



Recent Extreme Marine Events at Southern Coast of Black Sea

Gulizar Ozyurt Tarakcioglu (1), Ahmet Cevdet Yalciner (1), Cagil Kirezci (1), Cuneyt Baykal (1), Hasan Gokhan Guler (1), Onur Erol (1), Andrey Zaytsev (2,3), and Andrey Kurkin (3)

(1) METU, Dept. of Civil Engineering, Ocean Engineering Research Center, Ankara, Turkey (gulizar@metu.edu.tr, yalciner@metu.edu.tr, goguler@metu.edu.tr, gokhann@gmail.com, onrerol@gmail.com), (2) Special Research Bureau for Automation of Marine Researches, Far Eastern Branch of Russian Academy of Sciences 693013 Russia Uzhno-Sakhalinsk (aizaytsev@mail.ru), (3) Department of Applied Mathematics, Nizhny Novgorod State Technical University n.a. R.E.Alekseeva, 24 Minin street, 603950 Nizhny Novgorod, Russia (aakurkin@gmail.com)

The utilization at the coastal areas of Black Sea basin has increased in the recent years with the projects such as large commercial ports, international transportation hubs, gas and petrol pipelines, touristic and recreational infrastructures both along surrounding shoreline. Although Black Sea is a closed basin, extreme storms and storm surges have also been observed with an increasing frequency in the recent years. Among those events, February 1999, March 2013 and September 2014 storms impacted Southern coast of Black sea have clearly shown that the increasing economic value at the coastal areas caused the increasing cost of damages and loss of property by natural hazards. The storm occurred on February 19-20, 1999 is one of the most destructive storm in the last decades. The 1999 event (1999 Southern Black sea storm) caused destruction at all harbors and coastal protection structures along the Black Sea coast of Turkey. The complete damage of the breakwater of Giresun Harbor and damage on the harbor structures and cargo handling equipment were the major impacts of the 1999 Southern Black sea storm. Similar coastal impact have also been observed during the September 24, 2014 storm at 500m East of Giresun harbor. Although there are considerable number of destructive storms observed at southern coast of Black sea recently, data on these events are limited and vastly scattered. In this study the list of recent extreme marine events at South coast of the Black sea compiled and related data such as wind speed, wave height, period, and type of damages are cataloged. Particular attention is focused on the 1999 and 2014 storm events. The meteorological and morphological characteristics which may be considered as the reasons of the generation and coastal amplification of these storms are discussed.

ACKNOWLEDGEMENTS: This study is partly supported by Turkish Russian Joint Research Grant Program by TUBITAK (Turkey) and RFBR (Russia), and TUBITAK 213M534 Research Project.