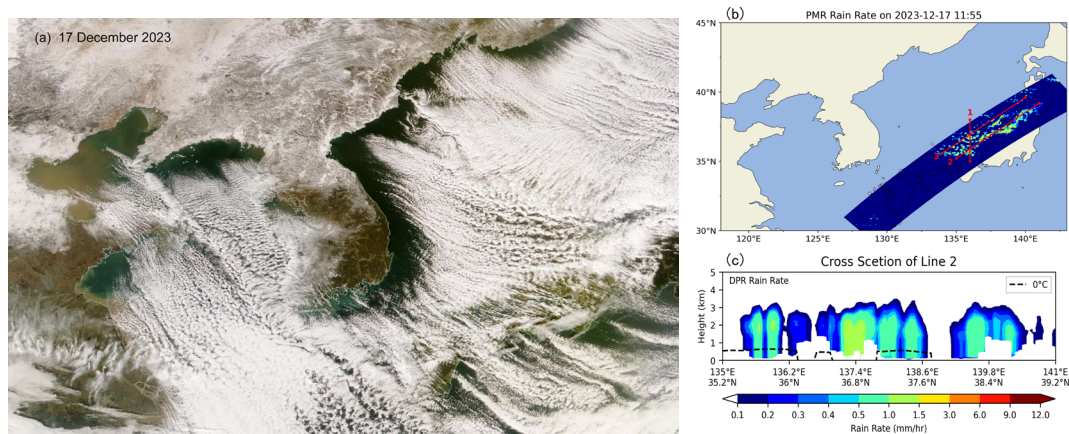


Fig. 1 FY-3D true color cloud imagery (a), FY-3G/PMR near surface (b) and vertical cross section (c) of precipitation rate (unit: mm h-1) on 17 December on 17 December.

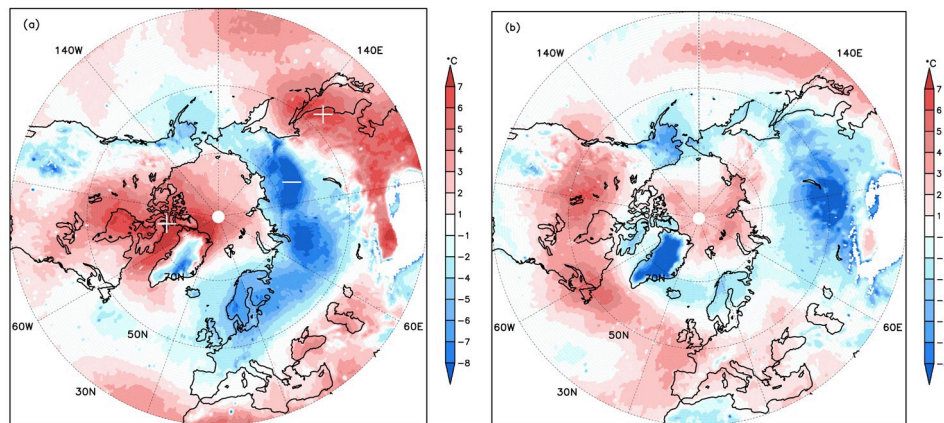


Fig. 2 FY-3D/VASS temperature anomaly at 850 hPa from 1 to 9 (a) and from 10 to 22 (b) (shaded, unit: °C).

Highlights

- This paper focuses on the application of FY meteorological satellites in extreme sea-effect snowfall monitoring and warning in East Asia. FY-3G PMR data was applied for the first time providing a new method for monitoring sea-effect snowfall.
- The overall performance is characterized by the higher SST, higher atmospheric humidity layers, higher temperature inversion layers, lower CTT, higher CTH, and greater precipitation intensity on the western coast of Honshu Island in Japan compared to the Shandong Peninsula.