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Corresponding Author : Mr. SungHyun Nam (namsh@ocean.snu.ac.kr)

Organization: Seoul National University

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Title: Coastal ocean response to the passage of the typhoon MAEMI across the East (Japan) Sea

Abstract:

An East Sea Real-time Ocean Buoy (ESROB) measured abrupt changes in oceanographic as well as meteorological parameters during the passage of typhoon MAEMI. The minimum air pressure of 980 hPa and maximum wind speed of 20 m/s (with gust of 25 m/s) were observed at the ESROB. The eye of MAEMI was located within 100 km from the ESROB at 04:00 a.m. (KST) on September 13, 2003. The wave height reached the maximum of 9 m and the significant wave height of 4 m at 04:00 a.m. 1 hour after the eye passed the closest point to the ESROB. From Synthetic Aperture Radar (SAR) images taken over the East Sea about 19 hours later (at 10:10 a.m. on September 13, 2003), we can observe normal wind fields, indicating the absence of typhoon influence at the ESROB site. The currents observed near the surface increased after the typhoon eye passed and reached up to about 100 cm/s at 01:00 p.m. on September 13, 2003, about 10 hours after the passage of the eye. Upper layer thickness which was accompanied by strong southwesterly current, gradually increased from 20 m to 40 m during the 10 hours. A simple two-layer model for the coastal ocean response to impulsive alongshore wind over uniform bottom slope by Csanady (1984), shows reasonable estimates of alongshore and offshore currents and interfacial displacement for the condition of the typhoon 'MAEMI' at the ESROB site during the 10 hours. Reference Csanady, 1984. Circulation in the coastal ocean. D. Reidel publishing company.

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Co-Authors

No.	Title	First Name	Family Name	Organization
1	Dr.	D. J.	Kim	SEES, Seoul National University, Seoul, Korea
2	Dr.	J.-Y.	Yun	SEES, Seoul National University, Seoul, Korea
3	Dr.	W. M.	Moon	SEES, Seoul National University, Seoul, Korea / Geophysics, University of Manitoba
4	Dr.	K.	Kim	SEES, Seoul National University, Seoul, Korea