

Ninomiya, K., 2014: Genesis of a weak polar mesoscale cyclone in the lee-side shear-zone south of the central part of Japan on 7-8 March 1992. : An observational case study. *J. Meteor. Soc. Japan*, **92**, 347-361.

<http://dx.doi.org/10.2151/jmsj.2014-405>

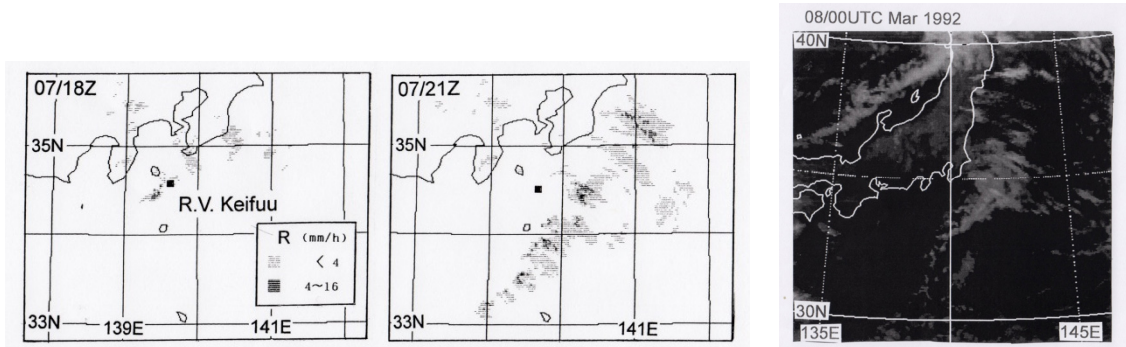
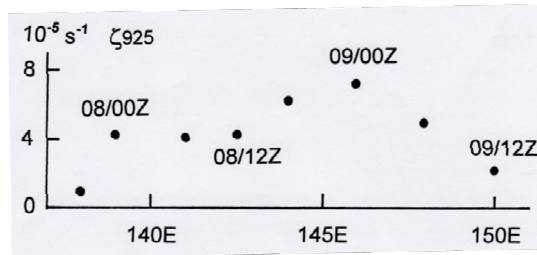


Fig.1. PPI radar image at 18 and 21 UTC 7, and IR cloud image at 00 UTC 8 March 1992.



←

Fig.2. Time change and movement of the polar mesoscale cyclone's relative vorticity at 925 hPa evaluated from ERA40.

- Genesis of a weak polar mesoscale cyclone (PMC) over the coastal Pacific south of central part of Japan on 7-8 March 1992 is studied using data obtained at two research vessels and observation stations, satellite cloud images and ERA40 data.
- A lee-side shear-zone formed to the south of Japan under the weak polar-air outbreak, between the northwesterly streams passing along the western side of the high-mountains area and northeasterly streams passing along the eastern side of the high-mountains area of Japan.
- A cumulus-line that formed in the shear-zone developed into a comma-shaped cloud system of the PMC within several hours (Fig.1).
- Despite strong baroclinicity in the low-middle troposphere, the PMC did not develop into a significant depression, and disappeared with in ~2 days after generation (Fig.2). The synoptic-scale conditions for this non-developed PMC are compared with conditions for developed PMCs studied in previous articles. The conditions for this non-developed PMC were characterized by absence of the associated upper cold trough, lack of significant background low-level cyclonic circulation, and PMC location outside a zone of strong sea-surface temperature gradient.