

Abstract Submitted  
for the MAR14 Meeting of  
The American Physical Society

**Multifractal intensity in features of dynamical behaviors<sup>1</sup>**

KYUNGSIK KIM, Department of Physics, Pukyong National University, Busan 608-737, Korea, JAE-WON JUNG, Center for Atmospheric Science and Earthquake Research, Seoul 121-835, Korea, BAEK-JO KIM, National Institute of Meteorological Research, Korea Meteorological Administration, Seoul 156-720, Korea — We simulate and analyze the dynamical behavior of multifractals in typhoons. A significant and fascinating feature of this behavior is that it provides a proper interpretation for the pattern of typhoon in terms of the numerical values of the generalized dimension and the scaling exponent. For our case, these statistical quantities can be estimated numerically from four meteorological factors (the moving speed, the central pressure, the strong wind radius, and the maximum wind speed) after and before landing typhoon. We perform a computer-simulation from a typhoon data of five years from 2008 to 2012 provided to the Korea Meteorological Administration. The result from the multifractal structure allows us to calculate a definite and reliable fractal dimension. In particular, we find the strengths of multifractal structures from four meteorological factors.

<sup>1</sup>This work was supported by the KMAR and DP under Grant WISE project (153-3100-3133-302-350).

Kyungsik Kim  
Department of Physics, Pukyong National University, Busan 608-737, Korea

Date submitted: 16 Nov 2013

Electronic form version 1.4