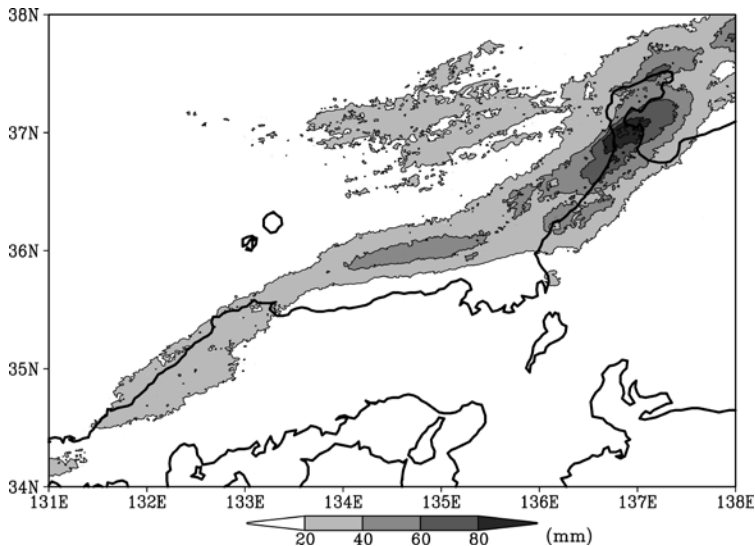


Ohigashi, T., K. Tsuboki, Y. Shusse, and H. Uyeda, 2014: An intensification process of a winter broad cloud band on a flank of the mountain region along the Japan-Sea coast. *J. Meteor. Soc. Japan*, **92**, 71–93.

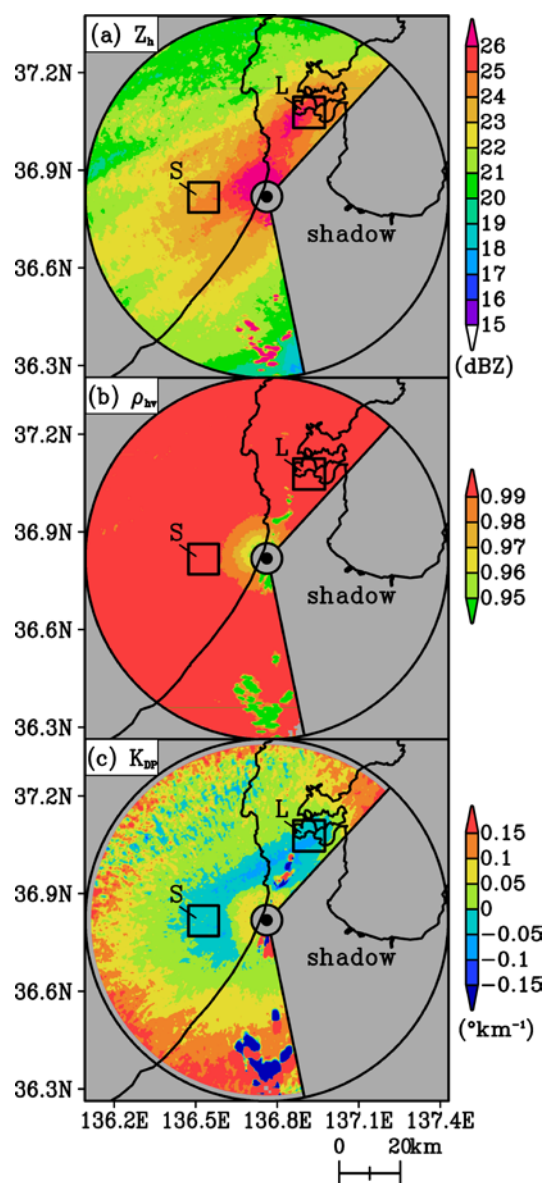
<http://dx.doi.org/10.2151/jmsj.2014-105>



↑ Figure 1. Precipitation amount (mm) integrated for 48 h before 0300 JST 27 January 2009. The amount was estimated by radar-based precipitation intensity calibrated by surface rainfall gauges of the Japan Meteorological Agency. Contours are drawn every 20 mm.

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Figure 2. Time-averaged polarimetric parameters at an elevation angle of 1.9° between 0300 JST 25 January 2009 and 0300 JST 27 January 2009. (a) Z_h (dBZ), (b) ρ_{hv} , and (c) K_{DP} ($^\circ \text{ km}^{-1}$). Squares indicate the regions in which relative frequency distributions of Z_h and K_{DP} were calculated.



- A broad cloud band formed along the northern coastal region of western Japan and persisted for about 2 days from 25 to 27 January 2009, during a cold-air outbreak. In the band, snowfall was remarkably intensified along a flank of a high mountain region in central Japan. The intensification caused local concentration of substantial precipitation (Figure 1).
- It can be theoretically explained that the winds are blocked at least below a height of 900 m by a high mountain region in Hokuriku. The southwesterlies caused by the blocking made a convergence with the predominant westerlies, the area of which corresponded to the intensified precipitation region.
- For the intensified precipitation region, time-averaged specific differential phase (K_{DP}) had negative values (Figure 2), which indicates the predominance of prolate graupel in the intensified precipitation region.