

## OA10) Synoptic Mechanism Analysis of Easterly Wind Causing the Swell Wave in the East Sea, Korea

Hyunsu Kim

Severe Storm Research Center, Ewha Womans University

### 1. Introduction

Many types of coastal disasters (e.g. swell, meteo-tsunami) related to long-periodic wave generated by meteorological factors (e.g., wind storms, typhoons) have caused huge property loss and many casualties continuously. According to the Kangwon Provincial Meteorological Administration, approximately 20-40 times of swell occurred annually in the east coast of Gangwon Province during the last three years ('14-'16), and 5.5 casualties per year occurred normally. Therefore, it can be said that the swell wave is a representative coastal disaster with the necessity for research on the mechanism of its occurrence. However, the study of marine long wave occurrence and disaster reduction has been mainly dealt with due to the natural disasters caused by marine phenomena (e.g. waves) rather than atmospheric phenomena. This study, unlike previous studies, focuses on what kind of synoptic meteorological mechanism causes the wind, which is a direct cause of swell wave generation.

### 2. Data and Methods

It is known that most of the swell waves in Korea are concentrated on the east coast of Gangwon Province and the swell waves in the east coast are caused by the strong wind winds. Therefore, to investigate synoptic meteorological mechanism of strong easterly wind, this study has selected major accident events caused by swell over the last 10 years. Numerical weather modelling using the Weather Research and Forecast (WRF) was also carried out on February 23-25, 2008, when 15 persons were killed and 15 people were injured.

### 3. Results

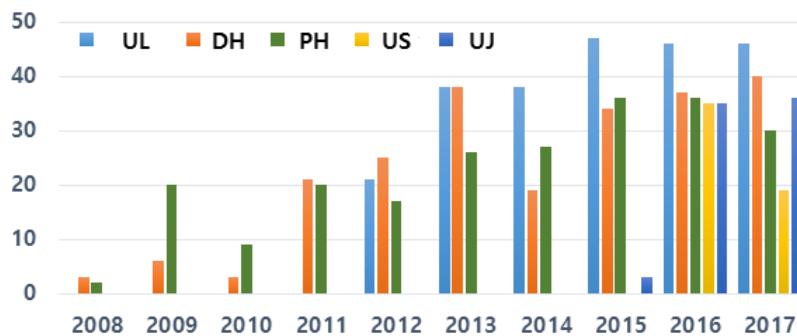


Fig. 1. Number of swell observed in buoys during 10 years.

### 4. References

- Ha, T., Heo, K. Y., Jeon, J. S., Kang, S., 2017, Numerical Modelling of large swell waves using different atmospheric reanalysis data in East Sea, *Journal of Coastal Research*, Special Issue 79, 164-168.
- Oh, S. H., Jeong, W. M., Lee, D. Y., Kim S. I., 2010, Analysis of the reason for occurrence of large-height swell-like waves in the east coast of Korea, *Journal of Korean Society of Coastal and Ocean Engineers*, 22(2), 101-111.