Relative role of meso-alpha scale disturbance over Japan Sea on the rapid-developed low pressure near of Japan in winter

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In this study, we focus on the effect of meso-alpha scale disturbances (MD) on Japan-Sea Convergence Zone (JPCZ), on the rapid-developed low pressure near of Japan in boreal winter. We used for data analysis JRA-55 and MSM by JMA. To detect low system, automatic detection algorithm was applied using sea-level pressure element in JRA55. In addition, relative vorticity at 900 hPa data was used for the detection of MD. We checked strong lower-level easterly wind from warm front to Japan Sea to supply water vapor. We also conducted composite analysis with or without MD. By composite analysis, we confirmed again low-level easterly with water vapor, low system lost 23% water vapor by the presence of MD. On the other hand, it is not clear the significant difference in deepen rate of low w/wo MD. We also try to isolate by additional indicators (w MD: Q2, wo MD: precipitable water), then we can explain the effect of MD on deepen rate of low system.

Keywords: low pressure near of Japan in Winter , meso-scale disturbance, water vapor

