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Synoptic conditions for the formation of an unprecedented ice storm with the generation of long-lived high-intensity glaze ice on the vast territory in Primorsky Krai are investigated. The leading role of the strong extension of the layer with positive temperature towards the cold air mass and the existence of two-way temperature advection in the lower troposphere are shown. It is shown that the long-term preservation of glaze ice on the territory of the region was associated with the movement of the southern cyclone to the east and the arrival of cold air masses from the continent. Experiments were implemented to simulate freezing precipitation using the WRF-ARW mesoscale model. The simulation results made it possible to obtain more detailed data on the vertical structure of the atmosphere during the formation of freezing precipitation and to fill in the missing data for analysis.

Keywords: severe weather events, ice accretion, glaze ice, freezing rain, ice pellets, numerical weather prediction, WRF-ARW

Fig. 7. Ref. 12.