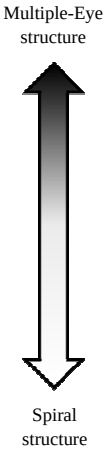
eyewall structure while a spiral rainband extended from a single eyewall in M01. P05 and M01 had the lowest and highest MEI values, corresponding to the highest and lowest degrees of multiple eyewall structures, respectively.

Table 1: Multiple-Eye Index (MEI) of each member at FT=04.



Next, the relations between the degree of multiple eyewall structure MEI and the wind velocities are confirmed by using all ensemble members. Specifically, the correlations between MEI and the average of top 5% maximum wind of wind velocity, tangential wind velocity and radial wind velocity within 60 km radius from the typhoon center were statistically analyzed by changing the altitude at FT=04. FT=04 was selected IRU QV because the multiple eyewall structures were well reproduced in a number of ensemble members at FT=04. Below the altitude of 1 km, correlations between MEI and wind velocity (tangential and inward wind velocities) were larger than 0.5 (not shown). The positive strongest correlations were shown with wind velocity and tangential wind velocity at the altitude of 0.8 km (Fig. 1). The correlations between MEI and wind velocity (tangential and inward wind velocities) below the altitude of 1 km were significantly indicated by the test of correlation coefficient (. = 5%). These results suggest that the strong winds near the surface in the central region tend to be suppressed statistically as the degrees of multiple eyewall structure are larger.

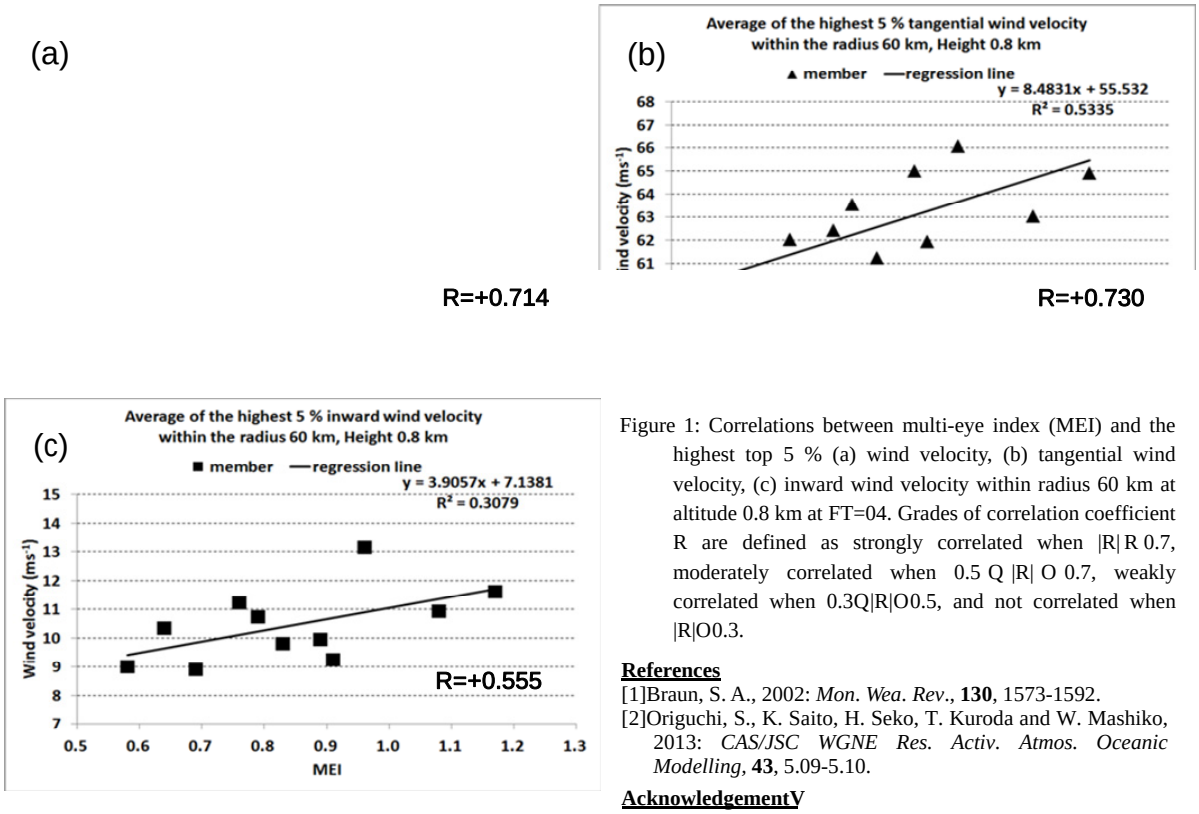


Figure 1: Correlations between multi-eye index (MEI) and the highest top 5 % (a) wind velocity, (b) tangential wind velocity, (c) inward wind velocity within radius 60 km at altitude 0.8 km at FT=04. Grades of correlation coefficient R are defined as strongly correlated when |R| R 0.7, moderately correlated when 0.5 Q |R| O 0.7, weakly correlated when 0.3Q|R|O0.5, and not correlated when |R|O0.3.

References

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