Characteristic of Strong Winds Associated with Typhoon in Jeju Island of Korea

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Jeju island which is located to the south of Korea is affected by three typhoons every year on average. Strong winds and heavy rainfall accompanied by typhoons cause serious damages to the human lives and property. To investigate the characteristics of wind associated with the typhoons, strong winds associated with the typhoons passing over Jeju island were analyzed using the AWS (Automatic Weather System) data and the numerical modeling (Advanced Reach WRF v3.0.1. used in this study).

A distributions-oriented (DO) verification technique was adopted in this study to examine the relationship between a set of forecasts and the corresponding set of observations [1]. This technique examines the full relationship rather than just the accuracy attribute of the relationship.

To simulate the typhoon as realistic as possible, a sophisticated bogus method was used [2]. This initialization scheme was developed to replace insufficiently resolved tropical cyclones in global analysis fields through the bogus vortex. The forecast experiment using this scheme gives reliable result in compare with the forecasts of RSMC Tokyo.

A set of forecasts and the corresponding set of observations are in good agreement considering amplitude and phase. When Jeju island was influenced by a typhoon, the areas with strong winds depend significantly on the wind direction and topography.

References

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