Extraction of Favorable Environment Factors for Heavy Rainfall using Multiple Scenarios Obtained by Ensemble Forecasts

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Since computer resources are becoming larger, mesoscale ensemble forecasts are expected to become more popular in the future. Because the number of ensemble forecasts has become too many, the methods that extract useful information from the ensemble forecasts should be developed as well as the techniques of mesoscale ensemble forecasts. For instance, it is expected that the environment factors favorable for heavy rainfalls can be obtained by the comparison of the possible scenarios in which the heavy rainfall is reproduced and not reproduced.

In this study, 51 possible scenarios provided by an ensemble forecast of the northern Kyushu heavy rainfall (Kunii, 2013), which caused severe damage in Kumamoto, Fukuoka and Oita, were used.

Correlation coefficients between the rainfall amount and the environment factors, such as water vapor and southerly wind near the surface, provides the effective factors to judge whether heavy rainfall will occur or not. Because this method is the results of a first trial, further developments of the methods that extract useful information from the possible scenarios are needed.

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